

Transforming learning at Wilton Playcentre

Nikolien van Wijk, Ainsley Simmonds, Pam Cubey, and Linda Mitchell, with
Rebecca Bulman, Michelle Wilson, and Wilton Playcentre members



NEW ZEALAND COUNCIL FOR EDUCATIONAL RESEARCH

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Wilton Playcentre was fortunate to be chosen as one of six early childhood education centres for inclusion in the Ministry of Education’s Centre of Innovation (COI) project. This is the final research report about Wilton Playcentre’s work as a Centre of Innovation.

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Wilton Playcentre members

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Executive summary

Wilton Playcentre was designated as a Centre of Innovation in 2003. This report focuses on the findings from baseline and final phase data collection, and 2½ years of action research. The research was undertaken by Wilton Playcentre parents, with the assistance of the research associates.

Wilton Playcentre's research questions were to provide an investigation and analysis of:

- pedagogical approaches, especially the use of schemas and Learning and Teaching Stories with their focus on dispositions for learning, and children's learning progressions;
- how Wilton Playcentre maintains continuity and quality across playcentre sessions and between home and playcentre; and
- parent engagement and sustaining a community of learners.

The aspirations for children and four principles of *Te Whāriki* (empowerment, holistic development, family and community, and relationships) form the basis of Wilton Playcentre's philosophy, values, and educational practice. They are equally applicable to parents and children. These aspirations and principles framed our Centre of Innovation project, and are highlighted in this report. Our main pedagogical emphases, schema learning theory, and dispositions for learning, were the focus for analysis of children's learning and learning progression. As the Centre of Innovation project developed, these two aspects were brought together in ways that enriched our understanding and insights. We also examined interactions between children, between adults and children, and between adults, that support, enrich, and extend children's and adults' learning.

We investigated the research questions through five cycles of action research. Baseline and final data collection enabled us to track change over the course of the Centre of Innovation project. The action research was participatory and involved collaborative critique, with most playcentre members having involvement in gathering data, examining and critically discussing it, and planning and acting. Data included much documentation of learning and teaching (Learning and Teaching Stories, observations, ratings of process quality, photographs, video recordings, samples of children's work), questionnaires, interviews, group discussions, and parent reflections recorded in notebooks to find out views and experiences of playcentre parents and the wider playcentre community. In analysing the data, we triangulated evidence from different sources, and drew on our theoretical framework to analyse learning progression for adults and children.

Connecting schemas and learning dispositions

Through the Centre of Innovation project we drew on two different theoretical approaches: schema learning theory derived from developmental psychology, and learning dispositions fostered by a sociocultural approach. Schemas are cognitive structures or forms of thought, indicated by repeatable patterns of behaviour. They commonly progress through several levels from action to abstract thinking. Schemas are part of children’s motivation for learning. We found that children displaying a strong schema interest/s showed a drive to know and experiment across different areas of play and in different contexts.

Carr’s (1998) framework of learning dispositions is “a set of five broadly based behaviours, closely linked to the strands of *Te Whāriki*, within which a topic or activity typically develops as a sequence—to find an interest here (Belonging), to be involved and attentive (Wellbeing), to tackle difficulty and uncertainty (Exploration), to express their ideas (Communication), and to take some responsibility in joint attention episodes with others (Contribution)”. Observations based on this framework are known as Learning Stories. “Each part of a Learning Story has the potential to become a learning habit or ‘disposition’, a combination of knowledge, skill and inclination that sets up expectations and motivations about being a learner that will influence learning in later life” (Carr, 1998, p. i).

We used the two approaches to complement each other, working on the challenge of making connections between schemas and learning dispositions throughout the project, particularly in our approaches to assessment, planning, and evaluation, where we developed common frameworks. Our findings provide evidence that knowing about, carefully observing, and identifying children’s schemas enabled us as parent educators to understand children’s behaviour, support their schematic interests, and so extend their learning. We found associations between schemas and learning dispositions: supporting children’s inner-directed schema interests provides conditions for positive learning dispositions to flourish. Our understanding and insights were enriched when we considered children’s schemas and dispositions together.

Children’s learning, and what contributes to it

Throughout the project, we had a common focus on children’s learning progression and what contributes to it.

Early literacy schematic interests and pedagogy

Our first action research cycle aimed to enhance our provision of a print-saturated environment, and storytelling in which adults made links with children’s experiences and actively encouraged children to join in and contribute ideas about characters, behaviour, and motivation. We also wanted to enhance cognitively challenging interactions, specifically adults asking open-ended questions and adults adding complexity and challenge. Playcentre members collectively agreed on this focus after analysing and discussing ratings from observations of the environment, education programme, and interactions within the playcentre setting. We used the guidelines of the New

Zealand Council for Educational Research/Te Kōhanga Reo National Trust early childhood education quality rating scale as a tool to help us make these ratings.

The main findings were:

- Adding meaningful literacy opportunities enhanced literacy learning experiences for children.
- Open-ended questioning offered opportunities for children to think deeply and come up with their own answers. Adults' encouragement through listening carefully to children and allowing them to take their time, supported children to develop their own ideas.
- Children with strong and persistent schema fascinations clearly show evidence of the schemas in their mark making. Schemas are a direct reflection of children's interests and lead to children engaging in exploring concepts associated with them.
- Children regularly took a leading role in creating continuity across time and space for themselves and others through persistently following their own schema interests at home and playcentre and in the different playcentre sessions. These interests were also sustained through challenging interactions with adults and the literacy opportunities being offered.
- Adults functioning as facilitators and co-learners helped children's interests to remain central within the education programme.

Social aspects of schemas

One parent, Ainsley Simmonds, undertook an action research cycle to investigate social aspects of schemas.

Some schemas being explored at home were found to differ from those explored at playcentre or those explored when in the company of other children.

Other observations indicated that children may explore different schemas depending on whether they are playing on their own or with other children, and whether they are at home or at playcentre.

There was also evidence of children with persisting interests in social concepts such as rescuing.

Children with similar schema fascinations were seen to play together exploring that schema. Observations indicated that children with different schemas played independently of each other, although may play together if their schema-related play is compatible. Ainsley suggested that when children with the same schemas play together, it might be that they have the same early set of mental models and so are able to add to each other's understandings of the schemas. Younger children drawn to older children who have the same schemas might be expected to make larger cognitive advances. Practice implications are that adults, knowing how children contribute to each other's learning, can arrange for groups of children with similar schema interests to play together, can provide a range of opportunities for individual children to pursue their schema interests and choose their own partners in learning, and provide opportunities for younger children to play with older children.

Continuity and progression in children's schemas and dispositions

Five parents undertook case studies of their own children, analysing data from home, playcentre, and other settings where applicable. Each case study shows progression in the children's schema development, and functional dependency ("If I do this then that will happen") and possibly abstract thought occurring at quite young ages, when other writers have found this hard to identify. Hand in hand with the children's determination to explore their schema interests, was seen their dispositions of curiosity, playfulness, being involved, engaging with challenge, perseverance (sometimes in the face of difficulty), expressing an idea or feeling (verbally or non-verbally), and taking some responsibility for their own actions in joint attention episodes with others. These case studies provided evidence of links between schemas and dispositions, and of continuity in schema interests across settings. Adults' knowledge and understanding of schemas was a key factor in enabling adults to appreciate children's interests and provide extra content and possibilities for extension.

Assessment, planning, and evaluation based on schema and learning dispositions

In our fourth action research cycle we revised and trialled assessment, planning, and evaluation forms to bring schemas and learning dispositions into a single usable framework. The new forms were shown to be valuable in leading adults to identify and make plans to assist learning progression and to examine and plan for continuity. The forms could be of value to other practitioners who draw on both these approaches.

Sustaining a community of learners

A range of features supported Wilton Playcentre to operate as a "community of learners" where adults and children learn through their participation with each other in shared endeavours. We found a fit between the idea of participation in a community of learners and schema learning theory that holds that children actively explore their own innate interests. Our knowledge of schema learning theory enabled us to notice, understand, and respond to schema interests. In this way, even pre-verbal children make plain their interests.

The playcentre philosophy which sees adults and children as competent self-directed learners and formal systems of playcentre training, mentoring, and session evaluations contributed to building a community of learners. Our research showed that having a common purpose—to provide and participate in the education of our children—provided the strong base for our community. Informal features also supported parent engagement and sustaining a community of learners. These were:

- adults learning from each other as they participate as members of the session teams;
- informal conversations between adults about children that influence thinking; and
- friendships that endured outside of playcentre.

Adults are encouraged to learn by a culture that takes pedagogy seriously, the many opportunities for informal communication and development of relationships amongst members of the community, and the wisdom of experienced members, including life members, being passed on to newer members. Policies are flexible, enabling account to be taken of members' personal circumstances and any pressures on them. Tasks are shared and members develop a sense of responsibility. These features contribute to learning progression for adults.

Processes and conditions contributing to learning

Processes and conditions that seemed to contribute to learning throughout the Centre of Innovation project included:

- analytic tools—the New Zealand Council for Educational Research/Te Kōhanga Reo National Trust process quality rating scale;
- technological resources—a digital camera, iBook, computer, digital video camera, and printer;
- conditions to support ongoing learning and experimentation; and
- professional and research support.

There were also issues and challenges, including those created by the practicalities of doing the research, the volunteer workload for parents, and the changing membership of the playcentre as old parents left and new parents joined up. Despite issues, the overwhelming view of parents was that the Centre of Innovation experience had been valuable and positive for themselves and their children.

1. Introduction

Wilton Playcentre was chosen as a designated Centre of Innovation¹ (COI) in 2003. It offered itself as a case study of ways in which playcentre children, parents, and whānau work together as a “community of learners”. The playcentre also uses innovative learning and teaching practices, notably schema learning theory, in conjunction with Learning and Teaching Stories.² This report discusses the findings from baseline and final phase data collection, and 2½ years of action research as a Centre of Innovation.

Wilton Playcentre’s research questions were to provide an investigation and analysis of:

- pedagogical approaches, especially the use of schemas and Learning and Teaching Stories, and children’s learning progressions;
- how Wilton Playcentre maintains continuity and quality across playcentre sessions and between home and playcentre; and
- parent engagement and sustaining a community of learners.

We approached the research on the premise that the playcentre model itself is a unique innovation that fits well with the description of “community of learners”. Playcentres operate as parent co-operatives. They are designed to create opportunities for parents and children to share early childhood education experiences together and to create adult learning opportunities for the parents, too. Parents organise and supervise their playcentre, and attend courses and seminars to learn more about how children learn, and how adults can assist. They:

... become more competent as planners, committee members and community workers. Many parents find Playcentre experience can be a training for later employment outside the home.

¹ Centres of Innovation are aimed at showcasing “excellence and innovation” in early childhood education. A governmental vision is that “Centres of Innovation foster research and development in the ECE sector and reflect New Zealand’s heritage of ingenuity and innovation. The centres capitalise on the experiences of those most likely to produce the best ideas—the people working in ECE services. The programme sees ECE teachers combining their skills with the complementary skills of researchers. Their resulting work means innovation is quantified and tested before being captured in a format suitable for replication throughout the sector. The regular change in the research cycle allows the exploration, documentation and sharing of a diverse range of skills and practices that continues to extend the effectiveness of teaching and learning” (Crown, 2002, p.15).

² A Learning Story is “a documented account of a child’s learning event, structured around five key behaviours: taking an interest, being involved, persisting with difficulty, expressing a point of view or feeling, and taking responsibility (or taking another point of view)... A Teaching Story, on the other hand, is about evaluating practice” (Carr et al., 2000).

... A Playcentre becomes a community of families working together for mutual support and friendship. It fosters a better understanding of a most important job—parenthood (Somerset, 1986, p.11) .

It is clear that Somerset believed playcentre was about children and families working together as a community of learners, for the benefit of all the people involved, not just the children.

Although playcentres have much in common, they also reflect the communities in which they are located. Their traditions and practices vary, from centre to centre and across the regional associations as well (Mitchell et al., 2004; Stover, 2003). Our findings focus on what works for Wilton Playcentre.

However, we expect others working in early childhood education centres will gain useful insights from considering the value of focusing on children’s schema interests and dispositions, and the tools and processes that we found to be useful in extending learning. In addition, some specific issues may be of particular interest to other playcentres. Continuity in opportunities for children’s learning and developing competence is important in those playcentres where different teams of parents are responsible for the different sessions. In these situations there may be no one adult, or set of adults, who attends all sessions. As well, the ongoing turnover of parents and children makes it necessary for new leadership to be continually supported and encouraged. We highlight how Wilton Playcentre children and adults contribute to continuity and quality in learning.

Report structure

Chapter 2 outlines the methodological approach. This included baseline and final data collection that enabled us to track change over the course of the Centre of Innovation journey, and five main spirals of action research to investigate the research questions. The project drew on the action research framework of Kemmis and McTaggart (2005) whose emphasis is on ways in which action research is participatory and practical, involves collaborative critique, and is reflexive—“aiming to help people investigate reality in order to change it” (Kemmis & McTaggart, 2005, p. 567).

Chapters 3, 4, 5, 6, and 7 are centrally concerned with children’s learning, and what supports it. Chapter 3 outlines the theoretical foundations for schema learning theory, and dispositions. These were the main pedagogical emphases of our work.

Chapter 4 discusses findings from our first action research cycle on enhancing literacy experiences (mark making, using symbols, writing, reading, and storytelling) and cognitively challenging adult–child interactions. The focus for this action research cycle arose from playcentre members’ critical examination of baseline data and their decisions that these aspects could be strengthened. Analysis shows matches between literacy actions and children’s schemas, and progression in children’s schemas and dispositions. It is suggested that both adults and children create continuity: adults through planning and extending children’s interests, and children through their own schema interests.

One parent, Ainsley Simmonds, undertook research investigating social aspects of schema learning for Course 4 of her playcentre training. This is reported in Chapter 5.

Five parents contributed case studies of their own children for Chapter 6. These highlight three areas:

- children’s schema interests and dispositions and their linkages;
- interactions amongst adults and children, children’s experiences, and learning progression; and
- adult learning.

“Spotting schemas” is portrayed as a first step in adults noticing and recognising. Then they are in a position to respond positively to children’s schema interests and so extend them.

Chapter 7 is intended to contribute to the growing body of knowledge on assessment, planning, and evaluation. Interest in these processes emerged from the baseline data analysis where it became evident that assessment, planning, and evaluation were somewhat disconnected. The chapter reports on the development and trialling of an assessment and planning framework, and a session evaluation framework, that bring together dispositions and schema learning.

In Chapter 8 we compare baseline and final phase data collection and discuss changes in quality and continuity over the course of the Centre of Innovation project.

Chapter 9 is about Wilton Playcentre as a community of learners. We examine theoretical alignments between *Te Whāriki*, communities of learners, and playcentre philosophy. We then discuss evidence on how Wilton Playcentre engages parents in their children’s early childhood education, and what sustains a community of learners for adults as well as children.

Chapter 10 analyses processes and resources that seemed to contribute to progression for adults and children. These included analytical tools (e.g. the New Zealand Council for Educational Research/Te Kōhanga Reo National Trust process quality rating scale), technological support (e.g. use of the iBook), setting priorities to make children’s learning a focus and enabling this to happen by paying for some administrative and cleaning support, and professional and research support. We also highlight some difficulties we had.

The Conclusion (Chapter 11) discusses key themes from the research, implications, and suggestions for future research.

2. Methodology

This chapter describes the methodological approaches to investigation, primarily the use of participatory action research methods that mirrored how the playcentre itself operates as a co-operative and community of learners. We also highlight the “GAP analysis” approach taken to help us examine data and determine actions. The process of data collection is described and ethical considerations are discussed.

Research questions

Wilton Playcentre’s research questions are to provide an investigation and analysis of:

- pedagogical approaches, especially the use of schemas and Learning and Teaching Stories, and children’s learning progressions;
- how Wilton Playcentre maintains continuity and quality across playcentre sessions and between home and playcentre; and
- parent engagement and sustaining a community of learners.

Approaches to investigation

The research questions were addressed through baseline data collection gathered from November to December 2003, final data collection gathered from November to December 2005, and ongoing cycles of action research and analysis.

Baseline and final data collection

In order to gauge change over the course of the Centre of Innovation project, and to gather information on playcentre members’ views, we gathered the following information at baseline and final phases:

- documentation on how Wilton Playcentre operates;
- ratings of process quality at Wilton Playcentre;
- a survey of Wilton Playcentre members to obtain a profile, and a group interview of parents to identify their philosophy and values for the education of their children as well as what being involved in Wilton Playcentre has meant to them;
- interviews with team leaders, and past and current education officers; and
- interviews with Wellington Playcentre Association and the New Zealand Playcentre Federation representatives.

Apart from the process quality rating scale, the instruments are available on request from Wilton Playcentre or NZCER. The process quality rating scale is attached as Appendix D.³

Action research

Action research involves finding a focus, data gathering, analysis and critical reflection, taking action, further data gathering, evaluating, refining the focus, and so on. We regarded our action research approach as having elements in common with “participatory action research” (Kemmis & McTaggart, 2005). It engaged parents and research associates within the Wilton Playcentre community of practice in examining their practice, knowledge, and understanding; was practical and collaborative, taking place within the playcentre setting and including parents, children, and research associates; involved critique undertaken in a highly collaborative way; and it was “reflexive”, “aiming to help [parents] investigate reality in order to change it” (p. 567). The baseline report, *Wilton Playcentre: A journey of discovery* (Mitchell et al., 2004), described how the principle of collaboration extended to the relationship between research associates and playcentre parents, and the processes we followed for providing opportunity for all parents to contribute to the research.

In planning action research cycles we made use of an approach termed “GAP analysis”. This involved four steps:

- playcentre members discussing what they would like to see happening in the future in relation to the aims and goals of their area of investigation;
- taking a stocktake of the situation as it was then, and being honest in this process. This stocktake involved discussion of data collected in the playcentre;
- assessing the gap between the present and the future and discussing what things have to happen to bridge the gap; and
- deciding on specific action steps.

The analysis was facilitated by one of the research associates who ensured that members did not move too quickly into deciding action before undertaking the first three steps. She also kept members focused.

³ The process quality rating scale was used to analyse aspects of interactions and the environment that support children’s learning. The rating scale was first developed in the Competent Children study and used in the Evaluation of the Initial Impact and Use of Equity Funding study. The scale was further developed for the Quality in Parent/Whānau-led Services study and the Locality-based Evaluation of Pathways to the Future—Ngā Huarahi Arataki study after observation and videotaping in a playcentre in March 2004, and then in a kōhanga reo and playgroup. Rating scale items were developed in relation to existing research on the aspects of ECE practice that benefit children or that reflect values of New Zealand society. Use of the rating scale involved one of the research associates and a playcentre member/s making observations of playcentre activities, environment, and interactions for the entire length of each of the four sessions, rating each item, and comparing ratings to come to agreement. The research associates were very experienced in its use and trained playcentre members to use it.

We undertook five main action research cycles, each including spirals of selecting a topic, collecting data, reflecting, planning, and acting, collecting data etc.

1: Literacy and cognitively challenging interactions (early 2004)

We decided on the first action research cycle and made specific plans for it after analysis and discussion of ratings of process quality and parent questionnaires collected during the baseline phase. The aspects of quality where parents wanted to make improvements were cognitively challenging interactions and children's early writing and print experiences. We agreed on the following goals for this cycle:

- The centre will provide a print-saturated environment.
- Adults will take advantage of many opportunities to interact with children using appropriate open-ended questions to extend children's thinking.
- Parents will continue to identify, enrich, and extend children's schema interests and look for clues to schemas in their early writing and mark making.
- Parents will evaluate how the use of open-ended questions helps their understanding of children's thinking and learning.
- Parents will aim to find ways to write narrative Learning Stories in a manageable way:

This will also allow us to build on what we are already good at—quality interactions and a positive learning environment.

The actions undertaken for achieving the first four goals are described in Chapter 4, where findings from this cycle are discussed. The following data were collected to evaluate this cycle: “before” and “after” photographs of the environment; teaching and Learning Stories; documentation of children's schema interests and mark making; parents' responses to the above data; and further ratings of process quality. The goal “writing narrative Learning Stories in a manageable way” is discussed in Chapter 6.

The cycle provided evidence about all three of our research questions, but we also identified aspects where further work was needed.

2: Assessment and evaluation frameworks focused on schemas and dispositions (late 2004–mid 2005)

Our analysis of the baseline data showed that the assessment and planning processes, and the session evaluation processes could be strengthened to provide a more coherent and stronger emphasis on dispositions and schemas. For some time prior to the Centre of Innovation project we had used teaching and Learning Stories in assessment, planning, and evaluation, and separately gathered evidence about children's schema interests. Gill Poplur's (2004) study of the use of schemas in New Zealand early childhood education services found that Learning Stories are rarely used alongside the identification and interpretation of children's schema interests. Poplur believes that whereas schemas are helpful in illuminating and interpreting children's inner-directed thinking, Learning Stories, with their basis of children's dispositions, rarely do so.

As well, we tended to collect a lot of information, but not always make use of it to understand children's learning and plan for facilitating it to become broader, deeper, and/or more complex.

The aims of this action research cycle were to develop an effective approach, based on *Te Whāriki*, to linking schemas and dispositions in our observations of children. The purpose was to further our understanding of children's thinking and learning.

We developed and trialled a new assessment and planning form, and a new session evaluation form. Data included records of focus group discussions with teams who were using the two new forms, further revisions of the formats, and further focus group discussions after more trialling. The new forms and their value are discussed in Chapter 7.

3: Analysis of learning progression and what supports it (2005)

When we discussed our first action research cycle and looked at the data we had collected for it, we became aware that we had tended to focus on describing children's schema interests and dispositions but had done little analysis of children's learning progressions, and what seems to support them. In order to examine learning progression, five parents volunteered to do case studies of their own children over two terms. Teaching and Learning Stories, photographs, and documentation were collected both at playcentre and at home on children's schemas and dispositions, as well as in some other contexts (crèche, other people's homes).

The parents and research associates developed guidelines of "what to look out for" in analysing the data on each child, as follows:

Continuity

- continuity of ideas children are exploring in their play; and
- continuity of the environment in which children explore ideas (experiences and materials, adults and their behaviour, routines and information, and adults and their knowledge).

Interactions and experiences

- adults using language that enhances children's understanding of their schema interests (e.g. labelling "inside the pot" for containment schema);
- interesting and stimulating experiences which extend thinking along that path associated with those schema interests;
- materials and resources;
- children asking questions—how adults respond;
- children co-constructing learning with children and with adults; and
- adults asking open-ended questions, adding complexity and challenge, and responding to children.

Progression

- progression of schematic interests, using the following levels: actions, symbolic representation, functional dependency, abstract thinking (Meade with Cubey, 1995). Parents considered the following question: "How did the progressions seem to happen—what was

going on in the context, e.g. interactions that scaffolded learning or involved co-construction?”;

- progression in dispositions (finding an interest, being involved, persisting in the face of difficulty, expressing an idea or point of view, and taking responsibility); and
- any links between exploring schema interests and dispositions.

4. Community of learners (2005)

The data gathered during the baseline phase provided useful evidence about Wilton Playcentre’s philosophy and how it operates as a “community of learners”. As parents, we had relationships with each other outside playcentre sessions, and thought that the informal talk and connections that occurred then also helped sustain our community of learners. In order to find out more about these informal connections, eight parents kept notebooks, recording examples of sharing information at the beginning and end of sessions, interactions occurring between parents and children outside of playcentre sessions in home and community settings, and the parents’ own learning and thinking. The notebooks were kept for a period of two terms. Data from parent surveys and group discussion collected at the end of the Centre of Innovation project were also pertinent to our questions about sustaining a community of learners.

5. Social aspects of schema interests

This is a study by a Wilton Playcentre parent, Ainsley Simmonds, for Course 4 of her playcentre training. It is included and summarised in this report. Ainsley enlisted the help of some of the playcentre parents in gathering information about their children’s schematic interests.

The research aim was initially to examine three children with known schema interests, to extend them, and then to consider the outcome. Because the trends emerging from the data raised interesting questions about social aspects of schemas, Ainsley enlarged the sample size to seven children, and collected data from a wider variety of sources.

Video recordings and Learning and Teaching Stories were collected over a 3-month period, recording play at playcentre and in the children’s homes. This data was supplemented by observations made by playcentre teams over the past year. As well, parents watched the children in their homes and passed on anecdotal descriptions of play, made records of play over two 4-week periods, collected the children’s work, and brought along information to our session meetings held once a term when information about what children are interested in at the time is shared.

Summary of action research cycles

Table 1 summarises the action research cycles, data collected, and analysis.

Table 1 **Summary of action research cycles, data collection, and analysis**

Action research cycle aim	Data	Analysis
Enhancing literacy experiences and cognitively challenging interactions	Photographs, teaching and Learning Stories, parent observational records, and examples of children's work demonstrating their schema interests	Children's schema interests, ways in which adults extended learning, adults' and children's roles in providing continuity
Modifying and trialling the assessment and evaluation forms used in the playcentre to bring a focus on schemas and dispositions into a single format	Early and modified forms, team members' discussion of value of new forms	Themes in team members' views of the forms and their usefulness
Undertaking case studies of five children at home and playcentre to gain evidence of schema interests, dispositions, and learning progression	Teaching and Learning Stories, observational records of schema interests, photographs, parent comments	Progression and continuity in schemas and dispositions, how and what interactions and experiences seem to foster continuity and progression
Examining how Wilton Playcentre builds a community of learners	Parent values discussion, interviews, questionnaires, parents noting informal contacts with each other and what was discussed/done, child observations and documentation	Parent values and parent and child actions/practices that contribute to a learning community, and progression over the course of the project
Studying the social aspects of schemas of seven children	Teaching and Learning Stories, parents' anecdotal records of children at home, video recordings	Friendships and connections between children with similar schemas, schemas about social concepts

Ethics approval

A lot of time was spent discussing ethical considerations before applying for ethics approval. We were aware that as Wilton Playcentre is a Centre of Innovation, participants could not be guaranteed anonymity and needed to give consent or decline, with an understanding of the implications of doing this. One consent form was for permission from families and whānau for observations, for video and audio tapes, and for children's work to be included in the project. We thought it was important to provide families with the option of giving consent for each individual item and purpose, as some families could be happy about one purpose but not another. All parents consented to have items collected but some wanted to be asked permission for use of each and every individual item. The second consent form was for Wilton Playcentre parents and whānau, Wellington Playcentre Association, and New Zealand Playcentre Federation members to be

interviewed. The information sheet and consent forms were given to families prior to any data collection about their child or interviews with them. All interviewees were given a copy of the interview schedule before the interview took place. The research was conducted in line with NZCER's Statement of Ethics and overseen by its Ethics Committee.

3. The theoretical framework: schemas and dispositions

This chapter sets the context for the following four chapters.

Our main pedagogical emphases are schema learning theory and the Learning and Teaching Stories framework with its focus on dispositions for learning. In this chapter we draw on the work of leaders in these fields and the research literature that demonstrates the links between adult interactions, enriching experiences, and children's learning. The role of adults and children in contributing to continuity and progression in children's learning is highlighted.

The pedagogical approaches at Wilton Playcentre are based on *Te Whāriki*, the aspirations statement and principles of which fit comfortably with playcentre philosophy and values.

The aspirations for children in *Te Whāriki* are that they will:

. . . grow up as competent and confident learners and communicators, healthy in mind, body and spirit, secure in their sense of belonging and in the knowledge that they make a valued contribution to society (Ministry of Education, 1996, p. 9).

The four principles below set the scene for this to happen:

- **Empowerment:** The early childhood curriculum empowers the child to grow and learn;
- **Holistic Development:** The early childhood curriculum reflects the holistic way children learn and grow;
- **Family and Community:** The wider world of family and community is an integral part of the early childhood curriculum;
- **Relationships:** Children learn through responsive and reciprocal relationships with people, places and things (Ministry of Education, 1996, p.14).

We have found that *Te Whāriki's* aspirations for children and the principles are equally applicable to the parent educators at Wilton Playcentre.

One of the reasons why our playcentre was chosen as a Centre of Innovation was that parent educators were already using schema learning theory to help identify children's interests. Schemas had been introduced to the playcentre about 4 years previously in the form of professional development. Parents had embraced the theory enthusiastically and since then kept it alive in their practice. They were also familiar with Learning Stories.

As the COI project developed we aimed to bring our knowledge of schemas and dispositions together more effectively, to become more confident and competent in spotting behaviours that

signal a fascination with particular schemas, and in supporting and enriching them to help children's thinking and learning. This led us to think more deeply about continuity and progression in children's learning and to find better ways to document observations, assess learning, and evaluate and plan the programme.

Schema learning theory

In her seminal research study, Chris Athey, who has been studying schemas of action and thought in young children for 36 years, revealed how educators have it “within their power to develop more powerful diagnostic skills and become more conscious of their educational practices and the theories that inform them” (Athey, 1990, p.8).

This is what the parent–educators have endeavoured to do at Wilton Playcentre.

What are schemas?

Athey defined schemas as “patterns of repeatable behaviours into which experiences are assimilated and that are gradually co-ordinated. Co-ordinations lead to a higher level and more powerful schemas” (1990, p. 37).

She quotes Piaget: “Children do not just learn directly from aspects of the environment ... they learn by assimilating material, ideas, and situations in the world into inner schemes and concepts” (Piaget, 1953, p.384).

“Schemas and concepts are forms of understanding brought to bear on bits and pieces of the world” (Athey, 2004, p. 2).

Cathy Nutbrown calls schemas “the core of young children's developing minds”. When children are working on understanding a particular schema there are visible patterns in the children's behaviour which have “threads of thinking” running through them (Nutbrown, 1994, p.35).

Tina Bruce states: “Children's schemas seem to make children alert to certain events and properties of objects in their environment. Schemas seem to be part of their motivation for learning, their insatiable drive to move, represent, discuss, question and find out. Children seem to make clear choices in their play, taking from the environment the elements that make sense to them and match their schemas at the time” (Bruce, 1997, p.123).

[Schemas] are biologically determined patterns in the way children behave and help adults to understand ... and relate to children more easily, enjoy their company more, as well as helping the children to learn in deep and thorough ways (Bruce, 1997, p. 65).

Anne Meade sees schemas as:

... pieces of thought... not like the pieces of a jigsaw, because they don't fit in only one place. Perhaps the best metaphor is that schemas are like pieces of Lego which can be fitted into lots of different structures—in this instance, the structures... [are] cognitive structures. (A. Meade, 1995, p.2).

In their Froebel research project, Athey and Bruce gave labels to describe these repeated patterns of behaviour. Others have extended the list.

Examples of common schemas that will be illustrated in later chapters are:

- Trajectory: one of the most basic schemas already identified. It is about straight lines up and down or across, seen in drawing, building, or moving things or one's body in lines;
- Enveloping: objects, space, or the child herself are completely covered with materials, paint, clothing (often observed hand in hand with enclosure); and
- Rotation: an interest in all things that turn, wheels, taps, rolling, twirling one's own body.

There are many more. Appendix A gives examples of a wider range of schemas.

Nutbrown (1994, p.20) says the labels we give schemas are a kind of professional shorthand and are really only a way of labelling consistent patterns of action. They help us to describe in more detail the way in which a child is approaching and following through a self-initiated task. This helps us to understand children's play better and provide appropriately for each individual.

When children's actions are observed with schemas rather than simple content in mind it becomes possible to interpret children's approaches to learning differently. It is through schemas and the fitting of content to different schematic threads that children's own constructions of reality and subsequent continuity can be identified. Looking at learning in this way can be a little like unlocking a door, shining a light on previously darkened areas, seeing anew (Nutbrown, 1994, p.36).

Athey (1990) showed that these repeatable patterns are shown:

- Through actions—we call this “sensory–motor” exploration.
- Through using something to stand for another—we call this “symbolic representation” through actions, mark making and other graphic ways, or speech.
- Through understanding cause and effect, that is, “if I do this, then that will happen”, and association, that is, “this connects with that”—we call this “functional dependency”.
- Through being able to think about people and objects in action without needing the objects to manipulate or a situational reminder of the original experience—we call this “thought”.

The above may be seen as a progression in “coming to know”.

Two principal observable ways younger children “come to know” are by exploring through actions and using symbolic representation (Meade, with Cubey, 1995, p.3)

Athey (1990) distinguished between two aspects of symbolic representation:

1. Static or figural representation which appears to have links with early perception. Athey included drawings, block building, and clay constructions as examples. She found 24 representations, distinguishable from each other and divided them into straight lines and curves and subdivided them into 11 space orders, e.g. proximity, ordering.
2. Dynamic representation that stems from actions. She identified eight distinguishable categories of action schemas which moved from motor action to abstract thought.

