Action research principles were the foundation of the Department of Education Science and Training funded and Murdoch University directed, numeracy research conducted at Waikiki Primary School, Perth, Western Australia. Karen Murcia and Beth Powell from the School of Education co–directed the research and facilitated the teachers’ development and implementation of action research projects that explored innovative teaching strategies for improving student numeracy outcomes. This school’s experience provided some insights into the challenges and possible benefits of using action research as a tool for teachers’ professional development.

The project was a whole school initiative that was actively supported by the schools Administration and involved eight teachers from Kindergarten to Year Seven. The teachers selected and developed action research projects based on an aspect of their classroom practice that included opportunities to incorporate partnerships with parents. The projects were focussed through a framework of numeracy and trialled a range of strategies aimed at heightening students and parents’ awareness, and ability to respond appropriately to, opportunities for using numeracy in the classroom, integrated across the curriculum and in their everyday life.
The research built on a framework that viewed numeracy as a blend of mathematical, contextual and strategic knowledge, which cannot be developed solely within the mathematics lesson (Hogan 2000). This project challenged the teachers’ perspective of numeracy and teaching for numeracy as their initial focus was primarily on mathematical knowledge taught and practised in the mathematics lesson. The action research process facilitated engagement with and critical reflection on this view of numeracy and teaching for numeracy. A Teacher commented, *this project really made me question how to improve numeracy and how can I help my students develop a more robust opinion of themselves mathematically.* The project provided the necessary structure and support for developing and implementing innovative numeracy teaching strategies.

The cyclic structure used to achieve reflective practice was flexible and participatory in nature, alternating between planning, acting, describing and critically reflecting. We held whole school workshops in which we aimed to share our project expectations, build a supportive learning environment, share prior knowledge and to develop a shared understanding of numeracy, numeracy across the curriculum and action research. Throughout these sessions we acknowledged the uncertainty of the learning journey we were, as a team, taking together. As one teacher later reflected, *you don’t necessarily see it at the beginning, it’s a process, you set off on a journey. If you know the answer you don’t set out to find it”*

Facilitated Action Team Meetings held at intervals throughout the year maintained the momentum of the project. These meetings helped keep the project a priority for the teachers. They were an important feature of the action research cycle as they provided the time for critical reflection. These meetings were an opportunity for the teachers to share their teaching for numeracy and their observations and evidence of the strategies impact on their students. As group facilitators, we would critically reflect, challenge assumptions and raise questions in order to push the thinking to a deeper level. The teachers found this to be a valuable aspect of the action research process. For example, *they (facilitators) ask the questions, dig a little deeper and make us think beyond the initial thought. If you don’t reflect you don’t take the next step. Reflecting with some one helps. Facilitators force a deeper reflection.*
These meetings demonstrated the need for improvement or change to take place as part of an on-going cycle of action rather than as the consequence of a one-off activity. A teacher commented, *It takes time to get there, to take new ideas on board and to really understand it so you can try it out.* Time was necessary for critical, professional reflection at a depth beyond what was possible in the busy daily practice of a classroom teacher. The critical reflection provided a stimulus and direction for the Teachers’ next action research cycle.

The collegial nature of the action research approach enabled individuals to receive support from their colleagues in directing their own professional growth. Professional talk of this nature required us all to clarify our thinking and created opportunities for seeing different perspectives and interpretations of experiences and evidence. Grundy (2002) explains, *while we might need the support of others to act; we also need the critical eyes of (trusted) others to test our interpretations and understandings with and against.* The importance of research partnerships or critical friendships to this project was captured in this teacher’s comment; *working with someone is the best way to go as you have someone to talk to about your students. You can flounder on your own. Working together involved making ideas happen, considering alternative ideas and reflecting. We would let ideas settle, take time to think and then come back together, talk, share and decide.*

The teachers were required to write and share with their colleagues a reflective case study of their experience. Writing about their action research project helped the teachers to clarify and express their ideas. Tripp (1998) explains it as helping, *to find your way to places you wouldn’t otherwise go and to see things you wouldn’t otherwise see.* These case studies demonstrated the Teachers commitment to the school’s numeracy research and their students’ numeracy development. They were a concrete illustration of excellence in their professional learning.

This project demonstrated the valuable role action research could take in the professional development of teachers. The process supported a constructivist approach to professional learning and facilitated real, practical action based on the numeracy learning needs of students’ in the school. Learning through action research conducted as a part of, not separate from, daily classroom practice provided a real,
meaningful context in which teachers were motivated by their own students needs and observed improvements. Action research offered an approach to change and learning that empowered the teachers, as they could own the process and the resulting solution. It potentially gave the Teachers an approach for coping with future change as they experienced strategies for adopting something new, learning to take a few risks, initiating and then incorporating new ideas into practice (Murcia, 2004).

Finally, at the core of this action research project was a group of professional teachers who were committed to improving numeracy outcomes for their students. They were motivated risk takers who were prepared to struggle with the questions and uncertainty of the learning outcome. They opened up their practice and engaged in collegial reflection in order to assess what happens when they initiated change. The action research process provided the necessary framework, time and support for this to occur.

References


Tripp, D (1996) SCOPE. Education Department, WA.