

HOME, SCHOOL and COMMUNITY PARTNERSHIPS to support CHILDREN'S NUMERACY

MERRILYN GOOS presents findings from a national project coordinated by the University of Queensland. The project was designed to explore the links between home, school and community that supported children's numeracy development.

A national project conducted by the University of Queensland explored the links between home, school and community that support students' numeracy development.

Two of the aims of this project were to:

- (a) critically review recent Australian and international research in this area, with a particular emphasis on the extent to which the needs of educationally disadvantaged students are addressed in current practice and research; and
- (b) identify, describe, and analyse the current range of home, school, and community partnership practices in Australia that support children's numeracy learning in the one to two years prior to school and in the primary years of schooling.

Attention was not limited to numeracy learning and teaching practices in pre-school and primary school classrooms, but instead focussed on partnerships that extend beyond schools and include other important contexts in which children live, develop, and learn. This broader focus is consistent with Australian approaches to recognising a numerate person as someone who can 'use mathematics effectively to meet the general demands of life at home, in paid work, and for participation in community and civic life' (DEETYA, 1997, p. 15). Thus in analysing home, school and community numeracy partnerships we looked for evidence of three aspects of numerate practice and the types of knowledge and competencies associated with each: mathematical knowledge (knowing the appropriate mathematics), strategic knowledge (being familiar with problem-solving strategies), and contextual knowledge (understanding the context in which the numeracy is embedded and recognising how the mathematics relates to the context).

Collecting the data

Information on numeracy partnerships was collected and analysed between August 2002 and November 2003, using a combination of surveys, interviews, and case studies.

A questionnaire survey was mailed to peak body organisations representing education and child care providers, professional associations, research organisations, and parent and community groups. An email survey was also conducted of a representative sample of primary schools throughout Australia. The purpose of the surveys was to obtain Australia wide data on the distribution and scope of current programs and practices.

Interviews were conducted with key personnel responsible for numeracy and/or mathematics in all State and Territory Education Departments, Catholic Education Commissions/Offices, and Associations of Independent Schools, in order to identify specific programs or initiatives that connected schools with families and/or communities to support children's numeracy learning.

Seven case studies were conducted. These documented exemplary, sustained programs in Victoria, the Northern Territory, New South Wales, Queensland and Western Australia. They included two large State/Territory funded programs (the NT *Mobile pre-school project* and the Victorian *Early years numeracy parent pack*), a longstanding parent-school partnership program (*Family maths project Australia*), two primary schools, and a commercial tutoring agency.

Key findings

Among representatives of peak body organisations there was very little awareness of numeracy learning and 'programs' in anything other than rigid and formal terms. Many appeared to be unaware of the numeracy learning opportunities in informal activities such as playgroups or after school care.

Nevertheless, our Australia-wide sample of primary school principals reported a wide range of programs and initiatives that brought together children and adults in numeracy-related activities. The 606 numeracy programs identified in our analysis seemed to serve two major purposes: to involve parents in school activities and/or inform them about syllabus changes, and to improve children's mathematics learning experiences and outcomes. Between 20–30% of primary school programs targeted children from Indigenous or low socio-economic backgrounds or children with learning difficulties. Over three-quarters of these programs were initiated and operated by school personnel.

Types of partnerships

The framework for analysing types of partnerships that was developed takes into account:

- evidence of the impact of programs;
- different ways of initiating partnerships;
- stakeholder perspectives on partnerships;
- attention given to the needs of educationally disadvantaged groups;
- geographical location; and
- level of schooling (pre-school, lower/upper primary).

A literature review suggested paying attention to partnership initiation and stakeholder perspectives in analysing relationships between educational systems, schools, families, and communities, and the roles participants might play. We found that partnerships could be initiated and funded in four ways. Top-down partnerships are initiated and sponsored by an education system with uniform program goals and processes across schools. Top-supported partnerships rely on an education system for some overall sponsorship or coordination but schools design and control the program. School-generated partnerships are initiated by a school independently of an education system, although this may involve resources available from the system. Home/community-generated partnerships have their origins in these sectors and are designed and implemented with input from families and community members. Each of these partnerships may involve school-centred, family-centred or community-centred connections between participants, depending on where activities take place and who initiates them.