Athey found there were relatively few instances of abstract thought but saw schemas of particular interest because, in relation to every child, thought-level observations consisted of internalisations of earlier schematic concerns.

Careful observation can lead to this progression becoming more visible and better documented to aid planning for further learning.

When considering children's schema thinking, Athey makes an important distinction between what she calls "form" and "content". A schema is a cognitive structure, a spontaneous "form" of thought and "content" is the thing or experience in the environmental provision which has been assimilated to that "form" (1990, p. 28). An important role of the teacher is to feed spontaneous structures ["form"] with "content" (p. 41). When the Froebel project adults helped to extend the range of objects that shared a common property, by naming, they were fleshing out "form" [schema] by extending "content". It is doubtful if "content" has a developmental sequence because it is subject to individual first-hand experience (p. 103).

Bruce likened the dynamic aspect of a schema to a video film linking thoughts together:

When six-year-old Koor spins around and says 'I'm mixing a cake'—this is the dynamic side of the schema (Bruce, 1997, p. 70).

The static aspect of a schema is like a still photograph which stands alone.

When Danella (four years) draws with circular scribble and points out a tangled ball of wool on the floor and says 'It's the string' this is the figurative aspect of schema (Bruce, 1997, p. 70).

Nutbrown provides examples of how "forms" of thought (schemas) once identified can be nourished with worthwhile "content".

For example, if a child is focusing on a particular schema related to roundness we would say that child is working on a circular schema. The form is 'roundness' and the content can be anything that extends this form: wheels, rotating machinery, rolling a ball, the spinning of planets (Nutbrown, 1994, p. 12).

Bruce believed that schemas are part of being human: the biological and sociocultural paths of development and learning.

A baby is born with a repertoire of schemas which are biologically predetermined and which, as they mature, integrate and transform into ever more complex and sophisticated forms. The socio-cultural aspects of schemas are to do with the way that experience, as opposed to biological maturation, influences the development of schemas throughout childhood and also through our adult lives. Because the two are in a perpetual state of interaction, each influences the other causing changes, modifications and transformations (Bruce, 1997, p. 68).

Focusing on the “content” at the expense of “form” can lead to the conclusion that young children “flit” from one theme [or content] to another and that they are unsystematic (p. 83).

We may describe them as “flitters” but they may be “fitters” fitting various kinds of content into one schema. Meade has said that rather than thinking of them as butterflies we could see them as honey bees moving from flower to flower, gathering nectar to build something of value (Meade, with Cubey, 1995, p. 18).

If schemas are not included in adults’ thinking about children’s interests, teachers may miss the boat. Learning Stories focus more on content than form, whereas both content and form are important in schema learning theory. Schemas provide a better chance to make cognitive connections. Schemas reveal an inner drive to move, represent, discuss, question, and find out.

Meade, with Cubey found that teachers often needed more content knowledge themselves in order to be able to help children move to “higher levels of intellectual development involving abstract thought”... “At higher levels of schema development this has to involve discussion” [between child and adult] (1995, p. 68).

What are dispositions?

There are two overarching children’s learning outcomes seen in *Te Whāriki*. One is when children’s knowledge, skills, and attitudes come together to form working theories about themselves and people, places, and things in their lives. The other is when knowledge, skills, and attitudes combine as dispositions—“habits of mind” or “patterns of learning” (Ministry of Education, 1996, p. 44).

Margaret Carr (1998) developed a framework of learning dispositions about the self as a learner and linked them to the strands of *Te Whāriki*. The framework nested the second idea (dispositions) into the first (working theories). It looked for children’s emerging working theories about what it is to be a learner and about themselves as learners (p. 17).

This framework is ‘a set of five broadly based behaviours, closely linked to the five strands of *Te Whāriki*, which within a topic or activity typically develops as a sequence—to find an interest here (Belonging), to be involved and attentive (Wellbeing), to tackle difficulty and uncertainty (Exploration), to express their ideas (Communication), and to take some responsibility in joint attention episodes with others (Contribution)’. Observations based on this framework are known as Learning Stories. ‘Each part of a Learning Story has the

potential to become a learning habit or ‘disposition’, a combination of knowledge, skill and inclination that sets up expectations and motivations about being a learner that will influence learning in later life (Carr, 1998, p. i).

Katz separates out dispositions from knowledge, skills, and feelings and writes that “Dispositions are a very different type of learning from skills and knowledge. They can be thought of as habits of mind, tendencies to respond to situations in certain ways. Curiosity is a disposition. It is not a skill. It is not a piece of knowledge. It’s a tendency to respond to your experience in a certain way.” Carr, however, feels there are arguments for keeping dispositions and knowledge, skills, and attitudes closely aligned (Katz, 1993, cited in Carr, 1998, pp. 19–20).

In her recent MEd thesis (Poplur, 2004), *Early Childhood Teachers’ Use of Schemas in Practice*, Gill Poplur maintains that combining Learning Stories, the most widespread approach to assessing young children’s learning in New Zealand, with the identification and interpretation of schemas is rare. She believes that Learning and Teaching Stories with their basis of children’s dispositions for learning do not have the means to interpret children’s thinking processes whereas schemas are very helpful in illuminating children’s inner-directed learning.

Meade (in a personal communication) said:

The children’s question in the Learning [and Teaching] Stories framework about ‘What is of interest here?’ (and at least some of the other ‘child’s voice questions’) is generally perceived to be about children’s interest in people, places or things. However, schemas are not related necessarily to people, places or things because they are threads or pieces of thought that are worked on across places or things.

Poplur suggests that instead of the two approaches being viewed separately a combination is attainable: “Schema theory using patterns of thinking is compatible with and complementary to, and could holistically expand the conception of ‘Learning and Teaching Stories’” (Poplur, 2004, p. 124). She believes that schemas are helpful in illuminating children’s inner-directed learning while Learning Stories illuminate children’s dispositions or attitudes to learning.

[So if] initial observations of children’s patterns of thinking [schemas] were conducted inside ‘Learning and Teaching Stories’, New Zealand early childhood teachers would have the beginnings of a research-based framework for studying early childhood children’s thinking processes (Poplur, 2004, p. 125).

At Wilton Playcentre we are using our understanding of both dispositions and schemas to deepen our provision for children’s thinking and learning.⁴ We see schemas as a theoretical nesting box for nurturing dispositions and planning for learning. When we provide for children’s learning and support their explorations and passions, we create the conditions in which dispositions can develop and thrive. This is a challenge that we have worked on in this project.

⁴ We are supported in this by Katz, Meade, and Poplur, above, and the educational beliefs of Athey (1990, p. 33), Bruce (1997, pp. 65, 67, 75, 76), Nutbrown (1994), and Whalley and the Pen Green Centre Team (2001).

At Pen Green Centre for Under 5's and their Families, staff also use a dual approach when observing and assessing children's thinking and learning: schemas and Laevers' (1997) Involvement and Wellbeing scales, not unlike elements of *Te Whāriki* dispositions.

At Wilton Playcentre, through the course of the COI project, we developed a chart (Appendix B) which identifies links and similarities between the strands of *Te Whāriki*, schemas, dispositions, the child's voice questions, and the Laevers' scales. We use parts of this chart in the guidelines that accompany our Learning and Teaching Stories forms.

There are several similarities between schemas and dispositions which show they are not incompatible:

- they are credit, not deficit models;
- they are about the "child in action";
- they reflect the strands of *Te Whāriki*;
- we look for children's involvement and/or persistence with difficulty to help us identify their interests and enrich and extend their learning;
- both require a high-quality curriculum where children are free to make their own choices and with knowledgeable adults who interact with them respectfully, reciprocally, and responsively.

Both approaches can help children progress in their learning and development but from different viewpoints.

Poplur writes: "Though studying children's schemas is merely one way of interpreting children's thinking, it is a way that enables early childhood teachers to address children's thinking processes, an area not yet addressed by any other method. The track record of this approach deserves serious reflection on its potential for use by early childhood teachers" (2004, p. 22).

One of the reasons why it would be unhelpful only to use schemas in looking at the development and learning of young children is that every theory has its range. It is important to look at the fitness of purpose of any theory and to draw on theories that complement each other and have some philosophical cohesion. This is very different from having an eclectic approach where bits and bobs of different theories are taken in isolated, unconnected ways. This leads to inconsistency, confusion and practice which constantly contradicts itself (Bruce, 1997, pp. 75–76).

Nutbrown (1994, p. 25) and Hatherly and Sands (2002, pp.11–12) also believe it is important not to focus exclusively on one approach. This is a challenge that we have worked on in the last 3 years.

Links between adult interactions, enriching experiences, and children’s learning

The work of many researchers⁵ notes the links between adult interactions, enriching experiences, and children’s learning.

Important factors include:

- the need for careful observation and reflection so that adults can identify, value, and be in tune with children’s interests and passions;
- partnership and active dialogue with parents;
- extending the children’s learning from the starting point of what the child can do by enhancing and adding to the open-ended play with enriching material provisions; and
- quality, responsive, and reciprocal adult–child interactions including scaffolding and co-constructed learning.

Athey found that a teacher’s extensions of a child’s thinking must match the characteristics of the particular pattern of thinking in which the child’s actions show she is interested. She states that:

. . . aspects of the environment provide either a ‘match’ or a ‘mismatch’ with [children’s] inner thoughts (Athey, 1990, p.35).

Bruce frequently mentions this support as being “match plus one”, planning for experiences that “match” or fit with the child’s patterns of learning and then extending this with appropriate “plus one” experiences and ideas (personal communication).

As well as opening up experiences, opportunities for children to talk need to be extended. Athey (1990, p. 111) cites studies which show that children work longer and produce work on a higher developmental level when they talk about their experiences with adults.

Nutbrown (1994) says that “nothing can stop children from thinking and our young children need to be equipped and challenged to think as well as to know” (p. 27). She believes that adults need theory if they are to provide quantity and quality of experience and the language to match. Without professional knowledge they cannot effectively support and guide children’s thinking and knowing.

Linked to the five strands and dispositions of *Te Whāriki* are the child’s voice questions of the Teaching Stories:

Do you know me—How do you appreciate and understand my interests and abilities and those of my family?

Can I trust you—How do you meet my daily needs with care and sensitive appreciation?

Do you let me fly—How do you engage my mind, offer challenges and extend my world?

⁵ Athey (1981, 1990, 2004), Bruce (1997), Arnold (1990), Matthews (2003), Meade, with Cubey (1995), Nutbrown (1994), and Worthington and Carruthers (2003).

Do you hear me—How do you invite me to listen and communicate, and respond to my own particular efforts?

Is this place fair for us—How do you encourage and facilitate my endeavours to be part of the group? (Carr et al., 2000, pp.78–79).

These are challenging reminders to adults as we work with the children.

Continuity and progression

Researchers have noted the role that children can play in influencing the continuity of their learning, particularly in a nourishing environment where their interests are supported and extended by knowledgeable, empathetic adults.

... children's schemas provide opportunities for continuity in learning. [Their] persistent threads of action and thought seem to be fundamental elements which link children's thought and action with process and content. This kind of continuity is that which children create in the process of exploring, thinking and learning.

Children use the environment to explore their schemas and educators provide learning experiences that are matched and in tune with these interests and therefore provide a consistency of learning opportunity ...

It is through schemas and the fitting of content to different schematic threads, that children's own construction of reality and subsequent continuity can be identified (Nutbrown, 1994, pp. 31, 34, 36).

Athey (2004) reflected on continuity and progression, the part that children contribute to their own learning, and the aspects of the world that children learn **about**. She spoke of psychological processes by which we move from early to later more complex learning.

When attempting to look for progression in learning the 'most difficult thing of all is to start with very early schemas and to trace continuities to later aspects of the curriculum' (p. 3).

There is very little evidence 'on more minute increments of cognitive advance' (p. 6).

I think what links the thinking of young children with the complexities of later thinking is the mechanism and the consequences of making new co-ordinations between previously separate aspects of knowing (p. 7).

Conclusion

This chapter has provided a brief outline of schema learning theory and the important contribution it can make to our understanding of children's repeated patterns of behaviour, leading to insights on their thinking. Our understanding and insights were enriched when we considered children's schemas and dispositions together.

Children can provide continuity in their own learning through their self-determined explorations of their schemas. Adults' knowledge and appreciation of children's schemas help them engage in responsive and reciprocal interactions with children and plan to support, enrich, and extend the children's dominant interests. Careful observation assists adults to identify and facilitate progression in the children's learning.

4. Literacy, adult–child interactions, and learning progression

We followed an action research cycle which led to parents creating deeper opportunities for children’s literacy (mark making, using symbols, writing, reading, and storytelling). At the same time adults attended to asking more open-ended questions and providing cognitive challenges. We suggest that both adults and children created continuity and progression in children’s learning: adults through planning for and extending children’s interests, and children through their own schema interests.

This chapter is based on information also presented in *Creating Continuity Through Literacy Experience at Wilton Playcentre* (Bulman, Cubey, Mitchell, Wilson, & members of Wilton Playcentre, 2005) and Wilson et al.’s (2005) *Report on an Action Research Cycle on Literacy, Mark making and Numeracy, and the Use of Open-ended Questions*. Although many playcentre members and the associate researchers were involved in both publications, the main writers were Rebecca Bulman and Michelle Wilson. We include direct excerpts from these two reports with permission from NZCER and Michelle and Rebecca.

Finding a focus

In 2003 at the start of the COI project we collected baseline data so that we could document the operation of the playcentre as it was then and collect information on areas to be addressed in the research questions.

The focus for this action research cycle came from an analysis of some of our findings from the basic data: parents’ familiarity with and planning for schemas; Learning Stories and photographic evidence of schemas; and data from items drawn from the NZCER/TKRNT early childhood education quality rating scale.

The rating scale included items related to early literacy and mathematical problem solving, adult–adult interactions, and scaffolding and co-constructing learning. The research associates and playcentre parents did the rating in September 2003 after they had independently observed the playcentre for an entire session. It was done on eight occasions (twice for each of the four individual sessions).

Parent researchers undertaking the observations and analysis valued the opportunity to gain insight into their own practice. For these parents, the experience created “surprise” through

highlighting programme areas and aspects of their practice that they decided to improve. Mitchell and Cubey's (2003) synthesis of effective professional development approaches suggests that participant analysis of data from their own setting that is discrepant from their views of the situation is a mechanism that can prompt people to think again about their views and understand why they should change their practice. This process seemed to be occurring here and the rating scale data highlighted some areas where parents wanted to make improvement. These were early literacy and cognitively challenging interactions.

Below are the criteria for the highest ratings on the rating scale for the four items we aimed to improve.

Early literacy

Stories are read, told, and shared. A high rating on this item signals an environment where storytelling is occurring during every session.

Children are actively encouraged to join in. Adults make connections between the child's world and the story, and move beyond the story to ask for thoughts about characters, behaviour, and motivation.

The centre is a print-saturated environment. A high rating on this item signals an environment that is very print focused and encourages print awareness. Print is visible on a variety of surfaces (e.g. posters, packets, and containers) and is visible at a child's eye level. Children are encouraged to explore thoughts, experiences, and ideas using symbols (e.g. print, shapes, words, and photographs). A range of writing materials is readily accessible to children.

Cognitive challenging interactions

Educators ask open-ended questions that encourage children to choose their own answers. Adults take advantage of many opportunities to extend children's thinking by asking open-ended questions that encourage creative thinking. Adults offer opportunities for children to come up with a range of different answers, to encourage thinking and creativity. Open-ended questioning connects with children's interests. The questioning helps sustain and encourage conversations and extends ideas/concepts.

Adults add complexity and challenge. Adults encourage children to initiate activities and extend these activities by, for example, scaffolding, co-constructing learning, extending, discussion, modelling, or playing (tuakana:teina concept). Sustained adult-child conversations and joint problem solving are commonplace. Adults ask questions to encourage children to solve problems and persevere. Adults pose challenges that are appropriate for those children present. Adults suggest new strategies.

The adult–child interactions described here enable adults to engage with children’s interests and thinking. Siraj-Blatchford et al.’s (2003) comprehensive study of effective early childhood education settings in the UK found that “excellent” settings encouraged sustained shared thinking:

By sustained shared thinking we mean an episode in which two or more individuals work together in an intellectual way to solve a problem, clarify a concept, evaluate activities, extend a narrative etc. Both parties must contribute to the thinking and it must develop and extend thinking (p. v).

In the UK study, and in the Competent Children study, open-ended questioning was associated with better cognitive achievement.

Having chosen these areas to work on and mindful of our research questions, we decided to include children’s schema fascinations and interests in relation to an investigation of adult–child and child–child interactions within the domain of early literacy. We looked for evidence of correspondence between literacy actions and schemas, and progression in children’s schemas and dispositions. We explored the issue of continuity between sessions and between playcentre and home, demonstrating how we came to give prominence and recognition to the child’s as well as to the adult’s role in contributing to continuity.

Taking action

Playcentre members with the research associates used a “gap analysis” of the rating scale’s findings to develop goals and action plans. The major components of this plan involved:

- a “make-over” of the centre, aimed at developing a print-saturated environment and a focus on early literacy; this focus was to include parents looking for clues to children’s schemas in their literacy activities;
- playcentre educators drawing on knowledge of children’s schemas to provide insight into their thinking, and using open-ended questions and sustained conversations to extend their thinking;
- workshops on early literacy, schemas, and Learning and Teaching Stories were held, so that playcentre members were confident about these focus areas;
- during each session, playcentre members on duty collecting documentation in two folders: one covered literacy, numeracy interests, and markmaking, the other sustained conversations; described as encouragement of children to explore ideas and come up with a range of answers. Data included Learning and Teaching Stories, photographs of interactions and children’s work, evidence of schemas, and records of adult and child conversations; and
- asking parents to email information about how they thought their children had responded to the enhanced mark making environment and whether they had noticed any changes in their children’s interest in markmaking. We supplemented this with background information from children’s portfolios, session evaluations, and children’s work collected at home.

Developing a print-saturated environment

Arising from the workshops the centre underwent a physical “make-over” to create a print-saturated environment.

The playcentre physical “make-over” happened during a term break, with all families involved in it. The following were some of the many action ideas brainstormed during the analysis that were subsequently put into place:

- keeping paper looking attractive and cleaning it up at the end of session, making sure pens and felts are working and pencils are sharpened, providing an attractive collage trolley that children can reach into and select material;
- putting books in different areas of the centre, not just one, reading in all parts of the centre, using the magnetic board for telling stories;
- providing writing opportunities beyond the writing area (e.g. telephone books and diaries in the family play area, builder’s pencils and notebooks in the carpentry area, clipboards, card in the block area so we can write “Please leave, [NAME] is still working on this”, having different sorts of pads and paper, e.g. graph paper, musical scoring sheets, shopping list pads, paper in the block and sand pit area to draw diagrams of children’s constructions, taking photographs of constructions);
- changing the artwork in the centre regularly and placing at child eye level;
- developing letter writing activities, including cards for children to send to others; and
- making a post box.

The action research cycle and physical changes to the environment sparked a spiral of enthusiasm with adults adding complexity and challenge to play, giving children more opportunities to further explore their interests. Adults enthusiastically noticed the children’s greater interest in literacy, which they attributed to changes in the environment and adults’ greater awareness of literacy opportunities.

Further ratings done in September 2004, showed marked improvements from average to high ratings for the items “The centre is a print-saturated environment” and “There is evidence of children’s creativity and art work”.

The November 2004 ERO report for the playcentre noted:

Commendable practices that support early literacy include ready access to books, availability of writing tools and materials, opportunities to experiment with emergent writing and the recording and display of children’s narrative to describe their art. Centre members are working towards a print rich environment.

Encouraging early literacy

We aimed to introduce opportunities for children to incorporate learning about literacy and numeracy concepts into their own play and to use our high adult–child ratio to enrich children in

their learning, rather than focusing on specific skills in isolation. This approach is supported by Neuman and Roskos (1997) reporting evidence that children make discoveries about written language through active engagement with their social and cultural worlds, developing knowledge about the forms and functions of written language through meaningful activities (p. 16).

We found repeated illustrations of the enthusiasm of children to incorporate purposeful literacy into their play. They need adults around them who appreciate and respond to their enthusiasm as well as the physical resources to explore literacy.

Kaitlyn (3:10⁶) had an accident, quite a fall and a large bump on her head. After much comforting and storytelling she settled. I took Kaitlyn to find the accident book. She quietly stood by and watched as I wrote in the details. Kaitlyn asked if she could write in the book. I explained that the book was the official accident book and that it was what the adults used to document accidents. Kaitlyn became tearful and started to point to the book, just as I was about to explain why she could not write in it. I stopped and took stock of what was happening.

My light bulb went on and both Kaitlyn and I went off to search for paper. Delighted at spotting a duplicate book in our collage trolley, Kaitlyn sat down and wrote about her accident. I learnt it is so important to realise the importance of situations to the children. (a Learning Story written by Helen, Kaitlyn's mother)

This story illustrates the need for children to have adults around them who are sensitive to their emotions and needs and who can transform a potentially stressful situation into a positive learning one. Kaitlyn now understands what the accident book is for and that she, too, can write about her experience. It also points to the value of a wide supply of suitable materials, in this case, for writing.

Matthew (1:9) drew a painting and then I named it for him. He watched intently then asked me to write his name three more times on his painting in different places. Just after that [in the lobby]...he pointed to the sign 'lock' saying excitedly 'Matthew, Matthew'. I showed him his name above his coat hook and he ran around all the other hooks with great excitement saying 'Matthew, Matthew' as he pointed out each name tag.

This was the first time I saw him make this association with print. (Michelle, Matthew's mother)

This story is a lovely example of the excitement of a big learning step for both mother and child.

Further examples:

- Kaitlyn burying a dead bird and using a leaf to write a notice in the sand "Dead bird here";
- the great interest in one's own name represented in print and writing it oneself: Hazel said: "How you write H? What H look like?" until with great perseverance and some frustration she triumphed "There's my H!";

⁶ 3:10 means 3 years 10 months. Subsequent ages are given in this format.

- young children watching bigger children engaged in mark making and moving in to copy them as the big ones leave the activity;
- friends making marks on the blackboard or writing alongside each other;
- reading books together;
- making their own books with many individual results, some children dictating what they want written in the book;
- sharing their profile books with an adult and/or another child;
- mark making in paintings, drawings, sand, clay, finger paint; and
- making names with magnetic letters and writing their own names on their work, blackboard, and paper.

Several of our Learning Stories recount the importance of names, as for Matthew above. These include children learning about the representation of their names in print, of interest in the strings of letters making up their name, and of evident pride and satisfaction in being able to write their own names.

Open-ended questions and sustained conversations

We wanted to improve our skills of interacting with children, extending their thinking and creativity. We wanted to engage in sustained conversations, to be active listeners, being mindful of the Teaching Stories, “child’s voice” questions, “Do you know me? Do you hear me? Do you let me fly? How do you invite me to listen and communicate? How do you respond to my own particular efforts?”

Open-ended questions offer opportunities for children to think more deeply and to come up with their own creative answers. We are not seeking “right” answers, rather challenging children to come up with their own solutions to problems.

Example:

Ainsley (adult) challenges Josie (4:0) and Jamie D. (4:9) to come up with a number of different solutions, talking with Jamie about a tiger:

- A: How would you stop it eating you?
- Jamie: Feed it meat.
- A: What would happen when the meat ran out?
- Jamie: Give it something sticky, some ice cream. It might get hungry and thirsty.
- Josie: More tigers turn up.
- A: What would happen?
- Jamie: You could go away.
- A: What would happen next?
- Jamie: You’d be walking through the jungle. You’d see a crocodile.
- A: What would you do?

- Jamie: Kill it with a gun.
- Josie: Put a needle in it. Put a needle through its nose. Put a needle through each eye.
- A: That would be painful.
- Josie: Not for us.

(Ainsley 28/6/04)

The children have been challenged to think of the possible outcomes that could follow on from their original ideas. As they do, they build up a story of their own creation with an outcome that follows on logically from what has gone before. Jamie draws from other sources. His mother notes that he has been very interested for some time in Mrs Oberon's use of butcher bean rissoles to stick alligators' teeth together in Margaret Mahy's *A Busy Day for a Good Grandmother*.⁷ He seems to recall this and applies it in a different situation with the tigers.

We found that adults' encouragement, through listening carefully and allowing children to take their time, helps support children to develop their own ideas.

We rated the following aspects of adult-child interactions in September 2003, September 2004, June 2005, and November 2005: "Adults ask open-ended questions" and "Adults add complexity and challenge". We found improvements in adults asking open-ended questions over this time period. However, ratings for the item "Adults add complexity and challenge" remained much the same. We felt we still needed to improve our encouragement of children's deep thinking. Nevertheless, our documented evidence during the cycle shows many examples of parents effectively supporting and extending children's learning.

Schemas

One aim of this action research study was to try to detect schemas in children's mark making and see if they linked to the children's behaviour in other areas of play.

We collected examples of mark making from each child over 1 year of age at the end of 2004, who had been at the centre for longer than two terms. We put what we noted about the children's mark making and schema interests and made suggestions in the documents folder and asked each parent to write their responses to this along with any comments from each child.

Athey (1990), Nutbrown (1994), and Worthington and Carruthers (2003) have all explored the idea that a child's prevailing schema interest influences not only their drawing but also their early writing and mathematical recording. "Most of the [Froebel] project children's highly specific representation of what they called 'writing', 'letters', and 'names' were consistent with the graphic schemas they used in drawing other objects that shared a figurative similarity" (Athey, 1990, pp. 181-182).

⁷ Another interesting example is in *Early Childhood Folio*, 9 (Bulman et al., 2005, p. 16) where Nyah was responding to an overseas letter from Elliot.

We found evidence that some of our children were using their schema interests to help in their development of writing, both in recognition and production of the letters.

Example:

Joe has a strong trajectory schema and is also interested in circularity and rotation, the latter closely related to trajectory.

He came to the writing table where there was a tracer that could make different sized circles, with Simon who first used the tracer.

Bronwyn (adult) to Joe: 'I wonder if you can do a circle with just a pencil?'

Joe did so. He then started to make connected lines and coloured them in. 'I'm colouring them in. I need another piece of paper.' He drew many circles, then more circles around these and then up and down connecting strokes. 'This is how you make letters. I'm writing.'
(Bronwyn 27/7/04)

Both circularity and trajectory lines are explored. Joe is interested also in the letters of his name: "Joe" with its curved components.

We were interested in how the four stages of schema progression might point to a deepening of children's conceptual understanding. Mark making involves motor action at an early age and leads to symbolic representation as children grow older.

Example:

Emma explores vertical ideas in nine paintings from 1:10 to 2:8 years with very little change. At the beginning of 2004 there was no obvious initial symbolic representation. As she was under 2, she was likely to be exploring motor actions. By the middle of the year she clearly talked about what she was drawing: 'Emma, Helen (her mother) and Martha'.

By the end of the year she could use the same visual form to express a profound emotion:

Helen: 'I had just returned from a two-week overseas trip. The two of us reunited. I talked with Emma about said painting. Emma looked up and told me all about the painting saying 'Emma and mummy together again, I love you mummy.'

Schemas in mark making

Some schemas are readily apparent in mark making, possibly more so than in play in other spheres. Ordering and patterning are examples. All children show some experimentation with circular forms, but those with an interest in rotation do so clearly and consistently. Some show a sustained interest in vertical forms, enclosure, or enveloping, again often clearly seen. Other dynamic schemas like transformation, trajectory, and connection can be appreciated graphically when we have some insight into what the child was doing at the time.

Example of ordering

Finley (3:4) shows strong interest in patterns and organisation. Nikki, his mother, described how he will sort M&Ms into separate bowls by colour before he eats them by colour. We have a photo of him lining up glitter containers before using them. He does the same thing

with coloured pencils. He created order making patterns of marks with a stamp. Outside, painting the Wendy House, 'He starts on the highest board and painted each board down in sequence. Then he started from the bottom and worked up, covering each green board with red paint.' (16/11/04)

Effects of age

At this time we had large clusters of children around 2 years of age and 4–5 years of age, providing some good comparison groupings as to how children incorporated particular schemas into their mark making.

Many of the 2-year-olds seemed to be experimenting with schemas in other forms of play as well as graphically.

Example:

Isabelle, a case study child, was combining her interest in circularity with that of ordering. Photos captured her making ordered cuts along a piece of paper which she had already drawn on and then lining up paper boxes. Mary described her making little marks on five pieces of paper, then taking five envelopes and enclosing one piece of paper in each. (Perhaps she was also interested in one-to-one correspondence?) At home she drew circles on the blackboard, counting 1, 2, 3, 4, 5 as she drew the circles in a line.

Four-year-old children with very strong and persistent schema fascinations clearly show evidence of the schemas in their mark making. We noted a continuum as children with a range of schemas explored this range in their mark making.

Example:

Nicholas has a number of strong schema interests. An obvious one is enveloping. Photos show sequences when he became deeply engaged in his paintings. In the first, he envelops his painting in black paint and then his hands and arms up to the elbows. In the second he systematically covers multiple sheets of paper (counting as he runs round and round the circular table) adding more and more paint. An adult puts a line of butcher's paper on the floor almost the length of the playcentre and helps him place his paintings on display. Nicholas is delighted and then starts painting the butcher's paper where it is not covered by his creations, thus enveloping that in red paint.



This last photo shows his painting as he worked at a table with acrylic paints on super shiny paper. Heather (adult) was talking to him as he drew and Ainsley (adult) recorded the conversation:



- N: drew a blue rectangle around the paper, added 2 vertical strokes—said ‘legs!’ then counted as he added ‘1234567 legs!’—laughed with Heather at funny concept of seven legs,—added green horizontal lines from centre point—said ‘wings’
- H: ‘Two wings’
- N: added two green vertical lines—‘helicopter’
- H: ‘OOh, the helicopter blades go round and round’
- N: added blue circle near centre for movement—then added careful green diagonal lines from centre to each corner—said ‘watch out’ when he came close to Heather’s finger holding the paper still
- N: added splodges of different colours—pink and orange—in circle pattern: ‘That’s a little rocket that crashed on the bigger rocket. Here’s another little rocket. He’s crashing into the big rocket too.’ (transferred idea of helicopter to rocket)
- H: ‘Look out, little rockets, there’s a big rocket in the way!’
- N: laughed and painted more vigorously—‘pow pow’—sounds of rockets
(Ainsley 27/8/04)

Nicholas is showing enclosure, horizontality, circular rotation, dabs, and trajectory but without Heather’s input we would not have known the intricacy of this painting and Nicholas’ thought patterns and representations.

In Chapter 3, the importance of the quality of adult conversations with children was mentioned. Athey (1990) stated:

There is now evidence that children who function well are those talked with, and one of the most satisfying topics for young children is what they are doing. This is not simply affectively satisfying, it also facilitates cognition (p. 82).

She quoted Mann and Taylor:

Young children enjoy discussing their art as they are in the process of creation, and cognitive growth is assisted by the integration of language and motor processes (Mann & Taylor, 1973, pp. 36–37).

This is apparent in Nicholas’ Learning and Teaching story.

Continuity

As we reviewed our observations it became evident that they showed both the planned and unplanned ways that continuity is maintained in the playcentre programme by children and adults.

Continuity occurred between home and playcentre and across playcentre sessions. A surprise was that the children regularly took a leading role in creating continuity for themselves and others through persistently following their own enduring schemas and interests. Parents are able to

support continuity for children between home and playcentre because they know these interests well, and have developed knowledge of other children's schema fascinations and interests through their participation in the playcentre programme and the friendships and informal contacts that occur between families.

One example of continuity was sustained fantasy play about an ice cream shop with vendors and customers, arising from an ice cream making experience the day before (four children supported by an adult). Another was treasure and treasure maps⁸, arising from a book about pirates, which became an ongoing interest across several sessions and between home and playcentre. It allowed the children opportunities to follow their schema fascinations and was developed to support continuity across sessions. The broad topic of pirates, hidden treasure, and maps to find the treasure excited the children's interest and it also gave the children with transforming, enclosing, and transporting schema fascinations ways to fulfil their needs in these schema areas. The transformers loved to play the role of the pirate in seeking the treasure and transforming the stones and other objects into treasure using paint, glitter, and other collage materials. The enclosers relished putting the treasure in containers and burying the treasure in the sandpit. The transporters delighted in taking their maps around the centre and in moving the treasure once it had been found.

Letter writing was another area which captured our children's interests over many sessions. Our decision to focus on improving print saturation and providing an attractive, accessible writing area gave children the chance to explore ideas around letter writing. As they became engaged, adults in turn were able to foster this interest including asking open-ended questions and giving opportunities to increase the complexity of play. Letter writing at playcentre was enriched by letter writing at home.

