

1-1-2005

Getting professional development right

Lawrence Ingvarson
ACER, Lawrence.Ingvarson@acer.edu.au

Follow this and additional works at: http://research.acer.edu.au/professional_dev



Part of the [Educational Assessment, Evaluation, and Research Commons](#)

Recommended Citation

Ingvarson, Lawrence, "Getting professional development right" (2005).
http://research.acer.edu.au/professional_dev/4

This Report is brought to you for free and open access by the Teaching and Learning and Leadership at ACEReSearch. It has been accepted for inclusion in Professional Development for Teachers and School Leaders by an authorized administrator of ACEReSearch. For more information, please contact mcdowell@acer.edu.au.

'Getting it Right' Symposium – Paper 2

Getting professional development right



Lawrence Ingvarson

Australian Council for Educational Research

Dr Lawrence Ingvarson, (B.Sc. Dip.Ed., M.A., Academic Dip. Ed, PhD) is the Research Director of ACER's *Teaching and Learning* research program. He is internationally recognised as expert in the areas of teacher education, professional development, school improvement, the measurement of change and the evaluation of educational programs. As a former Associate Professor of Education at Monash University, he taught courses on educational evaluation, school improvement and professional development at master and doctoral levels. He is a member of the National Staff Development Council, the American Evaluation Association and was a member of the Ministerial Advisory Committees for the Victorian Institute of Teaching and the Development of a TAFE Centre.

He has written several commissioned reports on school improvement and professional development for the OECD and the Commonwealth Government, including the National review of Teacher Education (1984) and a National Strategy for the Improvement of Science Teaching (1992). Recent publications include *Valuing Teachers' Work: New Directions on Teacher appraisal*, published by ACER (1994) and *Professional Credentials: Standards for Primary and Secondary Science Teaching in Australia*, commissioned by the Australian Science Teachers' Association (1995).

He has worked extensively in Australia, the UK and the USA on reforms related to professional development, the quality of teaching and teacher career structures. He was commissioned by the Australian Council of Deans of Education in 1993 to prepare a report on teacher registration and the accreditation of teacher education in Australia. He also conducted extensive research on the introduction of the Advanced Skills Teacher in Australia in the early 1990s and was recently invited by Elsevier press to edit a book on "Assessing Teachers for Professional Certification" in the series *Advances in Program Evaluation*. The book brings together the considerable research and development work conducted on teaching standards and performance assessments by the US National Board for Professional Teaching Standards since it was established in 1987.

Rosemary Cahill, in her paper in these conference proceedings, has described the Getting it Right (GiR) strategy for improving levels of literacy and numeracy among high needs students. This paper examines the Western Australian Getting it Right reform as a strategy for professional learning and compares it with research on the characteristics of effective PD.

The Getting it Right Strategy is clearly a comprehensive and well-resourced reform strategy with its main emphasis on building professional capacity among teachers and principals. The data we gathered as part of the evaluation, through school and classroom observations, interviews and surveys, left us in no doubt that the strategy was highly regarded by teachers and principals and was having a significant impact on practice. This paper will focus mainly on GiR work focused on improving numeracy teaching.

Most teachers we observed and interviewed were readily able to give specific examples of how the GiR strategy had transformed their mathematics teaching. This comment from a teacher is typical:

I don't set limits to my expectations, or their expectations, for what they can learn any more ... because I know they can get there. Because of the diagnostic tools, I'm listening much more to their thought processes, to how they work it out. I'm getting them to reflect more, orally, to find out what thought processes they are using. So I can tell much better whether they really understand or not – pen and paper tests don't tell you that.

The success of the Getting it Right Strategy in linking State Government policy to significant change in teachers'

beliefs and practice, suggests it would be worthwhile examining its main components in relation to research on professional learning for teachers.

