

Early Numeracy Coordinators in Victorian Primary Schools: Components of the Role, Highlights and Challenges

Jill Cheeseman
Monash University
<JillCheeseman@aol.com>

Doug Clarke
Australian Catholic University
<d.clarke@patrick.acu.edu.au>

Thirty-six teachers were nominated as numeracy coordinators in their schools for the Early Numeracy Research Project¹ (ENRP). These people led teams of teachers who worked with students in Years P-2. They participated in three years of the research project, investigating ways to assist the professional growth of their professional learning teams and to improve mathematics learning outcomes for their students. The university research team worked closely with these people as co-researchers. Coordinators were supported in their role through professional development, the establishment of a network of coordinators and through mentoring by members of the university research team. Over the course of the project, researchers listened to coordinators' accounts of their work with school teams and gathered data about their role from time to time. In this way, the research project built a picture of the complexity of the role of the numeracy coordinator in the early years of school, but also the impact of their work on their personal professional growth and that of their teams.

The Early Numeracy Research Project (ENRP) was conducted to investigate effective approaches to numeracy learning in the first three years of school. Seventy Victorian schools (35 "trial schools" and 35 "reference schools") participated in the three-year study (Clarke, 2001; Clarke, Sullivan, Cheeseman & Clarke, 2000).

Important components of the project were a framework of "growth points" of early numeracy learning and a task-based interview, designed for one-to-one use by classroom teachers (Sullivan, Cheeseman, Clarke, Clarke, Gronn, Horne, McDonough & Montgomery, 2000). The project team studied available research on key "stages" or "levels" in young children's mathematics learning (e.g., Clements, Swaminathan, Hannibal & Sarama, 1999; Mulligan & Mitchelmore, 1995; Wright, 1998), as well as frameworks developed by other authors and groups to describe learning. A major influence on the project design was the New South Wales Department of Education initiative *Count Me In Too* (Bobis & Gould, 1999; NSW Department of Education and Training, 1998) that developed a learning framework in number (Wright, 1998).

Professional development in the Early Numeracy Research Project

A detailed program of professional development at statewide and regional levels was designed to promote "teacher growth" (Clarke & Hollingsworth, 2002), and such growth was viewed as teacher professional growth through a learning process. In the project, all participants were considered part of a "professional learning team" (Scull & Johnson, 1998). There were university researchers who brought their mathematics and mathematics education expertise and classroom teachers who brought the wisdom of practice and knowledge of their students. The research team promoted the idea that we were all

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researching ways to improve mathematical learning together. There was an emphasis on the exchange of ideas with the intention of putting research into practice and classroom-testing research findings. Under this umbrella of professional development, school professional learning teams were formed.

Within the ENRP, the professional development program was designed as a stimulus to teacher professional growth. Content fell into four broad areas: knowledge of how children learn mathematics; collecting and analysing information on individual and group understanding of mathematics; pedagogical content knowledge (the “intersection” of mathematical content and general pedagogy); and personal knowledge of mathematics.

It is interesting that in the final year of the project, there appeared to be fairly general agreement that the co-researcher model was a powerful and appropriate approach. Teachers from other schools were visiting trial schools to gain advice, and were sometimes disappointed to find that project teachers were unable or unwilling to present a simple recipe for success:

Rather than a recipe, the notion of rich ingredients that are combined to meet the needs of individual children, the mathematics and the teaching context, using the professional judgement of teachers, is likely to be a far more powerful and successful approach. (Clarke, et al., 2002, pp.53-57)

Leadership and coordination within the ENRP

At the beginning of the ENRP, trial school principals were asked to appoint an Early Numeracy Coordinator for the school. There was no specific provision of funds for this position or a stated, expected time allocation to the role, but principals were expected to supplement ENRP grants to the school with other funding. Some schools had decided to make mathematics a charter priority, and used some of the related funds accordingly. These factors led to wide variations in the time formally allocated to the coordination role.

Principals and coordinators undertook professional development over several days each year of the project. Principals typically met together two days each year, while coordinators met for 3-5 days per year in addition to the teacher professional development days, giving a total of 8-10 days per year. In addition they attended approximately four after-school cluster meetings per year. It should be noted that several principals attended some or all of the teacher professional development days. This was also the case for regional cluster meetings, particularly when a principal’s school was the venue for the cluster meeting.

The professional development days were designed to inspire, raise and share issues in relation to school professional learning teams, and to encourage, support and inform. The days where principals and coordinators attended together often formally included opportunities for joint planning and collaboration on behalf of their school team. There were also occasions where representatives of the educational sectors were available both to inform the school representatives and to listen to what they had to say.

The role of the Early Numeracy Coordinator

The role of the team leader had few *formal* demands in the ENRP. These were the following:

- to attend the professional development program with their team;
- to conduct regular weekly (or fortnightly) team meetings; and
- to act as a channel of communication between the research team and their professional learning team and between their team and the school principal.