Several of the older children were involved in a flurry of correspondence between children, causing great excitement at the letter box. Learning Stories at playcentre captured this interest and illustrated some of the learning that happened for children over this time.

Example:

Jamie has written a letter to his friend, Elliot. The envelope is too small. I ask what can we do? He isn't sure ... I suggest we could either fold his letter or make an envelope. Jamie says he doesn't want to fold it, but doesn't know how to make an envelope. I suggest we make one together. First we need some paper. Jamie chooses some pieces of paper and we discuss what size we may need and what colour. We decide to tape the envelope together ... we talk about how many tape dispensers there are. When Jamie says the envelope is finished, he starts to write Elliot's name on one side (he can spell this). He asks how to spell 'from' and we work this through. He writes 'From Jamie' on the other side. Jamie tells Martha (adult) what he is doing. Martha knows Elliot's address ... we talk about how the street name is a long word. I suggest that I write it on the blackboard (I concentrate mainly on the consonants). (Mary 2/7/04)

⁸ This example is described in greater depth in *Early Childhood Folio*, 9 (Bulman et al., 2005, pp.12–15).

Mary supports and encourages Jamie—he is allowed to make the choices that fit his desires. He gains satisfaction from the final result because of this freedom. The impetus for letter writing came from the children but the adults were able to provide ongoing extensions. Making a post box captured many children’s interests and once made further encouraged children to write letters.

We were surprised too at the volume of evidence of continuity, whether it was a book read at home that was drawn on in play at playcentre, or an activity from playcentre that was repeated at home... We found how continuity in children’s learning and competence connected to schemas as was supported and extended through adult and child interactions often through literacy experiences.

Progression

A case study: The progression of Elliot’s figural representation

Threaded throughout this report are examples of children’s progression in thinking. Here is a record of Elliot’s progression in drawing over the time he has been at playcentre. Dee, his mother, had put together and documented his interests at each age together with his paintings.

Elliot’s schema interests include connecting and lining things up at age 2. Transporting and trajectory interests were very strong between the ages of 3 and 4 years, but he still joined things up at age 3:6. There is deep interest in cause and effect—at 4 years he was fascinated by an electricity set.

His first paintings at 1:6 show horizontal scribbles, with dots; from 1:7 to 1:10 years, vertical lines and dabs with some circular movements; at 1:10 he is experimenting with diagonal lines. At 2:5 we have a painting starting to show enclosing curves and he is starting to explore space order (proximity is the earliest perceived topological space relationship). At 3:6 he created a picture with intersecting horizontal and vertical lines using a computer art program. This might foreshadow his later interest in grid shapes.

Elliot and his family were in Annapolis for 3 months when he did many drawings and explored perspective and layouts as his understanding of space evolved rapidly.

At 3:11 he drew two airplanes, with seats (squares and rectangles), placed in vertical and horizontal order inside the plane, a bag loader and a rotating propeller at the front.

Also at 3:11 he drew a ladder going down to the garage at his house, narrowing as it gets to the roof—possibly unintentionally—but again it gives some idea of his interest in portraying perspective. At 4:1 he has taken a leap into projective space. He draws a house with a window “so that we can look inside and see the fires”, suggesting he has acquired the ability to consider what the viewer of the drawing will see. Athey (1990, p. 110, citing Piaget & Inhelder) notes “From the psychological point of view the essential feature from the shift from topological to projective representation is the introduction of the observer or ‘the point of view’, in relation to which the

figures are projected.” The drawing also has six fires for six chimneys (one-to-one correspondence).

A drawing of two trains going in opposite directions at 4:3 shows evidence of this important shift. The further away train is smaller and behind the main train. Elliot is working hard to portray things as they really are in space.

At 4:4 Elliot did a drawing of a tractor. He put his tractor on the table at home and studied it carefully as he drew it in real life. He is trying to get the special relationships right with the ladder going up to the door and continues to show one thing behind the other, the sun behind the clouds.

In a conversation with Dee at home he talked about living in the Wendy House at playcentre. Dee suggested it might be cold and he drew a picture to show how he would fix the window. “The truck would come over with a big piece of glass what we could put on the hole where the window was ... and we’d have to nail the sides in. Like this (hand gestures)—this is the window top and these the sides. It’s fixed now.” He recalls all this with no physical reminder (at the abstract thought level).

Dee said Elliot focuses very much on real things in contrast to most 4-year-olds who spend a great deal of time in fantasy play.

Conclusion: What did we find?

- Adding meaningful literacy opportunities into children’s ongoing play led to enthusiasm and excitement on the adults’ part about literacy and mark making and new learning experiences for children.
- We became more skilled and effective in supporting children’s play involving literacy.
- Adults functioning as facilitators and co-learners, rather than as “teachers” helps children’s interests to remain central within the programme.
- Open-ended questions rely on adults picking up on children’s interests and being able to extend them. Through looking at successful examples of this we found indications of how the children follow their interests and create their own continuity across sessions. We are sure that much of this process is undocumented and still more unrecognised. Children’s interests also provide continuity across the boundary between playcentre and home.
- Schemas, by their very nature, are a direct reflection of children’s interests, and naturally lead to involvement and engagement as children explore concepts associated with them.

The cycle of continually learning more about our children and about how we respond to their interests is ongoing, in keeping with our action research methodology. There is now plenty of evidence of our progress in Learning and Teaching Stories and other documentation. In future we want to support, extend, and enrich our knowledge. We learn with our children as they explore what fascinates them.

The following comments from parents attribute positive outcomes for their children resulting from the action research cycle:

I remembered several occasions when Simon, Nicholas and Joe (all 4 years) sat down at the literacy table and they busied themselves with the materials there. So the two things—Joe's interest and the pens and papers at playcentre coincided. It is difficult to say definitely that our initiatives increased his interest but safe to say I think that it was nurtured. (Ainsley, Joe's parent)

There was a noticeable increase in Bella's (4) interest in mark making following the changes that we made to the centre and although it was very gradual it was obvious. (Rebecca, Bella's parent)

I have been particularly amazed at how Nicholas (4) took to the mark making table this year. He was really attracted to it and spent quite concentrated periods of time there. Whether it was the provision ... or simply his age he has become very interested in writing letters to people—him dictating to me—or writing the actual alphabet letters, and also asking me how to spell words... (Melissa, Nicholas' parent)

Patrick (3) has definitely shown more interest in mark making than he otherwise would. I have observed him watching other kids writing on the blackboard and then trying his hand. (Fleur, Patrick's mother)

Jamie (5) has been interested in letters and books from an early age, but less so in mark making. At about 4½ when we started focusing on mark making, his interest in mark making and drawing took off. I'm sure that both his age and the changes at playcentre helped him. (Michelle, Jamie's parent)

Aiden (2) is starting to say letters of the alphabet when pointing to them and loves jigsaw puzzles, particularly the ones with letters or numbers. He has tried writing on several occasions too. Again, I am more aware of what he is doing as his language is not developed enough for me to always give a verbal example. (Fleur, Aiden's mother)

Matthew (2) enjoys writing his name on art work and joining in when I am writing. I recognise this far more than I did with Jamie, where I focused much more on him learning the conventional letters. (Michelle, Matthew's parent)

Thomas (2) is very interested in letters and words in books (describes some books as having 'lots of words') and this seems to have come on the heels of his leap of speaking in October. (Paula, Thomas's parent)

The comments of the parents of the younger children indicate that their awareness of children's emergent literacy makes an important contribution to their children's learning.

This action research cycle has been an empowering experience for the parent educators. Each step in the cycle has posed challenges which, with our associate researchers, we have addressed with thought, careful planning, monitoring and reflection, and analysis. We participated in the quality rating scale, finding ratings which validated our practice and some others which needed improvement. The latter became our focus for the research cycle. We prioritised these and jointly decided on four items to work on. This involved us in workshops on schemas and Learning and

Teaching Stories, ways to develop a print-saturated environment, provision for emergent literacy, mark making and writing, and ideas for the effective use of open-ended questions and sustaining conversations. We decided on ways to monitor and record what we did: Learning and Teaching Stories; learning to use the digital camera and iBook to take and store daily photos; set up two files, one for examples of children's mark making linked to schemas and other literacy experiences and the other for examples of sustained conversations between adults and children. We became very focused on what our children were doing and talking about and found that the schemas they used in their mark making further illuminated their pursuit of these schemas in other places, in the centre, and at home.

The writers of the report involved us in providing further information about our children both at home and at playcentre and in giving feedback on the draft.

New parents have joined the playcentre since, but those of us who have been involved know what can be achieved in using the gap analysis and action research cycle approaches.

We are already in the process of finalising what our next action research cycle will be once the COI project concludes.

Focusing on schemas and dispositions and adult-child interactions we have come to realise how important are the complementary roles of parent educators and their children in their journey of discovery. For the children, there is their desire and drive to explore, navigate, and understand their unfolding work. For the parents, there is the learning about their children's progression in thinking and knowing and their own vital contribution to this process.

Also we have become aware of the importance of supporting continuity of experiences between home and playcentre and across playcentre sessions and made the discovery of how much the children initiate this continuity, especially through their schema fascinations.

5. Social aspects of schemas

Introduction

After noticing schema connections in children's relationships with each other, one parent, Ainsley Simmonds, undertook an action research cycle for Course 4 of her playcentre training, to investigate certain social aspects of schemas.

Differences in schema choices in different environments

There was evidence in one set of observations that schemas explored at home may, at times, differ from those explored when the children are at playcentre, or differ from those they engage in when they are with other children.

For example, at playcentre Joe and Nicholas' play involved running, roaring, squirting water bottles, and flicking counters; all evidence of a trajectory schema. During that time at home, Joe seemed to be interested in rotation, spending time over 2 weeks spinning marbles down a chute, twirling himself around, sitting in an office chair and spinning it, making radial shapes with connecting rods, and drawing spirals and circles. At home Nicholas was interested in two-ness and other sequences. He played games that included two things; for example, "Sam" and Dog, Batman and Spiderman, two dinosaurs, or a lion and a tiger. He also built a road with red blocks for the red cars, joined different shapes of five squares joined together and tried to put blocks together to create a pattern without leaving any spaces. This was not a clear-cut distinction. Joe spent time twirling the sand drill at playcentre and Nicholas enjoyed throwing toys from his brother's cot.

One explanation might be that at home a child has no barriers of belonging and trust. A child might feel shy and not yet trusting enough at playcentre to be immersed in new ideas. But for many of the children we observed, this did not seem to be the case. Most were children who had been at playcentre since birth and were very much at home at playcentre. Another possibility is that the schemas they were exploring at home were new ground. Perhaps they needed all their concentration to consider these new ideas. Amid the noise and bustle of a playcentre session and the stimulating environment, it may be difficult to concentrate on one thing when assimilation of that requires deep concentration. Yet another possible explanation is that at playcentre the play may be more socially based. That might lend itself to certain sorts of play. For example, when the 4-year-old boys get together, they typically want to play in ways that involve movement. They want to shout and jump and relish the impact they make together.

Children with similar schema interests play together

Another finding was that children with similar schema interests were seen to play together exploring that schema. Cath Arnold has discussed this in a paper called *Children who Play Together have Similar Schemas*. Chris Athey noted that when two children first enjoyed positive social contact it was on the basis of a cognitive match. The children were both making lines with cars. When they noticed each other's lines they made them meet to their mutual satisfaction. Cathy Nutbrown also has said that it may be that some children will play together in a sustained and involved way because they "match" in terms of thought and action 1994 (p. 17).

A video observation brought out this point, and also showed how children can learn from each other. The play involved three boys playing in the same area. Nicholas was intent on building. He had a very clear idea in mind. He stood long blocks on their ends, making a circle, and then infilled it (enclosing). He was worried other children were going to break the pattern of what he was doing. Joe was very keen to help, but Nicholas did not want him to, worried the structure would not turn out as he wanted. Simon was apparently sitting passively on the side.

A while later, Nicholas allowed Joe to join in. This was interesting, because it seemed that Joe had managed to convince Nicholas that he understood the design Nicholas was working towards. Nicholas was satisfied that Joe understood the design. Therefore, they have communicated with each other the abstract concept of the design of the structure.

The completed structure was an elaborate construction. Above the cylindrical shape they had made was a complicated pattern of triangular and cylindrical blocks.

Even more interesting was what had happened alongside Nicholas and Joe's building. Simon, (also interested in enclosure), who had apparently been doing nothing, in fact had been observing, and with some help from Joe, began to build another structure. It had several design features in common with Nicholas' structure. It had a wholeness to it, it had boundaries, and the long blocks were the basic unit. We can see, therefore, in this passage of play, these boys apparently learning quite sophisticated ideas off each other about design, symmetry, and stability.

A second video observation compared two children with quite different schema interests. As we will see in the case study, Josie has a strong interest in enclosing and transforming. Play observed during this action research cycle included wearing hoods, and covering a doll right to the tips of her fingers and toes with finger-paint, then immersing the doll in water and finally enclosing her in a rubbish bin. At home when she was meant to be going to sleep, her mother said she would get out of bed and go through all her drawers and dress in different clothes. Her favourite stories involved princesses and transformations—Cinderella ("She wears rags, doesn't she Mummy?"), Sleeping Beauty, and The Little Mermaid.

Apart from his interest in connecting and rotation, Joe's other dominant schema interest in this period was a trajectory schema. To observe how these two children with different schema interests would play together, Josie went to Joe's house to play. In the first quarter of an hour, Joe showed Josie a variety of what he thought was hugely exciting trajectory play. He squirted water

out of a balloon, jumped off a bench, threw blocks off a deck, and found a water gun. This behaviour was not so much about him learning about the concept of trajectory, but perhaps indicated what he knew about social play—that these activities were really exciting to him, and to his friends who shared his schemas, and so, he supposed, probably would be for Josie. Although willing to play, she was not engaged by any of these activities, causing him to try more and more ideas.

Later in the visit, Josie found something of great interest to her with her passion for transforming—the dress-up basket. She pulled out each item and examined it. Joe was still offering trajectory ideas, including rolling trucks past the dress-up basket to entice Josie. By the end of the visit, their schemas had them in different places—Joe was enjoying some trajectory play, jumping on the bed, and Josie was in a nest in another room on his sister's bed, having transformed herself with dress-ups, surrounded by Joe's sister's toys.

Although their interests did not coincide on that occasion, at playcentre the next day they played together, working side by side. Two large containers sat in a water trough, both containing water. Joe used a bowl to continually ladle water from the lower container to the higher container (rotation). At the same time, water poured out of the higher container. Joe was thrilled he had made a water slide (as he called it). He delighted in the movement of the water. He had to pour the water fast enough to keep the water slide going. He was integrating a number of complex ideas in this play—he knew that the speed at which the water is displaced from the higher container must equal the speed at which he must replace it. Josie was standing next to Joe, but she seemed to be concerned with something quite different. She collected the corks that floated in one of the containers, and poured them into the higher container Joe was using (perhaps transforming their situation). So despite their different schemas, they were able to learn side by side, using the common medium of water to follow their own schemas without conflict.

In contrast, when Simon had Josie over to play for the first time things went differently. Simon and Josie both have a great interest in enclosing. At the start of the visit, Simon, like Joe, began with some wild trajectory ideas, by throwing Spiderman figures across the room. But when Josie found the dress-ups, Simon joined in, and then they made a hut on the bed under a rug.

The play we observed seemed to suggest that the social setting did not initiate a child's interest in another child's schema. What we saw was that children with similar or compatible schema fascinations played together for extended periods. As Cath Arnold and Cathy Nutbrown have said, children with similar schemas can play well together.

There would seem to be benefits of children with the same schemas playing together. It might be that they can add to each other's learning about schemas because they share the same early set of mental models. An adult coming to an engrossing activity will bring more schemas and more complex understandings about those schemas, and may not easily tune in to the particular sets of understandings a child has. Another child, however, might be at the same point of a mental journey and ready to make the same new connections. Even if another child with the same schema fascination is not exploring exactly the same ideas about that schema, because of their common

passion for the subject, at least they might be expected to be more readily attuned to the concerns of the other child. These children may be able to share language and assist each other in exploring their related interests.

Schema connections between younger and older children

There was a schema-related connection between several of our young children and their heroes. These little 1- and 2-year-olds were observed to admire and copy the older children with similar schema interests. Shivani greatly admired Josie, and both had strong enclosing schema interests. Hazel loved to watch and be with Angus, who was a full 4 years older. Both were interested at the time in transporting. We wonder if under these conditions the younger children can make larger cognitive leaps, by reaching to the level of an older child who can show them through their play how the schema learning can be extended. The mixed age range of children attending playcentre is beneficial for these young children.

Schemas about social concepts

There was also evidence of children exploring what might be called schemas about social concepts. These social concepts are ideas about interactions between people that have social and emotional elements which are the same in different settings.

For example, we noticed some children continually playing out the idea of being rescued. It may be that a child engaged in rescuing play is concerned with the concepts of risk and danger, feelings of worry, fear, security, and trust, the warm feelings of the rescued towards the rescuer, and the satisfaction of rescuing.

We found that different children were independently exploring this same set of ideas in their play. Simon and Kaitlyn had never been seen to play together, but both of their parents reported that they repeatedly played games involving rescuing. One day Simon overheard Kaitlyn crying out “The nurse is stuck up there and needs to be rescued!” He jumped up from his play with the other boys in the sandpit and immediately was deep into the game with Kaitlyn using his hero action figure.

Conclusions

When children with the same schema interests play together, it might be that they have the same early set of mental models and so are able to add to each other’s understandings of the schemas. Younger children drawn to older children who have the same schema fascinations might be expected to make larger cognitive advances. Observations indicated that children with different schema interests played independently of each other, although may play together if their schema-related play is compatible.

Other observations indicated that children may explore different schema interests depending on whether they are playing on their own or with other children, and whether they are at home or at playcentre.

There was also evidence of children with persisting interests in social concepts such as rescuing.

In one sense, learning is a solitary activity. Assimilation and organisation of information such that enables an understanding of a new idea can only be done alone. Schemas seem to be inner-driven, rather than something that is acquired socially. However, there are benefits to our practice as educators in considering how children can add to each other's learning. We can plan for groups of children with similar schema interests, we can arrange for groups of children with similar schemas to work together, we can provide open-ended play opportunities and a wide variety of opportunities so children can pursue their schema fascinations and find their own partners in learning, and we can provide opportunities for children of different ages to play together.

6. Continuity and progression in children's schemas and dispositions

An analysis of the case studies of five children

As part of our research design, we thought that conducting several case studies of children over a series of weeks would provide us with some useful data to address some of our research questions, particularly where we had identified some gaps, e.g. our continuity and progression in learning questions. They would also possibly 'triangulate' some other information, contributing to validity. (Nikolien, a case study parent researcher)

Five parents volunteered to carry out case studies of their own children.

The studies were mostly recorded over 6–8 weeks, beginning in May 2005.

We looked for evidence of learning progressions in schemas and dispositions, continuity of learning, and interactions and experiences that enhanced the children's learning.

What were the parents' aspirations for themselves and the early education of their children? Michelle captures two major reasons, which reflect why the parents had chosen playcentre:

- being actively involved in their children's learning; and
- the value of being in a learning community.

We enjoy the opportunities to spend time playing and learning with our children. ... we strongly believe that children need the space to explore their world, following their interests in their own time and in their own way. We really want our children to enjoy learning rather than focusing on mastering skills in isolation, and to grow up as part of a wider community.

Schemas and dispositions

All the children demonstrated more than one schema interest both before and during the study. Parents were able to identify and record progression of a dominant schema interest for the purpose of this report. We were able to see how each child's exploration of their schema fascinations helped us to identify their dispositions to learning and their data illustrated or pointed toward ways adults could extend their children's thinking.

The children, in order of age, and their researcher mothers:

- Rosa (*not quite 2 years) with Rebecca Bulman;
- Matthew (*2 ¼ years) with Michelle Wilson;
- Isabelle (*2 ¼ years) with Mary Craythorne;

- Keir (*3 ¼ years) with Sarah Bury; and
- Josie (*nearly 5 years) with Nikolien Van Wijk.
(*age at the beginning of the case studies, May 2005)

Keir, Matthew, and Rosa showed a strong schema interest in trajectories; Josie displayed two almost inseparable schemas: transformation and enveloping; while Isabelle was fascinated with rotation.

Most of what is written here is the work of the five researcher parents.

Learning and Teaching Stories, recorded at home, playcentre, crèche, and elsewhere, provided evidence of repeated patterns of behaviour as the children pursued their explorations of their schema fascinations with energy, enjoyment, and determination. We found that these repeatable patterns may be seen as a progression as children are “coming to know”:

- from motor actions;
to
- symbolic representations (actions, mark making, visual art, language);
to
- functional dependency associations;
to
- abstract thought.

Once one is familiar with schemas and with Learning Stories that illuminate children’s dispositions, careful observation can make this progression more visible. Then it is better documented and so appropriate further learning can be planned for and implemented.

To illustrate the continuity and progression we detected in the children’s learning, a brief description of each case study is presented and discussed. (For readers who would like a fuller picture of the case studies, these are held at Wilton Playcentre.)

Rosa and her mother Rebecca

Rosa attended playcentre from about 2 weeks of age, being the younger sister of Bella. It is her second home and she treats it as such.

She is very relaxed and independent on session and follows her interests when it comes to choosing areas of play to explore. Some of her favourite areas of play are the swings, big muscle mats/structures, the sandpit, the dolls and buggies in the family play area, the dolls’ houses, painting, potions, and cooking.

She exhibits a number of schema interests but her most dominant is a trajectory one, particularly its vertical aspects.

From an early age she has enjoyed watching things that move. We first observed her excitement when she was watching balls and anything that rolled and then she would follow Bella's movement around her, particularly her big muscle play which often consisted of dancing and jumping.

At the beginning of the case study she was already quite confident in her gross motor skills. She could jump down from a low chair without assistance and could jump high off the ground by herself. Over the period of the study Rosa's abilities and her confidence in this area developed markedly. Our house is down 114 steps from the road and these steps have been part of her life since she was born and play a big part in our daily routine because they provide our only access in and out. If I let her she would jump down each one, but we have managed to reach a compromise and she jumps at the bottom of each flight of steps—there are 10 flights.

Towards the end of the study she began to refuse my hand from time to time and walk completely independently up the steps (I would remain close by in case she lost her balance and she knew that, if she needed me to, I would help her). Going down she would often use the hand rail or less often, walk completely unassisted.

Rosa has a very strong drive to climb, and this, coupled with her limited fear of heights, can get her into trouble.

Three Learning Stories describe three of her climbing experiences showing her progression from keen climber, to able climber, and on to use complex functional dependency ideas to achieve an otherwise unattainable goal.

A home Learning Story *Rosa helps Bella* 15 June 2005

I had made a hut for Bella using a sheet that was draped over the end of a couch and the back of a chair. Bella set up the tunnel so that it led into the hut and asked Rosa to help her move toys from the toy trunk into the hut. Rosa was pleased to be invited into Bella's game and made about three or four trips carrying toys to the hut with Bella before she suddenly stopped and climbed onto the couch. She then climbed onto the sheet. It began to slip under her weight but she continued to transfer her weight until the sheet was put under too much stress and gave way resulting in Rosa and the sheet falling onto Bella.

I had not expected Rosa to transfer all of her weight onto the sheet because I knew that it would not hold her. Rosa either did not realise that the sheet would not hold her weight or was experimenting to see what would happen when she stood on it. I think that her drive to climb led her to try out standing on the sheet to see what would happen. By doing this she experienced that fabric can give under stress and something about how gravity works. She was pleased with the resulting drop and happy rather than upset when she landed—her sister was less than pleased.

A playcentre Learning Story *Up and Over* 23 June 2005

Rosa headed for the climbing frame at speed and I could tell that she was intent on going up it. She approached from the side with the highest first rung but did not hesitate in stretching her little leg up to it and pulling herself up. Once she had both feet on the bottom rung she continued confidently up to the top. She paused and looked very happy with her efforts. I

praised her. Rosa then carefully lifted herself over the top and turned so that she was going down backwards. All of this was done without assistance from me because she never requested help. She repeated the up and over process pausing at the top and saying ‘Mum’ and stretching out her hand to me so that I would take it while she turned her body to face away from the frame to watch a group of children and an adult playing nearby. She went down the other side backwards and repeated the process back the other way. At this point Finley was nearby and Rosa said ‘Finley’. He came over and she began to get upset that he wanted to use the climbing frame and would prevent her from going up and over again by getting in the way. She said ‘No, Finley, no!’ very forcefully but Finley did not falter. He proceeded to climb up and I said ‘It’s okay Rosa you can both climb at the same time.’ With that Rosa saw that it worked with both of them on the frame and concentrated on her climbing.

With one exception, Rosa did not need my physical help but I played a supporting role beside her. She knew that if she asked for my help she would get it. I believe that gave her more confidence than she would have had if she had attempted to climb without an adult present. I was also able to convince her to persist when she was worried about Finley’s presence. Once she accepted what I said she relaxed and did not feel threatened by his use of the climbing frame. This allowed her to continue until she had ‘finished’ and to get more out of the shared experience with Finley. I think that she recognised that she was able to do the same thing that a much bigger child could do and this added to her sense of achievement.

These stories give evidence of the dispositions of curiosity, being interested and involved and, on the climbing frame, persisting with uncertainty.

Language development

Rosa hasn’t come to language as quickly as her sister did but is able to communicate her wants, needs, and ideas to us. At the beginning of the study the words that were important to Rosa seemed to be mostly verbs, related to her trajectory schema; for example: “Whee” an early word meaning swing. It normally refers to the object rather than the action but I am sure that it originated from the action. She only learnt to say “swing” about the time that the study was ending. “Jump” is one of the most important words in Rosa’s vocabulary. She has been using it since well before she had mastered the ability to do the action. Her first sentence was, “I want to jump!” This was in reference to going down our 114 steps. Rosa will often say “run” when she is doing it and “come” often requires Mummy, Dad, or Bella to join in with her running. She has since begun using “catch me” to get one of us to run and catch her. “Dance” is often used while she is dancing or if she wants to dance. She mastered the word “music” during the study so “dance” was used less as she asked for music to dance to. Towards the middle of the study she learnt “climb” which is another activity close to her heart.

Books became increasingly important to Rosa and the ones that appeal to her most are those that have schema connections. A recent favourite is Margaret Mahy’s *Down the Dragon’s Tongue*. The story is about an office worker father who begins to enjoy the long dragon’s tongue slide when his children pester him into taking them to the park after work. A lot of the story is about going up the steps and coming down the slide.

There has been a noticeable and rapid progression in the formation of her sentences since this interest in books flourished. I am sure that the two are closely related as her progression was so marked that over a period of weeks she almost caught up to where her sister had been at the same age from a significantly less developed starting point.

During the study I was interested in Rosa's drive to make connections with the children around her. She was saying their names and wanting to play with them.

At playcentre, Joe and Simon, nearly 5 years old, may have been important to her because they both have strong trajectory schema interests and in particular I think she was captivated by their amazing block tower structures and she surprised me by saying their name over a period of 4 weeks. Even though she had watched these boys from time to time I had not realised how important they were to her. She made a number of attempts to engage with them but they were more interested in each other and their joint play. Children with similar schemas may enjoy playing together so knowing children's schema fascinations can help adults to bring children with similar schema interests together and also to draw on common ground to assist children towards resolving their disputes.

So we see the progression of Rosa's schematic interests from **motor action**:

- from a very early age, very excited watching things that move;
- confident and able at dancing, climbing, particularly jumping;
- climbing up and over the climbing frame;
- climbing onto the roof of Bella's hut;
- jumping from a low chair without assistance;
- competent at walking up and down steps;
- swinging, going high;
- playing with a hose; and
- swinging, usually the first thing she wants at playcentre;

to **symbolic representation** (actions, mark making, visual art, and language) actions:

- jumping high off the ground; and
- dancing with Rosa, doing frequent spins and high leaps, in a self-chosen "ballerina" dress;

mark making:

- straight lines and circles and ovals (rotation);

language:

- the words that are important to her are mainly verbs;
- whee (for swing—a first word), jump, run, dance, climb, catch me;
- her first sentence—"I want to jump";
- books reflecting her schemas are important to her;
- she talks about what she does on the trampoline at her grandparents; and

- “a great big jump!” when she leapt from her bed to the floor;

to **functional dependency** association, as shown in the following story.

At home, Learning Story 3 Rosa gets to the “unattainable” computer



Rebecca is the photographer and the storyteller. “The photo tells most of the story. It shows that Rosa had developed her functioning dependency reasoning to an extent I was not aware of.”

She might be thinking “If I do this then that will happen.”

Rosa had been looking at photos on the computer with her parents. She was very frustrated when the computer had been put on the sideboard to recharge the battery. Rebecca had gone into the kitchen and not very long afterwards noticed everything had gone too quiet. She went back to the lounge and was very surprised to find Rosa standing on the sideboard looking at the iBook, so Rebecca grabbed the camera and later wrote their joint Learning Story. (It was as much a learning situation for Rebecca as for Rosa.)

Rebecca said: “To get there she had to pull out the CD drawer from the left-hand side where the handle is and then go around the open drawer to the chair on the right. She would have climbed onto the chair and then onto the open drawer. At that point she could reach the computer that she opened by pushing the button to release the lid so she could resume where she left off. She was obviously chuffed with herself and gave me a great big smile until she realised I would take her down.”

To do all this Rosa must have been able to put her knowledge of a number of things together:

1. Rosa knew how to pull out the drawer. She does this about once a week to take the CD discs out of their covers. She knew she could not climb onto it from the floor.
2. She knew she could climb on the chair, as it is at a height she felt happy about jumping off.
3. She must have observed us opening the computer and although I don't think she had actually done this before she knew how to get the computer open.

The lack of adult input in this event has actually helped both Rosa and me. Rosa has been allowed to work through a complex set of problems to find a solution that achieves her goal and therefore has gained confidence in her own abilities to solve problems and be self-sufficient.

I have seen how developed her knowledge of functional dependency actually is. I would not have believed that she could do what she did without seeing her as she was photographed.

Chris Athey found that: “In everyday cognitive functioning, particularly as children become more mature and acquire more experience, thought reflects clusters of schemas that contain a wide range of content. In brief, schemas become co-ordinated with each other and develop into systems of thought.” From her observations, she discovered that prior to the abstract thought level, children spend time exploring “functional dependency relationships” (1990, p. 160). Rosa has demonstrated this ability in her drive to play with the computer.

Dispositions: She shows her ability to persevere with difficulty and challenge; to express her feelings of great pleasure in her achievement with her big smile; and to take her own responsibility to solve the problem she faced.

We have no examples of Rosa’s **abstract thought** at this stage, but she was only 2½ years old then.

Conclusion

Rebecca says: “Rosa has gained confidence in her physical abilities through having her attempts supported and encouraged (both verbally and physically). I think she has made fast progress because she has felt free to experiment knowing that she can rely on an adult assisting her if she needs it. Every attempt has been made to let Rosa continue in her play until she is “finished”. This has allowed her to practise as much as she wants to before trying something different.

[This study has] made me a lot more aware of all the seemingly little or insignificant experiences/pieces of learning and their importance to the whole of the child’s learning; each piece contributes to the whole, e.g. one of the Learning Stories I did for Rosa was of her in her highchair with only a tumbler of water. She was putting her hand in the water and pulling it out, completely absorbed watching the drips fall down. In the scheme of things this exercise was essentially a time filler while she waited for food but she was getting a lot out of it which made it more than that. Children can get learning opportunities out of everything they choose to do and while the ‘Golden Moments’ are wonderful they have probably come about as a result of lots of little experiences being compiled/assimilated. The case study action research study made me watch more closely, see more, and consider that detail more than I might otherwise have done. It was very rewarding to see this process in action.

Matthew and his mother Michelle

Matthew has attended Wilton Playcentre since birth, when his brother, Jamie, was 3:4 years old. Both parents work part-time and Matthew goes to playcentre twice a week and to the university crèche for 2 half days a week.

His schema interests include rotation, connecting, transporting, transforming, and ordering, but the dominant one is trajectory. From an early age he loved motion, throwing balls and many other objects, as well as climbing, fast moving aeroplanes and helicopters, and swings.

The case study explores how he is building on this trajectory interest in a range of ways, including language, story, abstract thought, and friendships.



Here is Matthew in the middle of a huge jump for his grandfather Bill: a trajectory schema has been one of his passions since he was very small. One of his happiest pastimes is throwing pumice or rocks into water: he clearly gets a real sense of achievement out of it. I watched him recently on holiday as he was self-absorbed and happy, choosing a piece of pumice and throwing it into the lake, congratulating himself ‘good throw Mattie’, and then on one he was especially pleased with “I did it”—he encouraged himself further as he looked for the next pumice piece ‘more did its’. (self-assessment)

His enjoyment of motion, using his own body in space, is seen on this visit with Charles, his Dad, to the public library.

