

## Examining the Changed Role of Numeracy Coordinators

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Numeracy coordinators for schools in the Early Numeracy Research Project led teams of teachers who worked with students in Years Prep to 2. They participated in three years of the research project, investigating ways to improve mathematics learning outcomes for their students. A team of university researchers worked closely with these people, regarding them as co-researchers. Coordinators were supported in their role through professional development, the establishment of a network of coordinators, and through mentoring. Over the course of the project, researchers built a picture of the complexity of the role of the numeracy coordinator in the early years of school (Cheeseman & Clarke, 2005). A year after the end of the research project the same teachers were asked to reflect on their role as numeracy coordinator. The aim of the study was to investigate any changes in the role of numeracy coordinator. Key changes and challenges included responsibility for larger teams spanning more grade levels, reduced budgets and time allocations for the role, and the responsibility for planning and leading professional development sessions for the team.

Numeracy coordinators, or subject leaders as they are sometimes called, (e.g., Hammersley-Fletcher & Brundrett, 2005) have an important place in primary mathematics education. They are often the “front line” people between the numeracy initiative of educational bureaucracies and the chalkface. At a school level, they can help teachers to investigate ways to improve their teaching of mathematics by:

- providing specialist knowledge of mathematics education, curriculum advice and help to access resources in the school;
- building and leading professional learning teams of teachers and advocating for the team regarding numeracy matters in the school;
- modelling mathematics teaching;
- leading by example in experimenting with teaching practice;
- coordinating professional development experiences that contribute to the achievement of the team’s goals;
- supporting and encouraging teachers in their learning about mathematics teaching; and most importantly
- stimulating and facilitating change (Cheeseman, 2003, p. 3).

Little detailed research is available regarding the execution of the role of numeracy coordinator in Australian primary schools. Studies set within broader research projects (e.g. Cheeseman & Clarke, 2005) may reflect a workplace environment influenced artificially by involvement in a research project. This study examined the reality of everyday life of experienced numeracy coordinators after their involvement in a research project.

The role of numeracy coordinator in primary schools was certainly not invented by the Early Numeracy Research Project (ENRP). For many years mathematics curriculum leaders have held positions of responsibility in Victorian schools, often under the title of mathematics coordinator. Traditionally the focus of leadership in schools was on the principal with mathematics coordination as more of a management or administrative role. Today there are strong arguments for greater participation in leadership from teachers (Day, Hall, & Whitaker, 1998). Such distributed leadership was described by Harris (2004) as “a form of collective leadership in which teachers develop expertise by working together” (p. 14).

As the ENRP progressed, coordinators found that their role changed and developed over time as they adapted and responded to the needs of their team members (Clarke et al., 2002).

Millett and Johnson (2000) also described changed demands of coordinators due to the redefinition of numeracy coordination in Britain. Coordinators were expected to model mathematics teaching and critique the work of their colleagues. These aspects of the role were not expected initially and coordinators felt ill prepared for these added responsibilities. The role of coordinator changes, whether it is due to the imposition of extra duties by educational bureaucracies or changing workplace circumstances.

We were interested to find out more about the extent and nature of any changes in the role for ENRP coordinators since the project had finished.

## Method

We surveyed coordinators who had participated in the original research project and continued to work at the same school in the same role. Of a possible 19 coordinators there were 18 coordinators who responded in writing to a largely open-response format questionnaire. The following two examples illustrate questions to which responses were sought:

- How would you describe in a few lines the job of numeracy coordinator?
- In what ways is the coordination role *different* from the way it was during the ENRP?

## Results

Responses were categorised and collated. Where several ideas were offered from a single respondent, each was treated as a separate response. Table 1 summarises the data in categories describing aspects of the role.