Linking policy to practice

The challenge of building strong links between reform policy and implementation is a perennial one in education. A common refrain in evaluation reports of educational reform efforts is the lack of fit between ambitious goals for school improvement and the resources necessary to bring about significant change in practice. Policy makers can also have quite naive expectations about how easy it is to bring about educational change, not understanding that the kinds of change that really matter in education are not structural changes but those that build teacher capacity and professional culture. There are no short cuts to educational improvement.

Peterson, McArthy and Elmore's (1996) research, for example, cast doubt on the capacity of 'restructuring' reforms in the United States to benefit classroom practice. This was because:

Changing practice is primarily a problem of teacher learning, not a problem of organisation ... School structures can provide opportunities for the learning of new teaching practices and new strategies for student learning, but structures, by themselves do not cause learning to occur ... School structure follows from good practice, not vice versa. (Peterson, McArthy & Elmore, 1996, p. 149)

This is a lesson we understand well in Australia, since the disappointments of school management reforms in the 1990s. There was no logic to these

reforms linking changes in school management to teacher learning and new practices. Over the past decade, increasing numbers of researchers have identified the existence of an active, accountable professional community within and across schools as important for effective teacher development and high quality teaching (Little & McLaughlin, 1993; Louis, Kruse & Marks, 1996).

Richard Elmore from Harvard has spent many years studying the problem of 'scaling up' good educational practices. In a recent comment on the US 'No Child Left Behind Act', and the unrelenting pressure to improve schools without corresponding improvement in teachers' skills, he states, 'In its least desirable face, educational reform can become a kind of conspiracy of ignorance: policymakers mandating results they do not themselves know how to achieve, and educators pretending they do know what to do but revealing through their actions that they don't.'

A feature of the WA Getting it Right Literacy and Numeracy Strategy is the depth of understanding it reveals of what it takes for reform policies to penetrate to the level of everyday practice. The Strategy is primarily about enhancing the capacity of existing teachers to meet the needs of children at risk. Rosemary Cahill has revealed that this is a targeted and coordinated program that directs serious money at a serious problem. The strategy reveals a sophisticated understanding of the complexities of change and the conditions that need to be in place if professional development is to make a difference to student learning outcomes.

Rosemary has described the overall strategy. Marion has provided a glimpse

into some of the data we have gathered in evaluating the strategy. While it is to be expected that there will be significant differences in implementation across schools, there is no doubt that the strategy is having significant effects in schools where it has been implemented as planned. What I would like to do here is bring out the key features of the strategy by comparing it with research on characteristics of effective professional development.

Before making that comparison it is necessary to give a brief outline of the key components of the GiR strategy.

Main components of the Getting it Right Strategy for professional learning

The components listed below give only an overview of the main 'pieces' in the GiR strategy. This list should be read in conjunction with Rosemary's ACER conference paper, which places the GiR Strategy in a broader context of state educational reform.

Curriculum: A high quality, research-based curriculum development resource – First Steps in Mathematics. Teachers use this resource collaboratively to plan the school's mathematics curriculum, to plan learning activities tailored to students in their classroom and to map development in their mathematical thinking.

Specialist Teachers: High needs schools are given a Specialist Teacher allocation for a two-year period. Schools select a highly regarded teacher with interest and expertise in mathematics numeracy. The Specialist Teacher is released from classroom duties to work 'shoulder to shoulder' with a number of colleagues,

for about half a day each week for each teacher, for two years.

Central training: Specialist Teachers receive extensive and intensive training and support from a central GiR team in using the First Steps in Mathematics materials and in research related to learning the mathematics. The training and support takes place over two years – 21 days spread over seven three-day training sessions run by Central GiR staff.

Working 'shoulder –to –shoulder': Initially, Specialist Teachers work alongside colleagues, helping them in the collection and analysis of student performance data, using that data to inform planning, modelling lessons, and team teaching. The classroom teacher retains responsibility for the mathematics learning of the children in his or her class.

In a typical week Specialist Teachers spend half an hour or so planning the next week's session/s and an hour or so teaching with that teacher using the activities they had planned together. From time to time, the Specialist Teacher might assist the teacher to run a diagnostic test to monitor progress in understanding and identify difficulties students might be experiencing. The Specialist Teacher is not to act as a support teacher or routinely teach groups of students withdrawn from a class. The Strategy places heavy reliance on the professional judgement of the teacher and on informing that judgement.

