Title Page

Title:   Dangerous liaisons - Home-business-school numeracy networks

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Dangerous liaisons - Home-business-school numeracy networks

Using data from an Australian study of home, school and community partnerships, we suggest that commercial tutoring agencies are a community resource which increasingly parents are choosing to supplement their children's numeracy education. Drawing on contemporary activity theory we argue that because home, school and commercial enterprises are overlapping spheres of influence in some children’s learning they can be conceived of as a network of activity systems that interact with each other in some significant ways. However, only when this mutual influence is recognised can we consider the network in terms of partnerships between home, school and community. We challenge the prevailing education ethos in Australia which marginalizes and ignores the growing proliferation of for-profit tutoring businesses. In a context where cultural diversity, changing demographics and democratic choice prevail, the value of for-profit agencies may lie in areas not well met by schools. Tutoring businesses are usually well-equipped, most using the latest information and communications technologies, and offer one-to-one, or small group attention to students thus improving confidence, a large factor in numeracy success. Parents typically report that they employ commercial services because their children have particular needs which they feel are not met adequately in classroom settings.

Introduction

Australian public education has long been informed by its founding philosophy; that of a free, public and compulsory education for all. However arguably there has never been a time when education in Australia was unambiguously, free, public and compulsory. Private schools were first established and the ‘public’ aspect of education (the dual system) came into being in the second half of the nineteenth century (Society of Australian Genealogists, 2001-2005). As regards compulsory attendance, education as a requirement for those between 6 and 13 years was in place by 1900 but school attendance was not strictly enforced during the early decades of the 20th century (Burke and Spaull, 2002). Since 1966 the school leaving age has been 15 years but
currently the notion of raising the school leaving age has re-emerged on the political agendas of some Australian states. One ideal it would seem that is still held dear is the notion of a ‘free’ education for all. This claim is supported by our experience, as an interdisciplinary team, carrying out the ‘Home, school and community partnerships to support children’s numeracy’ project (HSC, authors, 2003). Initially, the educational experts amongst us felt that the discussion of commercial enterprises had no business appearing in professional research into home, school and community partnerships. There are of course well-documented historical, intellectual and pedagogical reasons for this point of view, but given our construct of ‘community’ sector in the popular expression ‘home, school and community’, which we discuss below, it was difficult to argue that commercial tutoring firms should be left out of a study that purported to look at home, school and community partnerships.

Even though government policy states that there are ‘no tuition fees’ in public education, one would go far to find a public school in which parents can avail themselves of a rounded education for their children without incurring costs, for example, for art or music materials, for children’s participation in sporting activities, or for day care. Education in Australia is not free. Looking at the matter from a commercial angle a cursory examination of the yellow pages in Brisbane 2002 revealed that more than 100 tutoring firms featured primary school level numeracy or mathematics as one of the areas in which they specialised. So, indulging in a little creative dissent, we conducted exploratory work on how parents and tutoring businesses construed their relationships and included one commercial tutoring firm, ‘Top Maths’ (a pseudonym) in the HSC study.

As this discussion is based on research completed in the HSC project it is conducted in the context of primary school children’s numeracy education. The use of the term ‘numeracy’ presents an enormous set of conceptual and pedagogical issues. In the HSC project we adopted the interpretation of numeracy as identified in the Commonwealth’s policy document, Numeracy – A Priority for All (DETYA, 2000). Here, numeracy learning is acknowledged to involve the development of children’s mathematical knowledge and skills, and the fostering of capabilities and dispositions to make effective use of this learning in order to deal with the general demands of life. This definition was operationalised in our data collection and analysis by looking for evidence of three aspects of numerate practice and the types of knowledge and competencies
associated with each; mathematical knowledge, strategic knowledge, and contextual knowledge (after Willis, 1990).

In this paper it is not our intention to question the pedagogical value of tutoring firms’ approaches to mathematics education. Nor do we, by simply advancing the proposition of this paper, intend to make any claims about the value or otherwise of the nature and content of tutoring firms’ programs or to promote or legitimise their activities. On the other hand we are not advocating that schools become involved in profit-making for shareholders. We wish only to indicate that our brief encounters with tutoring firms suggest that there are a number of social relationships occurring outside of the educational institution which are connected with primary children’s numeracy education. As such, in the context of the political will to partnerships between ‘school, home and community’ and particularly in an environment of reducing resources and increasing cultural diversity in clientele, these relationships deserve further research attention.