In the children’s reading area his friend Xandi has lined up two stools adjacent to the sofa, and proceeds to leap from one onto the sofa itself. Mattie takes a real fancy to this activity and begins leaping from the furthest stool, pitching himself with great abandon towards the cushions, executing a few reckless spinal shifts in the process! He repeats this, taking turns with Xandi, until he is red in the face! He is enthralled and engaged, repeating the moves again and again.

Two dispositions are evident here: “showing an interest” and “being involved”.

This sensory motor exploration of movement in space provides Matthew with experience of mathematical ideas: measurement and distance between objects.

At playcentre, he sustains his interest in motion over a long time in exploring what will roll down pipes with a range of balls, creating his own continuity across sessions, with the support and extension of Michelle who is well in tune with his passion for trajectories. He is also finding out and categorising what will fit in the pipes and what won't. If you put a ball in the sloping pipe it will roll down and come out the other end (cause and effect: functional dependency).

Another example of Matthew's disposition of persistence in pursuing his trajectory schema was on a family holiday.

He had been throwing rocks in a river. On the bush walk afterwards he picked up a large rock, struggling to carry it: resisted all suggestions that he leave it behind to drop it off the bridge we had just passed or to try a smaller stone. Needless to say I ended up carrying the rock. He wanted to make a 'splash to the sky': and clearly knew he needed a big rock for a big splash. Matthew was really pleased with the splash into the biggest river: 'a splash to the sky'.

Here, Matthew obviously was thinking through to cause and effect.

Charles and Michelle's awareness of Mattie's strong schema interest means they go along with carrying his rocks as they appreciate how important they are to him.

Friendships

He is at an age when he is just learning about friendships with others of the same age: and trajectory motion is exciting, it seems an accessible way for him to share ideas.

Cath Arnold (1990) found that children with similar schema interests often play together successfully. We saw this earlier when Matthew and Xandi were playing. He has shared this interest with several other children in absorbing and satisfying play at playcentre and in other playcentre family homes, his own included. Adults have supported their schema fascinations by joining in role plays as fast-moving animals (symbolic representation) and in action songs like “Ring a ring a Rosie”. Very often, adults can enrich the play by introducing songs, rhymes, and stories that match the child's schema. Here, Matthew made his own contribution as well.

Two months later Matthew is developing abilities to convey more sophisticated ideas. He loved seeing the cheetah cubs at the zoo, and has always “run fast like a cheetah cub”. He and Shivani dressed up as cheetah cubs and he was able to show Shivani how he thought cheetahs should move. They roared, crept, and leapt around the centre with huge enjoyment.

Journeying might be thought of as a form of trajectory, although it could be transporting. However, I think it more of a trajectory interest given his longstanding interest in motion and his current fascination with aeroplanes This has become an important focus for Matthew. He discovered this with Jamie and Isabelle at her house. On a sofa “boat” they went across the sea to

see polar bears in Canada with some ideas from older brother Jamie and some from Isabelle: doing up seat belts on the boat.

At Jack's house Matthew started a game of flying to Auckland to see the polar bears. Soon after, at playcentre, he suggested a game with Henry of flying to Auckland to see polar bears, doing up seat belts on the way.

His abstract stories have a lot of motion: he spontaneously told this story with no obvious prompts. Trajectory language and imagery are foregrounded: his imaginary friends go in an aeroplane, it crashes, they jump out, then his family goes in the plane. This shows ideas developing abstraction using stories:

Moggy, Clifford, Emily go in the aeroplane. It crashed. They go in the aeroplane. They get out, jump out on the grass. And a crocodile. And a turtle ... and Mummy and Daddy, Jamie, Mattie. We go in the aeroplane.

He often becomes really excited when he talks about trains and cars "brmmm" and especially aeroplanes and helicopters "buzzed into the sky".

Matthew is moving trains along the tracks saying enthusiastically: 'Brrrm, brrrm.' I say: 'The trains are brrming along, they're rushing along.' Matthew is delighted and he and I repeat many times: 'Brrm, brrm, rushing, ... brrm, brrm, rushing...' as we push our trains along.

Michelle's introduction of trajectory words matches his interests well and thus reinforces his language and involvement.

On another occasion while swinging (a trajectory experience) with Nyah and Shivani at playcentre they developed a story about flying to the moon. Matthew used elements of this story, and the polar bear journey described above, many times over the next few months.

Family discussion in the car almost one month later:

Charles asks if Matthew's imaginary friends Moggy, Clifford, and Emily are coming with us. This leads to a flow of conversation about aeroplanes going to the moon.

Matthew: Yes, they're flying in a plane to the moon with Mummy, Daddy, Jamie and Mattie. And muesli bars and lollipops and a crocodile and chippies.

Me: Like at playcentre in the swings?

Matthew: Yes.

Me: What will the crocodile eat?

Matthew: Not eat me. ...

Me: Good. What else could it eat?

Matthew: Trees.

Jamie: There's no trees in space.

Matthew: Grass.

Jamie: There's no grass in space.

Matthew: Fish.

Jamie: There's no fish in space. Maybe planets.

Matthew: Yeah, planets. They both erupt in laughter.

He enjoys open-ended questions to get both him and his friends thinking, and he picks up other children's ideas to incorporate in later stories, both at home and at playcentre. As parents we are able to make links to some of these ideas because of our knowledge of what happens at playcentre.

Extending trajectory ideas

Matthew enjoys these stories and being asked to think still further about his stories and what is happening as in the following example. Again, open-ended questions give him a chance to think and come up with creative ideas and use his knowledge.

Going out to a family dinner in the car:

Matthew had wanted to fly: Not I go in the car.

Me: How will we fly?

Matthew (thinks for a moment): In a plane, a big aeroplane.

Me: Where is the plane?

Matthew: Up there (pointing to the sky).

Me: How will we get there?

Matthew: With a ladder, a big ladder.

Me: Where will we find a ladder?

Matthew: Down there in the park (points in the direction of a ladder at a nearby playground out of view).

At this stage he agrees to be flown to the car.

Enjoying achievement

Matthew gets a great deal of obvious satisfaction out of throwing and motion. He often comments on his actions and claps with delight when he achieves a good throw.

Another dimension of his awareness of achievement is his developing ability to verbally pose challenges for himself. Recently he made a nest with two laundry baskets of clothes. I overheard him asking himself, "How will I get out of the nest?... I jump like this... How will I get back in my nest?... Like this" with laughter as he jumped in and out.

Conclusion

Matthew has always enjoyed trajectory motion. This fascination leads to much more than a simple interest in “biffing” things. He enjoys using trajectory ideas and language, and with open-ended questions and ideas from other children, he is building a deeper understanding of his world. He is able to continue incorporating ideas from both home and playcentre to develop friendships, deeper and more abstract thought, and storytelling.

Over the few weeks of the study, we see Matthew exploring his schematic interest (form) across a wide range of materials and experiences (content) and in different contexts: home, on holiday, in friends’ homes, at crèche, and at playcentre. He finds several friends with similar interests and interacts with his parents and other playcentre adults who know his deep interests and how to support and enrich them.

In a very short space of time we have seen him involved in **energetic action, using symbolic representation, exploring functional dependency, able to recount stories without physical prompts (abstract thought)**, and he is but 2½ years old at the conclusion of the study.

There has been continuity in his life between playcentre and home and across playcentre sessions.

Michelle says:

One of the most rewarding parts of the COI for me is the chance to understand what is driving my own children. In our research I’ve really enjoyed looking at Matthew’s schema interests, and all the ways they were helping him in his learning.

Isabelle and her mother Mary

Isabelle is the elder of two children and was aged 2½ at the beginning of the case study. Her brother, Aidan, was 6 months old. She is part of a two-parent family, with the father in full-time paid work and her mother full-time at home.

Isabelle has attended Wilton Playcentre since she was about 15 months old. She does not attend any other early childhood centre. During the study period, Isabelle mostly attended playcentre twice a week with Mary and her brother. Towards the end of the period, she started attending three times a week, including two “drop-off” days when she stayed on her own. This was a significant development for Isabelle, who is not used to spending time away from her parents and who in public situations can appear shy.

Isabelle explores several schemas in her play, but her dominant schema interest has been rotation. Other schemas explored have been: lining up, connecting; enclosure; grids; and sorting/organising, and transporting. An emerging interest in trajectories has been noted near the conclusion of the study.

Rotation

Several of the observations made of Isabelle record her strong interest in rotation. Examples include watching the front loader washing machine go round, an interest in wheels and vehicles (particularly trains), drawing circles and arcs, being drawn to rotational equipment (such as playdough rollers and the carpentry vice), and an attraction to spinning objects (such as coins being spun).

Isabelle's recorded Learning Stories at playcentre have included:

- using paint rollers and stirring mixtures (18/3/05);
- turning handles, stirring a sifter, pushing a doll's pram, extended play with a train set (21/3/05);
- an interest in numbers with a round form;
- extended play with an embosser and drawing circles (20/5/05, 22/5/05, 23/5/05); and
- train play (8/8/05);

and at home:

- enjoying wearing what she calls her "circle dress" which flies into a circle when she twirls;
- stirring a pot (9/6/05);
- creating arcs and circles on a blackboard (15/5/05);
- extended play with an embosser and drawing circles (20/5/05, 22/5/05, 23/5/05); and
- an interest in numbers with a round form (specifically the numbers 6 and 9) (26/4/05).

When given the prompt "I've noticed that you are interested in things going round and round", Isabelle replied "Like tyres". This is an indication of the nature of her interest in vehicles, which could also include schema interests such as connecting (train tracks), transporting, and/or trajectories.

A clue to the intensity of her involvement with an activity can be what has become known as her "schema face". While not exclusively adopted while she's exploring rotation, her open mouth and frown of concentration are hard to miss. It is an expression of her intense absorption in the activity at hand.



A good example of how my knowledge of schemas has helped me is a group of observations on 20, 22, and 23 May 2005 at home and at playcentre.

At playcentre, Isabelle used an embosser to pass small pieces of paper through rollers by turning a handle. No stencil was used, so no impressions were made on the paper. Absorbed in this activity, she was very protective of the blank pieces of paper she produced. At one stage, another child (K) approached and picked up a blank piece of paper from the pile. Isabelle said ‘No!’ and stopped him with her hand. I gave Isabelle a standard line about sharing at playcentre. The issue was resolved when it was agreed that as there were two piles of paper, K could have some from the other pile.

Closer observation on my part revealed to me that the pile that was out-of-bounds to K had already been rotated through the embosser. I noted on my observation sheet:

I was wrong on reflection to ask her to share with K the pieces of paper that had been rotated—this was as bad as letting a child draw on another’s completed artwork!

The small pieces of paper were not blank to Isabelle. They seemed to represent an act of rotation—something of great interest to her. Forty-three pieces of paper were taken home to show Daddy that evening (an indication of just how valued they were). Her father matched her enthusiasm with appreciative “oohs” and “aahs” as each apparently blank paper was produced. Two days later at home, she drew circles on each piece and showed each to both of us (one by one). She repeated the activity at her next playcentre session (although during part of this observation, she also used the embosser’s stencil to make impressions on the paper).

The pieces of paper were very important to her, and seemed to represent the action of rotation she had performed on them. She later appeared to underline what the papers represented to her by her circular drawings on them.

Progression in thinking

Isabelle's interest in rotation shows elements of progression reflected in her **motor actions** dotted throughout the Learning Story observations:

- twirling and spinning herself around;
- a fascination with stirring the pot;
- watching the front-end loader washing machine;
- train play-wheels going round;
- roller painting; and
- attraction to spinning objects: coins, merry-go-round, hula hoops;

and in her interest in her schema-related stories:

- about trains and tractors with wheels; and
- a favourite story is *Samuel Whiskers and the Roly Poly Pudding*;

to her **symbolic representations**:

- drawing lots of circles and arcs, progressing from energetic circles and arcs with large rotational movements, both at home and at playcentre;
- mark making which imitates formal writing. Isabelle starts with small, fine, circular "letters". She finishes with some bold, circular flourishes (August 2005);
- her first drawing of a person with a schema at its core. The person is Christine, her friend Andrew's mother. A circular body and circular head are evident. There are arms with fingers coming from the central core and legs going from the body to the bottom of the page;
- an interest in numbers and letters with a round form;
- role play of the *Roly Poly Pudding*, wrapping herself up in a rug; and then
- rolling on the floor. (We categorised "rolling on the floor" as symbolic since Isabelle was acting out the roly poly pudding.)

Isabelle's dispositions show in her intense interest in things that rotate, accompanied by her involvement and persistence in her explorations as well as in communicating her ideas through role play.

Perhaps the most significant way that the Wilton Playcentre community has supported continuity and progression in Isabelle's learning is through the essence of playcentre's practice: that is, playcentre as a family affair. A feature of Isabelle's playcentre community is that the whole family is involved—younger siblings, older siblings, fathers, mothers, and anyone else who is part of the child's family. For Isabelle, this is illustrated by her special friendship with Andrew. Like Isabelle, Andrew is an older child of two. About 2 months younger than Isabelle, he has a little sister 2 days older than Isabelle's brother. Both mothers do duty at playcentre and are at home

full-time; both fathers work full-time at the same workplace but the families met primarily through the playcentre connection. Isabelle and Andrew share a passion for trains and look forward to each other's company on the one session a week they share. They also play together outside playcentre, mainly during school holidays. I believe that the friendship feeds directly into Isabelle's sense of belonging at playcentre and Isabelle's ability to feel comfortable when I do not attend, even on sessions where Andrew is absent.

Examples of their friendship crop up in a number of observations made during the study. Significant examples include:

- 21/3/05—At playcentre, the observer notes that Isabelle and Andrew share “lots of ecstatic togetherness”, while another team member notes that Isabelle appears to be the most animated she has seen her.
- 19/4/05—A home observation includes an extensive child-initiated monologue involving Andrew, his little sister Amy, and other playcentre children.
- 20/4/05—A home observation includes a child-initiated monologue in which Amy's attendance at playcentre is talked about.
- 2/6/05—Another home observation includes detailed child-initiated talk and related actions about Christine (Andrew's mother), Andrew, and Amy. During play, Isabelle assigns roles that parallel her own family situation (that is, her mother is to be Christine, she is Andrew, and her little brother, Amy). Christine reports that Andrew played a similar role-playing game using Isabelle's family for up to 2 hours at a time.
- Isabelle's rotational first picture of a person was of Andrew's mother.

The involvement of the whole family in playcentre helped support continuity and progression in Isabelle's learning by highlighting that she has something in common with another child (the parallel families). This seemed to deepen her feeling of wellbeing and belonging. Parents and children are visibly part of the same community of learners. This is further supported by play together outside of the playcentre sessions. A strong sense of belonging and ease about her surroundings is far more likely to result in a setting conducive to learning, especially for a child like Isabelle who is not used to spending time away from her parents.

Observations of Isabelle at home show her thinking about her playcentre relationships, which in turn feed into her play during playcentre sessions. Over the last 6 months, Isabelle has been taking some significant steps towards (eventual) independence. Her playcentre relationships have been a very important part of this.

Mary says:

The case study is a lovely snapshot of Isabelle's learning at these moments in time. On reflection, this was at the peak of her interest in rotation.

Schema theory was particularly useful for interpreting her behaviour and providing new developmental opportunities. Now Isabelle is more socially aware and more outgoing. She has increased her circle of friends and is more involved in dramatic and imaginative play.

Her art focuses more on layers of colours and covering the canvas rather than bold circular movements. Her schema interests appear to be broadening and are more difficult to define and interpret as her learning becomes more sophisticated and complex. Formal observations of our children or just recording in note form what they are up to has been incredibly useful in confirming our children's interests and passions. Observations have provided insights over time on how our children change and grow and provide precious memories for the future. I have found that knowledge of her schema interests has helped me to re-interpret and deepen my observations of her behaviour.

Keir and his mother Sarah

At the end of the study Keir is 3¾ years old. His older sister, Merryn, is 5. His father, David, works full-time and Sarah, part-time.

Keir and Merryn have attended a combination of crèche and playcentre. When Keir was 3 weeks old we all started at a playcentre and from 6 months, he attended Merryn's crèche as well. We moved to Wilton Playcentre when Keir was 3 where both children settled in very quickly. Merryn is now at school.

Merryn and Keir have a very close sibling relationship, frequently choosing to play with each other in preference to other children and feeding off each other's ideas.

Keir often seems to use several interconnected schema interests to investigate a particular "thread of thinking". Four are currently dominant: horizontal/vertical trajectory; enclosing/enveloping; sorting/ordering/spatial patterns; and connecting/constructing. I have noticed an incremental progression through these four schemas over time, culminating in this present cluster.

I have chosen to focus on one of Keir's longest-lived interests: his trajectory schema. He first showed this around 7–8 months old, dropping and throwing things from his high chair. He has always been very preoccupied with action and movement and at 18 months he was described by a crèche teacher as "a dynamo, full of unlimited energy". When he plays with vehicles or rides bikes or scooters he moves at top speed as if he is more preoccupied with the speed of the activity than where he is heading. He loves to be flown through the air by his Dad. He is fascinated with falling water.

At crèche he delights in playing in a rainstorm created with a hose. First, Keir tries to catch 'rain' with a pot and then runs through squealing in delight trying to catch it in his mouth. His crèche diary reports: 'Keir has so much fun running in and out of the 'rain'. He is smiling non-stop ... he gets absolutely soaked and loves every minute of it and his laughter is so great to listen to!'

When drawing waterfalls he chants 'water falling, water falling' as he paints different coloured lines down the page. He spends much time pouring water between containers, and seems to be more concerned with the motion of the water than with the filling of the containers. His favourite letters to draw are i's and j's which utilise a trajectory movement.

When presented with shredded paper Keir throws it up in the air laughing and watching the motion of the paper flying up through the space and falling down again.

Keir drew a slide with some steps and when he drew the motion of someone coming tumbling down the slide, he represented the speed of movement with energetic rotational swirls. It seemed to be important to him to represent the speed and the movement as well as the structure of the slide. Keir and Merryn spend an afternoon rolling, running and jumping onto the couch, doing head over heels over the couch arm and rolling off onto cushions on the floor. A few days later they place mattresses over the couch like giant slides and throw and roll balls down the mattresses. Keir squeals with glee every time the balls roll down across the wide expanse of the mattresses. Sometimes the balls roll in directions he does not expect, sometimes they go faster than others, and sometimes he throws them rather than rolls them. These experiences give him the opportunity to observe the speed and direction of the balls and their movement in space.

Keir's trajectory schema is still strongly evident at 3½ years old, and now seems to be showing signs of refinement and increasing complexity. He is currently fascinated with things that have impressive independent propulsion, e.g. fish, birds, kites, helicopters, trains, and volcanoes.

How Keir seems to build up and work on his theories of volcanoes

Since Keir was involved in making a volcano at his crèche in January 2005, he has become very pre-occupied with volcanoes. They seem to feed into his strong transforming and trajectory schemas.

At first he stands back and watches with the others, then his curiosity gets the better of him ... he has to be right in touching, feeling and in Keir's words 'getting burnt'. He watches intently and his face lights up as the volcano bubbles over.

Three months later, on a visit to the library, Keir chooses a book on volcanoes, having retained his interest over this period.

At home, the next evening, Dad reads the book to Merryn and Keir at bedtime. Next morning Keir asks me to read him his book on volcanoes. Before I manage to open it he says, 'It's got a middle in it that's like an egg and it turns into fire and there's a man standing at the top.' Sure enough on the first page there was a cross-section of the earth through the earth's core to the outer crust. Merryn says to Keir 'That's not fire. It's lava.' Then she points to the cross-section of the earth. 'That's hot metal (she points to the core). That's melted rocks (mantle) and that's hard rock (outer crust).' Keir points to the rising magma at the vent and replies, 'That bit's very hot and you don't touch it!' Merryn says, 'That's the lava. After a long while they don't explode. They just turn into hills.'

This example shows Keir digesting information read only once before to him, and regurgitating and discussing his theories on volcanoes with Merryn. After reading the book again, I tell them David and I have been to Hawaii and seen an erupting volcano and walked across a lava field. I show them photos of the lava field and the erupting volcano and also find them some lava, basalt, and pumice that we have brought back. They are really excited and decide to take these things to crèche to share with their friends. The next day they say that everyone was really interested in the photos and that the rocks are on display on the nature table.

A hailstorm wakes Keir at night. "I thought it was lava. I heard it going 'flick, flick, flick'," he said. I am intrigued that he is imagining how lava might sound.

At the beginning of May, Keir notices hot steam rising out of the bathroom into the hallway. "It's like lava! Can we do some experiments at playcentre on lava rising up?" He remembers the experiments that I had carried out over 5 months ago at our previous playcentre using hot water with dye, immersed into a jar of cold water to illustrate how warm water rises. "Yes we can!" I reply and we do.

The next week at Wilton Playcentre Keir adds vinegar to baking soda in the volcano that the children have made in the sandpit and watches enthralled as the volcano froths up. 'It's lava,' he says to me, pointing at the froth. He then takes a spade and digs down very fast. I ask, 'What are you doing?' 'I'm trying to find the magma,' he replies. Keir brings his prior knowledge of volcanoes, from reading books and having discussions with adults, to his play. His language and actions demonstrate his understanding that lava erupts at the surface of the volcano and is fuelled by the magma from underground.

On 27 May, I carry out the hot water rising "volcano experiment". He is fascinated by the rising red dye plumes. "It's like magma," he says with a satisfied smile. There is much discussion amongst all the children about how the dye is moving and mixing with the cold water.

The volcano interest continues: e.g. "Keir feels the concrete wall on the way to Merryn's school: 'It feels like lava.' In early July, over 3 days at home, he does three high-energy drawings of volcanoes, each time chanting, 'It's erupting, it's erupting, it's erupting.' He makes a volcano out of sawdust."



Keir paints his face orange, red, and green announcing, 'I'm a volcano', whilst puffing his cheeks out pretending to erupt. At home (August) Merryn tries to pull Keir up onto the bed. She says, 'Baby I'm saving you. I'm pulling you up from the lava. Hang on. I've got you!' She pulls him onto the bed. A few minutes later I hear Merryn shouting 'Run! Run from the lava!' and they come running out from the bedroom. Keir shouts, 'It's chasing me. The fire's chasing me.' Merryn says 'Fire burns wood remember. So we're not allowed on the wood.' They run down the stairs, taking care to stay on the carpet runner and miss the wooden stairs, running as fast as they can from the flowing lava.

August 30: Merryn selects a *National Geographic* book on volcanoes from the library. The next day I read this to Merryn and Keir. It is much more detailed than Keir's previous volcano book and refers to plate tectonics. Keir asks "What is plate tectonics?", and I try to explain this in simple terms. Now I am trying to resolve "What next?" in Keir's discovery voyage into the world of volcanoes. I make a mental note to draw him a diagram to illustrate plate tectonics, to show him how the world looked in Gondwanaland before the continents moved to their present configurations, to visit Ruapehu on our travels north at Christmas, and to take him to the geological display at Te Papa to see footage of volcanoes erupting and feel a simulated earthquake.

These observations highlight connectivity and continuity between Merryn and Keir's old playcentre and their new playcentre Wilton, between home and crèche, and home and playcentre. They also show how adult extensions of Keir's interest in volcanoes serve to fuel his interest and increase his understanding and development of working theories on volcanoes, i.e. how they are formed, what they look like, how they work. Adults from crèche, playcentre, and David and I use a combination of library books, photos of rocks and volcanoes, and experiments to illustrate volcanic properties. In addition to this, Keir contributes very strongly in his own active exploration of volcanoes. His actions, visual representations, and language reflect his intense interest in volcanoes. He seems to be using all of his senses to imagine what a volcano is like.

Links between schemas and dispositions

Persistence and "seeing things through to completion" seem to be key dispositions linked to a child pursuing a schema interest. I have often noticed how a child will come back to something again and again, holding an idea in their head and wanting to revisit it, showing a strong persistent nature. I have noticed that when Keir is actively involved in a schema fascination "curiosity, confidence and persistence" are consistently dominant dispositions. He makes a plan and holds it in his head, determinedly persisting, in spite of any difficulties, even if he has to adjust his thinking along the way. He is extremely focused, often working happily on his own or in close alliance with one or two others and will not be distracted or drawn away from his task. His curiosity draws him in and his persistence keeps him there long after others have lost interest. Sometimes Keir talks loudly and enthusiastically about what he is doing, but often he is very focused on his task, working silently and avoiding conversation. Conversation is sometimes an irritation and an interruption to his thought processes. Trying to extend his thinking in these moments could be a destructive process.

Progression in thinking from **motor actions**:

- running and biking at top speed;
- being flown through the air by Dad;
- flinging himself off the couch;
- running through the rain; and
- experimenting with movement of objects;

to **symbolic representation**:

- with drawings and models, e.g. drawings of waterfalls, slide, and volcanoes erupting and making models of volcanoes in the sandpit, hydrophobic sand, and sawdust;
- to incorporating **abstract thinking**:
- fantasy play involving erupting volcanoes;
- retelling of facts from books read to him; and
- understanding the functional difference between magma and lava.

Some might say that volcanic eruptions are the ultimate in impressive trajectory motion. Certainly for Keir, volcanoes seemed to provide an excellent natural extension to his trajectory schema interest.

During the study I also noted that, although Keir shows progressive development, it is not always a steady forwards progression. Rather, he seems to progress in fits and starts, more in a series of steps that sometimes go up, but also go back down again, sometimes lower than before, before moving on upwards again. This is often when he is revisiting earlier activities/discoveries to consolidate and reinforce what he has already learnt. He seems to have moments of apparent breakthrough, in terms of making a big leap in complexity, perhaps relating to symbolic representation or thought processes, that might not be reached again for several weeks or even months.

This study has brought me to new levels of understanding of how children learn, construct, and adjust their thoughts in their journey to make sense of, and fit into, our world.

Josie and her mother Nikolien

As Josie was nearly 5 years old when the case studies began we decided that Nikolien should draw from her records of Josie beginning from when she started at playcentre.

Transforming play, transforming providers

Josie has attended Wilton Playcentre for a minimum of 2 mornings a week, since she was 3 weeks old, initially accompanying her older brother Jamie before she attended sessions independently. She also attended Victoria University crèche because I was studying. Josie turned 5 and started school in the first week of June 2005.

I first came across portfolios and Learning Stories at Victoria University crèche, and was excited by the idea of Learning Stories. On joining playcentre several months later I was handed a scrapbook with “Guidelines on what to collect” pasted in the front. I was hooked and started scrapbooks for both Jamie and Josie right away. So, there is regular documentation of Josie’s significant interests, passions, and learning experiences in scrapbooks compiled by me at home, with photos, comments, and art samples; playcentre Learning Stories and photographs, and art samples; and the crèche portfolios and art samples. The data start when Josie is about 10 months old, and continue right through to her first week in school.

Transforming in her play, transforming her early childhood settings

Josie’s stories show her revisiting and exploring persistent themes, schemas, and interests in her play, from when she was a baby right through her early years, in different contexts, with different children, adults, materials, and environments. She has a cluster of schema interests that have shown up consistently at home, at playcentre, and at crèche over the last 5 years. She has strong enclosing, enveloping, and transforming interests, explored through activities like messy play, smearing soap and anything else on her face and hands, washing, using soap to make bubbles, face paint, make up, playing animal games, and wearing anything with fur. She likes many animals, but especially cats, both big and domestic.

I’ve documented schema interests that have appeared several times and that Josie experienced or was passionate about and these most likely reflect her deeper and more engaging interests. This case study is a small sample of Learning Stories that highlight Josie’s transforming schema, and her contributions to the continuity between her settings.

May 2001: scrapbook (age about 1 year...not yet walking):

At playcentre last week you were ‘painting’ ... eating/exploring orange paint. I picked you up to take you away—you squawked your disapproval. When I put you down in the book corner you crawled around a group, around a display, and back down the length of the room, like a boomerang, back to the paint. How determined you were, and clear about what you wanted.

From this early episode and many that follow we see that messy transformations have a huge satisfaction for Josie. It is as if she is driven to explore the transforming (form) possibilities across a wide range of content and contexts.

Home scrapbook: (Learning Story and art samples: two paintings and then hand prints.) Josie, almost 2 years, is putting her fingers in paint of various colours and transferring it to the paper, and then using a brush to paint her face ... scooping out paint with one hand, touching her painty hand with her clean one, painting her face, having her face painted by her brother and then getting blobs of paint in her hands, slapping her hands on the easel to make the prints.

July 2002: (crèche profile):

Josie has settled very quickly and shows a great enjoyment of and interest in messy play and painting.

This comment is alongside a picture of Josie painting at a small easel and, my comment in the crèche profile:

Josie likes to play with glitter and glue, mixing them together and smearing them all over her hands. This is something she was doing at home.

Full of idealism and vigour, fresh from a playcentre creativity course, I had set up a “making table” for Jamie and Josie to be able to do collage when they wanted. It had glue, glitter, bits of paper, scissors, cellophane, and other crafty/collage bits and bobs. I was so proud, with all the little containers of this and that looking orderly and attractive ... I had all these lovely ideas ... the resources would be available ... Jamie and Josie would make bits of work, and I could put them in their scrapbooks and on the wall...

However, how I **envisaged** the table being used, was not how Josie **wanted** to use it. Josie saw it as an opportunity to **mix up** the resources, and get herself sticky and covered in glue ... empty glue bottle, dripping hands, and a whole container of glitter working its way slowly into a gungy nugget of fluff, glitter, and glue ... everything on the table would be soggy and stuck together ... although Josie knew I would be cross, she was still was compelled to “do mixing”. Sadly gluing and sticking had to be relegated to playcentre because the mess at home was unsustainable. I left a variety of pens and paper, but with the glue and glitter gone, it was a long time before their interest rekindled.

July: (crèche profile):

Josie, with blue shaving foam and glitter all through her hair, is getting soap from the dispenser to wash her hands at the sink. The activity was set up for her, but she ‘took it one step further’ than the staff had anticipated, and she finished up in the shower to get cleaned up.

October 2002: scrapbook (playcentre photos):

The other children have left, but you are still happily pouring and mixing at the potion table, there is some evidence of paint on your face too...

November: 2003: (playcentre):

Aged 3½ “Josie is baking marble cake at playcentre ... she loves baking, especially mixing the ingredients.” Cooking provides a different way to explore transformation, e.g. in peeling and cutting vegetables, mixing ingredients, and the changes discovered once food is cooked.

April 2004: (playcentre):

Josie has been painting hard-boiled eggs for Easter with her ‘potions and messy play’ buddy. Together they discover accidentally that they can crack the eggs and then peel (un-

envelop?) them, and mix the eggs, shells and dye in their bowls, potions style. This is another example of how children ‘apply’ their schemas to activities in ways that adults probably haven’t anticipated.

August 2004: (playcentre Learning Story and photos):

It is a sunny but cold winter’s day. Josie is bathing, mostly clothed with only her trousers removed, in a red basin, and mixing in paint, swirling bubbles, and talking about how the gloop makes the purple in the water easier to see because it is lighter. Josie is enveloped in the basin, immersed in the water which she is transforming. It is almost as if she is part of her own potion.



Term 1 2005: (crèche/preschool notes):

Josie often asks to have messy play activities set up at crèche. Here she does more than find a way in which to explore her continued interest, she actually actively asks for an activity, thereby contributing to the continuity between her contexts herself. An example was the day she asked to make fairy cakes. I arranged for her to take the ingredients with her, and the children made fairy cakes that day.

June 2005: (Josie has started school):

Josie at first said she didn’t like school. “Mummy, I miss playcentre because we don’t do any potions. [Playcentre has] more dress-ups than at school, it has a really big mirror ... I like seeing things change. Can we do potions at home?” She had said this at least three times before.

It will be interesting to see if this consuming passion becomes weaker in the face of far fewer opportunities for exploration being available at school. Will she find or make other solutions?

Children, and their interests provide some continuity

When Josie's Learning Stories are collated, very strong themes emerge. There are considerable overlaps between Josie's interests in transforming and enveloping. Josie is transforming herself with dress-ups, and encloses her body. She transforms her face with paint, but also does an enveloping painting on herself, covering her face and hair. She transforms her hands with paint, also enveloping them, and then washing them ... transforming them again, or perhaps un-enveloping them? Her interest in hoods and tails could be Josie transforming herself into the animal or enclosing her head. The categories are less important than the evidence that her themes have been consistent, and that she has found ways to explore them in different environments.

Josie consistently demonstrates her interests across time and contexts. There is evidence that Josie has actively contributed to creating continuity between her settings, rather than simply using the materials available to explore her interests and passions.