Table 1

*Categories of Response for Brief Descriptions of the Coordinator's Role*

Categories of response	Number of responses
<b>Leadership (31 responses)</b>	
Advising, supporting and leading staff	14
Delivering professional development	8
Promoting mathematics	6
Promoting mathematics to parents and the community	3
<b>Organisation and management (20 responses)</b>	
Resourcing	10
Organising interviews/assessment	7
Informing through assessment/monitoring	2
Conducting team meetings	1

The two broad categories of response emerged from the data: leadership matters received greater emphasis, however organisation and management was also a major part of the role. This is illustrated by the following two quotes:

The most important role is to keep the team enthused and willing to keep reflecting on and improving their skills.

The role has two aspects — The administrative side (action plans, budgets, resources, professional development planning, arranging for interviews). The supportive side (planning, team meetings, discussions of programs and children's progress, sharing ideas, being a listener, mentoring new teachers).

The distinction between leadership and management is often made in the literature (e.g., Louis & Miles, 1990). However, as Bush (2004) acknowledged, "schools require both visionary leadership and effective management" (p. 6). Fullan (2001) said of leadership and management, "they overlap and you need both qualities. But ... leadership is needed for problems that do not have easy answers"(p. 2).

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 (Bell & Ritchie, 1999; Cheeseman & Clarke, 2005).

### *Unchanged Aspects of the Role of Coordinator*

Coordinators were asked in what ways numeracy coordination remained *the same*. Practical tasks were mentioned, often embedded in the larger leadership context. The following quote from one coordinator represents a sense of the data:

Continue to support team and share experiences and ideas. Continue to have numeracy meetings with team. Continue to discuss the goals and plans with principal. Preparation of materials (ordering is currently shared with curriculum coordinator). Organise interview dates. Continue to disseminate information. Organise Parent Information Nights with team. Continue to plan thoughtful, exciting numeracy curriculum that meets the needs of the class.

Eighty three percent of coordinators referred to aspects of leadership as a continuing part of their role. Elements of leadership were elaborated as follows:

Facilitating discussion of classroom practice at meetings.

My role as maths coordinator for the whole school includes preparing yearly action plans, program budgets, organising professional development, and promoting maths within the school and community. As coordinator of the ENRP I saw my role as a leadership role. I tried to set an example for others and ensure all staff were actively participating in the program. This hasn't changed. The coordinator is responsible for passing information to the staff from network meetings, making sure they are kept up to date with new ideas.

While much of the role of numeracy coordination was reported to be the same, there was an acknowledgment that things had changed. These changes are analysed and discussed below.

### *Changes in the Role*

Responses detailing ways in which their coordination role had changed are shown in Table 2. These changes seemed to have made the work substantially harder. Only the reduction of administrative chores seemed to make the job any easier.

Table 2

*Categories of Response for Ways the Role of Coordinator has Changed*

Categories of response	Number of responses
<b>Professional development “input”</b>	<b>Total 18</b>
Need to organise professional development	5
No professional development provided	4
Miss the contact with the ENRP team	4
No cluster meetings and between school contact	3
Seen as an “expert” in school	2
<b>Working with staff members</b>	<b>Total 16</b>
New/ extended staff responsibilities	6
Reduced budget	3
Pressure on interviewing	3
Staff coding and recording data	2
Other schools visiting	2
<b>Personal professional changes</b>	<b>Total 14</b>
Less administration for project	5
Harder to maintain high energy and enthusiasm	4
Different network responsibilities	2
Leading whole school policy and reform	2
Sharing the role with a colleague	1

*Professional development “input”.* During the three years of the research project there was a substantial and regular provision of mathematics education professional development (Clarke et al., 2002). Once the project ended the professional development also ended. Five coordinators reported that they were now responsible for organising and, in some cases, developing and providing the professional development program for their school. This new element to the role also changed the dynamics of the team within their schools for two respondents. As one coordinator so eloquently put it,

Had to be the professional development provider, and am seen as the “expert” (!! ) rather than a learner like the rest of the team.