Our comments are based mainly on an in-depth case study of Top Maths. We use some indications from other case studies in the HSC project and brief exploratory interviews with three other commercial tutoring firms in Australia, which we will call, The Asian Coaching School, Kounting Enterprises and IT Maths respectively. Firstly, a review of the relevant literature reveals a need to develop a theoretical model for conceptualising partnerships in children’s education. We present such a model and then use it to explore the situation of home connections with the Top Maths tutoring agency. Some highlights are chosen, supported by exploratory study information, as deserving of further research attention.

**Partnerships**

For quite some time educational researchers have been calling for schools to develop partnerships with other environments that constitute children’s learning contexts. Epstein (1995, p. 702) defines school, home and community partnership as a relationship between ‘three major contexts in which students live and grow’ and in which shared interests in and responsibilities for children are recognised. In addition, Funkhouser and Gonzales (1997) state that successful partnerships are those that involve the sustained mutual collaboration, support and participation of school staffs and families at home and at school, in activities and efforts that have a positive
effect on the academic success of children in school. Home, school and community partnerships are particularly important in the incorporation of information and communication technologies in teaching where it is suggested that pedagogy needs to move from ‘ownership’ to ‘networking’ models of education and where teachers are often not the ‘experts’ in using computer technologies (Bigum and Lankshear, 1998, p. 9).

To emphasise the importance of schools sharing responsibility for student learning, federal and state legislation in many countries has called for the development of school partnerships with families and community groups. For example, the Goals 2000: Educate America Act (1994) describes partnerships as a national education goal and calls for increased parental involvement and participation in promoting the social, emotional and academic growth of children. Recent legislative attempts by the school governing bodies in England and Wales have attempted to formalise partnerships by signing Home-School Agreements (Department of Education and Employment, 1998). Exploring this legislative initiative, Crozier (1999) questions two notions: 1) that parental involvement tends to be regarded as a unified concept, and 2) that it is accepted unproblematically as desirable by all concerned. Neither of these initiatives considers the complexity and diversity of parental involvement practices, and they imply that parents are not taking seriously their responsibilities towards their children’s education. Crozier found little evidence to support this view.

The Parent Participation Project (Department of Education Tasmania, 2000) makes it clear that, in order to overcome barriers in school-home relations, schools need detailed knowledge of families and their situations. All too often unquestioned assumptions are made about families, which take no account of different family types, of major social changes affecting families and, in turn, of home environments in which children are developing and learning. Such assumptions underlie pedagogical discourse which through its broad, regulatory properties re-inscribes particular forms of order, ideology and identity beyond the specific knowledges it seeks to develop (Sawchuk 2003, p. 303). One aspect of home practices that deserves further attention are the resources, extraneous to school mechanisms, that carers call upon to support their children’s learning. These may be extended relatives, older siblings, friends or commercial tutoring agencies, who may very well use means regarded as not pedagogically sound according to educational authorities.
As a strategy, parental involvement appears to be primarily an institutionally generated response to school and parental goals for increased student success (Vincent, 2000). Policies obfuscate the status of the relationships in the partnerships. Sarason (1995) maintains that the present governance structures of schools define the nature and scope of parental involvement. Parents are usually invited by schools ‘only when it is needed’ (Coulombe, 1995, p. 71) and staffs of some schools want parents to be involved only in specific ways and at times determined by the staff. This total control of parental involvement, with some exceptions of course, suggests the explicit exclusion of parents from the critical and serious work of rethinking educational practices.

Many researchers argue, therefore, that ‘questions of power, authority and control must be addressed head-on within debates about parental involvement in public schools’ (Fine, 1993, p. 684). If schools are to serve children in more appropriate, significant and influential ways, then the manner in which schools operate must be altered to accommodate different kinds of parental and community participation in the process of education. This task requires rethinking of the public sphere of education to strengthen parents’ and community presence in schools by increasing their power, control and activism.