Josie often discusses with teachers at crèche the types of experiences she has been enjoying at playcentre and asks for materials and equipment to explore the same learning experiences in the preschool setting.

Thinking about Josie's "Transition to School" report from the university preschool/crèche, it is impossible to know what motivated Josie to talk with her educators at crèche about her playcentre context. Was it only her compulsion to create the learning opportunities that she felt she needed? Or was she encouraged and supported to do this because she saw and heard me sharing information about playcentre with her teachers and saw that they were interested? We shared pictures from playcentre, and two of her playcentre friends also attended crèche with her. It is possible that these factors also contributed somewhat to Josie's proactive management of her learning environment.

Implications for us on session

As educators and parents, we have to listen acutely. Perhaps our children are often trying to link their environments, and clue us in to what they have been doing while we were away. We don't realise the links they are making, the continuity they experience, and sometimes don't get the context, especially with younger children where we might assume that their thoughts and interest are not logically (to our adult minds) connected. To the children, however, their thoughts are connected, and it is up to us to really reflect and communicate to keep up with them—they are way ahead of us!

It seems to me that children, especially younger children, are not aware that we don't know everything that they know, and everything that's happened to them. Without being able to articulate it, our children assume that we know what they know, they assume our continuity of knowledge of their lives, and hold conversations with us with that expectation. It is up to us to do our best to live up to their high expectations, and hear as much as we can.

Nikolien concludes:

The process of observing Josie and talking with her about her play, looking at what she is drawing and thinking about what she has said and using that to extend and develop my conversations with her is, for me, a continual process of reflection and development.

And so I learn from my daughter about ‘transforming’ and what it means for her, and I relearn that schemas have an almost compulsive aspect, and she learns to negotiate.

Conclusion

Each case study has shown progression in the children’s schema development. All have demonstrated the sensory motor action and symbolic representation stages.

Rosa, in her desire to reach the computer, leads us to think that she has made the connection of “if I do this, then that will happen” even though she is not yet able to verbalise this (functional dependency).

Matthew was working on functional dependency when he knew that by throwing a big rock into the river he would make a “splash up to the sky”, as was Keir who knew that he might find the magma underneath the lava by digging down into the volcano: “I’m trying to find the magma!”

Although former studies have found that abstract thought is hard to identify in children of this age, we wonder if Matthew’s story of Moggy, Clifford, and Emily going up in the aeroplane may be such an example.

Hand in hand with the children’s determination to explore their schema passions we have seen their dispositions of curiosity, playfulness, being involved, engaging with challenge, perseverance (sometimes in the face of difficulty), expressing an idea or feeling (verbally or non-verbally), and taking some responsibility for their own actions in joint attention episodes with others.

Rosa, Matthew, and Josie began at playcentre when they were babies and from a very early age had developed the sense of wellbeing and belonging in what seemed like their second home. They also had the advantage of being accompanied by their parents and their older siblings.

Josie, from the age of 10 months and beyond starting school, shows her ongoing passion for transformation and enveloping. Nothing deterred her efforts to experiment at playcentre and crèche. At times she ensured that there was provision for her transforming explorations by asking for what she wanted.

Isabelle’s fascination with the rotation of the embosser and her schema face are evidence of the intense concentration involved in exploring a schema idea.

Each case study also provides evidence of continuity in learning. The children’s explorations of their schemas continued across playcentre sessions and between playcentre and home and crèche

and the homes of friends. Older siblings and friends were seen to enter into the play and offer new ideas and challenges thus stimulating continuity.

For Isabelle, having a friend at playcentre who has similar schema interests has made it possible for her to happily spend time at playcentre without her mother.

A key factor which has supported this continuity is the adults' knowledge and understanding of children's schema interests. Thus, team members and parents are able to communicate across the different learning contexts what their children's driving interests are and help to enrich and extend them. Behaviours which might once have worried or exasperated them are better understood, if not always accepted as appropriate. Interesting alternatives are sought.

Throughout the studies, parents engaged with their children, following their lead, showing a genuine interest and appreciation of their children's learning and providing extra content and possibilities for extension. They speak with delight and an air of excitement at the insights of and understanding they have gained of their children's thinking and "coming to know".

7. Documenting assessment and planning

This chapter discusses the results of research into ways of documenting assessment and planning. We wanted our documentation to record relevant information that contributes to quality sessions, and for the documentation to assist in providing continuity. We also wanted to bring together dispositions and schemas into a single usable framework, which could be of value to other practitioners who draw on these approaches. The chapter reports on development and trialling of a new assessment and evaluation format, and its value as a tool to heighten awareness of children's thinking and dispositions.

Background

Wilton Playcentre has historically used two standard forms on session for assessment and planning. One is the Learning Story form used for observations, and the other is a form used to evaluate sessions and to plan for future sessions. The Learning Story form was developed by the Educational Leadership Project and based on Carr et al.'s (2000) Learning Stories framework.

A Learning Story is a documented account of a child's learning event, structured around five key behaviours: taking an interest, being involved, persisting with difficulty, expressing a point of view or a feeling, and taking responsibility (or another point of view). These Learning Stories accumulate over time, and are used by practitioners for individual planning: to move a child on to the next step in the story structure, to make any one step more complex, or to encourage positive Learning Stories to become a habit, a disposition, and an expectation. Each step in the story structure reflects well-defined skills and understandings, specific to the programme and to the context within the programme (the particular interest); the steps parallel the strands of the early childhood curriculum (Carr et al., 2000, p.7).

The form had room to write a narrative of a Learning Story. The five dispositions were listed in boxes alongside the narrative, so the observer could make links between the Learning Story and the dispositions.

The evaluation form was developed by centre members and several versions had been used in recent years in an effort to improve assessment and evaluation practices. One page of the form had places to record operational data about the session—such as the food provided, and the names of the team members. Adults ticked a box relating to each child if they had had a significant interaction with that child during the morning. The purpose of this system was for adults to reflect upon their interactions with the children, and to identify if any child was not getting much adult

attention. A question on the form asked adults to discuss the play that morning and to plan for future sessions.

Why we wanted to develop the Learning Story form

At the beginning of the COI project we were using observational records of schema interests and Learning Stories to aid assessment of and planning for children's learning. The parent interviews recorded at the start of the project show that parents had an understanding of the concept of schemas, and Learning Stories and case studies discussed in earlier chapters indicate the application of this knowledge in assessment and planning. Matthew's trajectory schema was observed in a range of different play—squeezing sponges, throwing rocks, going on journeys, and playing kangaroos and horses. Matthew's parents and his older brother added to his experience by talking with him about his interests, and we saw Matthew's journey stories and play develop in richness of content and in the links he made. In fact, undertaking the COI research fanned this interest in schemas even further, as we learnt how to use schema interests to progress children's learning and make it more complex, and not just to identify their interests. For example, Isabelle's interest in rotation was noticed in Learning Stories, and seen in later stories to progress to drawing circles. When Isabelle's father appreciatively examined the apparently blank pieces of paper Isabelle had rotated through a paper embosser, he encouraged her by taking her interest and work seriously.

Given that schema interests were being spotted, discussed, and assessed informally when adults worked with children, members wanted to record this and integrate information about particular children's schema-based learning into observations.

We were also influenced by Gill Poplur's argument in her master's thesis (2004) for purposefully bringing schemas and Learning and Teaching Stories more closely together. She maintains that the interpretation of schemas and the development of dispositions do not need to be observed exclusively from one another. Gill Poplur suggests that if observations of children's schemas were recorded in conjunction with Learning Stories we would be in a much better position to richly interpret children's thinking processes. We came to believe that schemas are helpful in illuminating children's *inner-directed* learning while Learning Stories illuminate children's *dispositions* for learning. Because schemas were an integral part of the way members worked with children, members had informally come to share this view that schemas and dispositions are linked. Josie's case study is an example of how her dispositions of persistence, communication of ideas, and taking responsibility for her own learning enabled her to regularly explore her transforming schema. Although Josie controlled the content of her play, adults supported her by the resources we provided and the interactions we had with her. We usually provided a potions table for Josie. We would vary what was available for her—sometimes it was bowls of gloop and dyes to mix, and sometimes it was bowls of sawdust, sand, and flowers. Often we did baking or made pizzas. Adults would play and mix alongside, making observations about the properties of the ingredients. Josie would usually be transformed herself, wearing animal costumes or layers of fairy dresses, and adults would let her wear these clothes despite them becoming covered in potion mixtures.

Another issue with our Learning Stories was that they were sometimes not used effectively. They were not accompanied by photographs, so were not always engaging, particularly for the children. In addition, they were not necessarily linked with evaluation and planning.

Evaluation form

We wanted to redesign the evaluation form to improve its use as a tool for understanding, and then providing for, children's learning. The baseline data review carried out in the first year of the COI research showed that some information recorded was not used again, and that important information relating to children's learning was not recorded or was not easily found.

Team members ticked the box relating to each child if they had had a significant interaction with the child that morning.

We wanted an evaluation form that would:

- record information in such a way that the information is used on future sessions;
- document schemas as part of assessing and planning ways adults might extend children's learning as well as strengthening positive dispositions; and
- gather information from home and outside playcentre that can be used in assessing, planning, and working with children.

Methodology used in redesigning both forms

The action research cycle involved developing several drafts of both the Learning Story form and the evaluation and planning form. The Learning Story form has become known as the Learning and Teaching Story form, to emphasise the adult's role in the child's learning.

Drafts were worked on by a small team including centre members and one of the associate researchers, and with input from Anne Meade. These drafts were distributed to members for feedback, amended, and used for a trial period on sessions after being explained to members. Members gave feedback after the trial period, and a new draft was developed. Six drafts were developed, and two of these were trialled. In revising the forms, we also drew on other findings in our research.

The teams' feedback

Some teams thought earlier drafts of the forms were too long.

Recent uses of the forms show that teams continue to find that there is not always enough time to adequately fill out the forms, especially the evaluation form, as team members are tired, children need sleep, and children playing while the evaluation is going on distracts team members. However, as Emily said:

It's better to have the form and sometimes ignore it rather than not have it.

Erik explained that even though the forms may not be thoroughly filled in, nonetheless, his team used the form to evaluate the morning's session:

As a team we would keep a discursive flow and seek to bring out the richest thoughts and reflections upon the session, through that flow. Actually I think the form is very good at gently guiding the discussion, but that often it is very hard to make notes that are accurate recordings of the whole discussion.

One of the two researchers collecting feedback on a nearly final version of the form said:

Overall the teams were enthusiastic and were pleased to see their comments incorporated.

Outline of the redesigned forms

Learning and Teaching Story form

The form uses the headings “Noticing”, “Recognising”, and “Responding”, (taken from Cowie & Bell, 1999) to guide the observer from noticing play, to recognising schema interests and dispositions and identifying what the adults did during the play, and then to responding—asking what we can do next to support or extend the child's learning.

In the analysis section, there are headings prompting thinking about schemas. The observer is asked to consider progression of a schema by considering the level at which the child is exploring the schema, whether through actions, representation, or in the abstract. The observer is also asked to consider the child dispositions seen in the period of play, and the principles of *Te Whāriki*.

The form has room to write in comments the child might make then or later about the play, and comments from the parents. These comments might arise, for example, when the child later sees the photographs displaying the morning's play, when the child is looking through their portfolio of Learning and Teaching Stories and photos and work, or when the parents come to pick up their child and talks with the team members.

Following is an example of a Learning and Teaching Story using the new form.

Figure 1 Learning and Teaching Stories form

Learning and Teaching Stories Form

Interest/title: Rosa exploring water Date: 18/10/05
(Activity, Role or Schema/s)
 Child(ren)'s name(s): Rosa
 Observer's name: Michelle

NOTICING

Learning or Teaching Story (include adult, if appropriate)

Rosa is in the sandpit with the hose, with a gentle stream.

She is intent on what she is doing watching as the water comes out, putting her hands into the stream, feeling the water and trying to hold it.

She watches as it pours into a puddle in the sandpit, then moves it to dry sand, then the grass. She does this slowly, watching for at least 1/2 min each time.

She drinks from the hose, she feels the water again.

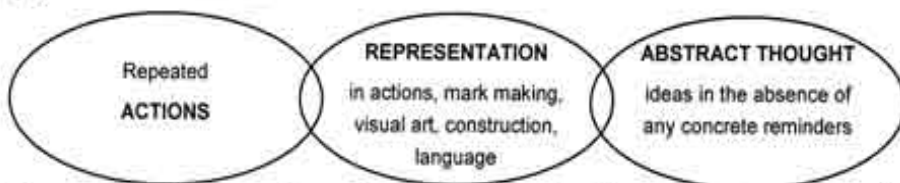
She pours it into 2 buckets after rigging each one, alternating between the yellow + blue one, then adds sand and animals to 'almost fill it up.'

She then goes back to drinking and alternates feels the water for another couple of minutes then goes back to trying pouring water on different surfaces again: sand, on the edge of the sandpit, plank with old paint on it - she crouches down and watches intently. Then she points the hose up and puts her finger on the end, then touches, + drinks the water again.

Parent Voice	Child(ren)'s voice
Rosa has done a lot of play with water in these ways over a period of time.	Rosa looked at the photos
The first learning story I did about her involved the hose in the sandpit	'Rosa paint on face'

RECOGNISING

(A) Child schemas



Repeated explorations - trajectory movement of water on different surfaces
 I felt she was actively exploring what happened / cause & effect - watching what happened when she put the hose on different surfaces

(B) Child dispositions

BELONGING	WELL-BEING	EXPLORATION	COMMUNICATION	CONTRIBUTION
Finding an interest	Being involved	Persevering	Expressing an idea or feeling	Taking responsibility for justice and fairness

(C) What the adult(s) did?

How did they respond to the child to enrich schemas or foster dispositions?

Adults allowed Rosa to use water over time to explore

(D) How does this Learning and Teaching Story illustrate one or more of the Principles of Te Whāriki?

Empowerment	Holistic Development	Family & Community	Relationships
-------------	----------------------	--------------------	---------------

Rosa empowered to explore fully

RESPONDING

What Next?

Feed this into session evaluation and planning (Think about equipment, materials, language, excursions and books, adult-child interactions, progression)

Rosa finds heaps of interests here at playcentre. Giving Rosa space to explore but also adults start to talk to Rosa about what she is doing
 Build up relationships with other adults

Michelle, the observer, has “noticed” Rosa’s play with the hose in and around the sandpit. Under the schema heading, Michelle has noted that Rosa seemed to have an interest in a trajectory schema. She thought that Rosa was exploring cause and effect. Michelle circled the “finding an interest” and “persevering” dispositions, and wrote that Rosa was empowered to explore the hose in the sandpit fully.

Rosa’s mother has drawn a link with home, writing that Rosa has done a lot of water play over time, and recalled a Learning Story she had done 6 months earlier when Rosa had been playing with the hose in the sandpit. Rosa’s voice is also recorded.

A plan is made to continue to give Rosa space to explore and to try adding to her experience by talking with her about what she is doing. It is significant that Rosa was able to play for an extended period with the hose, because the volume of water can interfere with other children’s play. Team members try hard to accommodate children who have a fascination with hoses and how the water flows and affects different surfaces. Michelle’s comments that “adults allowed Rosa to use water over time to explore” and “Rosa empowered to explore more fully” indicate that efforts were made to ensure Rosa was able to explore to her satisfaction the effect of the water. Team members noted Rosa’s interest seemed to be the trajectory nature of the water. Subsequently, they brought along ice shapes and suspended them, so Rosa could examine the way the water dripped as it melted. Later, in writing this report, we recognised that we could have made more plans for Rosa’s learning than we did at the time, for example adding new vocabulary and helping Rosa become more conscious of her thinking. Adults working alongside Rosa with the ice could have described the speed with which the ice melted, its downward trajectory, and asked how it was different from water coming out of the hose.

Evaluation and Planning form

The new Evaluation and Planning form also uses the headings “Noticing”, “Recognising”, and “Responding” to structure the evaluation discussion and write-up, seen in the example in Figure 2. The first part of the form, and the biggest area, asks simply “How did the session go today?” Prompts for this discussion include considering planning points from the previous week, and questions to consider the adult’s role in promoting the dispositions, for example “Belonging—Do you know me?” and “Exploration—Do you let me fly?” Adults are in this way prompted to think about how their future interactions with the child can add to the child’s learning experience.

On the second page the discussion turns to the session’s focus child⁹ and the Learning and Teaching Story for that child or children (if the focus child is observed playing in a group during the observation) is discussed, ensuring that the information is shared by the whole team. Team members can add in their informal observations of the focus child to give a fuller picture.

⁹ Each session has a different focus child so that every child on the roll is observed and their play documented at regular intervals. This helps to ensure that no child is overlooked. This is a manageable approach within this playcentre.

The form also asks the question: “Reflection—What might today’s session tell us about our noticing, recognising, and responding in this centre?” This question asks the team to reflect more generally on our practices and systems and how well adults are contributing to quality.

Figure 2 Session Evaluation and Planning form

Session Evaluation and Planning Form

Monday, Tuesday,

Thursday,

Friday

Date: 13-10-05

NOTICING — 1. How did the session go today?

- | | |
|-----------------|---|
| Prompts: | <ul style="list-style-type: none">• How did the planning points go for last week's children? — 1st day of term• What went well — not so well?• What were the strong interests of the children?• What did we do to support these interests? |
|-----------------|---|

Good nice to have fine weather

Emma very close to Nyah - started unsettled.

Great to have Ananda + Dave + Harry.

Face painting - child initiated, self painting

Simon very settled and taking responsible roles, doing transporting +

Circuit using step guides, very successful

Puzzles in Wendy House with Matty

Transforming - self paint on Jack's head

Henry exploring - happy in sandpit, swings, with lots of others - baking

2. Was there any child for whom the session did not go well?

A little unsettled in small amounts. Alisha + Emma, Nyah + Shivani

A new term and times of change around each of these

- | | |
|-----------------|---|
| Prompts: | <ul style="list-style-type: none">• Belonging – Do you know me?• Wellbeing – Can I trust you?• Exploration – Do you let me fly?• Communication – Do you hear me?• Contribution – Is this place fair for us? |
|-----------------|---|

RECOGNISING — Discussion of the focus child(ren)

- Share the Learning and Teaching Story together.
- Consider the schema(s), disposition(s) and any illustration of one or more of the Principles of Te Whāriki.

Rosa very self contained in exploring water from base - trajectory qualities. Other observations from earlier in the year found similar things

RESPONDING — “WHAT NEXT” for the focus child(ren)

- How can we support the above child(ren)'s interests? (e.g. providing equipment, materials, language, excursions, books, adult/child interactions).
- Check for progression from previous Learning and Teaching Stories in child's portfolio.

Adults taking space to get in and talk to Rosa about what she's doing

Observation roster updated

Reflection

- What might today's session tell us about our NOTICING, RECOGNISING, RESPONDING in this centre?

25 photos Managed to observe + file photos + complete

Planning for next week

For all the children including the Learning and Teaching Story child(ren).

Something for Emma + Isabell + Shvani

Observe Isabell

Storytelling - Nursery Rhyme suitcase

Lesson time to aim for: 9am - 12.50

Children who need our support.

The team on this session has recorded comments about children’s dispositions—Emma having problems with belonging and wellbeing, Simon taking responsibility, and Henry exploring; and identification of children’s schemas—Simon’s transporting, and Jack transforming himself.

The team noticed several children who may benefit from extra support with belonging, and wrote this up as a planning point for next week.

Rosa’s Learning and Teaching Story was discussed, and the team noted a link with Rosa’s play on previous sessions, her trajectory schema, and her self-contained exploration. The planning point from the Learning Story that adults should take time to talk with Rosa about what she’s doing was shared with the team.

How the forms contribute to quality

Schemas

Both forms use schemas as a tool to consider children’s interests and thinking about those interests. The use of schemas helps adults to identify how to assist a particular child’s learning.

The forms have taken us a step further in using schemas in two ways. One is that the Learning and Teaching Story form asks *at what level* any schema observed is being explored.



Thinking about whether a child is examining a schema through actions, by representing that schema, or in the abstract causes the adult educator to more precisely identify the child’s interest and thinking, and also the steps towards more complex schema learning. Further, thinking about the level at which a child is examining a schema is likely to mean the adult educator is thinking about the child’s progression in their interest in that schema, particularly considering that given the size and culture of the playcentre, the adult is likely to know the child well and to have previously observed the child exploring that schema.

With this information, the adult is better able to interact in a responsive way with the child to add to the child’s learning. The adult can discuss the ideas with the child, talk about links with other play or experiences the child has had, at home or at playcentre, and ask open-ended questions to open up new possibilities to the child. We often find that pushing children in swings becomes a wonderful time for conversations that are creative and unexpected. Children appear relaxed, secure, and are physically engaged. At other times adults can play alongside children. Sometimes children seek out particular adults to take part in their play, usually because they have played with that adult on a previous occasion. Keir often sought out Erik to help him with projects, and Susan

often joined in fairy fantasy play with a group of girls. It seems that the relationship with the particular adult can be an important part of children being responsible for their own curriculum.

Schemas *and* dispositions

The second feature is the linking of schemas, dispositions, and also the strands of *Te Whāriki*. The child's attitude and approach to learning are considered along with their interests, giving a fuller picture of learning and progression. The focus is on the children's cognitive, emotional, and social dimensions and therefore recognises the holistic way children learn.

The principles and strands of *Te Whāriki* are central to the analysis both forms require. At the suggestion of members, we developed guidelines to accompany the forms (Appendix C) which give information about the principles and strands. The guidelines offer other assistance, including a chart showing the links between the strands of *Te Whāriki*, schemas, and dispositions, as well as the suggestion that users read *Kei Tua o te Pae Assessment for Learning: Early Childhood Exemplars* (Ministry of Education, 2004) for good examples of analysis of Learning and Teaching Stories.

Adults' responses

Both forms now ask what the adult's response is to the child's play and so encourage adults to reflect on their practice. The quality of adults' interactions is a key factor in progressing children's learning (see, for example, Wylie & Thompson, 2003). The prompts "Do you know me?", "Do you let me fly?" and so on direct the adult to retain the child's perspective in their interactions. By using this framework, we believe that planning points identified during evaluation will lead to better quality adult interactions on future sessions.

Information is meaningful and useful

The forms also contribute to quality in that the information collected and shared is now seen as useful and relevant in contributing to quality interactions and programme provision for future sessions.

Recording the child's and parent's voices on both forms provides a fuller picture and may often add insights into schematic and dispositional learning.

Learning and Teaching Stories are usually now accompanied by photographs. Photographs make the information more engaging and accessible to adults. They help adults at Wilton Playcentre substantiate suspected repeated patterns of behaviour. Photographs are useful for children who can't read words but can see pictures of their activity. It would be interesting in future to look at photographs and children's comments about them, to see if there are any patterns in what children notice. Sarah said:

And having the photos too has been quite easy to pass on information. If you look at a photo you can talk to someone about a photo and they can say yes, you know, they don't have to ... see it happening.

How the forms contribute to continuity

A chance for the team to talk freely

During our research we have come to realise the very important part the informal ways of communicating contribute to quality in the playcentre. The Tuesday team said:

What is very important is to have an oral discussion which leads to a rich discovery.

We have designed the evaluation form with the aim of continuing our tradition of the whole team for that day joining in with a general discussion about the session by giving the first and largest space on the form over to record points from this discussion. During this time everyone shares what they have seen during the morning in relation to particular children and groups of children. Parents who are new to playcentre hear the sort of information experienced team members share and so learn what insights are relevant to learning. Everyone's contribution is valued and concerns and issues can be discussed. Links are made between play seen at playcentre and what play the team members have seen the children engaged in at home or in each other's houses. For example, Martha said:

Today Sarah planted out some seedlings with Nyah. The seedlings had originally been potted by Nyah and others before the holidays. Sarah commented how Nyah's seedlings were so well potted (only one seed in each pot) and she spent a long time doing this. I told Sarah that Nyah is a keen vege gardener at home and is quite familiar with planting seeds, looking after them etc.

This end-of-session discussion also brings the team together and helps to build good relationships between the adults and so fosters a community of learners.

Specific ways of ensuring continuity

A number of features of both forms contribute to continuity between previous sessions and between home and other settings with playcentre:

- reflecting on last week's planning points;
- making planning points for the following week;
- asking for the child's and parent's voices;
- asking members to look at previous Learning and Teaching Stories and other material in the child's portfolio; and
- reflecting on the children's interests and so building a continuing picture of that child.

A feature of playcentre is that the play is driven by the children. This practice is reflected in the forms in that planning points arise out of what we have observed. We plan so that in the following week's session we provide resources and interact in ways that we hope will support the children's pursuit of their self-directed interests. If children's interests and particularly their schemas are enduring—and we find they generally are—then the children help to provide continuity.

How the forms contribute to progression

Not only do the forms contribute to quality and continuity, but we believe they also contribute to adults' ability to progress our children's learning. By following the noticing, recognising, and responding structure, adults firstly focus closely on the play, then analyse what they are seeing in terms of the child's thinking and attitudes, guided by the schema and dispositions themes in the forms, and then identify how they might respond then, and later, to take the learning further.

Common interests are identified across home and playcentre and between sessions, and importantly, development of these interests is also recorded. The evaluation form guidelines ask members to check previous Learning and Teaching Stories from the child's portfolio to identify any progression. The team reflects on the outcome of planning points from the previous week. This reflection is one way, as Anne Meade has said in discussions with Wilton members, of responding to children learning in loops, seen when children return to ideas they have explored in past sessions or at home.

Summary

An underlying aim of the Learning and Teaching Story form and the evaluation form is to help us to come to know the children well. The focus is on the children, and particular attention is drawn to children's dispositions and schema interests. Other important features are the collection of the child's and parent(s)' voices, and links made between sessions, home, and other places.

We believe the forms promote good practice and foster a community of learners because they lead adults through relevant considerations and ask adults to consider the quality of their responses to children. The evaluation form facilitates an environment where less experienced members learn from more experienced members which observations are relevant. Also, the evaluation form asks adults to reflect generally on our practices and systems and whether they are contributing to quality. Another important outcome is that the process of working through the evaluation form tends to build good relationships among the adults. Time is given for people's feelings and concerns to be discussed. This process contributes to the community sharing a feeling of wellbeing from which children must benefit.

We have tried to design the forms so that they help us to progress the children's learning. The noticing, recognising, and responding structure in the forms leads adults to identify and assist progression. Planning emanating from observations also leads to ideas to use when there are opportunities for adults to foster progression. The forms examine continuity—between sessions, home, and other places outside playcentre, including past sessions—which leads to a discussion of similar but different play at different times.

We believe that the redesigned Learning and Teaching Story form and the evaluation form will improve the quality of how we provide for and interact with the children, and we hope that other centres may find these forms useful.

8. Continuity and quality

Introduction

We wanted to identify areas where quality education was evident at Wilton, and also to find areas where we could improve quality. With this information, we would be able to continue quality aspects of our provision, and to improve where necessary.

These findings would help us to draw conclusions on our research questions, particularly the questions relating to pedagogical approaches and children's learning in Wilton's journey through the course of the COI project and the role of documentation in maintaining continuity and quality across playcentre sessions and between home and playcentre.

We also wanted to examine continuity between sessions and over time. Sessions are run by a team of parents/caregivers who are responsible for the same session every week. Therefore you might expect continuity across Mondays, for example, but not necessarily from Monday to Tuesday. As well, we were interested to see whether initiatives introduced during the COI period, such as those described in Chapter 4 on literacy measures, increased quality. Finally, we wanted to find out whether there were variations in quality on these measures across the teams.

Ratings of process quality

With these aims in mind, process quality was rated. For the baseline phase we did the ratings on two occasions for each session and averaged them. For subsequent phases we did the rating on one occasion for each session. The quality rating scale is contained in Appendix D.

The highest possible rating is 5, and the lowest possible rating is 1.

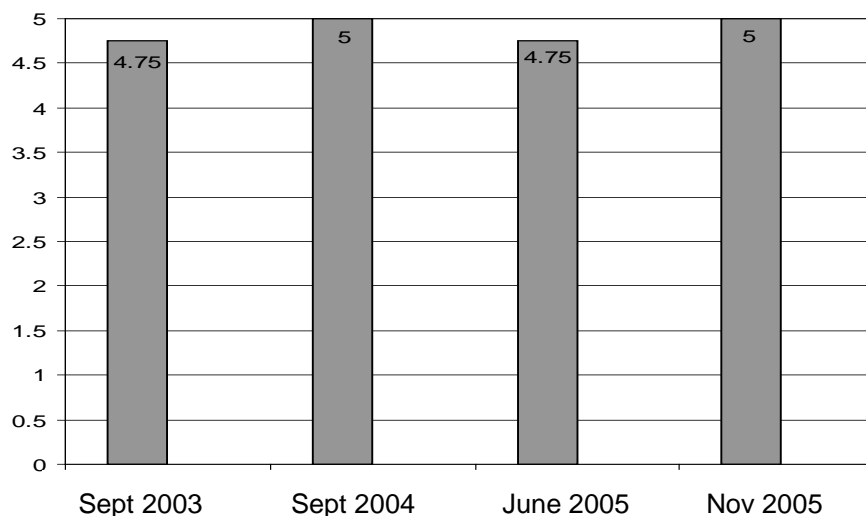
Results

Quality across three years

A significant number of items—14 out of 34 items rated—scored very highly across the 3 years (scores of 4.75 out of a possible maximum of 5). These high-scoring items included most of the items that related to adult-child interactions, adult-adult interactions, resources, and some of the items relating to the education programme. These last items will be discussed shortly. Another 4 of the 34 items had scores of 4 or higher across the 3 years.

An example of one of these items showing consistent quality over the 3 years is the item scoring adults' responsiveness to children:

Figure 3 **Adults' responsiveness to children**



Areas of challenge

Two items had consistently lower ratings across the COI period, scoring close to average or lower across all sessions (3.25 or less).

Table 2 **Quality ratings 3.25 or lower across all four ratings**

Curriculum
Tikanga Māori and/or te reo Māori is evident.
There is evidence of the recognition/acceptance of the cultures of children at the centre. The ethnicity of the children at the playcentre is taken into account and their cultures represented.

The rating for Tikanga Māori and te reo lifted from 2.3 to 3 over the COI project, but remains a challenge for the centre. This playcentre is predominantly monocultural and we are aware that there is a strong need for us to concentrate on addressing these two items, next year, post our COI project. Efforts were made to improve recognition of other cultures, including offering cooking activities, dress-ups, and wall displays, but this item still rated a 2 in November 2005. On the other hand, ratings of 5 were obtained for another item, “evidence that the setting is inclusive of all children” on the two occasions that these items were rated.

Items where quality changed across years

Some items rated changed across the period. The main example is the group of items relating to literacy.

Table 3 Items relating directly to literacy

	September 2003	September 2004	November 2005
Stories are read or told	3.5	3	4.5
The centre is a "print-saturated" environment	3.25	5	4
There is evidence of children's creativity and art work	3.13	4.3	3
There is evidence of opportunities for children to write	Not included in rating scale	4	2

An action research cycle, discussed in Chapter 4, was initiated in response to lower ratings on items relating directly to literacy. Apart from "Stories are read, told, and shared", which remained fairly constant, the ratings show noticeable improvements in September 2004 after the new ideas were implemented. In November 2005, the ratings for "Stories are read, told, and shared" and "The centre is a print-saturated environment" reached higher levels that we were pleased about. However ratings for two items, "There is evidence of children's creativity and artwork" and "There is evidence of opportunities for children to write" decreased. For some sessions, contributing factors to this decrease were sunny days that meant the children were attracted to sand and water play and other outdoor activities. Still, as the action research cycle had identified, there are opportunities for learning related to literacy outside as well as inside, for example chalkboards in the sandpit and stop/go signs. The dip in ratings warns us that there must be vigilance to ensure ongoing quality.

Improvement across years was seen in relation to adults asking open-ended questions. This may have been attributable to the action research cycle aimed at improving adults' ability to ask such questions and sustain conversations with children.

Table 4 Open-ended questions

	September 2003	September 2004	June 2005	November 2005
Adults ask open-ended questions that encourage children to choose their own answers	3.75	3.7	4	4.25

Areas for improvement

A collection of items scored average ratings.

Table 5 **Items where quality can be improved**

	September 2003	September 2004	June 2005	November 2005
Adults add complexity and challenges for children	Not rated*	3.3	3	3.25
Children co-construct learning with other children	Not rated*	3.5	3.25	3.5
Children encouraged to explore mathematical ideas and symbols	Not rated*	3	Not rated**	3.5
Children work on problems and experiment with solutions	3.63	2.8	3.5	3.5

*These items were not in the rating scale in 2003.