In addition to missing the professional development provided by the research project (4) and having to plan and organise it themselves (5), some coordinators reported that they missed the contact with teachers from other schools (3) and with project team members (4). Overall the changes in the professional development opportunities for their numeracy teams seemed to have made an important difference to the role.

*Working with staff members.* Changes to staffing brought new team members who had never been part of the research project. These teachers had no background understanding of the hopes and aspirations of the original team members who had learned a considerable amount about the teaching and learning of mathematics. In addition, teams were extended into the middle and upper primary years. Some coordinators reported that teachers at these

levels could be hard to motivate towards changing their practice. For example:

Now it is P-6. Difficult to bring Years 5-6 on board as they do not have the background. Data collection is different. Some staff not committed to collecting data. It no longer holds same "status". Testing is no longer [an] issue.

Added to these pressures there were reduced budgets, which created pressure on interviewing schedules, coding and recording of data.

### *Size and Scope of Teams*

Data showed that teams now ranged in size from 4 to 15 members (see Figure 1).

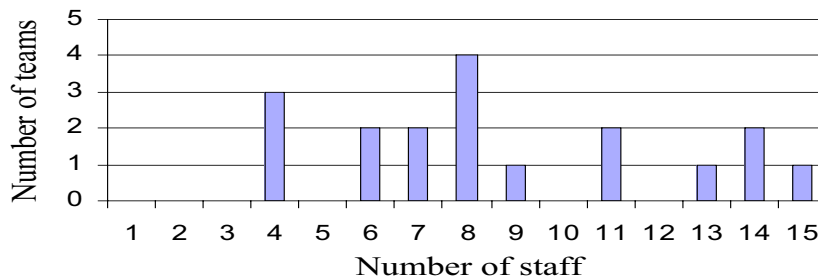


Figure 1. Number of staff in each numeracy team.

The mean size of the numeracy teams was nearly nine team members (8.6). The mean size of ENRP teams was just over seven team members.

Of course, the role of the coordinator is affected in a variety of ways by the size of the team. Sometimes a large team can be a positive thing, with the opportunity for staff to work and share in grade level teams. On the other hand, the workload of a coordinator can be increased by a larger team. Table 3 provides data on the grade level distribution of the teams.

Table 3

*Year Levels of Members of the Coordinator's Team*

Year levels	Number of teams	Proportion of teams (%)
P-2	3	17
P-4	9	50
P-6	4	23
P-7	1	5
P-4 & 5-6 coordinated separately	1	5

Only 17% of the numeracy teams still comprised Prep to Year 2 teachers (see Table 3). Teams had broadened to include Years 3 and 4 (50%) and in others P-6 and beyond (33%). It may be that these experienced coordinators were given expanded teams in an attempt to spread their leadership skills or to stimulate change across the whole school.

## Findings

There were four main findings of the study.

1. Numeracy coordination principally concerned leading and managing mathematical initiatives in schools. Coordinators had responsibilities for dealing with teams of

teachers, maintaining a focus on mathematics teaching and learning in the school and improving learning outcomes for children.

2. The role became more complicated for many coordinators after the project ended. There were more teachers in professional learning teams from a broader range of grade levels (Years P-4 or Years P-6), and coordinators had responsibilities for providing and/or organising professional development for teachers in mathematics.
3. There were fewer support structures in place for numeracy coordinators. Many coordinators noted the absence of the stimulus of regular professional development opportunities for the team, an impetus provided by the project, the contact with university researchers, networking with other coordinators, and continued support of their principal in a few cases.
4. Resources available to do the work were too meagre. Budget cuts and inadequate formal time allocations created pressures on teaching and assessment processes.

## Discussion of Findings

### *Changes in the Composition of the Team*

Teams led by the surveyed coordinators had changed in size and composition. Together with regular staffing turnover, these changes imposed quite a strain.