When our research team was faced with the practical need to identify specific schools that were encouraging ‘partnerships’ in children’s numeracy education, it became immediately clear that there are two gaps in the theoretical literature. Firstly, it was necessary to identify to what groups specifically the term ‘community’ might refer. Secondly, all research and partnership activity seemed to place the school at the centre as the initiator and evaluator of activity, thus reproducing existing relations of power. If ‘partnerships’ are to function as collaborations, then it seemed that we needed a broad theoretical model that would enable us to focus on parents’ initiatives and decisions as equally relevant in partnership activity, and to locate other situations where it was possible to identify community groups who initiate or participate in children’s learning activity. There exists conceptual confusion over the use of the term ‘community’ because popular terminology refers to ‘home’, ‘school’ and ‘community’ as if they were semantically equivalent concepts. In fact, a ‘school’ is a community of influence for a child as is his or her ‘family’.
Theoretical Framework

Our analytical framework is developed using activity theory (AT) to identify the range of systemic phenomena that mediate communications affecting children’s learning. Contemporary AT incorporates Vygotsky's (1981) concept of mediation and Leont'ev's (1978) concept of activity to emphasise that an activity is situated in a particular social context. As such, activity is defined as a system of collaborative human practices, which includes the object (e.g. children’s numeracy education), subject, mediating artifacts, rules, community, and division of labour (Cole and Engeström, 1993).

Figure 1. The model of an activity system (Cole & Engeström, 1993)

This model can be helpful in understanding the organisational structure, human and non-human entities and the interactional dynamics of an activity system in which individuals participate (see Figure 1). An individual (the 'subject') is constituted in various 'communities'. In terms of our project, the communities to which Cole and Engeström (1993) refer could be the home, the school, or any other group outside of these two spheres of influence. The child (and by association, parents or carers) moves in a school community, for example, and his or her learning outcomes are mediated, on the one hand, by a variety of cultural artifacts (signs, tools, texts, etc.) and, on the other hand, by 'rules' (norms, values, and sanctions) that pattern interpersonal relations and practices. Because these relations are often asymmetrical, tasks are distributed through the ‘division of labour’; there are specific tasks recognised as belonging to students’, teachers’, and parents’ roles. Depending on their relationships to each other and their place in the division of
labour, participants in an activity system may continuously negotiate tasks, powers, and responsibilities among themselves and integrate these with other proximate community activity systems in which they move.

Home and school may be the closest kinds of communities in which a student moves but they are not the only activity systems that influence them. Groups and organizations in the broader community such as religion, sport, ethnic groups and commerce also influence the child’s development. Because home, school and other community entities are overlapping spheres of influence in children’s learning (Sanders and Epstein, 2000), they can be conceived of as a network of activity systems that interact with each other in some significant ways. However, only when this mutual influence is recognised and when the human and material resources of families and community bodies become a part of school and classroom organisational structure, can we consider the network in terms of partnerships. Without this constructive work, relations between home, school and other community groups are nothing more than occasional, improvised and unstable relations between otherwise loosely connected actors and activity systems. The concept of network, on the other hand, presupposes relatively stable structures, which can be used more or less effectively in building and sustaining collaborative relations over time.

A partnership network between activity systems, we argue, is a significant form of organising and performing collaborative activity. It may be conceptualised as a knot of collaborative work that cannot be reduced to any specific individual or fixed organisational entity as the centre that holds, for example the school, as has been the traditional focus. In a knot the centre is empty, it does not hold anything. For effective partnership networks to occur, the locus of initiatives must shift from one participant to the other, from parents to other community groups to the school’s point of view and so on in a continuously moving fashion. Thus, a partnership network cannot be analysed from the point of view of an assumed centre of coordination and control, or as an additive sum of the separate perspectives of individuals, institutions or communities contributing to it. The knot itself needs to be made the locus of analysis.

When the child’s learning is the focus outcome (Figure 1) we may conceptualise a model for research sampling by positing the child as an actor around whom collaborative efforts are constellated (Figure 2). The child is at the centre of a complex of activity systems whose main goals are to achieve her or his learning and well-being.
Figure 2. Partnership networks as a constellation of activity systems between home, school and other community groups.