**The shortened rating scale in June 2005 did not include this item.

These items all relate in different ways to the extension of children's current learning. Several factors may have contributed to these lower ratings. Our research findings in the literacy and mark-making action research cycle and in the case studies showed that there were many instances of children extending their own learning. Michelle Wilson, one of the parents who worked on the literacy and mark-making research, said that most of the instances identified of learning being extended were in the context of quiet individual play or in one-on-one interactions. It may be that people rating the sessions did not pick up those moments. Although we had two or three raters on each session, they can only notice a proportion of what happens. Often they are positioned at some distance from the play so as not to interfere with it, and so they are less likely to hear interactions. Extension of learning sometimes occurs internally for a child, and there may not be objective evidence for an observer to rate.

The action research cycle that aimed to increase the instances of adults asking open-ended questions is an encouraging example of how changes in practice can be made.

Consistent quality across teams

The last rating, done in November 2005, showed notable consistency in the ratings across the four sessions each week, despite the different make-up of the teams. Out of 34 items rated, only 4 of those showed a variance of more than one rating point. For example, the following table shows ratings relating to adult-child interactions:

Table 6 **Adult–child interaction items**

Adult–child interaction items November 2005	Monday	Tuesday	Thursday	Friday
Adults are responsive to individual children	5	5	5	5
Adults model and encourage children to use positive reinforcement, explanation, and encouragement as guidance/discipline techniques	5	5	5	5
Adults model/guide children within the context of centre activities	4	5	5	5
Adults ask open-ended questions	4	4	5	4
Adults encourage children’s language development	4	4	4	5
Adults participate with children in activities and play	5	5	5	5
Adults add complexity and challenges for children	1	4	4	4
Children participate in interactions with adults other than their own parents/whānau	5	4	4	4

Out of all rating items where there was a variance of more than one point, one of these variances related to one particular session. The raters for that day noted:

During the day on which we made these ratings, there were a large number of parents visiting with their children and new parents who had only been in the centre for a very short time. They were primarily involved with looking after their own very young children.

The June 2005 rating also showed conformity of ratings across teams. Examples of some of the June ratings are:

Table 7 **Sample of June 2005 items**

Items	Monday	Tuesday	Thursday	Friday
Adults encourage children’s language development	4	4	4	5
Adults add complexity and challenges for children	3	3	3	3
Children support and co-operate with one another	4	4	5	5
Children participate in interactions with adults other than their own parents/whānau	5	4	4	4

Ways of ensuring quality and continuity

Formal ways

Session evaluations are done at the end of the session with the team members of the day (their children are eating their lunch at a nearby table—sometimes at the same table as the parents).

This can take up to an hour or more—not always easy with tired children, many needing a rest or sleep.

One adult is responsible for writing up the session evaluation form. The adult who observed and took photos of the focus child for the session shares the Learning and Teaching Story and other team members add what they have also noticed. Discussion and planning for the child follows into an evaluation of the session as a whole, using the Session Evaluation and Planning form. The next session is planned for and information and photos about the focus children provided for their portfolios. The evaluation forms are filed in a large folder with sections for the four different sessions, an easy reference for members of the different teams.

Session evaluations are a good way for new parents to learn about the children on the roll, about schemas and dispositions, the principles and strands of *Te Whāriki*, continuity, progression, and planning. Although a formal sequence is followed it takes place within a non-threatening, supportive environment.

Quality is also maintained by parents attending workshops to learn about schemas, Learning and Teaching Stories, dispositions, mark marking and literacy, and open-ended questions that will provide a base for working with the children in an informed way.

Informal ways

Conversations between playcentre adults both inside and outside playcentre contributed to the quality of the sessions and to continuity. Eight members kept notebooks to record some of these conversations.

There were a number of entries that showed continuity of play and ideas explored between home and playcentre, between home, playcentre, and crèche, and even between home, playcentre, and school. Ainsley records an entry that shows continuity between home, playcentre, and across a number of sessions:

At morning tea, I usually sit with the guitar and encourage the children to suggest songs and sing them.

Matthew's mother said Matthew had a song he had been singing at home 'Baa baa blue sheep'. We started off singing quietly so we could hear Matthew:

'Baa baa blue sheep have you any jelly?

Yes sir, yes sir, it's all gone smelly.'

That brought the house down.

Matthew's mum explained to me later that Matthew's older brother had worked out the lines with Matthew. Matthew thinks the world of his big brother.

Thereafter, the blue sheep/smelly jelly song became the central song of morning tea. Other children requested it including Matthew and everyone always thoroughly enjoyed it.

This entry shows continuity, initially for Matthew between his home and playcentre, leading to continuity across time, a sense of belonging and recognition of a well-received contribution from Matthew, and an enhanced sense of community through their shared joke for the children who were regularly part of that particular session.

Sarah records an entry that shows continuity between home, playcentre, and school:

On 16 August Merryn had a visit back to playcentre—she was really excited about seeing Erik [an adult] again who she has a really strong bond with. We took in a lamb leg ball and socket joint that we had been looking at at home (after roast dinner!). Merryn was fascinated by the action of the ball and socket and so was Erik. Erik and I set it up on the science table. Erik found Merryn an anatomy book—we looked at the skeleton and drew the pelvis ball and socket joint. Then Erik found Merryn a huge skeleton poster which she held up against herself. They then went off and made 2 ball and socket joints:

bowl of sand—ball with piece of wood attached set into the sand to swivel around

ditto but using clay instead of sand.

Merryn decided she wanted to take these things to school. So we borrowed the bowls and clay and sand from playcentre and on 18 August Merryn took the bone and the two models into Thursday afternoon development time at school.

Merryn had recently gone to school and she had a younger brother, Keir, who is still attending playcentre. Returning to playcentre has been important for Merryn and through this sequence of events, and the support of her mother and a playcentre parent, she has been able to initiate and own an experience at school that links to her previous world at playcentre.

Martha records an entry that shows continuity between playcentre and crèche:

Today I did an observation of Shivani. She was painting on paper then folding the paper up several times until it was quite small. After that she 'wrote' her name on the small square of paper.

This is a routine that she often does at home and crèche—folding paintings or drawings & writing on them.

Helen (adult) told me that Shivani & Matthew were also doing this the other day at playcentre. Michelle also told me that the teachers at crèche have been watching Shivani & Matthew doing this recently too. Shivani started this & Matthew is now joining in.

Shivani and Matthew are firm friends, a similar age (2½ years), and attend the same crèche as well. Michelle is Matthew's mother, Martha is Shivani's mother. Helen is a playcentre parent. Shivani and Matthew have created continuity for themselves across playcentre and crèche. Shivani has achieved continuity across home, playcentre, and crèche.

The engagement and interest of parents was evident in the minutiae of the observations and subtleness of the events described in the entries, for example in Rebecca's entry:

Christine spoke to me about what Bella had said to Emma, 'We have a lovely friendship don't we Emma?'

Christine is a playcentre parent and Rebecca is Bella's mother. Christine knows that Emma (aged 3½) looks up to Bella (nearly 5) and that Bella's comment would be very important to Emma. Christine also understands that Rebecca would be interested to hear that Bella had interacted so positively with Emma. While this example is short, once the context is understood, it is rich in information.

Summary

Quality was achieved and maintained for the majority of the items rated. There was marked consistency of ratings of quality across both years and sessions. There was little evidence that quality might be variable across different teams, or that information was not shared between teams.

Particular areas have been identified for improvement. The ratings also showed that we must pay ongoing attention to our practice as educators to ensure that quality is maintained.

Parents who carried out the ratings were enthusiastic about their use as a professional development tool and as a means of collecting data in the interests of improving quality. Members would like to do the rating scale annually, as part of the centre self-review cycle.

Data from notebook entries showed us how important the informal conversations are to the quality of the education we provide. Factors that make Wilton Playcentre an effective community of learners, such as the strong sense of community working for the same goals, good training, and our keenness to provide the best we can for our children, make those conversations an important tool in providing quality sessions. The structure of the end-of-session evaluations was a very powerful form of professional development.

The stories reflect the level of interest the parents have in what their children are doing and the depth of understanding and how early childhood educators can bring depth of analysis to their observations of their students and their learning environment.

9. Sustaining a community of learners

This chapter highlights theoretical alignments between *Te Whāriki*, communities of learners, and playcentre philosophy. It brings together the evidence from our research to focus on what works for Wilton Playcentre, contributing to our understanding of:

- Wilton Playcentre’s parent engagement in our children’s early childhood education; and
- what sustains our community of learners for both children and our families.

What is a “community of learners”?

A community of learners is a working partnership, usually a collaboration between educators, families, and students. Communities of learners are based on the idea that people learn through their interactions with others by participating in shared endeavours (Rogoff, 1994, p.209). This contrasts with pedagogy that is largely adult-directed or child-led. The curriculum is built using children’s own ideas as the entry point for negotiating activities and topics amongst all.

Much of the literature that uses phrases such as “communities of learners” focuses on collaborative relationships between professional educators, researchers, or academics, i.e. adults learning together with other adults in a professional capacity. At Wilton Playcentre, our community of learners is composed primarily of parents and children working together.

Communities of learners are characterised by self-development through participation in the community. The playcentre wisdom: “We joined for our children, we stayed for ourselves” (Tizard, in Stover, 2003, p. vii) illustrates this. Rogoff’s experience of learning “more than we ever expected when we started” (Rogoff, Turkanis, & Barlett, 2001) has clear parallels in the playcentre network generally, our community of learners at Wilton Playcentre in particular, and also our Centre of Innovation (COI) project.

Communities of learners and *Te Whāriki*

Through our COI project it has become evident that the principles and strands of *Te Whāriki* apply to both the children and the adults at Wilton Playcentre.

Family and community: *Whānau tangata*

One of *Te Whāriki*’s four principles is that “the wider world of family and community is an integral part of the early childhood curriculum” (Ministry of Education, 1996, p.42). Playcentres

do more than involve families, they revolve around, rely on, and are managed by them. By the same token, playcentre philosophy fosters the family, and values parents (Tizard in Stover, 2003). This is illustrated by the following comments from Wilton Playcentre parents:

At home, as a mother, very few people say you are doing a good job.

Playcentre validates the choices you make and the job you are doing at home.

Parents are valued as first teachers. These days all the stress is on adults being professionals. Playcentre proves *we* can do it.

The strong “connections and consistencies” (Ministry of Education, 1996, p.42) between our home and playcentre settings show in the case studies carried out by parents.

Empowerment: Whakamana

This principle holds that all children should be enabled to “contribute their own special skills and interests” and to “learn and grow” (Ministry of Education, 1996, pp. 40, 140). As a community of learners, playcentre empowers adults as well as children. The way in which playcentres generally, and Wilton Playcentre in particular, organise their administration and training enables parents both to contribute with their existing skills and talents, and to learn new ones.

Playcentre has a model of “emergent leadership”. Simply stated, playcentre works on the assumption that adults are capable and can take on new challenges, and successfully learn the skills they need. The concept involves more experienced members of the centre moving aside to allow newer members to take up responsibilities (Thornton, 2005).

An integral part of the playcentre experience is parents running the centres and taking on positions of responsibility. For example, Dame Cath Tizard, a former Governor General of New Zealand, wrote:

I have sometimes told people, not altogether facetiously, that Playcentre is responsible for ‘My Glorious Career’ (Stover, 2003, p. vii).

The baseline and final parent surveys showed almost all parents taking on positions of responsibility within a year of joining, and those parents continuing to hold a variety of positions during their time at playcentre. Adults acquire the skills needed to do this via a mix of formal training from the Wellington Playcentre Association, and learning on the job. Often there is also support available from the previous holder of that position. Running the centre and the sessions creates a feeling of ownership and engagement in the centre and its community (Collins, 2004).

In a larger centre adults might get to wait to take on a responsibility until they feel ready, or be able to leave that up to other, more experienced members. But Wilton has fewer families so parents quickly find that they have jobs to do. In her presentation about Wilton Playcentre to Pen Green, Angie Collins (2004) explained it this way:

We often start coming along to our evening Business Meetings full of suggestions as to how ‘somebody should do something about that’—this gradually turns to realisation that ah, that would mean a job for someone here tonight ... why is everybody still looking at me?

and:

We usually find the potential for greatness is thrust upon us ... ready, or not.

Other centre members have commented that:

I do things that I wouldn't have done in my job.

There is no criticism if you can't ... there is a subtle expectation that you have to [contribute], and so if you want to, you can.

It is nice to be asked. When people say 'Can you do this?' you think you can because someone has faith in you.

Holistic development: Kotahitanga

In a validation meeting, centre members reiterated how powerful and important the informal learning from other adults was for them. The group agreed that seeing how other adults speak to and work with children supported them to learn new ways of working. The learning opportunity is integrally woven into the tasks, activities, and contexts within the centre.

Relationships: Ngā Hononga

Playcentre provides opportunities for adults, as well as children, to learn by trying out their ideas, and by valuing co-operative and shared aspirations and achievements. Adults not only provide warmth, encouragement, and acceptance for the children, but for each other as well. As one member commented:

There is no hierarchy...people's comforts (or discomforts) are accommodated...it doesn't matter if you botch something up...you are accepted for who you are...

The strands of *Te Whāriki*

In addition to the principles, the strands of *Te Whāriki* can also be seen to apply to the adults in the centre. In particular, the strands of wellbeing and belonging are important for adults as well as for the children. Parents commented:

... belonging to the playcentre has made me feel connected to the local community more than I have since I was at school/university.

We come to have a sense of being a community—tūrangawaewae—a place to stand and belong.

The contribution strand (Ministry of Education, 1996, p. 64) provides for equitable opportunities regardless of gender, ability, age, ethnicity, or background. The Playcentre Federation and Associations provide for this in too many ways to be discussed here (see Densem & Chapman, 2000; New Zealand Playcentre Federation, 1990; Stover, 2003). The free playcentre training available to all centre members supports adults' contribution to Wilton Playcentre's community.

Adults are encouraged to learn with other adults in their training and on session. They learn alongside the children by completing training assignments on session, and as session participants. Training encourages the expectation that adults are "capable of acquiring new interests and

abilities” (Ministry of Education, 1996, pp. 66, 68). Trainees are affirmed as individuals because assignments can be resubmitted until the learning outcomes are achieved (Stover, 2003).

As adults learn about and with our children, they learn new skills for working with other adults. An important playcentre principle is that all decisions should be made by consensus. This is time consuming, but is intended to include and inform everybody, and enable all adults to participate equally and take responsibility for group decisions (Ministry of Education, 1996, pp. 64, 70). In a centre that is working well, adults ideally also appreciate the contributions they can make to groups and group wellbeing. *Te Whāriki* suggests that children should have an awareness of their own strengths, and confidence that these will be recognised (Ministry of Education, 1996, p. 68). In a well-functioning community of learners, this is also true for the adults.

Communities of learners and the playcentre philosophy

Education for both parents and children has been a cornerstone of playcentre since its very early days, with the basis of successful child education being the continuing education of the parents (Densem & Chapman, 2000, pp.55–71). Playcentres were “communities of learners” long before the phrase was invented.

How does Wilton Playcentre engage parents and sustain a community of learners?

Special characteristics of Wilton Playcentre

Wilton Playcentre is characterised both by a history of high training levels for a large proportion of parents in the centre, and the use of schema learning theory as a framework for thinking about children’s learning. The use of schemas is partly due to a long association with our mentor and life member, Pam Cubey, currently one of our associate researchers.

The playcentre philosophy is discussed in more depth in Densem and Chapman (2000) and Stover (2003), but, like *Te Whāriki*, playcentre sees children (and adults) as competent and self-directed learners.

Schema learning theory is a framework Wilton Playcentre educators use to “see” and understand children’s interests, which enables even the pre-verbal children to contribute their “voice” to our community of learners. Schema learning theory holds that children actively explore their own innate interests. There is a harmonious fit between this theory and the community of learners model.

Knowledge about schemas is passed on both informally, and formally. When newer members come into the centre we hear older members having conversations with each other about schemas and using schema-based language to describe children’s learning. We also pick up on this through

the evaluation meetings at the end of each session. Wilton Playcentre has also revisited schemas through its ongoing professional development contracts with the College of Education since 1998.

What have we learnt about parent engagement and sustaining a community of learners?

Formal systems that support parent engagement include the playcentre philosophy, *Te Whāriki*, and the training provided by playcentre associations. Our research suggests that there are also informal factors that support both parent engagement and sustaining our community of learners over the years, and that these are important.

Much of what we learned about parent engagement and sustaining a community of learners arose from the values discussion held by members of Wilton Playcentre during the baseline phase of the COI project, and the reasons parents have given for belonging to playcentre in their individual questionnaire responses. This was largely validated by the questionnaires and group interview at the end of the project.

Wilton Playcentre is a community that has come together with a common purpose; to provide, and participate in, the early childhood education of our children. Being involved in the playcentre network can have a significant impact on the lives of both children and our families, and provides unexpected benefits and personal development (Powell, 2006, pp. 1–62; Stover, 2003). What the educators learn through being involved is important because it fosters the learning of the children, and the children's learning is the core purpose.

Our research findings suggest that involvement in our children's education attracts us to playcentre, but that once we get there, we find other things that we value as well. In the baseline parent questionnaire, 12 of 17 parents responding stated that being involved in their children's education was one of the three most important reasons they joined playcentre, but only two described this as one of the three most important benefits. This compared with seven parents who stated one of the most important benefits was the training they receive, and 11 parents who mentioned the friendships formed through playcentre and being part of a supportive community. Another nine parents mentioned the opportunity for their children to connect with other children and adults. These findings for Wilton Playcentre are also true of the wider playcentre network (Powell, 2006).

Adults learn through participating in the formal training programme and from each other on session. Centre members validated the value of the informal learning, commenting that listening in evaluation meetings was very useful learning, and adding:

There is a subtle but strong expectation that you will train.

It's nice to eavesdrop on the team.

There's lots of informal communication and learning. You pick up on the way we talk to our children here, because you are immersed in it.

The following examples from parents' notebooks show evidence of an active community of learners, reflecting on our practice and learning in the process.

For example, in Sarah's notebook she reflects on her planning, and the way she structured an activity. She comments on how this impacted on the children's engagement and notes how she would do it differently:

15 Aug—learnt today that I had tried to do too much on session and I could have planned things better... Baking activities with children are definitely improved if each child has own bowl and product, rather than sharing activities to create something in a shared bowl with turn taking. Expensive ingredients to accommodate allergies ... meant that individual bowls were not possible—but I would not do this again—go simple!

Also helps to have 2nd person stationed at table in case you have to leave to fetch things.

There is evidence of adults learning and creating joint knowledge through conversations that influence our thinking. For example, after visiting P, an ex-Wilton Playcentre member now living in Auckland, Nikolien wrote:

Tues 28 June—stayed with P in Auckland and talked re schema fascinations.

P's story about T & trains, ... T walking past trains already set up for him—C & H played moving the train, T liked to build linking enclosures. P kept telling us that T was 'into trains' but realises now that he was into building tracks, not so much moving the trains.

P reflects how schemas helped her make the distinction between topics and ideas. Nikolien said that hearing this story also helped her to make this distinction, and she subsequently told it during schema workshops.

Susan records her awareness of this process of learning through conversation. By talking about Hazel, Susan articulates something she didn't realise she knew:

... examples of realising things about my children while talking to other playcentre parents about them.

During playcentre clean up:

Rebecca: Is this Hazel's?

Susan: No. It's got no 'Hazel's' on it and no 'Hazel' written in a very childish hand on the corner. Hazel always signs her work.

Rebecca: Is this H's? It's got 'H's' on it.

Susan: Yes.

Lily records an entry that shows one member recognising the progress in her relationship with some children at the centre. This entry is also an example of playcentre wisdom and lore being passed from one member to another, contributing to the regeneration of the community.

Paula told me when I went to pick up Joe that he had let her play with him & Simon. Paula said how pleased she was and I said how nice that must have been for her.

I reminisced about how that had happened for me—the letting in by the older kids—girls in my instance.

Joe and Simon are 4½-year-old boys who are long-time companions and it is quite common for them to play exclusively together. Joe and Simon have admitted Paula into their play. Paula is experienced enough to realise with joy what an achievement this is. She feels affirmed as a playmate and trusted adult; she is “seen” by them.

The “educational” aspect for adults and children is not the only function of this community of learners. Parents are a community in the wider sense of the word. Parents in the centre tend to know each other and each other’s children, and enjoy sharing stories about the children.

We visit each other’s houses, and form some abiding and deep friendships. We think that this is partly possible because we are a smaller centre of usually about 20 families, and all rely on each other. We also tend to know what is going on in each other’s lives, and so can compensate for circumstances and support each other’s jobs in the centre where we need to.

Parents’ engagement with their own and each other’s children, and the knowledge they have of the children’s play, schemas, and explorations is a basis for parents to observe carefully, interact meaningfully, build relationships with children, and work alongside them to enrich their learning.

What sustains Wilton Playcentre’s community over time?

Formal and informal factors contribute to sustaining our community of learners over time. It seems likely that parents become engaged in Wilton Playcentre because we find things that we already value. It is likely that we stay, sustaining the community of learners over time, because we also find other things that we come to value.

A culture of “community” has developed over the history of Wilton Playcentre and there is a view that the past contributes positively to the present. One centre member commented that we have a traditional culture of friendliness and being welcoming. This involves routines such as making sure new faces are greeted as they come in the gate, and inviting new members round for play dates in order to build relationships. This is also an example of centre members passing on wisdom and organisational culture through conversations. As one playcentre member said:

I love the passing on the history from generation to generation of learner. Like now, to a newcomer, I seem quite knowledgeable (laughs), but thanks to (team leader), I can pass it on when others are struggling or finding things difficult, and then they will do so too. It’s like when you receive a gift—you can pass it on.

The community holds events such as farewell dinners, fireworks evenings, Friday fish and chips evenings, veteran sessions for children who have “graduated”, and has customs such as preparing a meal for families when a new baby is born. Some past members also attend many of these functions, contributing a sense of continuity and history. These traditions help adults and children to feel welcome, and also reinforce our sense of belonging to a larger group.

The parent group interviews and parents' notebooks provided evidence that the close relationships between Wilton Playcentre families support the exchange of information about the centre and the children, and thereby our role as educators. This helps the parent educators to respond to the ideas, interests, and passions of the children we are working with, because we know about schemas generally as well as specific children's schemas.

Parents also commented that at playcentre there are informal opportunities to discuss and share parenting strategies on issues of concern. The role-modelling of other parents, and having a chance to see other parents' ways of working with children were highly valued by members. One member commented that having the opportunity to see so many role models gave her a reason to stay at the centre, because she realised there were lots of new things to learn. Another member commented that she learnt about all sorts of things that she didn't expect to learn about, for example consensus decision making. Her time at playcentre:

. . . has changed me as a person. I am more flexible, more open to others' ideas. It has freed up my thinking.

Playcentre is, by definition, a place where parenting itself is valued. Members stressed that this is an aspect that is important to them. Playcentre supports us in our roles as parents, and offers us opportunities to improve and develop our parenting.

Wilton Playcentre's use of schema learning also helps to engage new parents into the centre. Parents arrive and hear schemas being talked about, and when they are explained, they make almost instant, intuitive sense. The feedback from our workshops tells us that parents experience many "ahhh" and "aha!" moments (as well as many "ha ha ha" moments), when they realise that the behaviours that have perplexed them, form a pattern. Parents can literally see what it is that their child is learning and thinking about.

Rogoff et al. (2001, p. 154) argue that participation by committed adults is the key to supporting and transforming children's education. In our experience, participating in and supporting our children's education has transformed us and our families. This is also true for other playcentres all over New Zealand (Powell, 2006). Overseas research also demonstrated that being involved in children's education has the potential to transform the lives of the adults and families, sometimes re-engaging them in the education process and sparking their interest in becoming educators themselves (Rogoff et al., 2001; Whalley & the Pen Green Centre Team, 2001).

What is it about Wilton Playcentre that encourages adults to learn?

Pedagogy

Wilton Playcentre is characterised by taking pedagogy seriously. We have policies that state our expectations about the training progress that members should be aiming for, and the levels that we ideally maintain in our centre.

The COI project has strengthened “taking pedagogy seriously”.

... we’re now more aware of our learning, we are consciously thinking about our learning and about...learning from the children as well as from each other and from the experts...

... I found one of the really interesting things is the constant discussions about schemas. I felt I had a lot of catching up to do...

Ongoing reflection is one of the cornerstones of the “community of learners” approach (Buysse, Sparkman, & Wesley, 2003, p. 267). Wilton Playcentre’s end-of-session evaluation meetings provide a structured opportunity to participate in reflection and discussion. We pay careful attention to the learning of the children, and to the contributions the adults are making to that learning. There is an intention to notice, talk about what is happening in our sessions, reflect on it using the frameworks of schemas and learning dispositions, and then plan for the following week. This works for Wilton because our planning is linked into any Learning Stories that have been written that day and the interests children are currently exploring. The discussion covers many individual children and often covers schemas. We develop as educators through paying close attention to children’s learning with the intention of learning and developing our own thinking too.

The end-of-session evaluation meetings contribute to sustaining our community of learners by modelling how we take the learning of the children seriously, and that we expect that team members will notice things about the children we are working with. Parents have commented that this is a time of valuable learning for them as new members.

Communication

The parents’ notebooks showed that in our playcentre community, lots of information is exchanged when parents cross paths in the community, for example picking up older siblings at school, meeting at the supermarket, or at “drop-offs” and “pickups” at the beginning and end of playcentre sessions. Many tasks are organised, and information about children is shared during these interactions.

Wilton Playcentre also has a tradition of passing on oral wisdom. One such wisdom is a response to a concern commonly expressed by newer members, often with small babies, that we feel we aren’t pulling our weight or contributing fairly. A longer-term member usually reassures them that at playcentre we support each other and each person takes on what we can manage, and sometimes that is more than at other times. As a member with small children, the needs of your children come first. When children are older and more independent, you might find you can shoulder some of the burden for others.

Another example of this passing on of wisdom is a comment by a former centre president that past-presidents have a talk with the incoming president, stressing the need to create space for centre members to talk with them. This is, she said, how issues get talked about. Encouraging communication is seen as a key role of the centre president. This comment has been passed from

life members through the last seven presidents that we are aware of, and this “passing on” talk may have been in place for longer than that.

Policies that encourage participation

The flexibility of Wilton Playcentre’s policies also enables families to continue to participate, and sustain the community. For example, we have policies such as maternity leave, terms off-duty for members with extenuating family circumstances (e.g. illness), combined duties where one parent does duty, other comes for cleanup, or one parent does duties and the other attends meetings.

Another factor that enables participation and learning is our team supervision structure, where each team has a “team co-ordinator”. All parents are team members, regardless of their training levels. When we do employ extra people, they are “guest team members”. The responsibility on the teams, for registers, morning teas, observations, evaluation, and planning is shared. Many of the Playcentre Federation or Association training assignments are also designed to support us to take on responsibility for running parts of the centre and the programme, for example setting up an area of play or running a fire drill.

Our team supervision and attendance policies require parents of older children to be at playcentre only one morning a week, enabling them to combine part-time work or study and their playcentre commitments. Accepting that children might attend other early childhood centres at times they are not enrolled on sessions at playcentre also enables the participation of committed playcentre parents who are doing part-time work or study. Wilton Playcentre policies also “allow” us to have two families enrolled who have nannies attending duties on behalf of the parents, which also enables some families to participate, who might not have otherwise, without compromising our training levels.

In Wilton Playcentre, as in any other, there are always jobs that need to be done, both large and small. As a relatively new parent you can participate if you want to, by contributing to this work. New parents can quickly see that their contributions are important. As Angie so clearly explained, many new parents quickly find out that “if it’s to be, it’s up to me” and develop a sense of responsibility.

As with any volunteer organisation, and any playcentre, there are sometimes families who come to playcentre, contribute the bare minimum, and let “somebody else” take the responsibilities. This does happen occasionally at Wilton, but perhaps because we are a smaller centre this does not seem to be a big problem for us. It may be that being part of a smaller centre it is harder to think “someone should and will” and easier to see that “someone” is me.

Evidence of progress in learning for the community of learners

Evidence of progress in learning for the children was discussed in Chapter 6. This section will focus on the evidence of progression in parent engagement and the strengthening of the community of learners throughout the course of the COI project.

It is clear from the parent interviews, case studies, parents' notebooks, and parent surveys that individual adults have learned much from their involvement with both Wilton Playcentre and the COI project. But there have also been aspects of group learning.

When discussing the learning in groups, Wenger (1998) comments that it is difficult to say which efforts, connections, and conversations made which contributions to the learning of the group. Certainly it has been our experience that the process of talking with each other has transformed our thinking and understanding, and has contributed to the project.

Meetings have played an important role in generating communal understandings for us. Knowledge and ideas that didn't exist before, would be sparked off through both casual passing-in-the-street conversations and organised meetings such as management team meetings, designing tools meetings, schema and Learning Stories meetings and workshops, evaluation meetings, discussing the quality rating scales, group interviews, meetings over case studies, and many, many, many more. For example, Susan thought the idea of using a grid for her Playcentre Journal article came from Nikolien, and Nikolien thinks it was Susan's idea. It arose out of their joint conversation at the end of a meeting for designing the schema workshop, as they were saying goodbye.

We had started developing our documentation and portfolios before we became a COI, but it was given a big boost with the purchase of a digital camera, printer, and computer. The result is an increased interest in, and valuing of, documentation to support adults to learn about children. We are now putting photographs and Learning Stories together in folders that are accessible to the children. The COI funding and resources, and the professional development and support with our action research cycles, has enabled this to happen much more quickly. The equipment was a key part of this process. Otherwise we would have had to be involved in a lot of fundraising to get a camera and printer.

Angie Collins, in her Pen Green presentation (Collins, 2004) said:

The camera makes schemas instantly visible to the photographers and duty teams. The photos are put into a PowerPoint presentation at the end of the session for parents as well as children to view.

I found the digital camera made a big difference to my whole attitude to observation—I had always been a slightly reluctant observer—much preferring to be in doing things with the children... I've spotted so many schemas from the photos—I'm a documentation convert now.

Another parent commented:

Adding in a series of photos conveys a story so much more quickly and accurately than wading through 1,000 words...

Evidence from the parents' notebooks, the case studies, and parents' comments in the final surveys shows that parents feel we are able to support our children's learning and schemas in our home settings in ways that we otherwise might not have, because we have developed our observation skills, and combined this with our knowledge of schema learning theory. For example:

I have been thinking about language in relation to her schemas as part of this research cycle and I have noticed she uses a lot of verbs.

There is also evidence from interviews, parent notebooks, and conversations between centre members that they are thinking more deeply about schemas, going beyond observing and identifying schemas, to "thinking about more interesting aspects" of them, for example how they influence mark making, language acquisition, and fantasy play. We were able to do that because the COI funding enabled us to have the tools and people resources to collect lots of data.

Parents as researchers

Parents were involved in all aspects of the research design with guidance and support from the research associates. An important purpose for a community of practice is to establish a learning community across levels of expertise, rather than within them (Buysse et al., 2003, citing Pugach). Wilton Playcentre members had not only a range of levels of expertise, but also expertise in diverse areas. They used these skills to contribute to the project in many different ways, in order to learn more, and share their findings.

Using the release funding to pay students to do our 3-hour end-of-term clean-up helped us to engage parents in the project and sustain the project over the 3 years. Instead of digging over the sandpit and sorting the carpentry table, centre members were invited to attend COI meetings to hear about the big picture. There was a great turnout for each one of these meetings. And why wouldn't there be? Hearing about exciting stuff happening in our centre, with no children present and nice nibbles!

For us, it was a chance to think about our teaching and learning, clarify and share our goals, and have stimulating conversations with people such as Anne, Linda, and Pam. These meetings really validated the work we are doing, and also challenged us to continue to reflect and focus on our educational and pedagogical role. The meetings affirmed the value of ourselves as educators, rather than "just volunteers" cleaning up. One parent said:

...there was an incredible sort of buzz to the community feeling at that meeting...

Wilton Playcentre is a place where adults learn and develop a range of skills, and there is also a sense that parents, while not necessarily seeing themselves as educators by vocation, do come to

see themselves as competent and well-informed practitioners who are able to articulate our practice, working with and for our children and those of others. Parents commented:

...we're now more aware of our learning, we are consciously thinking about our learning and about learning from the children as well as from each other...

...parents have become really expert at working with children and alongside children...

We're practising thinking about the kids and we feel it's normal to talk about our thoughts about children that deeply. That's one of the things that the COI itself has done—because it's serious, funded, professional research, we allow ourselves to be that serious and that professional in our thinking...we're not thinking 'I'm not working, I'm a mum therefore I won't bring my whole brain here...'

