RESEARCHERS CULTIVATING A LONG-TERM RELATIONSHIP WITH SCHOOLS

Anthony Bill
Faculty of Education, University of Tasmania, Australia
afbill@utas.edu.au

Cultivating an effective working relationship with schools is of great practical importance to education researchers, but little research literature on this topic exists. This study is an extension of classroom based collaborative research between a university faculty of education and schools into the use of Fathom™ software. A preliminary review concluded the research may have been enhanced if a robust working relationship had existed prior to the original study. Interviews were then conducted with the two principals of the participating schools, with supporting information provided by teachers and a university education lecturer. The interviews identified seven themes, and, influenced by Lave and Wenger's (1991) community of practice, a seven-element model for cooperation with schools is proposed. This model reconceptualises education research as only one element of a multi-faceted relationship with schools, rather than the principal objective.

The topic of this paper is one very familiar to education researchers: cultivating a relationship with schools as a means of conducting education research. The study is an extension of research into the use of the statistics education software Fathom in schools where the researcher, in reflecting on the conduct of the research project, concluded that the research process may have been more effective if a relationship between the schools and the university had existed prior to the study. A substantial time had been spent in identifying schools and teachers willing to participate, and this made research inefficient and increased the burden on all participants.

THEORETICAL BACKGROUND

The importance of collaborative learning that emphasises discussion and building a learning culture in the mathematics classroom are well established in the statistics and mathematics research education literature (e.g., Ben-Zvi, 2004). This pedagogical approach imagines learning as a social process. A social theory of learning provides a basis for Lave and Wegner's (1991) *community of practice,* a model that has found application in the commercial and industrial work environments and in education. Beyond the classroom "communities of practice" has been studied as a mechanism for teacher professional development and support amongst colleague teachers (e.g., Cavanagh & Prescott, 2007). Beyond the school, productive relationships between education researchers and schools–as shown by the voluminous body of education research evidence – clearly exist, and the importance of professional associations such as the National Council of Teachers of Mathematics is also recognised (e.g., Niss, 2007). Such relationships may not be identified as communities of practice, but nevertheless share its three key characteristics: (a) a domain of knowledge (in this instance mathematics) that defines a set of shared issues, (b) a community of people that creates a social fabric of learning, and (c) a shared practice that community members are developing (Wegner, McDermott & Synder, 2002, p. 27). Communities of practice may arise spontaneously, but if the community can develop only intentionally then little evidence exists in *how* the relationship between researchers and schools is best cultivated. Guidelines do, however, exist elsewhere: Wegner et al. (2002) identified seven principles, of which "opening a dialogue between inside and outside perspectives" (p. 54) is most relevant to the study reported here. Also relevant is their observation that voluntary organisations, as would describe the relationship considered here, survive only because they deliver value to their members. This study takes the first tentative steps in establishing a sustainable community of practice between education researchers and schools by initiating a dialogue with potential community members.

METHOD

Sample

The sample consisted of the two principals of the two large (approximately 900 students in each school)–one all-boys and one all-girls–flagship government schools that participated in the Fathom study. Supporting information was provided by the four teachers who participated in the classroom data collection for the Fathom study, and by a university faculty of education lecturer.

Participants' profiles

The two principals were both approximately 55 years of age; the principal of the all-girls school was female, and the principal of the all-boys school was male. Both principals had held the principalships of their schools for three years. Both principals demonstrated outstanding professional career progression that included teaching and supervisory positions in schools, and senior administrative roles in the education department bureaucracy. Both principals had formal and informal access to the education bureaucracy and the political ministerial leadership, and these strong connections, along with the prestige of the schools, have significant implications for the transfer of research findings to the broader education community. Although not directly influencing the original research study the two principals also had professional experience highly relevant to the Fathom study: one was a mathematics teacher and continued to teach mathematics, and the other principal had experience in the introduction of information technology.

The male principal had a 30-year conventional career path that demonstrated progression from graduate teacher in more remote schools, to senior teacher, to head of schools' mathematics departments, vice-principalships, principalship, and several departmental roles of district superintendent overseeing a cluster of schools, and as education departmental head of recruitment and personnel development, before returning to the role of principal.

The female principal had a very unconventional career path with limited experience in the classroom, but extensive experience in the education department developing on-line materials, leading the implementation of ICT at the state level, completing a masters degree in librarianship and information management, receiving two national prizes leading to overseas study of the implementation of electronic technology, and two vice-principalships at the college level (years 11-12). More recently the principal was one of forty participants in Melbourne University's select-entry national "strategic planning transforming schools for the 21st century" program where principals were individually mentored by industry and business leaders. This program led to a perspective rare in government schools – an approach more common in the commercial world with school performance measured against clearly articulated performance indicators.

All four teachers were senior, accomplished, career-long education professionals with at least 25 years teaching experience: one was also a vice-principal, and two were heads of mathematics. Three of the teachers were male, and one was female. The university lecturer's forty year professional career included teaching and principalships in schools, teacher education, and senior administrative and curriculum developmental roles in the education bureaucracy.

Interview questions

The interview protocol for the two principals was designed as eight items of which selected responses to six items are presented here. The interview was intended to be of 30 minutes duration, but with supplementary questions exploring issues identified during the interview took 45-60 minutes. The interview with the university lecturer used this same interview protocol.