The model illustrates that the child interacts in all three communities, home, school, and whichever other community group is participating in his or her specific learning (connection shown by the dotted lines). However we also can see that in order for activity systems to become partnership networks, each community sphere needs to be in two-way communicative contact with each other area of activity. Ideally, an educational initiative that could be construed as a learning partnership would involve all three sectors in achieving particular learning outcomes for the student. Regardless of the type of stakeholder, connections would involve the negotiation of cultural, semiotic and financial resources, modes of participation in decision-making, responsibilities, and beliefs with regard to the child’s numeracy education. Establishing these partnership-mediating practices requires effective communication in order to accomplish mutual understanding, distributed control and coordinated actions.

Partnership initiatives critiqued in the literature often have been conceptualised in ways that leave school perceptions and control of children’s learning intact. The school takes the first steps and expects parents to respond in ways that schools define and permit. According to our model these relationships would be represented as in Figure 3.
Figure 3. School initiated partnerships with one-way communication from school to home.

Using these analytical models (Figures 1 and 2) permits researchers to identify the types of educative partnerships that might be encountered in the field as well as in identifying how relations of power are reproduced or challenged through communicative practices or lack of them. Figure 3 shows not only an absence of communication with other community groups regarding children’s education, but also a failure to recognise that the child may indeed participate in such groups and learn from them. It also illustrates that while schools may make representations to homes, children’s families as a group do not customarily make representations to schools over matters that concern them.

Peressini (1998) contends that it is important to acknowledge that much of a child’s education takes place out of school and that parents have their own expertise and unique knowledge about their children. Some parents believe that employing a third party to support their child’s numeracy education is a valuable thing to do. Commercial tutoring agencies claim to share a goal with homes and schools in enhancing children’s learning outcomes. As such, in circumstances where families and/or schools engage their services, these agencies can be construed as the locus of one activity system in the home, school, community group nexus of activity systems that constellates a child’s learning experiences.

A review of the applied literature reveals that there are many kinds of businesses that are involved in some way with children’s education. Examples include the philanthropic kind of
school-business partnership where businesses and foundations provide schools with resources, expertise and volunteers (Cunningham, 1997; Sanders, 2000). Recently, schools and school systems have become more creative and assertive in soliciting these kinds of financial and in-kind contributions from the community. Another type of school-business partnership involves schools developing ongoing relationships with remedial education companies to serve their disadvantaged students (Snell, 2000), such as Sylvan Learning Systems and Kaplan Learning Services in the United States. Thus successful remedial education partnerships, developed by businesses with schools or students, also constitute an important emerging dimension of “community” support of numeracy. For example, Jupe and Murphy’s (1999) “professional entrepreneurship profile” of six Sylvan Learning Centre owners shows how they blend the caring values of educators and the proactive skills of business people. While there are few philanthropic education collaborations in the Australian context there are numerous for-profit tutoring firms who capitalise on parent’s needs for their children to become proficient in numeracy.

**Four Tutoring Agencies**

There were three stages to data collection in the HSC study. Initially a survey was constructed and 216 were disseminated to peak education bodies and a selection of tutoring agencies throughout Australia. The main aim of the survey was to identify the nature and scope of numeracy partnership programs operating in Australia. The second stage included information from the literature search and was used with the theoretical model to make a principled selection of identified initiatives for further study. Case studies were conducted on the selected initiatives in the third stage of the research.

As part of the survey piloting a selection of tutoring agencies was made using the Brisbane Yellow Pages. Only those who listed their activities as targeted directly to primary school age children and their numeracy or mathematics education (but not necessarily exclusively to numeracy) were selected. Top Maths, The Asian Coaching School, Kounting Enterprises and IT Maths were chosen because they represented very different modes of engaging the public and conducting their business. Key informants were approached to test the pilot survey. They were then interviewed to gain an overall picture of the goals of their enterprise, the history of their existence and the ways they positioned their activities in relation to families and schools. The
geographical reach of their enterprises was also observed as were the physical environments in which they operated. Top Maths was chosen as part of the national sample of case studies because it was initiated by parents, (unlike most other initiatives), and the primary partnerships were between tutors and students.