Preparation of school principals: Special sessions are held for principals in target setting and in identifying specific actions they can take to support the work of the Specialist Teacher.

Whole school approach: While the Specialist Teachers work mainly in the early grades, they also works towards lifting awareness about the GiR Strategy among all staff and implementing a whole-school approach to improving numeracy outcomes.

Comparing the GiR Strategy with research on effective professional learning

There are many lists of characteristics of effective professional development activities. Few are grounded in rigorous research based on examining the effects of professional learning programs on student learning outcomes. This should not be surprising as the methodological problems in tracing the links between PD and improved student learning are

considerable. There is, however, an emerging synthesis of findings from these studies about the conditions that foster professional learning that relates to improved student learning outcomes, particularly in the core areas of literacy and numeracy.

Hawley and Valli (1999) summarise this research in a list of nine principles for the design of effective professional learning (Table 1). The GiR Strategy will be discussed in relation to each of these principles.

1. Hawley and Valli's first principle for the design of effective professional learning states that:

The content of professional development (PD) focuses on what students are to learn and how to address the different problems students may have in learning the material.

The content of professional development is critically important to its effectiveness. While the content varies with the goals of the school, the content of PD should deal directly with what students are expected to learn and the instructional strategies that research and experience have shown are effective.

This characteristic of effective professional learning emphasises the overriding importance of *what* teachers learn, as opposed to *how* they learn it. As Kennedy (1999) puts it, the *form* of professional learning turns out to be less important than the *what*, the *substance or content*. This finding challenges the strong emphasis that has been placed for many years on the processes or structures used in professional development activities, such as whether they are planned

Table 1

Principles for the Design of Effective Professional Development (Hawley & Valli, 1999)

1. The content of professional development (PD) focuses on what students are to learn and how to address the different problems students may have in learning the material.
2. Professional development should be based on analyses of the differences between (a) actual student performance and (b) goals and standards for student learning.
3. Professional development should involve teachers in the identification of what they need to learn and in the development of the learning experiences in which they will be involved.
4. Professional development should be primarily school-based and built into the day-to-day work of teaching.
5. Professional development should be organized around collaborative problem solving.
6. Professional development should be continuous and on-going, involving follow-up and support for further learning-including support from sources external to the school that can provide necessary resources and new perspectives.
7. Professional development should incorporate evaluation of multiple sources of information on (a) outcomes for students and (b) the instruction and other processes that are involved in implementing the lessons learned through professional development.
8. Professional development should provide opportunities to gain an understanding of the theory underlying the knowledge and skills being learned.
9. Professional development should be connected to a comprehensive change process focused on improving student learning.

collaboratively or whether they are one-off or long term. It turns out that knowledge is the key when it comes to generative professional learning, particularly when it leads to deeper understanding of the content that students are to learn, the research on how students learn that content and the nature of the problems different students have in learning that content.

The Getting it Right Strategy is firmly based on this kind of content focus. The 'what' that occupies most of the GiR professional learning is knowledge about mathematics, research about how students learn that content and the stages in their developing understanding. Training sessions for Specialist Teachers are rich with opportunities to deepen understanding about mathematics concepts, and to become more perceptive about the nature of learning difficulties. Recent research articles are available. Back in schools, the Specialist Teacher works with teachers to find out what the children know and what they need to learn next, then they plan how they will work together to bring about that learning. These meetings focus on selecting appropriate learning activities for children that will progress specific understandings in mathematics. The focus is on strengthening, not supplanting, the professional judgement of the teacher.

2. Hawley and Valli's second principle of effective professional learning states that:

Professional development should be based on analyses of the differences between actual student performance and goals and standards for student learning.

Professional development that is based on analysis of student learning helps teachers close the

gap between actual student performance and goals for student learning. Goals for student learning also provide a basis for defining what teachers need to learn and a yardstick for improving PD.