Most of the 38 programs we identified in our interviews were top-down (32%) or top-supported (42%). Top-down partnerships were dominated by school perspectives (e.g., links with families were viewed very much in terms of communicating with parents), while top-supported partnerships were characterised by more symmetrical relationships between home, school and community stakeholders. We found few programs initiated by schools or by parents and community members.

Critical issues in building and sustaining partnerships

The case study analyses identified the following critical issues and changes required to build and sustain long-term partnerships to support children's numeracy development.

Recognising the needs, roles and activities of different stakeholders in numeracy education.

The importance of relationships, mutual trust and respect developed over an extended period of time was a common theme that emerged from our analysis.

Forging parental and community involvement in mathematics education development and change.

This involves demystifying mathematics and introducing parents to current ideas about numeracy concepts and learning approaches.

Recognising social, cultural and gender differences and relations of power in building partnerships.

While there is some evidence that this is addressed in programs targeting Indigenous families and communities, it was rare to find these differences recognised in ways that strengthened home-school-community relations around numeracy education.

Responding to cultural diversity in numeracy practices.

Children (and parents) from non-English speaking language and cultural backgrounds were generally not well served by the programs represented in the case studies.

Preparing administrators and teachers to work in partnership with parents and community members.

This appears to be a largely neglected area. We found some evidence in a few cases of successful and innovative approaches to professional development efforts that focussed on working with parents and other non-education professionals.

Enhancing communication between teachers and parents.

This was the most common feature of the case studies, with many programs stating an explicit commitment to developing meaningful communication. However, in practice, school governance structures make it difficult to achieve genuine two-way communication between home and school.

Connecting families with schools to support numeracy learning at home.

This issue was addressed by all types of programs that encouraged parents to become involved in their children's mathematics learning at home. However, the case studies provided little information on the nature of home or community numeracy events, and how these could become numeracy learning opportunities for children.

Connecting home, school and community to support children's transition across educational levels.

This issue was evident in some of our case studies that aimed to prepare children for school entry.

Improving teachers', parents', and communities' understanding of nature of numeracy and numeracy learning.

Many programs seemed to interpret numeracy very narrowly as school-based mathematical knowledge and skills (i.e.,

without the strategic and contextual aspects). The rich variety of numeracy events embedded in everyday home and community practices seemed to be invisible to most parents and teachers.

Understanding the nature of partnerships and participant roles.

Effective partnerships were characterised by:

- a long history of building relationships, often involving the whole school, whole family, or whole community;
- a commitment to continuing, self-initiated, mostly informal, evaluation, which contributes to the continual refinement and sustainability of the program;
- continuing provision of financial, material and human resources, including professional development for teachers;
- a holistic focus on learning that does not necessarily have numeracy as its first priority;
- a specific focus on localised needs and contexts;
- leadership and liaison by one or two 'champions';
- a horizontal structure that sometimes featured cross-sectoral or multi-agency networks involving links between schools and government or community-based agencies.

Barriers to effective partnerships were identified as:

- short-term funding;
- accountability structures that tie funding to the achievement of mandated outcomes;
- system protocols that place unrealistic demands on stakeholders;
- dependence on individual leadership that does not empower others; and
- vertical structures where the focus is on delivering resources within a limited time frame.

Looking ahead

There is a need for a coordinated intervention program targeting teachers, families, and the broader Australian community, to raise awareness of the nature of numeracy as involving the use of mathematical, strategic, and contextual knowledge to meet the demands of everyday life.

Reference

Australian Association of Mathematics Teachers (1997). *Numeracy = Everyone's Business (The Report of the Numeracy Education Strategy Development Conference, May 1997)*. Adelaide: Author.

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