The Top Maths case study involved in-depth interviews with tutors, the Chief executive officer and the Brisbane licensee as well as with parents who purchased the Top Maths materials. Five consecutive observations were also conducted with an 11 year old student using the program’s online Homework Help tutoring program. Top Maths has operated in Australia for around 20 years and has undergone a number of name changes. The service is available to all students, though its operators concede that cost is a factor in assessing its accessibility to all people. There are two areas of activity in Top Maths, i) its mathematics materials and related tutoring service, and ii) its homework help internet service. The latter service is only available for students from year 4 and upwards.

Top Maths is marketed through schools and shopping centres. After initial contact and acquisition of family contact details, consultants visit the students’ homes and seek to involve the whole family in establishing their children’s numeracy needs. Once committed, parents ensure that their child logs on to the Top Maths web site and completes an entire diagnostic test. The results of this test are used to determine recommendations for materials and instructions regarding how and where to begin using the materials. These are generated by the company’s mathematics experts in Sydney who are reported as specialising in mathematics education and as having extensive experience in teaching and holding executive positions in the conduct of mathematics education in Australia. Materials, which include instructions on how to use materials, booklets dealing with different levels of difficulty for each mathematics topic, audiotapes and a CDrom, are then put together and shipped to the family. There is seldom any further contact between the parents and the state licensee or consultants.

In addition to the materials the child has access, via a free connection line, to a telephone tutor during normal working days from 4.00 – 9.00pm. Tutors are available for times when students have difficulty with the exercises, or with other mathematics homework exercises they have obtained from school. Homework Help is accessed entirely online and for a monthly fee a student may log on and use a virtual classroom internet environment to communicate
synchronously with a tutor who is based in Sydney. Ultimately, the Top Maths partnership is between the tutor and the student.

Information about the The Asian Coaching School was obtained from an interview with the Queensland director and a visit to the main coaching centre. The firm was initiated about 10 years ago to help migrants learn English but has since advanced its services to include literacy and numeracy skills. It has agencies in New South Wales and Queensland and is patronised mainly by students from backgrounds in Asian countries. Marketing of the firm’s activities relies on advertisements and word of mouth communication. The partnership is developed with parents who commit their children to a full year’s program the timing of which is patterned on Queensland Education’s 4 terms. Children attend a class of no more than 15 students on Saturday mornings for 3 hours. Rooms are set up as classrooms, similar to public school style, in the agency’s Centres. Materials are not available for public scrutiny, but the director explains that the school aims to improve children’s numeracy skills by providing both vertical (extension) and horizontal (more exercises) coaching. The director feels that The Asian School style of teaching differs significantly from other tutoring agencies and public school methods. She explained that it is not a one-to-one remedial tutoring program nor is it repetition like the style adopted by Kumon. She said “I don’t think Education Queensland will believe what we are doing … it is very different”. The director believes that coaching at The Asian Coaching School involves a blend of Chinese and Western educational philosophies.

Kounting Enterprises enjoys high visibility in its storefronts in large and small towns throughout Australia. An interview was conducted with the director of one Centre at a Brisbane venue. This tutoring agency has been operating in Australia since the late 1980s. Its clientele is acquired through advertisements to the public and in schools and through word of mouth communication. Students attend 80 minute sessions out-of-school time in groups of up to 4 children with a single Tutor. The premises were laid out with long benches facing the shopfront on which were placed computers spaced for individual occupants. The director said that partnerships are developed with parents and with the students’ school teachers and are maintained even when the student moves interstate or internationally as the company now spreads worldwide. The director reported that a Kounting Enterprises tutor calls the students’ teachers when they are first assessed by the agency to collaborate with them regarding their student’s education. As with The Asian Coaching School, the agency’s teaching materials are trademarked
and copyrighted and were not available for our exploratory work. The firm specialises in the number strand of curriculum numeracy and relies on ‘drill and practice’ to improve children’s skills.