This principle emphasises the importance of focusing professional learning on data and feedback from one's own students, especially data about where those students are in relation to where they could be, or should be, in their development. Contrary perhaps to initial concerns about standards for student learning expressed some years ago, research-based standards have proved to be an important lever for fostering productive dialogue about the purposes of education and have given teachers something to be collegial about. Some of the most effective professional learning now comes through activities that help teachers to 'moderate' or compare their own students' work and development with that of other teachers' students. These activities provide a valuable means of 'deprivatising' teachers' practices and opening up more avenues for feedback and professional accountability.

This principle is at the very heart of the GiR strategy. At almost every meeting between a Specialist Teacher and a classroom teacher, they will be examining the work that students did the previous week in response to the learning activities they chose. They will interpret this work, making use of Diagnostic Maps, student outcomes levels and Key Understandings. They use this work to sort students into groups according to the difficulties they are having and their phase of development with respect to the mathematical concepts in question. They will then plan appropriate learning activities for

the following week to help the children to overcome those difficulties. Though there is not enough space to document it here, extensive research underpins the diagnoses of student learning and the learning activities to promote better understanding.

As an aside, it was common to hear teachers in GiR schools express considerable surprise about the expertise and confidence they had accumulated in analysing student performance when they met with teachers from non-GiR schools at 'making consistent judgements' meetings.

3. Hawley and Valli's third principle links to the previous two principles.

Professional development should involve teachers in the identification of what they need to learn and in the development of the learning experiences in which they will be involved.

Adherence to this principle ensures that PD is relevant. When teachers help design their own learning, they are likely to feel a greater sense of involvement in the PD experience. Teachers are most likely to use what they learn when PD development is focused on solving problems in their particular contexts.

Together these first three principles stress the importance of making practice, and evidence about practice, the site for professional learning. Practice-based professional learning represents a major shift from traditional views of professional learning based on participation in 'courses'. This is not to imply that courses and other activities such as workshops, conferences and seminars do not have an important role in supporting professional learning. But

these kinds of activities are only the 'front end' of the change process. We have known for a long time that the 'back end', the implementation stage of the change process, is where the hard work has to be – supporting teachers as they test new approaches in their own classrooms (Fullan, 1982). Very few PD strategies put the level of resources into the implementation and continuation stages that GiR does.

The third principle runs counter to conventional wisdom about professional development in some respects. Getting it Right identifies what teachers need to know and be able to do to teach mathematics more effectively rather than what they might want to know. But what they need to know in the GiR Strategy has a strong foundation in research and proven practice. Spending more time on mathematics may not be the highest priority for some teachers. In fact they may avoid PD courses in mathematics and, as some teachers we interviewed admitted, they may cover the mathematics part of the curriculum in a less than enthusiastic manner. With GiR, the Specialist Teachers take the knowledge and the professional learning to the teacher where they work and where they can test it out.

Many teachers we interviewed in the course of the evaluation made comments along the lines that the GiR numeracy strategy made them feel more like a 'professional'. When pressed to explain what they meant, they would say they felt more like 'experts'. They now had knowledge that gave them a stronger basis for interpreting student learning outcomes and deciding what students needed next. The GiR strategy deliberately avoids telling teachers how to teach, but it does aim to provide teachers with deeper knowledge about (and interest in) the mathematics they

are expected to teach and the means to be more discerning about their students' learning of that content. As one would expect, teachers varied in their openness to First Steps, but the benefits reported by other teachers and the availability of the Specialist Teacher as an extra resource in planning and teaching usually proved too difficult to resist.

We asked teachers how they saw the Specialist Teacher, and this response is typical:

As someone who is a bit more knowledgeable, but one of us. It's easy to go to her. We know she is there to change the way we teach mathematics.

4. Hawley and Valli's fourth principle states that:

Professional development should be primarily school-based and built into the day-to-day work of teaching.