Because the formal time allocation for the role varied between schools, there were few other tasks required by the project. However each coordinator was asked to write a “folio entry” at intervals throughout the three years to reflect on significant events over the course of the project. Through this means the research team kept in touch with what was happening across the 35 trial schools. Members of the university research team regularly contacted coordinators by phone or fax. Effectively the coordinators were the project leaders in their schools.

It has sometimes been said that leaders decide what to do and managers decide how to do it. The distinction between leadership and management is often made in the literature (Louis & Miles, 1990). Whether this distinction is a valuable one is debatable. However, the importance of the managerial aspects of supporting change must be acknowledged.

Louis and Miles (1990), while distinguishing between leadership and management, emphasised that both are essential. They claimed that leadership relates to mission, direction, and inspiration. Management involves designing and carrying out plans, getting things done, and working effectively with people. Louis and Miles believed that management for change had been underestimated, requiring skills and abilities just as sophisticated as those for leadership.

Fullan (2001) on the other hand does not distinguish between leadership and management saying, “they overlap and you need both qualities. But here is one difference it makes sense to highlight: leadership is needed for problems that do not have easy answers” (p. 2).

Scull and Johnson (1998) emphasised the importance of formal leadership that is knowledgeable, skilled and supportive. They described the important roles of coordinators as coaches and mentors, assisting teachers to develop skills, developing resources, and working with the school community. They emphasised the importance of the coordinator as “linker” - team member with team member, teacher with ideas, team member with resources. They also emphasised the importance of helping teachers to see the big picture of an innovation, and to handle the various tensions that inevitably arise.

Osborn and Black (1994) described the changing nature of the role. They categorised four levels of increasing demand in the coordinators’ role: resource gatekeeper; planning and resource facilitator; subject consultant; and critical friend working alongside teachers in the classroom (p. 27).

Support for coordinators in the ENRP

Each principal and coordinator had a Cluster Leader from the university research team designated to visit their school at reasonably regular intervals. These visits involved mentoring the staff inside and outside classrooms. The research team member also provided collegial support to coordinators and principals by discussing issues of leadership, reflecting on the impact of the project, and providing another view when appropriate by acting as “a critical friend”. When asked to do so, they modelled experimentation with and reflection on mathematics teaching practice. They also assisted where possible at parent evenings and other school mathematics events.

Another feature of the project was the provision of opportunities for coordinators to form a mutual support group. There were scheduled sessions on coordinators’ professional development days, where discussion about the role occurred, and where matters of common concern, or themes from folio entries, were raised. Often the collective wisdom of the group provided suggestions, strategies and practical advice. On two occasions in the

last year of the project, coordinators were encouraged to observe the professional work settings of others, and to talk with colleagues at other schools.

Aims and Methodology

The study was based on the following research question: What are the major components of the role of the Early Numeracy Coordinator in the ENRP, and what total time and proportional time are given to each component of this role?

Thirty-six ENRP coordinators (one of the 35 schools had two campuses and a numeracy coordinator at each campus) responded to two procedures designed to paint a broad picture of the daily demands of the role. A further written response was collected at the end of the research project to stimulate coordinators to reflect on how the role had changed them.

Aspects of the role of a coordinator in the ENRP were defined by responses to two instruments. The first was administered in the first year of the project. Coordinators were asked to reflect in writing using an open-response format. They were asked to think back on the previous ten days, to detail any tasks they had undertaken related to their role and specify the time taken by each task. These data are referred to below as Recalled Data.

The second instrument was administered one year later. Its purpose was to provide a short-term (seven day) actual record of the time spent on various aspects of the role. Each coordinator kept a daily diary over a specified week. The format was given as a “page a day” with hourly intervals marked, times ranged from 8:00 am till 4:00 pm, with a category for after-hours work. Every task related to the coordinator’s role was noted and the approximate time taken by each task was recorded. These data are referred to below as Diary Data. The third data set, collected at the end of the third year of the project will be used here to provide a few examples of comments made by coordinators.