IT Maths was ‘dedicated to god’ in 1997 and has been operating in Brisbane for the last twelve years. Only a brief interview was obtained via telephone with the manager of one of the 10 franchises. He indicated that before he could agree to an interview, he would need to okay it with the team of managers from all other sites. The main impression of IT Maths premises is an upbeat bright, colourful image with a feel of high-tech efficiency but a relaxing style of organisational space in which computers are located at individual stations. IT Maths advertise that their materials use a range of multi-media via which the student is assessed and their learning delivered. Learning is individualised and self-paced supported by a tutor. In devising individualised learning programs, the firm maintains that its IT tutors collaborate with classroom teachers and other professionals such as developmental psychologists and speech therapists. For non-local residents, IT Maths advertises an online service. Compared with Top Maths, Kounting Enterprises and The Asian Coaching Agency, IT Maths is the most technologically equipped and mediated tutoring agency.

**Tentative Comments**

This exploratory research revealed that partnerships involving homes and businesses in achieving children’s learning may, at this stage, be conceptualised as *ad hoc* liaisons between homes and commercial agencies in the community sector and may be represented by Figure 4.
Figure 4. Relations between home, business and school sectors.

In this scenario, the school extends expectations via the child’s numeracy homework requirements – a one-way communication. The family experiences difficulty in helping the child and may enlist the services of a tutoring firm. The communication between family and commerce is two-way as an agreement of payment for services and ongoing support needs to be reached and maintained. In some instances the tutoring agency may be communicating with schools – those that have agreed to allow access to students and/or those who purchase some of the firm’s materials. However the communication seems to be one-way from agency to school, and may not involve mutual recognition (represented by the broken line moving from agency to school).

While this model shows the possible nature of communications in Top Maths liaisons with families and schools a more extended study is required to ascertain the extent to which these activity systems might develop partnerships, that is, enduring collaborations between stakeholders who share the objective of facilitating children’s numeracy education.

Our theoretical model mandates attention to community and family initiated impressions of children’s learning as well as those of from schools. As with any research, eliciting participants’ points of view is only one aspect of a thoroughgoing triangulated research methodology which would include scrutiny of enterprise culture (values, beliefs, rules and conventions), pedagogical styles and the material aspects of learning environments. The comments we make here are meant to illustrate the usefulness of the theoretical model and to
point to emerging issues only. We make no claims to fully describe or analyse home-business partnerships based on one case study and the information provided by key informants who represent only single points of view about the other three agencies.

According to the Brisbane licensee of Top Maths the aims of the program are, ‘to help as many families and have as many children as possible reach their potential in maths at the lowest cost possible per family...’. Excepting IT Maths, tutoring agencies were surprised at our interest in their activities stating that they had made attempts over the years to approach education authorities about the value of their programs, but these bodies were not interested in such communications. Top Maths and personnel of the other tutoring firms believed themselves to be supporting children’s learning. They legitimised their activities by stating that they employ trained and registered teachers with the recognised qualifications to teach in Australian public schools. Obviously there are questions here. For instance, if tutors are all teachers why would they prefer to teach in commercial environments? Have they in fact maintained up-to-date levels of professional development?

Top Maths maintained that they developed ongoing relationships with schools in which the principals had permitted them to circulate promotional materials for the children to take home to their parents. The company provided incentives for school and class participation. The class with the most returned parent ‘declaration of interest’ forms was treated to a Pizza lunch courtesy of the company. It is quite possible that this description offered by the Queensland licensee recounts what he perceived as his most successful collaborative experience. Kounting Enterprises and IT Maths also claimed ongoing communications with school teachers. In future research the existence, extent, duration and quality of such collaborations need to be explored and evaluated for what can be revealed about the role of commercial tutoring mediating communities in children’s numeracy learning.