Teachers learn from their work. Learning how to teach more effectively on the basis of experience requires that such learning be planned for and evaluated. Learning needs arise and should be met in real contexts. Curriculum development, assessment, and decision-making processes are all occasions for learning. When built into these routine practices, PD powerfully addresses real needs.

This principle has been promoted for many years. Over thirty years ago, people were promoting 'school-based in-service education', or 'school-focused professional development'. It can mean little, as in simply transferring passive course modes of PD into the school on curriculum days. The difficulty is in building opportunities for teachers to be actively engaged as professional learners in the context of their day-to-day work.

The Getting it Right Strategy achieves this penetration to the level of practice almost painlessly. However, the availability and the training of the Specialist Teachers are crucial – and the fact that the Specialist Teacher is usually another teacher from the same school. The 'shoulder to shoulder' concept is irresistible to most teachers who do not want to be told what to do, but do want to know anything that helps them help their students learn better. The Specialist Teachers have the kind of in-depth training from the GiR team that makes them a valuable resource in negotiating the complex First Steps Curriculum Development Resources. The 'shoulder to shoulder' notion captures the notion of partnership well – that 'we are going to work together'. Despite our initial scepticism about the possibility of such a relationship, we did not come across any teachers who did not value highly the opportunity to work with the Specialist Teacher in their school.

5. Hawley and Valli's fifth principle relates closely to the fourth:

Professional development should be organized around collaborative problem solving.

Without collaborative problem solving, individual change is possible, but school change is not. Collaborative problem-solving activities allow educators to work together to identify both problems and solutions. Activities may include interdisciplinary teaming, curriculum development and critique, collaborative action research, and study groups.

The GiR Strategy builds on long experience that effective professional learning opportunities arise from collaborative work on authentic teaching tasks and problems. Motivation to engage in this kind of learning

increases with evidence of improved student understanding and enjoyment. The fact that there is a brief time span in GiR between a planning meeting, teaching together and meeting again to examine student work and review the learning activities greatly helps. There is a direct connection between learning, application and feedback.

What becomes possible with the resources that the GiR Strategy makes available is a movement toward the notion of the school as a professional organisation. Professional organisations, as described by Weick and McDaniel (1989), recognise that professional work is not just 'up front' work. Professional work requires the 'back room' work of interpretation to inform decision-making. Work structures in professional organisations recognise that effective teaching requires time during the working day to bring values and expertise to bear on the non-routine problems involved in meeting the learning needs of all students. This principle, like the others, requires strong leadership at the school level to ensure collaborative work is actively supported and that the Specialist Teacher are able to say 'no' to other demands on their time.

6. Hawley and Valli's sixth research-based principle states that:

Professional development should be continuous and on-going, involving follow-up and support for further learning-including support from sources external to the school that can provide necessary resources and new perspectives.

Adoption and implementation of effective practices requires continued learning. Therefore the design of professional development must provide time to apply new ideas and, sometimes, must draw on additional outside expertise. Such

follow-up and support ensures that professional development contributes to real change and continuous improvement.

This component of professional learning design is probably one of the major strengths of the GiR Strategy for improving learning opportunities for disadvantaged students. Perhaps the greatest weakness of professional learning for teachers is the lack of funding for follow-up and support when teachers come to implement the innovation in their own classrooms. This is when the need for support is at its highest if professional learning is to translate into practice.

First Steps in Mathematics is a complex package of resources for diagnosing students' developing understanding of mathematics and planning and implementing teaching programs to improve student learning. Left at the school door, or even explained at some central professional development event, it is very unlikely that teachers would use these resources. At first reading, the GiR material is vast and rather impenetrable. Working 'shoulder -to - shoulder' with the Specialist Teacher turns the learning process into many small achievable steps.

The GiR strategy has an ambitious vision for mathematics classes. Students will be actively engaged in constructing their own mathematical knowledge. Teachers will know how to tap into this thinking. Teachers will be adept at promoting mathematical thinking and maintaining high quality discussion of mathematical ideas. The need for props like worksheets and textbooks will fade away. This kind of pedagogy will not happen without a deep understanding of the mathematics and how children learn the mathematics. Neither will it

happen without the other key ingredients in acquiring new skills; modelling of the theory and opportunities to practice the ideas yourself and receive feedback. The Specialist Teacher brings these opportunities into the classroom.