*Changes to personnel.* It is not unusual to find that staffing in primary schools changes. In the ENRP, some of the teams were remarkably stable over the three years of the project while others seemed to have a number of staffing changes each year. It is clear that the changeover of staff impacted on the coordinators' work. New members of the team required extra time and effort to "catch them up" with the professional development ideas that had been raised and the experimentation that had already been happening in mathematics teaching. Staffing changes also made ENRP coordinators very aware that they were on a professional "learning journey together" and that different people were at different places on that journey. New team members often prompted teachers to reflect on "how far the team had come". For new team members it could also be quite intimidating joining a team that was "doing great things" with children's mathematical learning. New team members needed a good deal of support and reassurance (Cheeseman, 2003).

In the process of learning new things most people need to try something more than once for it to be adopted as part of their practice. So, although changes in the composition of the team put pressures on the team, they also stimulated reflection, evaluation and renewed experimentation. One coordinator's comment reflected this:

It is a good idea to revisit topics covered in professional development. This allows new staff to gain new skills but also generates new enthusiasm.

Anecdotal evidence from the ENRP showed that a few new team members could be accommodated into the numeracy team with some effort. However, large changes in personnel caused a setback to the team and made the momentum for professional growth in mathematics difficult to maintain (Cheeseman, 2005).

*Changes in grade levels.* The ENRP involved grade levels P-2. Most of the numeracy coordinators who responded to the questionnaire were dealing with teams spanning P-4 and P-6. This raised new challenges: new team members were unfamiliar with the pedagogical approaches advocated in the research project, and the original team had no professional

development specifically addressing the mathematical content knowledge of students at higher grade levels. The curriculum content is different in early years and upper primary. Coordinators also reported that it was hard to motivate teachers in the upper primary school who had been teaching from the textbook for years and could see no reason to change. Such collegial resistance to change is a barrier noted by Hammersley-Fletcher and Brundrett (2005). Teachers in the upper primary grades sometimes felt that the work done by the ENRP was of little relevance to them. Even some coordinators who had changed grade levels themselves and were teaching Years 5-6 found it very difficult to work out what the approaches they had used so successfully in P-2 would look like in Year 6. They tried to lead the learning from within their new team again but this time without external support. So the changes in the grade levels made the job much more complicated for coordinators.

Coordinators needed to initiate change without external support, often without a formal time allocation and adequate budget. They needed to plan, organise and in some cases deliver professional development to their team.

### *Reductions in the Budget and Insufficient Time Allocated to the Role*

Reduced budgets and insufficient time allocations are really money issues. These issues were key barriers to coordinators conducting their role as described by Hammersley-Fletcher and Brundrett (2005). From the time the project ended there has been a reduction in the numeracy budget in some schools. Coordinators felt reduced budgets compromised the assessment and teaching of mathematics in their schools.

Adequate time to coordinate numeracy is critical. All of the coordinators who responded to the questionnaire had full time classroom responsibilities or responsibilities for Additional Assistance as well as coordination duties. The coordinators gave generously of their time and energy to the project, and in return the project gave them leadership mentoring and support together with formal professional development directed specifically to their needs. After the project, there was no external support and little time to do the job for most of these coordinators. It is hard to see their energy and enthusiasm being sustained indefinitely.

### *Responsibilities for Professional Development in Numeracy*

Taking the responsibility for planning, as well as delivering a professional development program for the staff of a school is a large task. The ENRP coordinators had participated in a comprehensive program that was delivered by experienced mathematics educators. The program was designed, in part, to respond to the stated needs of the project teachers and took various forms including seminars, workshops, interest groups, action research projects, collegial sharing and teaching demonstrations. It was not surprising that the idea of replacing this sort of professional development was daunting.

For classroom teachers whose chief area of expertise is teaching young children and helping them to learn mathematics, it can be quite daunting to be seen as the “maths expert” by their peers and to design programs for adult learners. The alternative to conducting in-house professional development was to find a presenter to run a workshop with the staff. We know that the so-called “one off” professional development model is not necessarily the ideal model to choose (Clarke, 1994). Sourcing external professional developers was also something quite new to many coordinators. A cohesive and coherent professional

development program may well be difficult to achieve. Not only does the team's needs have to be weighed up, but a person who can deliver the professional development has to be found, booked and paid.