Findings

Responses to both the Recalled Data and the Diary Data fell into the categories listed below. Examples are provided in each case:

- *Organisation and management*, chiefly administrative tasks, e.g., “Read relevant information that was sent regarding this week and distributed relevant information to other staff members”.
- *Meeting weekly with other members of the school team*, e.g., “held two weekly numeracy meetings, discussed issue arising from classroom practice, introduced new resources, discussed planning for [professional development] sessions, shared starter activities, etc.”
- *Resource management* involving the making, purchasing and organisation of equipment for their team, e.g., “Took a day (Maths budget) to organise Maths Learning Centre activities that the P-2 team could use in their classroom. Liaised with parents to make the tasks and I’m overseeing this on a daily basis. Purchased resources for learning centres and some teacher resources.”
- *Teaching and related matters* including classroom work, course planning and researching activities, e.g., “teaching a lesson in Grade 2” and “organising curriculum content” and “going into classrooms when teachers want to show you what they are doing”.
- *Consulting both outside and inside the school*, involving liaison with the principal, parents, staff, the team and the university team, e.g., “discussion with the principal looking at the budget for the remainder of the year”, and “listening to encouraging and supporting staff”.
- *Documenting the work of the research project*, e.g., “talked about ENRP at school-based in-service preparing for a school-based review” and “completed the planning questionnaire”.
- Two additional categories (Course planning and Researching activities) in the Diary Data expanded the teaching and related matters category.

The Diary Data revealed that the way that individual coordinators undertook their role varied greatly. The differences were probably due to a number of variables, including formal time allocated to the role, the size of the school team, the responsibilities assigned to the role by the principal, coordinators' strengths, school schedules and so on. The time taken in the role for the diary week ranged from 1.5 hours a week to 29.6 hours a week. The distribution of total hours devoted to ENRP coordination is shown in Figure 1.

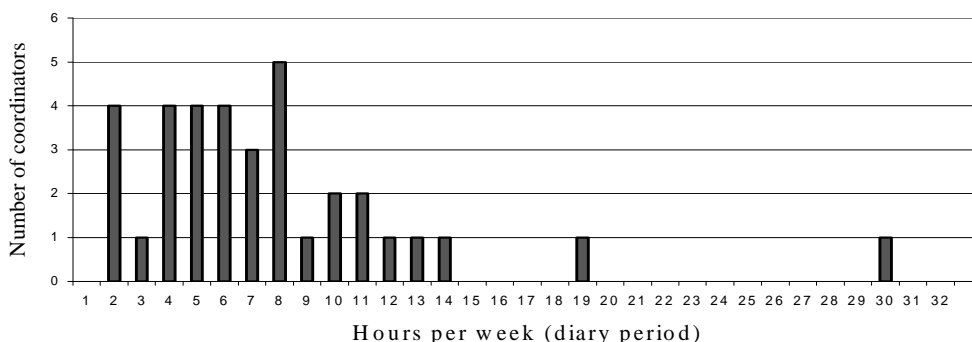


Figure 1. Distribution of total hours spent by coordinators on the role (Diary Data).

The mean time spent was 7.6 hours per week and the median was 6.6 hours per week. Individual tasks ranged in the time needed from several hours in the case of a Family Maths Night to a few minutes. Most of the tasks were completed outside teaching hours and in lunch breaks. Typically many separate tasks were recorded in the diaries. The demands of the role appeared constant for many coordinators.

The reported tasks were categorised and the total time spent on them was calculated. These are shown in Figure 2, and reveal that by far the greatest proportion of time was spent on organisation and management matters (42%). The organisation of resources and documenting the work of the project also took some time (12% and 10%, respectively). It is important to note that the classroom teaching and peer support did not refer to daily classroom mathematics lessons, but to the mentoring role that some coordinators were able to adopt with the teachers in their team. As regular team meetings within the school were an expected part of the project, it was not surprising to find the hours spent on meetings was quite high (9%). The time devoted to the preparation of parent workshops was chiefly data from four coordinators. Such heavy preparation would typically have been needed only a couple of times a year.

What perhaps was surprising was the time that coordinators reported spending on resource collection and management. However, this could be seen as an adjunct to their role in supporting teaching and planning in classrooms.

It would be a mistake to think of the role of numeracy coordinator only in terms of management. The role is multi-faceted and complex, combining leadership and management in a number of ways (Fullan, 2001; Louis & Miles, 1990).

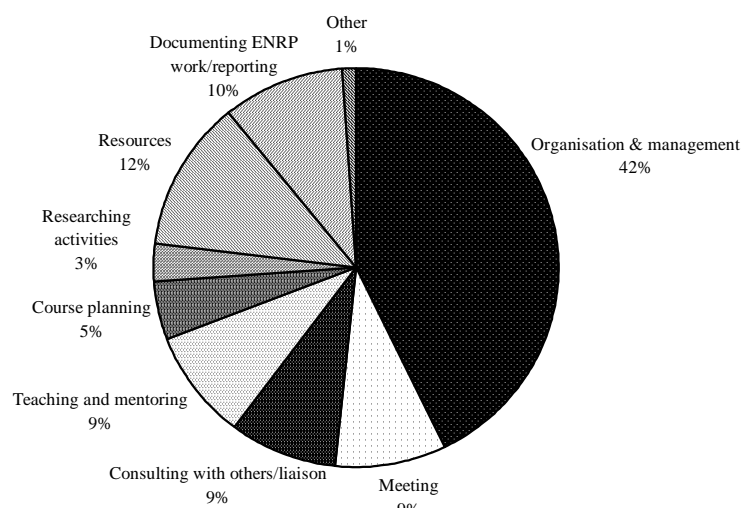


Figure 2. Aspects of the role of ENRP coordinator from the Diary Data.