Research has indicated it may take two to three years for the kind of significant changes in pedagogy that GiR calls for to take hold (Hodges, 1996). Under the GiR Strategy, schools were funded for at least two years, and the support for a Specialist Teacher often continued into a third year. Schools often put additional funding of their own to extend the number of teachers that Specialist Teachers could work with.

7. Hawley and Valli's seventh research-based principle states that:

Professional development should incorporate evaluation of multiple sources of information on (a) outcomes for students and (b) the instruction and other processes that are involved in implementing the lessons learned through professional development.

When done right, evaluation of professional development yields important lessons for refining professional development. Without such evaluation, future opportunities for teachers to learn may not be productive. Multiple sources of information should be used, including teacher portfolios, observations of teachers, peer evaluations, and student performance. Lessons become most clear when evaluators collect data during different stages of the change process.

A valuable aspect of the GiR strategy was the realisation that evaluation should be built into the strategy early on. ACER was contracted to conduct

the evaluation in mid 2003 over the next two years when new cohorts of Specialist Teachers were still being trained. Funding for Specialist Teachers often continued into the third year. This made it possible to track changes over time and for the evaluation team to feed information back to the GiR team.

The key questions for the evaluation concerned the impact of the GiR Strategy on teachers' knowledge and practice, though not student outcomes. The GiR team made a policy decision early in the evaluation not to use Western Australia Literacy and Numeracy Assessment (WALNA) data for assessing student outcomes. Funding for the evaluation enabled several sources of data about the impact of the GiR strategy to be gathered.

These sources included visits to schools to conduct structured classroom observations and interviews with teachers, Specialist Teachers and principals. The ACER team visited twenty schools on three occasions in an attempt to trace changes that could be attributed to the GiR Strategy. Surveys of teachers, Specialist Teachers and principals were also conducted on two occasions – late in 2003 and late in 2004. The surveys included innovative methods for gathering information about the impact of the Strategy on teachers' knowledge and practice. Teachers were presented with scenarios that called for them to apply what they had learned from the GiR Strategy; for example, about diagnosing student understanding and selecting learning activities to promote key understandings. Later in the evaluation, it was common for Specialist Teachers and principals to show the evaluation team evidence of improved outcomes in numeracy that they attributed to the GiR Strategy.

8. Hawley and Valli's eighth research-based principle states that:

Professional development should provide opportunities to gain an understanding of the theory underlying the knowledge and skills being learned.

Because beliefs filter knowledge and guide behaviour, professional development must address teachers' beliefs, experiences, and habits. Furthermore, specific knowledge and skills that work in one setting, sometimes do not work in others. When teachers have a good understanding of the theory behind particular practices and programs, they can adapt the strategy they learned about to the circumstances in which the teacher is trying to use it.

This principle relates closely to Principle 1 and the central importance of the content that is learned in professional development. Change in practice is more likely to be pervasive when it is informed by theory in which the educator involved has confidence.

Reforms such as First Steps set ambitious goals for teachers and students, especially that mathematics lessons will be characterised by lively discussion of significant mathematical ideas. More teachers will help students test their own mathematical constructions, and think critically about mathematical procedures. For some teachers, this involves a transformation in their knowledge, beliefs and practices that goes to the heart of their identity as a teacher. It was common for teachers to state in interviews that, 'I'll never teach maths the same way again', as a result of their work with the Specialist Teacher.

Earlier research, on which First Steps in Mathematics draws (e.g. Carpenter et

al., 1993; Fennema, et al., 1996) showed the futility of PD that focused on teaching techniques, as opposed to deepening teachers' understanding of research about the development of children's mathematical thinking within particular content domains. Expansion and elaboration of the professional knowledge base leads to what they called 'generative' or sustained change (Franke et al., 1998). This understanding was a necessary condition for significant shifts in teachers' beliefs and practices. Effective pedagogy depends on knowledge of subject matter and how students learn it.