A concern about coordinators taking responsibility for the mathematics professional development of their staff is not that coordinators cannot lead the learning but that due to time and budgetary constraints and, to some extent, lack of experience and knowledge, professional development in mathematics education will be piecemeal and ad hoc.

We believe that our findings have important implications for schools and systems who wish to maximise the benefits to teachers and students of what can be a crucial role in mathematics education. Four key recommendations arise from these data:

- Provide professional development to prepare and to sustain coordinators' work because an understanding of leadership, mathematics content and pedagogy, team building, and mentoring is central to the role;
- Establish collegial support networks for numeracy coordinators;
- Ensure access to high quality, cohesive professional development and possibly link teams to an "outside expert" mathematics educator; and
- Allocate funds to provide formal time release for the role of numeracy coordinator.

## References

- Bell, D., & Ritchie, R. (1999). *Towards effective subject leadership in the primary school*. Buckingham: Open University Press.
- Bush, T. (2004). Editorial: What's in a name? *Educational Management, Administration and Leadership*, 32(1), 1-8.
- Cheeseman, J. (2003). *Numeracy leadership in the primary school* (Research Monograph). Melbourne, Victoria: Catholic Education Office—Melbourne / Mathematics Teaching and Learning Centre, Australian Catholic University.
- Cheeseman, J. (2005). Teacher success stories at my school: Data report. In J. Cheeseman (Ed.), *Leadership and teamwork in early years mathematics* (pp. 111-117). (Master of Education Course notes) Melbourne: Australian Catholic University.
- Cheeseman, J., & Clarke, D. (2005). Early numeracy coordinators in Victorian primary schools: Components of the role, highlights and challenges. In P. Clarkson, A. Downton, D. Gronn, M. Horne, A. McDonough, R. Pierce, & A. Roche (Eds.), *Building connections: Theory, research and practice* (pp. 225-232). Melbourne: MERGA.
- Clarke, D. M. (1994). Ten key principles from research for the professional development of mathematics teachers. In D. B. Aichele & A. F. Coxford (Eds.), *Professional development for teachers of mathematics* (National Council of Teachers of Mathematics Yearbook, pp. 37-48). Reston: VA: NCTM.
- Clarke, D., Cheeseman, J., Gervasoni, A., Gronn, D., Horne, M., McDonough, A., Montgomery, P., Roche, A., Sullivan, P., Clarke, B., & Rowley, G. (2002). *Early Numeracy Research Project: Final report, February 2002*. Mathematics Teaching and Learning Centre, Australian Catholic University.
- Day, C., Hall, C., & Whitaker, P. (1998). *Developing leadership in primary schools*. London: Paul Chapman Publishing.
- Fullan, M. (2001). *Leading in a culture of change*. San Francisco: CA, Jossey-Bass.
- Hammersley-Fletcher, L., & Brundrett, M. (2005). Leaders on leadership: The impressions of primary school head teachers and subject leaders. *School Leadership and Management*, 25(1), 59-75.
- Harris, A. (2004). Distributed leadership and school improvement. *Educational Management, Administration and Leadership*, 32(1), 11-24.
- Louis, K., & Miles, M. B. (1990). *Improving the urban high school: What works and why*. New York: Teachers College Press.
- Millet, A., & Johnson, D. C. (2000). The role of the maths co-ordinator and the National Numeracy Strategy in England. *Teacher Development* 4(3), 393-410.
- Scull, J., & Johnson, N. J. (1998, January). *Reconceptualising a change model: Implementation of the early literacy research project*. Paper presented at the 11<sup>th</sup> International Congress for School Effectiveness and Improvement, University of Manchester, U. K.