Adults have benefited from working with the research associates and their contributions to designing research tools, gathering data, analysing and writing up research findings, designing and running workshops, writing and making presentations, writing articles and newsletters, and have developed their computer skills too. This is in addition to the pedagogical development already discussed. Some adults are going on to do further study and reading, others are building their research skills, and some have even had opportunities to do overseas presentations. Part of what defines a community of learners is that people are transformed by their participation. This is certainly true of our centre.

COI: Building a wider community of learners

A strategy that has served us particularly well has been running schema workshops. We have run 16 workshops altogether, for approximately 300 participants in all. Most of the workshops have been requested as a result of a face-to-face or relationship connection of some sort. Most of the people on our e-newsletter mailing list also came to be there through a personal connection of some sort, or as a result of our workshops. Many of the presentations we have done also came about through personal contacts or networks. This underlines the importance of collaborative and personal relationships in building communities of learners around our COI project, and for disseminating our research findings.

Evidence from the feedback forms after the workshops and the parent interviews suggests that parents value the information we learn about schemas, and that it helps them to view play differently. Black and Wiliam (1998a; Black & Wiliam, 1998b) demonstrate that improving formative assessment skills improves educational outcomes for children. We could cautiously extrapolate that knowing about schemas improves educational outcomes for children because it is improving the formative assessment and evaluation skills of adults and because adults are better able to mediate/facilitate progressions and enrichment in relation to children's schema interests. The impact and benefits of learning about schema learning theory for adults was discussed in Chapter 3.

One parent commented:

One of the real treasures for me ... has been taking the schema learning workshop out to other centres and seeing the lights in the eyes of the adults when they finally get it—why the paintings are getting covered over in black paint ... and knowing that you've really made a difference to them as well as to their children...

We cannot know what impact our work is having on the pedagogy in other centres, but our presentations and workshops have been enthusiastically received, and we have been invited back to several playcentres and early childhood centres.

10. Processes and conditions contributing to learning

This chapter discusses the processes and conditions used through the Centre of Innovation project that seemed to contribute to learning progressions for children and adults. These included:

- analytic tools—the New Zealand Council for Educational Research/Te Kōhanga Reo National Trust process quality rating scale;
- technological resources—a digital camera, iBook, computer, digital video camera, and printer;
- conditions to support ongoing learning and experimentation; and
- professional and research support.

In this chapter, we also highlight some difficulties we had. The chapter draws on data from parent questionnaires, focus group discussions, and interviews.

NZCER/Te Kōhanga Reo National Trust process quality rating scale

The process quality rating scale proved to be a very useful tool for playcentre members to analyse their educational practice and environment. We used it four times over the course of the Centre of Innovation project as a tool to diagnose areas where the playcentre was doing well and could celebrate its work, and other areas which parent educators could usefully develop further and so lift aspects of quality. The scale was also used to gauge the impact of action research aimed at lifting quality in pinpointed areas, and to monitor levels of quality.

Several factors seemed to be associated with the rating scale being a valuable diagnostic instrument. The research associates, who were expert in the use of the rating scale, discussed reasons for the rating scale items with playcentre members so that there was understanding of why these items were considered to be important. This discussion occurred individually with playcentre members who were to use the scale, and in discussion with all playcentre members participating in the group discussion of rating levels.

The ratings were always done in pairs with one of the research associates and the playcentre parent independently making observations over a whole morning session. At the end of the session, the pair independently wrote their ratings and then compared and discussed their ratings, talking about the evidence they had for a rating and why there were any discrepancies. These collaborative discussions led to agreements about the ratings and were a useful element in supporting understanding.

After the first set of ratings, taken during two sessions for each of the four playcentre teams, a group discussion of the ratings with most playcentre families represented was held. This led to playcentre members deciding to take immediate action:

- undertake a makeover of the environment, aimed at developing a print-saturated environment and a focus on early literacy; and
- one of the research associates to provide professional development on asking open-ended questions and early literacy.

The early emphasis on the environment was an easy focus and a manageable beginning. It quickly resulted in tangible improvements, and for these reasons seemed to be a good place to begin.

Starting with something concrete was a good way to lead to the wider areas in our research questions.

We subsequently used the rating scale to monitor change, and highlight further areas for improvement. This was validating when positive change occurred after action research, but also offered salutary lessons when improvements were not maintained. Constant critical scrutiny and support are needed if high levels of quality are to be maintained, as there were some slippages when the focus went off specific aspects of quality. This finding also raises questions about whether it is realistic to expect all aspects can be maintained at all times.

In their group discussions and individual questionnaire responses, playcentre members said they benefited from the training and use of the rating scale. Several commented that it was the first time they had made observations throughout an entire session, and the rating scale helped them to focus on aspects of pedagogy. In particular the exercise of using the rating scale and discussing the ratings drew attention to interactions of adults and children that are critical for adults contributing to children's learning and development.

On session it has made me think about my interactions with children and how these can be improved.

[Use of the rating scale has] improved adults' skills and interests in responding to children.

[The COI project has enhanced] understanding of what an adult needs to do to optimise thinking, feeling and learning for a child, specifically through increased knowledge of schemas, through practices highlighted in the rating scale and in our action research cycles (e.g. use of questioning).

Wilton Playcentre members intend to continue using the rating scale in the future because of its usefulness in focusing them and getting them to think about aspects of the environment and interactions that are important for children's learning.

Technological support

Funding through the Centre of Innovation project enabled the playcentre to purchase a digital camera, iBook computer, digital video camera, and printer, which playcentre educators wanted to use largely for pedagogical purposes. Valuable use was made of the equipment:

- To document and communicate with the child's parents about children's learning. On some occasions the computer was set up towards the end of the session so that parents could see a sequence of photographs taken during the session, giving them an idea of what had been happening. As a team leader pointed out "The parents can use that picture as a scaffold, talking with the child about what happened at the centre."
- To communicate between teams who were responsible for sessions on different days.
- To support critical reflection by children and adults. Here is an example demonstrating that photographs of children at play served to raise children's interest and lead to discussion and projects:

Sometimes we would have a slide show at morning tea of the morning's play. Children would watch with interest, particularly when they could see themselves, and everyone would make comments. I described the play hoping that the children would see something new in their play and go and pursue it further after morning tea.

Once I had a slide show open when the children arrived and offered to make books with them from the photos. Nyah (aged 4) was very interested in this project. She selected photos of herself and her sister. We printed them and stapled them into book form. She wrote her name on the pages, and put it in her bag to take it home to show her parents.

- To aid assessment and evaluation. Photographs helped make assessment and evaluation more "permeable" (Carr, 2001), open to the contribution of all parents, including those who were not in the session at the time, and of children. The picture form captured interest and promoted understanding. The education officer explained it like this:

Having the camera meant that we could put pictures and Learning Stories together, bringing the Learning Stories to life, and making them much more relatable [sic]. It also helped with schema spotting.

Once we had pictures, we started compiling folios in clear files for the children. Being able to see pictures when we were filing children's Learning Stories helped us to see what had gone before. Pictures draw you into the story and entice you to read—so if the story was written on another day by another team, it is still easy to get a fleeting impression of that child's learning history ... and gradually build up a fuller picture. Going through the photos on the computer after the session and assigning schema and other labels also helps us get to know children better—as does filing the pictures under each child's folder—it's a visual revisit of children's activity. Pictures also tell more of the story with fewer words ... important when pressed for time.

Having pictures alongside the Learning Story at the same time as we are discussing it in the evaluation meeting makes it much more accessible and real and interesting. All the team

members are able to ‘see’ what happened and contribute to the analysis with what they know about the child.

Having pictures meant that the children started to look at their own folders. The laminated pictures on the front means that even very small children can access their own documentation.

- To provide practice-based examples in workshops offered by playcentre members.

I always take the iBook to workshops. It’s another way for people to see schemas in action. They’re easy to see in a series of photos. I also think seeing how we use the computer is a good way of giving people ideas of how IT can be used to help children’s learning.

Members have commented very positively on the immediacy of using the iBook and digital photographs, and the ability to use these for multiple purposes, such as a photograph being placed in a child’s portfolio, while also being used in an educational display and for discussion alongside a written Learning Story in a session evaluation.

One early issue was having expert help in choosing equipment that would best serve the playcentre members’ aims to use ICT for pedagogical purposes. Here the advice of research associates and teachers from Roskill South Kindergarten, another COI, whose emphasis is on the use of ICT to enhance early childhood learning and development, was invaluable. Participating in the Centre of Innovation hui had brought playcentre members in touch with them, enabling Wilton Playcentre members to see good examples of effective ICT use to enhance pedagogy.

What helped parents to come to grips with using these tools with confidence? One parent was extremely helpful in advising on the use of equipment. There was also much trial and error. One or two people learnt the fundamentals early on, and they became known as the experts.

People would try to grab them on session—‘How do you print again?’ ... We all seemed to get there in the end.

One “expert” parent spent many hours sorting through hundreds of photographs. The timely availability of hands-on training in ICT usage linked to pedagogy could have been of great assistance.

Conditions to support ongoing learning and experimentation

In their discussion of what they, as Wilton Playcentre members, really valued, parents spoke of their strong desire to play an active role in their child’s early childhood education. Being learners themselves was seen as contributing to this role and beneficial to the adult learner and child.

Playcentre members used Centre of Innovation funding to create conditions that could support opportunities for ongoing learning and experimentation, since this was their priority. Funding was used to pay for:

- parents to have release time from their usual duty tasks, so that they could take time to make observations and collect documentation. The release time was provided by a paid playcentre qualified educator;
- a student to do some of the “end of term clean-ups” so that parents could spend the time they would have spent cleaning in discussion of ideas, information, and research findings and in planning for action research; and
- an administrator to take the administrative load off parents so they could put their energies into teaching and learning.

Having this release time and administrative support was regarded as essential, particularly since being a Centre of Innovation involved additional work.

It was critical to have Debby [the administrator]. I think we would've gone down in a screaming heap without her.

An Association representative also commented that:

A by-product of the research could be considering the impact of having a paid administrator to free people up to work with the children more effectively. This is something lots of centres have talked about and the experience gained by Wilton during the period could be very useful.

Recent studies (Mitchell, Royal Tangaere, Mara, & Wylie, in publication-a, in publication-b) have found high volunteer workload pressures can be problematic for playcentre parents, detracting from their central aims for promoting children's and adults' learning. Additional funding used to reduce workload as occurred at Wilton Playcentre can have a very positive impact. The Equity Funding evaluation (Mitchell et al., in publication-a) also found that:

It was common for playcentres using Equity Funding to cut back the requirements for parental voluntary labour for routine maintenance and administrative work, to find that parents became more willing to participate in playcentre training and in the education programme. This involvement strengthened the main purposes of playcentre: children's learning and development and parent learning and support.

Parents now think one of the challenges for Wilton Playcentre at the end of the Centre of Innovation project will be either coping without paid administrative support or finding ways to pay for this support.

Action research and professional development

What were the processes that contributed to Wilton Playcentre parents becoming even more effective practitioners? The action research cycle, involving playcentre members in a continuous process of gathering data from their own playcentre, critically analysing it in collaboration with each other and the research associates, and planning and carrying out action to enhance pedagogy, was central to improvement.

Critical analysis of data was particularly valuable in generating understanding of what could be improved and why.

I think the process of having to look at the data—we actually have to think about it, writing it up, as well as reading—got me thinking about why we do observations and thinking about my own children in a way that I'm sure I wouldn't have.

In their Best Evidence Synthesis of characteristics of effective professional development (Mitchell & Cubey, 2003), the research associates found that data that were discrepant with participants' own views of the situation can prompt participants to think again about their views and understand why and how they could improve their practice. Playcentre parents were "surprised" by some data. These "surprises" included:

- low ratings for some items on the process quality rating scale (e.g. adults asking open-ended questions, offering a print-saturated environment). Discussion of these aspects led into the first action research cycle aimed at improving them;
- discovering evidence of a child's spatial order/spatial relationships schema interest after analysis and discussion of her Learning Stories. Until the analysis, playcentre parents had not detected any strong schema interests. The discovery enabled adults to consciously pick up on these interests and extend the child's thinking about them; and
- finding evidence of the extent to which children themselves contribute to continuity through pursuing their own schema interests.

Discussion of this data led to a strong desire to strengthen these aspects. In turn, change was supported by professional development relevant to the aspects that members were addressing in their action plan.

Issues and challenges

Some issues and challenges arose during the course of the Centre of Innovation project. These were created by the practicalities of undertaking research, by the volunteer workload for parents, and by the changing membership of the playcentre as old parents left and new parents joined up.

There was a very high level of participation in schema and Learning and Teaching Stories workshops, training related to undertaking research, and the research itself. In general this work was not cross credited towards playcentre courses. There was a view amongst members that these fitted well with the aims of some particular playcentre courses. One upshot was that although parents were very active in their participation in research, training, and professional development, and in facilitating workshops, on paper it seemed that training levels had deteriorated since only credited courses count towards playcentre qualifications.

My training has fallen behind. When I joined Wilton in March 2005 I had completed all my Course 3 requirements and just needed to write up my assignments. Nine months later I have been so involved with COI research that I still haven't completed.

This raises a question about whether non-crediting of related research and professional development may constitute a barrier to participation in any research and professional development for playcentre educators.

In keeping with the playcentre philosophy, we agreed to work collaboratively in all aspects of the Centre of Innovation research. We tried to share tasks amongst playcentre members in order to draw on skills and make tasks manageable, but also provided our research associates with a point of contact for each phase of the project. Another principle was to ensure that all playcentre members had the opportunity to be regularly updated about the project and to take roles according to their circumstances and wishes. We managed this through:

- holding regular playcentre meetings to update everyone about the Centre of Innovation;
- providing opportunity for all families to be involved in the two focus group discussions, parent questionnaires, and trialling of the assessment and evaluation frameworks; and
- calling for volunteers for different aspects of the project.

Over the 3 years of being a Centre of Innovation, most families were able to be involved in some way. It was not possible to invite new parents to be writers of this final report, since we wanted to have people who knew the research that had been undertaken. A few parents thought it was hard for new families to be fully incorporated into the Centre of Innovation work.

Wilton Playcentre committed to COI before I joined playcentre, hard to get enthused about something I 'ended up in' & felt a bit obligated to be enthused about.

Transition for new people coming on board was not planned or executed as well as it could have been.

Parents reported a very high volunteer workload caused by the Centre of Innovation work, despite the funding that enabled employment of an administrator and other help. This deterred one or two parents from taking an active part.

So many meetings—even when I thought about getting more involved in the COI, there's no way I could go to more playcentre-related courses.

There was slight concern that Centre of Innovation work took priority over nuts and bolts playcentre work.

I am concerned that priority may have been put on COI work rather than playcentre training/attendance at playcentre meetings etc.

[Difficulties were] sometimes time pressure and a feeling of conflicting priorities.

However this concern was countered in another parent statement:

The very questions [the Centre of Innovation] was looking at has meant some extra work and/or change, but this was no different than if we had been looking at these issues independently as a centre, and I think the outcomes and findings have been easier to integrate and spread across the centre because the COI has provided a clearer framework for doing this.

A concern about priorities and workload was reflected in two Association representatives' comments that Wilton Playcentre was not represented on the Association when the Centre of Innovation project was "in full swing". One representative said:

Wilton has also been less involved in Association functions during the research period. There was a potential danger of Wilton becoming more isolated from the Association and the existing support networks. I think the issue of how a small centre may survive with the extra work was a concern but it has been really pleasing to see new members joining and the centre doing well throughout the project.

Wilton Playcentre members used Centre of Innovation funding to pay for some work that was being undertaken by them, since this involved many extra hours over and above other playcentre work. Decisions about rates for this work and criteria for applying for funding were made co-operatively at business meetings. One parent suggested that rather than paying for hours worked, payment should have been for "outputs" since "people were paid vastly different amounts for what appeared to be the same work".

Despite these issues, the overwhelming comments from parents in their final questionnaire and focus group discussion were that the Centre of Innovation experience had been valuable and positive for themselves and their children, and for the Wilton Playcentre community.

Adult learning

It has provided different ways of seeing things (labelling). Awareness of areas that hadn't featured on my radar before.

It has provided great growth and stimulation for all those involved.

It has given me a lot more confidence in my own abilities to interact with children in ways that benefit them.

...developing skills of researching, writing, presenting (speaking) and developing a workshop.

Children's learning

Created a space where we needed to reflect on our own practice & note areas to improve. [Benefited] adults' skills & interest in responding to children.

Able to use schemas to understand what the kids are doing and to extend their areas of interest.

Knowledge of schema work has been helpful at home.

The keenness of others to observe meant they knew my child better. . . . We like knowing about schemas.

Wilton Playcentre community

Community of learners—increased knowledge by all parents, more, faster, different to what might have been learnt by playcentre training. Exposure and experience of learning outcomes, methodology, knowledge etc—these can be used after the COI project.

People have had an intellectual outlet in common and a common project. We've probably all got better in practice through reflection.

It has given us as a group a sense of achievement and revitalised us as well.

I think the centre has really benefited from having a clear and common goal that has involved both activity and thought and discussion.

A collective upskilling and deeper appreciation of what 'learning' means for our children and how it happens and how we can support it.

The Playcentre Association identified wider benefits from dissemination of information about Wilton Playcentre's Centre of Innovation work through the *Playcentre Journal*, workshops, "and talk behind the scenes". A representative said these evoked interest in schemas, and the child-focused articles that Wilton Playcentre members wrote were practically useful.

Perhaps the greatest challenge will be "life after" the Centre of Innovation, a topic for further discussions.

11. Conclusion

In this conclusion, we return to our research topics for investigation, drawing together the main findings from our action research cycles to highlight what they may mean for children's and adults' learning within an early childhood education centre.

The use of schemas and dispositions and children's learning progressions

Through the action research cycles within the Centre of Innovation project, parent educators at Wilton Playcentre successfully brought together two different (and in some views oppositional) theoretical frames that until then had been used in parallel. As educators, our teaching and learning approaches drew strongly on schema learning theory, which emphasises children's inner drives and derives from developmental psychology, and learning dispositions, which are based on sociocultural theory.

In recent times, developmental psychology has been criticised for over-emphasising biologically determined stages of development rather than experience. It is argued that such overemphasis devalues children's knowledge and therefore their competencies (Archard, 1993; Burman, 1994; Cannella, 1997; James, Jenks, & Prout, 1998; Mayall, 1996; Morss, 1990). As well, writers have argued that child development has normalised standards, marginalising those who do not meet the standards and those characteristics that are not included in the standards.

Our experience, however, is that we were able to use the two theoretical approaches to complement each other. Together they helped us have greater depth of insight into children's learning progressions and how we might strengthen them. We knew the children at home and the children knew the playcentre well, with many having been there since they were babies. We understood the children's sociocultural setting well. Our knowledge of schemas and observations of children at home and at playcentre enabled us to identify children's schema interests. These schema interests rang true for us as we observed how children were driven to explore their schemas across different areas of play and in different contexts.

Our findings suggest that rather than the playcentre experience helping children to "find an interest" (a learning disposition), children come to the playcentre with existing schema interests. Schema interests and positive dispositions seem to go hand in hand: children displaying a strong schema showed a drive to know and experiment, and we enabled children to drive the curriculum following their schemas. This was associated with dispositions, such as showing an interest, being

involved, and persistence, and expressing an idea or feeling. We suspect that schemas may provide a basis for dispositions to flourish when schema interests are supported and extended.

This is consistent with the recent analysis from the longitudinal Competent Children, Competent Learners study showing the significant role that having interests plays in children's development, and how cognitive performance at one age contributes to levels of dispositions at a subsequent age, while levels of dispositions contribute to cognitive performance at the same age (Wylie and Hipkins, 2006; summary of age-14 phase study available on www.nzcer.org.nz or www.minedu.govt.nz).

Understanding schema interests helped us make sense of play that we may not have otherwise tolerated, for example a child's interest in trajectories and repeated experiment with throwing things. Noticing interests was a first step in being able to recognise and respond to them. We were helped in doing this by being prepared to "see the unexpected", not to prejudge levels of thinking because of a child's age. One of Rosa's case study stories suggests Rosa (2½ years) was able to use complex functional dependency ideas at a very young age, before we might have thought she could.

The playcentre philosophy provided a basis for our sociocultural view of learning. We viewed adults and children as active participants in learning, and found ways to extend their participation and learning. Some contributing factors in enabling this through the course of the Centre of Innovation project were as follows.

- We focused on children's interests and strengths, taking a credit-based approach to teaching and learning.
- Our ability to observe children and adults and make sense of these observations for assessment, planning, and evaluation was enhanced through use of the New Zealand Council for Educational Research/Te Kōhanga Reo National Trust process quality rating scale and the refinement of our Learning and Teaching Story form. The new form brought together and directed attention to both schemas and dispositions in a way that was meaningful and useful to us.
- Theoretical knowledge helped us to understand, support, and extend children's learning. The professional development on schemas and workshops about questioning and sustained conversations, as well as the mentoring from experienced playcentre educators, helped us to have greater understanding. Parents were not "pure" about theory, taking what made sense to them and their experiences. This may have been a reason why they were able to bring two different theoretical perspectives into a single framework.
- An important role of adult educators is to feed spontaneous structure (schemas, "form") with "content", that is, fleshing out "form" by extending "content".
- Schema learning theory and sociocultural theory are compatible. They both reflect the "child in action"; are credit models; link to the strands of *Te Whāriki*; and both require a high quality curriculum where children are free to make their own choices and work with knowledgeable adults who interact with them respectfully, reciprocally, and responsively.

- Discussion of the data gathered through the action research cycles helped us to evaluate how we could improve practice and deepen learning. This needed to be ongoing: we found that resting on our laurels was sometimes associated with “going backwards” in respect to quality provision.

Prout (2005) has suggested the need to “include the excluded middle of dichotomies that have been made to be oppositional” (p. 69). It may be that bringing together schemas and dispositions makes a contribution to finding a “middle” between developmental psychology and sociocultural theory.

Parent engagement and sustaining a community of learners

The idea of a community of learners is based on the premise that learning occurs as people participate in shared endeavours with others, with all playing active and asymmetrical roles in sociocultural activities (Rogoff, 1994, p.209).

Rogoff contrasts a community of learners approach to teaching and learning with “adult-run instruction” where adults transmit knowledge to children, and “child-run instruction” based on assumptions that learning is a product of discovery of knowledge by oneself or with peers. In a community of learners approach, adults and children are regarded as active, and no role has all the responsibility for knowing or directing. It includes asymmetry of roles: particular roles vary from one situation to another and at different times.

At Wilton Playcentre we found evidence of active learning and asymmetry of roles. The learning that happened for us as parents at Wilton Playcentre was broader than we had expected when we first joined. Many of us came to playcentre for the benefit of our children, and found other reasons that enticed us to stay. We did learn useful knowledge and skills that we could use at home and in the playcentre for the benefit of our children. But other unexpected benefits and personal development also occurred.

These benefits and development came from:

- participating as parent educators in the education of the children;
- taking responsibility for managing and running the playcentre;
- using consensus decision making;
- belonging to a community;
- feeling valued as a parent;
- facilitating workshops;
- presenting papers at seminars and conferences; and
- undertaking research through the Centre of Innovation project.

Our findings showed that both formal and informal systems and relationships supported learning. Formal learning opportunities include playcentre training, professional development, and workshops, and our participation as a group in assessment, planning, and evaluation. Informal

opportunities occur through the many relationships that are developed and strengthened among playcentre parents, both past and present. These opportunities also helped parents to gain confidence as educators.

Finally, if we were to pinpoint the most important features that bind us together as a community of learners, it is having a shared sense of purpose and being involved as educators of our own children. The values that are really important to us embody the goals of learning for both adults and children. We have a strong desire to play an active role in our children's early childhood education, and see ourselves as learners, with our own learning contributing to the educative role with children and being beneficial to ourselves as learners also. The benefits of playcentre involvement are not just for ourselves and children as individuals, but for community.

These shared values and goals are a real source of strength. If we look at Rogoff's definition of what contributes to a community of learners, her idea of "shared endeavours" is coming through here. A culture of "community" has developed over the history of the playcentre and there is a view that the past positively contributes to the present.

Continuity and quality across settings

Continuity across sessions was a concern at the beginning of the Centre of Innovation project since we did not have strong formal systems to ensure passing on of information to the different teams who were responsible for the education programme on different days. The ratings of process quality that we undertook in the baseline phase dispelled these fears when we saw that the quality of what was provided varied insignificantly across sessions.

We did find that the quality of some adult-child interactions and aspects of our environment could be strengthened. While we were able to improve on these throughout the Centre of Innovation project, we also found that without ongoing revisiting, the improvements were not always upheld.

A key factor to providing continuity is adults' knowledge and understanding of schemas. The session team members and other parents were able to communicate across different learning contexts about the children's driving interests. Over time, we were able to strengthen continuity by improving our observation, assessment, planning, and evaluation forms. Using common and integrated approaches, and listening to each other's views in team discussions, seemed to contribute to a greater understanding of the children. This enabled more appropriate planning.

One surprise was the extent to which the children following their schema interests were the initiators of what happened in the education programme and set the scene for session planning. This idea of children as active participants in learning is consistent with the notion of community of learners. Children contributed to continuity between playcentre sessions and with home through the pursuit of their schema interests, and the responsiveness of adults to these interests.

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Appendix A: Schemas

Schemas are a way of talking and thinking about patterns in children’s play that help us understand our children’s passions better. We at Wilton Playcentre (Wellington Association) talk about schemas to help us deliver *Te Whāriki* more easily. It’s not perfect: schemas can be difficult to see; a child can demonstrate one, or several, or no schemas at a particular time. But we find schemas help us to interact with our children, to have engaging and sustained conversations about the ideas they might be exploring, and to support their exploration of their ideas by supplying a variety of activities that might be relevant, and by feeding in appropriate language and questions to support their thinking.

I think schemas are extremely useful because children’s passions are what drive them to become most deeply engaged and deep engagement is what we need to identify in order to support and scaffold children’s learning most effectively.

Schemas in areas of play

<i>If a child is passionately interested in items in this column...</i>	They may well be exploring this schema...	<i>And so they might want to use these areas of play in the following ways...</i>							<i>And here are some problems you may have.</i>
		Blocks, Puzzles Manipulatives	Storytelling Dramatic	Carpentry Junk Collage	Paint Finger-paint	Physically Active, Music and Movement	Playdough Clay Cooking	Sand Water	
Picking things up, moving them, and putting them down or dumping them. Perhaps using pram, bag, basket, truck or wheelbarrow. Usually has full hands.	Transporting	Train set, vehicles, moving the materials in vehicles, sometimes dumping instead of unloading.	Shopping with loaded bag or trolley. Journeys, moving house, wheelbarrows, bags, pockets, suitcases, pushchairs, picnics, large shoes on feet.	Moving items from e.g. shelves to table. Pulleys, building sites with wheelbarrows and tool aprons (safety issue: transporting tools).	Work may portray transporting. Carrying paint pots in carrier.	Moving things, self or others in wheelbarrows, prams, trolleys. Carrying things, moving big things. Helping get equipment out. Wheels on the bus.	Moving playdough from place to place in toy kitchen or to somewhere else in the centre.	Wheelbarrows, moving sand. Buckets, containers and jugs for moving water, watering plants around the place.	Lost objects. Moving things to inappropriate areas—need places to take stuff (e.g. sand, water, paint, finger-paint, tools) to. Picking up yucky things in order to move them. Dumping.
Materials which change shape, colour, consistency. Nothing stays clean.	Transforming	Inventing different ways of using the materials.	Dressing up, taking on roles of animals or imaginary characters, wearing masks and wigs, face painting.	Gluing, sticking, painting constructs.	Paint and colour mixing. Painting self. Painting dye over wax crayon.	Pretending to be e.g. animals by changing gait, posture etc. Window cleaning, washing down messy play tables.	Making dough. Clay hardening. Most cooking involves transformation.	Wetting, freezing, and melting. Adding colours to water, sand and water to each other, smoothing and raking sand. Making froth and bubbles.	Mucky messes and other adults disapproving of you allowing such mucky messes, changing clothes frequently.
Horizontal, vertical, and diagonal movement of things and of self. Things fly through the air, child moves at a run.	Trajectory	Building and knocking down. Mobilo ladders. Marble runs, garage ramps, angled planks. Pushing cars off tables.	Fire engines with hose and ladders, rockets, spaceships, submarines, window cleaning, aeroplanes, building site, cash register drawers.	Sawing, banging, hammering, and tearing.	Flicking paintbrushes, throwing painty sponges, painting on easels and floor. Energetic finger-painting. Work may include vertical, horizontal, or diagonal lines.	Climbing, slides, swings, trolleys, throwing, kicking balls, stepping up and down, lying flat, rolling, ramps, sloping walls, trikes, waterslide.	Rolling pin, banging, hammering, poking, chopping, mashing, pouring, sprinkling.	Knocking sand castles down, digging, ramps, slides. Squirting, pouring, sprinkling, lading, tubes, sink or float, pipe systems, hoses popular.	Inappropriate biffing, e.g. hard objects, things that splat, dinner. Vigorously swooshing a prepared activity off a table.

Things that turn, loves wheels and/or balls. Exploring curved lines, loves circles.	Rotation and Circularity	Cogs, wheeled vehicles, helicopters, screw tops, winding and unwinding, turning keys in locks. Train track in a circle.	Pretending to be or be in washing machines and dryers.	Taps, screw tops, wheels, cogs, drills, screwdrivers.	Moving hands in circles in finger-paint, rollers, rolling painty balls. Making spirals, circles, faces.	Whirling, tops, dancing, hoops, Ring-a-ring-a-rosy. Turning a parachute. Moving in circles, windmill arms, riding trolleys and trikes in circles.	Rolling out. Pastry wheels, mixing, stirring, whisking, a blender. Egg beaters.	Water wheels, wheeled vehicles. Cement mixers.	Turning dials (heaters, clock hands, stereo volume, toaster knobs).
Surrounds things. Likes getting inside a defined area, e.g. a block building, tyre, or barrel. Gets into boxes. Covers completely, wraps up. Hides. Gets into boxes and closes lids.	Enclosure and Enveloping	Wooden blocks make enclosures for self or objects; houses, cages etc. Animals in fields, dolls' house, Lego boundary wall on base plate, Russian dolls, inset jigsaws, posting boxes.	Dressing up in face-paint, layers of clothes, bags, and hats. Hiding in caves, beds for dolls and self. Getting under piles of clothes, blankets, or cushions. Pretend parcels, pregnancies, buried treasure.	Toys in boxes. Wrapping paper around objects. Layers of collage. Papier maché.	Frames pictures, covers painting completely with paint, covers name up. Paint on self, toys, walls. Face-paint.	Dressing up, tents, huts, tunnels, barrel swing, parachutes.	Playdough in or over toys. Wrapping clay round stones, making clay caves. Peas in pod, eggs, onion, samosas, icing, spreading, buttering. Food in packets.	Filling containers, including pliable ones, e.g. balloons. Tea sets. Burying things, holes, dump trucks, cement mixers. Volcanoes.	Lost and hidden objects. Taking bags everywhere. Wearing too many layers.
Joining things together. Ties things up.	Connecting	Train tracks, engines and trucks, Mobilo, Meccano, Lego, jigsaw puzzles.	Human train, holding hands, tying people up with dramatic play rationale.	Gluing, sewing, sticky tape, staples, string, etc. ties things up. Paper chains, beading.	Connecting patches of colour. Using lines to connect parts of the picture.	Ring-a-ring-a-rosy, follow the leader, Conga lines, Dem Bones.	Gathering dough into bigger lumps. Joining bits of clay with toothpicks.	Connecting hose to tap, joining tubes or pipes to make a watercourse.	Ties things up, trip wires, knots, shoelaces.
Opposite: Takes things to pieces and/or scatters the parts.	Disconnecting	Building and knocking down towers. Spreading out Duplo, Lego, Mobilo.	Undressing: undoing shoes, unbuttoning, unzipping.	Cutting up. Tearing. Taking old appliances to pieces.		Spreading or scattering things.	Cutting playdough and clay. Pulling mandarins to pieces. Rubbing butter into flour.	Smashing ice, sand castles.	Emptying out tidied collections. Taking working appliances to pieces.

Wilton Playcentre has a Centre of Innovation research contract to document and develop best practice in early education, and disseminate our findings funded by the Ministry of Education. We're looking at parental involvement, sustaining a community of learners, and schemas. The first two of these are fundamental to playcentre and so you already know a lot about them. This chart shows what I've learnt about schemas since joining Wilton Playcentre a year and a half ago.