In the GiR Strategy, Specialist Teachers have 21 days of PD over two years focused on this kind of knowledge. The experience of gaining this knowledge led several Specialist Teachers to say spontaneously that, 'I'm feeling like a professional for the first time'. Specialist Teachers draw on this knowledge back in their schools in working with classroom teachers. Their weekly meetings, where they examine student work from the previous week, identify types of misunderstanding and select learning activities appropriate to those students, provide an authentic context in which to link the research to practice. This real work context brings teachers' current beliefs, experiences, and habits to the fore – a necessary condition for change to happen.

Working 'shoulder to shoulder' means the Specialist Teacher can bring useful knowledge to the core work of planning and teaching. Practice is deprivatised. In the best situations, Specialist Teachers model new practices frequently and teachers receive plenty of informal feedback as they try the practices out for themselves. This protected environment enables teachers to take risks and experience

different types of learning themselves. Teachers see the benefits of what they are learning in their students' enjoyment of the activities.

9. Hawley and Valli's ninth research-based principle states that:

Professional development should be integrated with a comprehensive change process focused on improving student learning.

Improving teacher capabilities without changing the conditions that influence the opportunities to use these capabilities is often counter-productive. These conditions include time and opportunities to try new practices, adequate funding, technical assistance, and sustained central office follow through. Thus, unless professional development is designed as part of a larger change process, it is not likely to be effective.

The fact that GiR PD is part of a broader reform strategy is clearly a strength of the GiR Strategy. The main components of this strategy were listed earlier. Data about student learning outcomes has been used to identify an undeniable need. The strategy has been planned on several levels, from the centre to the Region, the school and the classroom – and over an extended time period. It has strong political and financial backing from the Minister. The focus on building professional capacity as the means of improving learning outcomes in disadvantaged areas is clear. First Steps in Mathematics is a well-researched and comprehensive curriculum development resource. Funding for each school is substantial and typically equivalent to an extra staff member's salary. There is a strong central team to provide training for the Specialist Teachers over an extended

period of time. Principals have customised training in the kind of support they can provide to enable Specialist Teachers to work effectively. Clear guidelines are provided about what the Specialist Teacher's role entails – and what it does not. Time for Specialist Teachers and classroom teachers to plan and teach together is built into the timetable.

Concluding comment

The GiR Strategy is consistent with research about the characteristics of effective designs for professional learning. It illustrates how far we have come over the last thirty years or so since professional development was equated mainly with one-off workshops. In these final remarks, I would like to draw attention to one interesting aspect of the GiR Strategy that take us beyond Hawley and Valli's list of principles.

Freeing up expertise: The role of the Specialist Teacher in the GiR design

The role of a well-trained Specialist Teacher is pivotal to the success of GiR. Without the Specialist Teacher, it is hard to see how any of the Hawley and Valli principles could be implemented, yet, they make no mention of such a role in their list of conditions that appear to nurture effective professional development.

The Specialist Teacher concept points to a new teacher leadership role that is worth considering as a more permanent component of school staffing. Specialist teachers do what formally appointed school leaders ought to do, but rarely actually do. They make the concept of an accountable professional community a reality. In

being free to work alongside colleagues, individually and in groups, the Specialist Teacher makes it more possible for the school to review in depth how well students are being served. The Specialist Teachers act as a bridge between research and the 'dailiness' of teaching. They help to break down isolation and the persistence of privacy in teaching. While we found variation from school to school in the way the role was implemented, the role itself was greatly valued in every case. We were surprised how most specialist teachers, who came from within the ranks of the staff, were accepted and valued in their new role. When asked how she saw the Specialist Teacher in her school, one teacher expressed the views of many teachers we spoke with: 'She's a bit more knowledgeable, but she is still one of us. It is easy to go to her. We know she is there to change the way we teach maths, but that's OK'.