It is interesting to note the similarities and differences in the original Recalled Data and the Diary Data which was collected a year later in the project. Bearing in mind that two new categories, course planning and researching activities, were added after the initial data were collected, the patterns were very similar. Table 1 shows comparisons of the proportion of time spent on various aspects of the role. Organisation and management clearly took most of coordinators' time. Meetings took a smaller proportion of time and the other major difference was in the proportion of time spent documenting the work of the project. It seemed that more time was taken writing newsletter articles to parents, reporting to school councils and so on in the Diary Data.

Table 1

Comparison of Recalled Data and Diary Data: Proportion of Time Spent on Aspects of the Role

Aspects of the coordinator's role	Recalled data (as % of time)	Diary data (as % of time)
1. Organisation & management	41	42
2. Meeting	18	9
3. Liaison	7	9
4. Teaching	9	9
5. Course planning		5
6. Researching activities		3
7. Resources	16	12
8. Documenting	6	10
9. Other	3	1

Scull and Johnson (1998) described coordinators as coaches and mentors, assisting teachers to develop skills, developing resources, and working with the school community. They emphasised the importance of the coordinator as "linker" - team member with team member, teacher with ideas, team member with resources. They also emphasised the importance of helping teachers to see the big picture of an innovation. These elements of the role are reflected in the combined categories of meeting, liaising, teaching and

mentoring, course planning, researching activities and resourcing the team which made up almost half of the role as can be seen in Table 1.

The two new categories in the Diary Data, those dealing with course planning and researching activities (see Table 1), may indicate that some coordinators have begun to adopt Osborn and Black's (1994) "subject consultant level" of the role.

The changing role of the coordinator

The changing and evolving nature of the role of the numeracy coordinator was evident in the ENRP (Clarke et. al., 2002). Different aspects of the role received prominence at different times, according to the needs of the numeracy team.

Early in the project there was a need for a lot of encouragement and team building. As teachers began to discuss and dissect their practice, divergent views became evident, and there was a need for building acceptance and valuing of differences. There were also times when the teams were "on a high" and keen to experiment with their teaching. This made the provision of resources and curriculum materials a priority. When the corresponding "lows" hit, coordinators needed to be motivators and initiators. There were times when coordinators led their teams in setting goals, when they integrated new staff members into the group and when they publicised the successes of their team.

They encouraged reflection on student data, and subsequent planning; focused on children's thinking that continued to delight and inspire teachers; developed collegiality and trust through support; and fostered professional dialogue around mathematics within staff rooms.

The role of numeracy coordinator is a complex one. A key element of the role of numeracy coordinator is being sensitive to the team and responsive to its needs, and striking a balance between support and challenge both for individuals and for the team.

Coordinator reflections on how the role had changed them

It is not just the components of the role that deserve attention, but also the ways that the role affects people. ENRP numeracy coordinators were asked to reflect on how they had changed. These are some illustrative responses:

I'm more aware of different styles of teaching and more willing to have a go at different things. I'm more conscious of the fears that people have of doing things differently, so I guess I'm more supportive and understanding. I've become more confident in my own leadership skills, so I'm showing more initiative. I'm more willing to communicate with the Principal and put forward ideas/worries from the team. I'm more conscious of individual needs and try to cater for all children better than I was.

Listening skills have been refined. I now look for underlying meaning in conversations and discussion.

I have become a more confident leader, I would still like to work on not taking things too personally and be able to relate to others with more "authority" and not feel so threatened by those with more "experience".

I now take more risks with my teaching and listen/share with others on the team.

These numeracy coordinators are clearly reflecting on their professional growth in the process of leading change (Clarke & Hollingsworth 2002; Fullan, 2003). The data also showed the importance of group support, both between coordinators and within professional learning teams. As Hargreaves and Fullan (1998) argued, group support is crucial. "While solitude has its reflective healing powers, feeling absolutely alone with a

problem is destructive. Collaborative work cultures, like healthy families, can provide emotional safety nets and other supports to help us through difficult periods” (p. 101).

Conclusion

In this paper, we have outlined the components, and discussed some challenges and highlights of the role of early numeracy coordinator, in the context of a major research and professional development initiative. As is clear from the data presented, the role is complex and demanding, with considerable variation between coordinators, in light of personal strengths, extent of time release, and school contextual factors. However, it is also evident that coordinators exhibited considerable personal professional growth, provided a substantial amount of mutual support, and contributed to the professional development of their team members, thus increasing the chance of improved student learning outcomes.

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