If your centre or association would like an introductory workshop about schemas, we've just developed one and will be giving it around the country in Term 4 and next year. Get in touch with our administrator (Debbly McKay via deb.mac@paradise.net.nz or at Wilton Playcentre, 3a Gloucester St, Wilton, Wellington) for more details.

Susan Harper, Wilton Playcentre.

Appendix B: *Te Whāriki* links with schemas, dispositions, Learning and Teaching Stories

TE WHĀRIKITHE PRINCIPLES

WHAKAMANA: EMPOWERMENT

The early childhood curriculum empowers the child to learn and grow

KOTAHITANGA: HOLISTIC DEVELOPMENT

The early childhood curriculum reflects the holistic way children learn and grow

WHĀNAU TANGATA: FAMILY & COMMUNITY

The wider world of family and community is an integral part of the early childhood curriculum

NGĀ HONONGA: RELATIONSHIPS

Children learn through responsive and reciprocal relationships with people, places and things

THE STRANDS	SCHEMAS – SIGNALS	LEARNING STORIES – DISPOSITIONS AND SIGNALS	TEACHING STORIES THE CHILD'S VOICE QUESTIONS	LAEVERS' SIGNALS OF INVOLVEMENT AND WELLBEING
Mana Whenua – Belonging Children and their families feel a sense of belonging	Immersed and taking pleasure in the exploration of their schemas Quick reaction in making connections about their schemas throughout the playcentre High energy Explore schemas at home or at playcentre	Finding an Interest Here Having the <u>courage</u> and <u>curiosity</u> to find an activity, a role Recognising the familiar, enjoying the unfamiliar, coping with change	Do you know me? How do you appreciate and understand my interests and abilities and those of my family?	INVOLVEMENT Concentration The child's attention is focused on the one small area of his/her own activity. It is difficult to distract him. Reaction Time These children are alert and readily respond to new things that connect with what they are currently doing.
Mana Atua – Wellbeing The health and wellbeing of the child are protected and nurtured	Difficult to distract, not easily tempted away Willing to explore and experiment, making connections across time, places, and materials Using a range of strategies when exploring a schema	Being Involved Paying attention for a sustained period Showing <u>trust</u> in others and <u>playfulness</u> with others and/or materials	Can I trust you? How do you meet my daily needs with care and sensitive consideration?	Satisfaction Children gain pleasure from what they are doing. They show it in their body language and in how they treat what they are involved with. Facial Expression By reading their facial expression and composure, we can see when a child is watching and listening intently, ready to move quickly and completely absorbed in what they are doing.
Mana Aotūroa – Exploration The child learns through active exploration of the environment	Display persistent patterns of behaviour in exploring the world Extend out and find other ways to explore a schema Can range across the environment seeking a match to a current schema Do not give up easily when wanting to represent schemas symbolically or to work on functional dependency	Persisting with Difficulty and showing <u>perseverance</u> in the face of difficulty and uncertainty Setting and choosing difficult tasks Using a range of strategies to solve problems when "stuck"	Do you let me fly? How do you engage my mind, offer challenges and extend my world?	Energy Children put a lot of effort and enthusiasm into their activity focusing in on a problem. Complexity and Creativity Children work to their full capacity, giving their undivided attention and a great deal of care to every aspect of what they are doing. Their play is not routine. Persistence Children do not give up easily. They are not easily tempted away from what they are doing. Verbal Expression Children make comments that indicate their enjoyment and enthusiasm. Precision Children who are involved work meticulously. They show a remarkable amount of care for their work.
Mana Reo – Communication The language and symbols of their own and other cultures are promoted and protected	Use a range of creative forms Lots of mark making often about schemas rather than things Body actions are significant when related to schemas Very interested in stories related to their schemas	Expressing an Idea or Feeling or Point of View and showing <u>confidence</u> In a range of ways: e.g. oral language, gesture, music, art, writing, using numbers and patterns, telling stories	Do you hear me? How do you invite me to listen and communicate? And respond to my own particular efforts?	Wellbeing • openness and receptivity • flexibility • self-confidence and self-esteem • able to defend oneself • assertiveness • vitality • relaxation and inner peace • enjoyment without restraints • being in touch with oneself
Mana Tangata – Contribution Opportunities for learning are equitable and each child's contribution is valued	Children with similar schemas support and extend each others' work While exploring a schema alone, show enjoyment when others express an interest in the schema	Taking Responsibility for justice and fairness and the disposition to <u>take on another point of view</u> Self-evaluating, helping others, contributing to the programme Responding to others, to stories, and imaginative events	Is this place fair for us? How do you encourage and facilitate my efforts to be part of this group?	

Pam Cubey, February 2005

Appendix C: Guidelines for the Learning & Teaching Stories form and Evaluation and Planning form

GUIDELINES FOR THE LEARNING & TEACHING STORIES FORM

For ease of use when observing, fold the form back to back and attach to the clip board. Open it out when you come to respond to the second part.

1. First, observe and write down what you see and hear.
2. Don't worry if you do not spot a schema.
3. Fill in the second page after you have time to think about what you wrote.
4. Then fill in the Interest / title / schema section at the top of the first page.
5. You may be able to share your observation with the parent and enter their response in the Parent Voice box.
6. Remember that the Child Voice may not always be verbal but that sometimes children communicate in a clear non-verbal way which you could describe.
7. You may be able to share what you saw with the child and write down their verbal response under Child Voice.
8. On the reverse side of this sheet is a chart to help you to identify dispositions and schemas which are linked to the strands of *Te Whāriki*.
9. The second sheet is information about the principles and strands of *Te Whāriki*.

		Examples/Signals for:	The Child
		Dispositions	Schemas
The strands of Te Whāriki	Mana whenua belonging	<p><u>Finding an Interest Here</u></p> <p>Has the <u>courage</u> and <u>curiosity</u> to find an activity, a role</p> <p>Recognises the familiar, enjoying the unfamiliar, coping with change</p>	<p>Is immersed and takes pleasure in the exploration of his/her schemas</p> <p>Quickly reacts in making connections about his/her schemas throughout the playcentre</p> <p>Explores schemas at home or at playcentre</p>
	Mana atua wellbeing	<p><u>Being involved</u></p> <p>Plays attention for a sustained period</p> <p>Shows <u>trust</u> in others and <u>playfulness</u> with others and/or materials</p>	<p>Is difficult to distract, not easily tempted away</p> <p>Is willing to explore and experiment, making connections across time, places and materials</p> <p>Uses a range of strategies when exploring a schema</p>
	Mana aotūroa exploration	<p><u>Persisting with Difficulty</u></p> <p>and shows <u>perseverance</u> in the face of difficulty and uncertainty</p> <p>Sets and chooses difficult tasks</p> <p>Uses a range of strategies to solve problems when “stuck”</p>	<p>Displays persistent patterns of behaviour in exploring the world</p> <p>Extends out and finds other ways to explore a schema</p> <p>Can range across the environment seeking a match to a current schema</p> <p>Does not give up easily when wanting to represent schemas symbolically or to work on functional dependency</p>
	Mana reo communication	<p><u>Expressing an Idea or Feeling or Point of View</u></p> <p>Shows <u>confidence</u> in a range of ways: e.g. oral language, gesture, music, art, writing, using numbers and patterns, telling stories</p>	<p>Uses a range of creative forms</p> <p>Engages in lots of mark making often about schemas rather than things</p> <p>Reflects schemas in his/her body actions</p> <p>Is very interested in stories related to his/her schemas</p>
	Mana tangata contribution	<p><u>Taking Responsibility</u></p> <p>for justice and fairness and the disposition to <u>take on another point of view</u></p> <p>Is self-evaluating and helps others, and contributes to the programme</p> <p>Responds to others, to stories and imaginative events</p>	<p>Children with similar schemas support and extend each others' work</p> <p>Shows enjoyment, while exploring a schema alone, when others express an interest in the schema</p>

For you to think about:

What's happening here?

What learning do I think was happening here?

Are there aspects of the child's voice, the child's contribution, the adult's contribution, continuity across sessions and/or with home?

What next?

How might we support, enrich, extend this schema disposition, ability, strategy and story?

How might we encourage that 'next' step in the learning story framework?

These guidelines were designed to accompany the new Learning and Teaching Stories form and the new Session Evaluation form. The guidelines for the Learning and Teaching Stories form are printed on both sides of a laminated sheet, and include the essential elements of *Te Whāriki* for observers to refer to. The guidelines for the Evaluation form are kept in the front of the folder used to store old and new evaluation forms.

This form and the evaluation and planning form is based on

Te Whāriki - The Early Childhood Curriculum, which itself is founded on the following aspirations for children:

to grow up as competent and confident learners and communicators, healthy in mind, body and spirit, secure in their sense of belonging and in the knowledge that they make a valued contribution to society.

A description of The Principles of Te Whāriki:

There are four broad principles at the centre of the early childhood curriculum:

- Empowerment: Whakamana
The early childhood curriculum empowers the child to learn and grow.
- Holistic Development: Kotahitanga
The early childhood curriculum reflects the holistic way children learn and grow.
- Family and Community: Whānau Tangata
The wider world of family and community is an integral part of the early childhood curriculum.
- Relationships: Ngā Hononga
Children learn through responsive and reciprocal relationships with people, places and things.

A description of the Strands of Te Whāriki

- Belonging - Mana Whenua
Children and families feel a sense of belonging.
- Well-being - Mana Atua
The health and wellbeing of the child are protected and nurtured.
- Exploration - Mana Aotūroa
The child learns through active exploration of the environment.
- Communication - Mana Reo
The languages and symbols of their own and other cultures are promoted and protected.
- Contribution - Mana Tangata
Opportunities for learning are equitable and each child's contribution is valued.

GUIDELINES FOR THE EVALUATION AND PLANNING FORM

This form and the learning and teaching observation form is based on Te Whāriki - The Early Childhood Curriculum, which itself is founded on the following aspirations for children:

to grow up as competent and confident learners and communicators, healthy in mind, body and spirit, secure in their sense of belonging and in the knowledge that they make a valued contribution to society.

If you need more space to write use the reverse side of the form

1. Note that on Page 2, RECOGNISING AND RESPONDING are where you think about the Learning and Teaching Story Observation of the focus child(ren).
2. The reason for “ Revisit the previous Learning and Teaching Story in the child’s portfolio” is that we are trying to record progression in the child’s growth and learning.
To quote Anne Meade:” this makes an important point given we know very well that learning is not linear and loops back and repeats for a while.”
3. The reason for ticking the small box for “observation roster updated” is to remind people to mark off on the master form at the front of the session folder that a learning story had been done on the focus child. This will help us ensure that all the children get their fair share of attention and formal planning each term.
4. Reflection
There are many examples to help you in *Kei Tua o te Pae Assessment for Learning: “Early Childhood Exemplars”* (the large folder in the parent library. It’s very helpful too for learning story observations.
e.g. Book 1 - Pages 14, 16–17, 33, 37
Book 4 - Pages 7, 10–11,13,18
Book 5 - Pages 8–9
Book 6 - Pages 7,12, 13,18–19

Appendix D: Guidelines for administration of the quality rating scale

The Centre Rating reflects what is observed throughout an entire session or day. For this reason, it is best to wait until the end of the session/day before deciding your final rating for each variable. You will need to check on children's ethnicity before you do the rating of item 9.

COVER SHEET: Fill in all details in the space provided.

TOTAL NUMBER OF ADULTS PRESENT: Count the total number of adults present who are responsible for children. Visitors, for example, would not be included in this count.

TOTAL NUMBER OF CHILDREN PRESENT: It can sometimes be difficult to count exact numbers. Count all of the children who are there after you have been at the early childhood service for half an hour. If an educator takes the roll during your visit, ask him/her for their count, to check against yours.

RESPONSIBLE ADULT-CHILD RATIO: This can be calculated after the visit.

OBSERVATIONS/SPECIAL CIRCUMSTANCES: If relevant, add notes that might provide some background to what was observed on that particular day. Include, for example, the presence of visitors, a greater than average number of children absent due to illness, odd weather conditions (e.g. very hot/very cold) or anything else out of the ordinary. This information will not be coded.

THE RATING SCALE: All variables are rated on a 1 to 5 rating scale:

1 = not all like/never 2 = very little like/hardly ever 3 = somewhat like/sometimes
4 = much like/often 5 = very much like/always

ELABORATION:

The 1 to 5 ratings are used to rate whether or not the characteristics described in the main heading describe what is observed at the early childhood service:

- 1 = This description is not at all like this early childhood service. What is being described never happened during the visit.
- 2 = This description is very little like this early childhood service. What is being described hardly ever (once or twice) happened during the visit.
- 3 = This description is somewhat like this early childhood service. What is being described sometimes happened during the visit.
- 4 = This description is much like this early childhood service. What is being described happened often, i.e. on a regular basis throughout the visit.
- 5 = This description is very much like this early childhood service. Most of what is described happened all the time during the visit.

At the end of the visit, all variables should have a rating. There should be no double ratings (e.g. 4 - 5).

A Adult:Child Interactions

1 Adults are responsive to children

1 Adults ignore children's requests and are oblivious to their needs. Adults insist on child participation even when the child shows resistance.

5 Adults greet children individually on arrival. They encourage children and parents to farewell each other when parents leave the centre. Adults respond quickly and directly to children. Adults provide support, focused attention, physical proximity and verbal encouragement as appropriate. Adults respond to infant and toddler cues, e.g., through matching facial expression, body language and verbally. Adults show active interest and enjoyment of children. Adults respect children's need to take their own time e.g. allow children time to finish what they are saying before responding. Adults are alert to signs of stress in children's behaviour, and guide children in expressing their emotions. Adults show genuine concern for children. They talk about stressful situations occurring for children and reflect emotions and feelings. Adults give their full attention to the children and the task. Awhi tētahi i tētahi; adults comfort the mokopuna when he/she is upset and unable to resolve the situation.

2 Adults model - and encourage children to use - positive reinforcement, explanation and encouragement as guidance/discipline techniques

1 Adults consistently do three or more of the following when guidance or discipline is needed: blame, threaten, use harsh language, belittle or degrade children, place children in solitary confinement, immobilise them, deprive them of food, drink, warmth, shelter or protection.

5 Adults set clear limits. They guide or discipline using modelling, reinforcement, explanation or encouragement. Adults explain the reasons why the actions of an infant or toddler are inappropriate. Adults explain the reactions of other children and verbalise what the infants and toddlers need to do. Children are provided with opportunities to develop social skills such as cooperating, helping, negotiating and talking to solve interpersonal problems. Tuakana/teina care and support is encouraged and reinforced. Adults support children in being assertive while rationalising and talking through conflict. Adults support children to take on the viewpoint of others. He tapu te tangata – adults discourage the belittling of one another and focus on manaaki tangata – looking after each other as the whānau unit. Adults praise and use positive body language to encourage and reinforce tikanga.

3 Adults model/guide children within the context of centre activities

1 Children are left to choose all of their own activities, with little or no guidance or feedback from the adults.

5 Adults move among the children to encourage involvement with materials and activities. They interact with children by asking questions that guide and provoke thinking, adults challenge mokopuna to find solutions; adults explain cultural situations to the mokopuna; offering suggestions, and adding more complex ideas. Adults allow infants and toddlers the time they need to explore and experiment within the environment and also with materials. Adults allow toddlers and children time and opportunities to dress themselves. They offer active guidance and encouragement in activities that are appropriate for individual children, and the centre philosophy and cultural context, e.g. kōhanga reo in relation to mihimihi, karakia, waiata, tuakana/teina. As appropriate, adults prepare the environment and encourage children to learn through experiences such as active exploration and interaction with other adults, other children and materials. Adults create interests for infants and toddlers that encourage their involvement.

4 Adults ask open-ended questions that encourage children to choose their own answers

1 No open-ended questions are heard. Frequent use of instructional reo.

5 Adults take advantage of many opportunities to extend children's thinking by asking open-ended questions which encourage creative thinking. Adults offer opportunities for children to come up with a range of different answers, to encourage thinking and creativity. Open-ended questioning connects with children's interests. The questioning helps sustain and encourage conversations and extends ideas/concepts.

5 Adults encourage/ foster children's language development

1 Very limited language is used. There is little active listening. Adults talk at children. There is little opportunity for children to contribute to conversations with adults. Adults direct and instruct children.

5 Adults participate in verbal turn-taking with infants and toddlers. Adults tell stories about everyday activities. Adults use meaningful language to explain and describe activity, including when they are carrying an infant or toddler. Adults model effective language strategies (e.g. they extend children's sentences, ask a mix of question types) for accessing meaningful information and ideas. Adults interact with the mokopuna through stimulating conversation – korero. Adults discuss situations, events and activities and encourage responses. They incorporate new vocabulary – ngā kupu hou.

6 Adults participate with children in activities and play

1 Adults monitor children's play but rarely or never join in. Adults stand. Adults are detached and aloof.

5 Adults sit with infants and toddlers on the floor, if appropriate, and become involved in their interests. Adults allow infants and toddlers to take the lead in play episodes. They respond to verbal cues and gestures from infants and toddlers by describing what is happening. Adults facilitate social interactions e.g. by introducing children and adults and by facilitating friendships. Adults join in children's activities (both individual and group), offer materials or information to facilitate play and learning around a particular interest. Adults may enter into role plays with children and continue their interests throughout the session.

7 Adults add complexity and challenges for children

1 No sustained conversations with children are heard. Adult-created children's worksheets are evident. Television is regularly used to occupy children.

5 Adults encourage children to initiate activities and extend these activities by e.g. scaffolding, co-constructing learning, extending, discussion, modeling, or playing (Tuakana/teina concept). Adults encourage the mokopuna to lead cultural activities such as mihimihi, karakia, waiata. Adults acknowledge mokopuna for initiating leadership in cultural activities. Sustained adult-child conversations and joint problem solving are commonplace. Adults ask questions to encourage children to solve problems and persevere. Adults pose challenges that are appropriate for those children present. Adults suggest new strategies.

B Adult:Adult Interactions

8 Adults interact respectfully and positively with each other

1 Whānau and volunteers are not incorporated into activities. Adults are not greeted. Adults ignore or are abrupt with other adults. Adults/kaiako do not support each other, e.g. through positive comment.

5 Whānau and volunteers are fully included in activities, yet a wish to be an observer is respected. Friendly communication among adults is observed. Adults respond to one another's situations and offer support. Adults do not talk negatively about each other. All adults treat each other with respect and are positive towards each other – Manaaki tangata, He tapu te tangata. Kaumatua are present in the kōhanga and are acknowledged. Kaumatua actively participate in strengthening and extending te reo Māori with adult learners. Adults are seen practising tuakana/teina support. Adults speak te reo Māori in kōhanga and puna. Adults greet parents and visitors as they arrive and help them feel they belong. Adults/whānau tell parents how the day has gone for the child. Adults acknowledge others' leaving and say goodbye.

9 Adults work as a team to provide the education programme

1 There is little communication between adults about the education programme. Gaps in knowledge of how things work are evident. Some adults sit alone with no contact from other adults. Adults do not support one another in the programme or when dealing with challenging behaviour.

5 Adults participate confidently in daily routines and planned activities. Kaumatua contribute advice and support. Adults are acknowledged for their different contributions - awhi tetahi, tetahi. Adults listen to one another and work purposefully together to provide a coherent education programme. Adults resolve issues together. They support and look out for each other in the learning environment.

C Child:Adult interactions

10 Children participate in interactions with adults other than their own parents/whānau

1 Children do not have easy access to adults other than their own parents. Children seldom initiate interactions with adults other than their own parents/whānau.

5 Children interact with adults other than their own parents/whānau. Children initiate contact with adults to enlist their help and try out or share their ideas. They may tell adults what they specifically need from them. Children tell adults, other than their parents, about their experiences and ideas.

D Child:Child interactions

11 Children support and co-operate with one another in language and actions

1 Children regularly tease, bully, push, snatch toys/equipment, fight with, threaten and/or in other ways unsettle other children. There is no co-operation among children.

5 Infants and toddlers have access to older children at times. Children are seen to share, extend comfort to other children, offer to help or in other ways support and co-operate with each other – manaaki tangata. Children use negotiating skills to solve interpersonal problems. No fighting, teasing, name-calling or other verbal or physical aggression is evident. Mokopuna are seen comforting other children when they are upset, hugging and praising other children.

12 Children co-construct learning with other children

- 1 Children are excluded from play by other children. Children monopolise a learning experience. Children forcefully take over situations from other children.
- 5 Children initiate learning experiences and encourage other children to participate. Children ask enquiring questions of other children. Children act as prompts to other children for culturally appropriate behaviour within a specific context. Children assist and co-operate in finding solutions together. Children scaffold and co-construct learning with other children (tuakana/teina). Children model appropriate behaviour to other children. Children praise one another. Children contribute to the learning of others through collaboration. Younger children are regularly included in the activities of older children.

13 Children display emergent leadership/leadership skills

- 1 Children's initiatives are quashed by other children. Some children do not allow other children to act in a leadership role.
- 5 Children lead familiar activities with confidence. Children use their initiative to look out for, guide or support other children (Tuakana/teina & Manaaki Tangata). Children contribute ideas in a learning experience. Children act as advocates for others. Children display respect for other children, e.g. actively listen and participate during mihimihi. Children show respect for adults and particularly elders. Mokopuna lead karakia, mihimihi or waiata. Toddlers initiate karakia before kai. Children take responsibility for an activity.

E Education programme

14 Tikanga Māori (culture) and/or te reo Māori (language) is evident

- 1 There is no evidence of tikanga or te reo Māori.
- 5 Māori language and culture form an essential part of the regular programme. Waiata, mihi, and other language activities occur regularly. Infants and toddlers hear te reo in their programme. Adults awahi amongst themselves, and mokopuna do it for each other. Resources and practices reflect Māori culture, language, values and beliefs. There are books with Māori legends and Māori characters, posters, toys, puzzles and murals reflecting positive Māori images. Customs such as sharing food with visitors are incorporated into the programme; culturally inappropriate practices (such as sitting on tables where food is handled) are never seen. Te reo Māori is spoken at all times by adults.

15 Non sex-stereotyped play among children is observed

- 1 Boys and girls always play separately, the two never mix.
- 5 Infants and toddlers are encouraged to sample a range of activities, equipment and resources. There is a good balance of boys and girls in different activities: climbing equipment, cooking, carpentry, family corner. Stereotypical groupings are rare, eg. boys in one corner, girls in another. Role-play is not sex-stereotyped e.g. both boys and girls assume roles such as doctor, police officer, firefighter, nurse. However, mokopuna may demonstrate traditional cultural roles in tikanga Māori practices in kōhanga reo.

16 There is evidence of recognition/acceptance of the cultures of children at the early childhood service. The ethnicity of the children at the early childhood service is taken into account and their cultures are represented.

1 There is no evidence of recognition/acceptance of the cultures of the children at this early childhood service.

5 Resources and practices reflect the culture, language, values and beliefs of the children at the early childhood service (e.g. pictures, clothes, books, puzzles, toys, foods, items from other cultures available in family area, dolls representing different ethnic groups). Customs from other cultures are incorporated into the programme; culturally inappropriate practices are discouraged. Resources representing varying cultures and ethnic backgrounds are available. Adults extend children's experiences to include knowledge of other cultures. Adults encourage respect, acceptance and appreciation of differences and similarities amongst cultures. Indicators of affirmation of cultures within the community include values and customs being supported, parents/whānau invited to share aspects of their culture with other children, welcome notices and newsletter items in other languages.

There is evidence that the family and culture of each child is respected e.g. children in kōhanga reo know their whakapapa, children are encouraged to share happenings and objects from home, parents and family are welcomed and encouraged to participate in the programme.

17 There is evidence that the setting is inclusive of all children.

1 The programme is not tailored to the interests, knowledge and abilities of each child. Infants and toddlers are excluded from the outdoor area. Some children are observed to be excluded from play and activities, and adults make no effort to challenge this. Belittling or discriminatory language is not addressed or is reinforced by adults. Adults talk about children when they are present.

5 Adults give equitable attention to infants, toddlers and young children. Adults make positive comments to children that reinforce the child and their relationships with others. Adults address discriminatory behaviour and negative attitudes e.g. if child is excluded from play, if children compare themselves with others in a way that is belittling, if children stereotype others. Young children are encouraged to be assertive and to stand up for themselves and others. Children are encouraged to play together, co-operate and support each other. There are appropriate activities for different age groups, indoors and outdoors. There are opportunities for age groups to mix, and to have time apart. Adults help children to connect to others. All children, including babies, are greeted during mihimihi. Adults acknowledge the child's whakapapa – Mana Tangata. All children have access to activities. Specialist or extra assistance is provided when a need for this is identified.

18 Children display purposeful involvement in learning episodes

1 Children flit from one activity to another with no concentration on activities or interactions.

5 Children concentrate for sustained periods of time in learning episodes on their own and with others. Children persevere in the face of challenges. They display personal satisfaction in their work e.g. exclaim, show work to others, repeat an activity. Children are not distracted from their interest because of their absorption in the learning episode. Children are purposeful in their involvement with equipment and materials.

19 Children are encouraged to explore mathematical ideas and symbols

- 1 No mathematical ideas or representation through symbols is observed.
- 5 Adults use a range of mathematical ideas and language with infants, toddlers and young children. Adults pick up on children's mathematical ideas and extend them. Tasks are meaningful to the child and enjoyable. Adults encourage children to use mathematics for a variety of purposes, e.g. classifying, exploring quantity, counting, timing, patterning – tukutuku, kowhaiwhai, labelling, e.g. in kōhanga reo, kaiako use place values of numbers, e.g. units such as tens and ones. Using spatial words – raro, runga, waho, roto, waenganui, muri, mua, nui, iti, roa, poto, konei, kona, kora, koatu ra. Sorting and labelling.

20 Children are allowed to complete activities

- 1 Children must finish all activities when adults dictate. There is a regimented, inflexible schedule.
- 5 Children have control over when activities are to be completed. Routines for infants and toddlers, such as nappy changes, do not cut across learning episodes. Adults respect the needs of different children to be creative or complete activities according to their own schedules. Adults prepare children by reminding them that a group activity or regular routine is about to occur.

21 Children can select their own activities from a variety of learning areas

- 1 There is an extremely limited range of activities for the children to choose from - less than three at most times.
- 5 Infants and toddlers have access to a range of sensory rich (rather than over-stimulating) materials, including natural materials. Children can self-select from a wide range of available activities. Some activities are set up or changed from session to session to attract attention and stimulate interest. Learning areas provide different opportunities for children to develop their skills, including gross and fine motor activities, cognitive-language activities, creative activities (artwork, collage etc), science and nature activities, music activities, cultural activities and possibly others.

23 Children work on problems and experiment with solutions

- 1 Children are not observed doing any problem-solving.
- 5 Infants and toddlers are given time and space to explore the environment and experiment with materials safely. Adults sit with children and support their investigations. Experimentation and problem-solving are observed, e.g., children demonstrating “if this/then that” logic, weighing alternatives, reasoning, comparing data, and sequencing events. Children are observed resolving social and physical world problems together.

24 Children engage in child-initiated creative play

(e.g. storytelling, singing, pretend play, drama, making music)

- 1 No creative play whatsoever is observed.
- 5 Infants and toddlers are encouraged to play games and create surprises. Frequent creative play is observed, over a wide range of activities, e.g. story-telling, singing, pretend play, making music. Drama is done by both boys and girls. Adults encourage creative play and extend it, (e.g., in kōhanga reo mokopuna are encouraged to tell their own stories, re-telling past events or stories).

25 Stories are read/told/shared

- 1 No stories are read, told or shared during the observation period.
- 5 Both children and adults share stories/books. Infants and toddlers can access books to look at. They share books, stories and rhymes with adults. Children are observed (either together or alone) reading or sharing stories. Story-sharing sessions, including infants and toddlers, occur at least once during the observation period and more than one story is shared. Children are actively encouraged to join in when the story-telling is going on, e.g., to ask and answer questions about the story. Adults make connections between the children's world and the story and move beyond the story to ask for thoughts about characters, behaviour and motivation. Stories may be told through songs and dance.

26 There is evidence of children's creativity and artwork

- 1 There is absolutely no evidence of children's artwork or creativity in the early childhood service.
- 5 Paintings, collage, drawing, print-making, weaving, carving, constructing, cutting and stitching are being done during a large proportion of the session and by many children. Artwork and creativity are visible on walls, at or just above children's eye level. The artwork of infants and toddlers is displayed at levels where they can see it. Artwork shows no evidence of children following adult templates - 'child's hand did the work'. There are a variety of creative activities observed such as pretend play, carpentry, story-telling, drama, dancing and music-making.

27 The centre is a "print-saturated" environment

- 1 There is no evidence of print whatsoever: no books, no posters, no other forms of writing.
- 5 The early childhood service is very print focused and encourages print awareness. Children are encouraged to listen to and read stories, look at books, and be aware of print in use. Print is visible on a variety of surfaces (e.g., posters, packets, charts, containers etc.) and at different heights and is attractively displayed. Much of the print is child-focused. Print is visible at children's eye-level or just above. A range of books is readily accessible to children of all ages.

28 There is evidence of opportunities for children to write

- 1 No writing materials are accessible to children. Adults never write down what children say. Adults may pressure children to write when the child has no interest. Writing is an isolated activity and unrelated to the context of the child.
- 5 Children are encouraged to explore thoughts, experiences and ideas through using symbols. A range of writing materials is readily accessible to children e.g. pencils, felt tip pens, ink pens. Children have access to paper appropriate to a writing task e.g. A4 or telephone pads. Children are observed to engage in writing or pretend writing. Adults write down what children say when interest is shown. Adults emphasise the purpose of writing to communicate with others. Children are encouraged and praised for writing their own name. Children's writing is displayed for others to see.

F Resources

29 There are enough age appropriate toys/books/equipment (resources) to avoid problems of waiting, competing, and fighting for scarce resources

- 1 There are very few resources and children are constantly fighting over those that are available.
- 5 A very good variety of accessible resources, both indoors and out, including appropriate resources for infants and toddlers (e.g., treasure baskets, materials for heuristic play, low mirrors and pictures at floor level, books, natural objects, balls, sensory experiences). No competing or waiting is seen. The equipment/materials are attractively presented to avoid clutter and provide easy access for children.

30 Equipment and activities encourage fine motor skills development

- 1 There are no fine motor equipment or activities seen whatsoever.
- 5 There is a wide range of equipment and materials that encourage fine motor skills available. Items such as scissors, manipulative materials, Lego, Duplo, blocks, pegboards, threading, weaving, tukutuku are available and easily accessible by children. Infants and toddlers have access to safe equipment and activities that encourage fine motor skills, such as posting boxes. Materials are of a safe and appropriate size for the younger children. Equipment is well-maintained, e.g., all puzzle pieces are available, there appear to be no missing parts.

31 Equipment and activities encourage gross motor skills development

- 1 There are no gross motor equipment or activities seen whatsoever.
- 5 There is a wide range of equipment and materials that encourage gross motor skills available. Equipment and materials that encourage large muscle coordination are available, e.g. balls, riding toys, climbing frames; opportunities for balancing, jumping etc – as well as for kōhanga reo – haka, poi, ti rakau titi torea. Equipment is easily accessible by children and well-maintained, e.g. climbing frames have no broken edges, balls are pumped up.

32 Provision of space for children to explore the physical world

- 1 Space for toddlers and children is limited. Infants and toddlers are confined indoors.
- 5 Space for children is generous, with varied surfaces, levels and slopes, including equipment for climbing, sliding and swinging. There is easy access from indoors to outdoors, and toddlers and young children move freely between the two (weather permitting). The space is safe for all ages. There is space for seclusion, a retreat. Natural materials and creatures are available for the children to observe and explore appropriately.

33 A balance of safety and freedom is achieved to ensure access to equipment, materials and learning episodes

- 1 There is little or no regard for safety. There are unreasonable constraints on what children, particularly infants and toddlers, are allowed to do.
- 5 Infants and toddlers participation in activities is encouraged while keeping their safety in mind. Infants and toddlers have access to a range of safe, sensory rich experiences. Equipment is presented in a simple way to avoid over-stimulation. Some equipment and furniture is to scale for infants and toddlers, so the environment fits them.

34 There is comfortable provision for parents, including parents with babies and toddlers

- 1 The early childhood education service has minimal provision, both interpersonal and practical, for the needs of parents, including parents of babies and toddlers.
- 5 Other parents/ caregivers offer to take responsibility for the child(ren) while the parent has a break (e.g., or a cup of tea or to spend time with an older child). There are comfortable facilities for nappy changing, toileting, infant sleeping, breast and bottle-feeding. There is comfortable adult seating. There is space to park pushchairs. Appropriate tikanga is shared with parents with regards to feeding, nappy changing toileting and sleeping infants.