One way to think about the Specialist Teacher role is as a means of 'freeing up expertise' in the school and making it more available. When you see a Specialist Teacher at work with individual teachers and with year level teams of teachers, assisting with the diagnostic maps, with the Numeracy Net, the rotation of classroom activities and so on, you wonder why this role and this type of leadership has not been a normal part of school staffing before. Teachers think that the most important source of useful ideas for their teaching is other teachers, yet school organisation often makes that expertise inaccessible as teachers are locked away in the isolation of their own classrooms. One thing that young teachers value highly is the chance to see expert teachers at work and to get helpful feedback from them about their own teaching. Greater opportunities for

modelling and feedback are key features of the GiR strategy.

The GiR Strategy puts resources where they are most likely to have an impact on student opportunities to learn. The English have been looking at 'remodelling' teaching (Collarbone, 2004). Part of the motivation for this arose from studies of teacher workload and stress. Remodelling includes stripping non-teaching clerical and administrative tasks that limit the time and energy that teachers have for teaching. It has also included a very large investment in new teaching assistant roles in schools. The WA GiR strategy raises the question about whether a more effective approach might be to place extra resources, if they are available, into freeing up expert teachers from time to time to work shoulder to shoulder in the way that the GiR developers have insisted. GiR legitimates the deprivatisation of teaching. Some teachers found this uncomfortable at first, but by the second year, when it had become obvious that colleagues were gaining a great deal from the partnership, they usually came on board. Most teachers and principals in WA GiR schools were in no doubt that the GiR Strategy was giving them a greater opportunity to improve student learning outcomes than any other strategy they had experienced.

References

- Carpenter, A., Ansell, E., Franke, M., Fennema, E. & Weisbeck, L. (1993). A study of children's problem solving processes. *Journal for Research in Mathematics Education*, 24, 428-441.
- Collarbone, P. (2004). *Touching tomorrow: Remodelling in English Schools*. Paper presented at Making Schools Better Conference, August 2004, Melbourne.
- Fennema, E., Carpenter, A., Franke, M., Levi, L., Jacobs, V. & Empson, S. (1996). A longitudinal study of learning to use children's thinking in mathematics instruction. *Journal of Research in Mathematics Education*, 27, 403-434.
- Franke, M., Carpenter, A., Fennema, E., Ansell, E. & Behrend, J. (1998). Understanding teachers' self-sustaining generative change in the context of professional development. *Teaching and Teacher Education*, 14(1), 67-80.
- Fullan, M. (1982). *The meaning of educational change*. New York: Teachers College Press.
- Hawley, W. & Valli, L. (1999). 'The essentials of effective professional development: A new consensus' in Darling-Hammond, Linda and Sykes, Gary, Editors (1999) *Teaching as the Learning Profession. Handbook of Policy and Practice*, Jossey-Bass Publishers, San Francisco.
- Hodges, H. L. B. (1996). Using research to inform practice in urban school: 10 key strategies for success. *Educational Policy*, 10(2), 223-252.
- Kennedy, M. (1999). Form and substance in mathematics and science professional development. NISE Brief 3 (2) Madison, WI: National Institute for Science Education, University of Wisconsin.
- Peterson, P. L., McCarthy, S. J. & Elmore, R. (1996). Learning from school restructuring. *American Educational Research Journal*, 3(1), 119-154.
- Little, J. & McLaughlin, M. (Eds.) (1993). *Teachers' work: Individuals, colleagues and context*. New York: Teachers College Press.
- Louis, K. S., Kruse, S. & Marks, H. (1996). Schoolwide professional community. In F. M. Newman (Ed.) *Authentic achievement: Restructuring schools for intellectual quality*. San Francisco: Jossey-Bass.
- Weick, K. E. & McDaniel, R. R. (1989). How professional organisations work: Implications for school organisation and management. In T. Sergiovanni and J. H. Moore (Eds.), *Schooling for tomorrow: Directing reform to issues that count*. Allyn & Bacon, Boston, pp. 330-355.