Parents revealed the ways they thought about engaging a commercial agency and what this meant for them. They mentioned helping their children to reach their full potential in maths and also that they wanted their children “to feel confident {that} they can cope with things they’re going to be presented with in school and out in the wider world as well.” Parents understood their financial outlay to be an investment in their children’s future education and were not disillusioned about the main goal of any business to ‘sell’ a product. They understood their role to make sure the Top Maths materials were used to their best advantage to ensure their
children’s success and therefore to obtain a worthwhile return on their investment. As one parent reflected,

Parent - I rang them (Top Maths) I think – with others I really felt I was being pressured, it was ‘sign now, sign now, sign now’ so we didn’t. I suppose it wasn’t that there was no pressure applied – it’s a commercial thing - but it was certainly much more subtle than some of the other companies that we’d spoken to. They sat down – he gave the 2 older boys a little lesson, asked them some questions, got them to do a few things in algebra, and … then went through and showed them how Top Maths would teach it and the kids were really taken with how easy it made it seem.

Researcher - How old were the boys?

Parent - Roughly 14 and 11.

Researcher - Was that all?

Parent - He spoke to the family as a whole, there was no avoiding answers to questions, he seemed to be fairly open – introduced himself, told us a little bit about himself and his family, his background, before he hit on the business thing. It wasn’t like from the minute he walked in the door it was push, push, push. He took a little bit of time to get to know the kids by name and us by name and it was so much friendlier than a lot of the other companies we’d spoken to about things like this.

Parents expressed satisfaction with their investment in learning materials (Top Maths) and the outcomes that were achieved for their children. They named mediating factors that are not readily forthcoming in a whole of school or classroom environment. Confidence and feelings of success featured prominently. Such attitudes are considered important in supporting children’s numeracy acquisition (Australian Education Council 1990). In the broader culture there may be some recognition of the value of these factors. The director of Kounting Enterprises told of a
government funding initiative which enabled Indigenous children to participate in their tutoring services, on the condition that the agency provided one-on-one tuition to the students.

From a school’s point of view one of the most distressing aspects of tutoring firms is their narrow interpretation of the practices that constitute numeracy education and their associated pedagogical styles (c.f., McRobbie, Baturo and Cooper 2000). Further, educationalists are bound by law and ideology to keep education free of profit-making motives. It is therefore difficult to see how the commercial community sector could have any place in mediating children’s learning outcomes in a beneficial way. Mention needs to be made that none of the agencies we approached claimed to provide full numeracy education programs. Their goal was to address what they perceived as ‘gaps’ in children’s school learning. They reported that they evaluated student’s achievement levels as a first step in deciding how best to tailor a learning program to meet their individual needs. Each, in different ways, had developed diagnostic tools for identifying gaps in children’s numeracy education. In an educational context where the assessment of numeracy outcomes is a research priority one needs to question who designs these tests used by tutoring firms and what aspects of numeracy practices and content they are testing. The Australian Department of Education, Training and Youth Affairs’ publication, Numeracy, a priority for all (2000) identifies a broad range of issues to be considered in this respect.

At the level of this research only Top Maths materials were available for scrutiny. Activities in booklets strongly emphasised the mastery of mathematical knowledge, computational skills, rules and theorems. Examples covered the full range of mathematical content emphasised by the Mathematics – A Curriculum Profile for Australian Schools (Curriculum Corporation, 1994). Sometimes, mathematical problems used familiar objects from day to day life, for example, ‘a goldfish is smaller than a whale’. As with similar examples we observed in other case studies, this was a common strategy which did little more than add an artificial layer on the mathematics. The concept was not embedded in a context of meaningful associations (there is no reasonable rationale for needing compare the size of goldfish and a whale in day-to-day life) and therefore there was little teaching by way of contextualizing mathematics knowledge acquisition.

In Top Maths there seemed to be no suggestion of developing strategic knowledge where students were expected to discuss the ways they solved problems. When a student calls a tutor however, the tutor will usually point them towards the necessary Top Maths materials where the
pertinent formulas and practice exercises can be found. Parents reported that tutors, in their experience, identified the necessary information that students needed to revise to complete a problem but left them to solve the problem themselves. They found this strategy helpful in dealing with the kinds of problems children’s teachers gave them for homework mathematics exercises. At the same time the Top Maths licensee claimed that the company made its evaluative software available for teacher’s use and some schools purchased their printed mathematics workbooks. The Kounting Enterprises director felt that schools might find tutoring agency materials useful, saying ‘education people should contact people like us and we can pick patterns in gaps right away’. These observations highlight, from the tutoring firms’ points of view, that they think they are contributing something useful to students’ numeracy learning outcomes.

Our theoretical model suggests that there are a multitude of factors that interact in producing learning outcomes for children only one of which is the preferred pedagogical style of the Western paradigm. Verran, for example, provides a useful actor network discussion about the interaction of Western and Yoruba activity systems in the context of teaching measurement to children in Nigerian classrooms (1999, pp.135-135). The director of The Asian Coaching School raised the issue of cross-cultural influences on learning activity systems which is echoed by comments from other case studies in the HSC project (authors 2003) where teachers from schools with a high multi-cultural student clientele indicated that most of their students went off to culturally specific schools on weekends where teaching and learning practices differed from those they encountered in regular school. The teachers felt that these practices only confused children and made the teachers’ roles more difficult. This set of instances raises the suggestion that future research might look at the extent to which schools and some tutoring agencies are able to accommodate cultural values consistent with students’ homes and families in their numeracy education.

It is not only the mediating community with its particular choice and design of learning materials that shapes children’s learning but varying styles of interaction, individualised and structured learning experiences and different built environments that mediate knowledge in different ways. Rules and conventions and the division of labour vary from home to school to tutoring agency and mediate the learning experience perhaps with different qualities in outcomes. Further, our sample of agencies reveals that each has envisioned a particular configuration of their relationships with families and schools. Thus each is governed by different sets of rules and
conventions that govern the interactions between tutors, parents and students. One needs to ask how such diverse social configurations might differentially contribute to learning outcomes.

Parents reported that artefacts like computer technology, the telephone and instant feedback via internet and mediated interactions that motivated students and captured their interest also featured in their feelings of confidence. Their children appeared to enjoy the technology and the sense of empowerment they gained from initiating and receiving help outside of the regular rounds of parents, teachers and classrooms. Commercial enterprises cite their use of technology as evidence of their cutting-edge strategies for achieving outcomes for students. But to date, the value of computer and internet technologies in educational contexts, commercial or otherwise, is less than conclusive (Salter, 2003). While such technologies do provide unique potential for communication and collaboration this aspect of their use for educational purposes has yet to be realised. Given that some tutoring firms are comparatively rich in technological artefacts, closer study of their activities is necessary to reveal whether they have developed the interactive capacities of these systems.

These few observations prompted by the Top Maths study raise issues deserving of further research attention. In terms of activity systems, tutoring firms’ narrow range of approaches, for example, the drill and practice methods mentioned by Kounting Enterprises, are only one aspect in a myriad of messages and actions that the child encounters in his or her numeracy education. They are embedded alongside the perhaps more contextualised approaches of schools and parents’ methods. Further studies need to conceptualise and study the interactive effects of all features of activity systems geared towards specific learning outcomes.

**Concluding Comments**

It is ironic that as I put the finishing touches to this paper the 7.30 Report has just covered a story about a proposed new private primary school in Springfield Queensland. Emma Alberici reported that ‘the Queensland government has refused to give ICA (Independent Colleges Australia) the green light to operate its school with taxpayer support, because of its commercial connections to ABC Learning’. The fear is that Springfield Queensland will compromise good-quality education by engaging in commercial profiteering for shareholders who fund the buildings and land for the school (Alberici, 2005). I mention this incident as evidence of the
changing nature of Australian society. In this climate it behoves us to attend to alternative modes of education as their continued appearance is a certainty.

Notions of learning contexts must be theorised beyond classroom walls, school fences and colonial education policy. In consumer society individuals no longer follow well-worked paths to mature identity and life-long careers but pick and choose ideals and knowledges from the variety of resources available to them (Giddens, 1991). If this is the case then it is likely that education via the traditional school mode will be only one resource amongst many for preparing one’s children for their futures. It is therefore not appropriate to declare some forms of community participation off the ideological education agenda. Our theoretical model illustrates that multiple contexts and interactions form the activity systems that constitute student’s learning environments. It helps us to focus on the value of researching learning experiences and outcomes through the eyes of children’s carers, children themselves and other groups in the community, including commercial tutoring agencies who are increasingly likely to form one activity system in a network that constellates around a child’s learning experiences.

References

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