The first question asked interviewees to describe their professional experience and career path. The second item presented a scenario designed to be familiar to principals: selecting amongst three worthy programs that sought to identify both the administrative process, and the criteria of selection amongst competing programs. The third item sought to identify specific benefits of participating in research studies with the university, an item that was broadened to consider aspects of a comprehensive relationship with the university. The fourth item sought the principals' recollections of the original Fathom study, but was not included because the principals did not have first-hand experience and that the study was conducted some 12 months prior to the interview. The fifth item asked principals to discuss their schools' existing involvement with the university, and the sixth item sought specific suggestions on how the relationship between the school and the university might be improved. The seventh item, by asking the interviewees which issues were of most concern to the school, sought to identify priority issues with a view to aligning the interests and objectives of researchers and the school. The eighth, and concluding item, provided interviewees with an opportunity to discuss any issues not already addressed in the interview, but no further information was provided.

Supporting information provided by the four teachers who participated in the Fathom study was collected using a separate interview protocol designed for the original study, and through

casual conversation and comments made during the classroom data collection. One of the four teachers, the vice-principal, was specifically interviewed on the relationship between education research and schools, and this discussion provided the pilot for the interviews with the principals.

EMERGING THEMES

1. Research must be consistent with the ethos, needs, and vision of the school

Schools are often approached with proposals to participate in programs, and both schools had processes to consider these competing demands for the school's time and resources. One school's formal review process began with a senior executive team that met twice weekly, forwarding information to the appropriate senior teachers. Underpinning this formal review process was consideration of the school's mission statement: "education experience excellent for all […] to challenge the boundary of education"; the principal also spoke of developing the school's ethos, which was believed to be less well-articulated in government than faith-based schools. It was a commitment to the school's mission statements and to developing the school's ethos, supported by student surveys that revealed that students were not being challenged by the existing curriculum, that were most pertinent to education research. The other school had an informal review process with preliminary vetting by the principal who delegated the proposals to the appropriate senior teacher or student group to gauge the level of support. The principal also gave key criteria as priority needs within the school, available resources, compatibility with existing school programs, and avoiding duplication.

2. Provide something of value to the students

The principal objective of a school is to provide developmental opportunities for students, but these experiences may extend well beyond the immediate curriculum topics considered within any research. Both principals identified the exposure to the university and its staff as encouraging the broadening of students' outlooks to consider tertiary education as part of their future as an important potential benefit. One principal saw participation in a research project as providing an opportunity for students not only to participate in, but also to witness and see modeled, a research study as a means of developing essential research skills; students needed to be active participants in the research beyond simple participation in the activities. Research skills allowed students to "know how to learn": a skill far more important than the research topics. Practising teachers expect that any research conducted as a teaching unit is delivered to the students effectively. When comparing the pilot study with the formal study conducted months later, the colleague teacher noted the researcher's teaching unit was "far more focused, more realistic objectives, better appreciation of time and the students", which are probably the observations made when assessing the performance of any classroom teacher. Exemplary teaching may be unrealistic because the material is often novel, the researcher is unfamiliar with the students, and may not be an accomplished teacher, but the researcher may have the advantage of a deeper understanding of the concepts and more thorough preparation.

3. Provide something of value to the teachers

Teaching is a practical profession. All interviewees emphasised the importance of providing specific skills and resources that classroom teachers can incorporate into their own practice easily. Research journal publications and a thesis produced well after the conclusion of a research study are of little value to practising teachers because teachers do not have the time or motivation to translate a research study into a practical teaching unit. It is not always essential or reasonable to expect wholesale adoption of program, but specific, sometimes apparently incidental, elements are often valued. For example, one teacher now includes accuracy and tolerance as part of his measurement unit, and another teacher uses dot-plots. Teachers can feel unappreciated and appropriate acknowledgement and reward is also valued.

4. Provide opportunities for professional development for teaching staff

The issue of professional development for teachers is complex issue that must be addressed sensitively. A principal, the vice-principal and a curriculum leader spoke of the practical difficulties of professional development that included teacher fatigue and lack of interest if conducted out of school hours, and scheduling issues if conducted during school time. Personal and political sensitivities can be particularly significant. Teachers recommended for professional

development may feel their practice is under scrutiny, and the presence of other senior school staff in the classroom is generally not acceptable to teachers in Australian schools. One interviewee lamented that "once the classroom door closes the school has very little say in what happens". Professional development is not essential for either job security or career progression; those who participate do so from a combination of a sense of professional duty and personal interest. Teacher standards have only been introduced recently, and only new graduates are expected to maintain a professional portfolio. Innovation in schools is often not sustained: teachers attending professional development alone have little prospect of effecting change beyond their own classrooms, but teachers working in a collegial environment are likely to be more productive. One principal expressed a similar view, regretting that the opportunity for professional exposure in the Fathom study, such as other teachers observing the program, was not fully utilised. The other principal admitted to having had little contact with the university since graduation, but recognised that it was important that teachers were aware of local education research. Education research may provide an additional mechanism for teacher professional development. The presence of education researcher provides a focal point outside of the school routine, and critically observing may encourage teachers to reflect on their own practice. Many people, teachers included, learn by observation, so demonstration and modeling practices allows teachers to observe and adopt what is of value. The university lecturer sensed a perception of a lack of credibility of university education faculty staff by practicing teachers: they were seen as divorced from the realities of everyday teaching and unable to teach the concepts in which they are perceived as experts, but that could be addressed by the teachers delivering the program.

5. Participate in the school academic year planning process

Both principals and the university lecturer emphasised the critical importance of involvement with a school's annual planning process, since this would allow any program to be integrated into the academic year with minimal disturbance to the school. This planning process may begin late in the previous academic year, and planning may not be finalised until immediately prior to the start of the new year. In planning the time required for the study is of greater practical importance than the content because the content can be agreed immediately prior to the program. Both principals invited researchers to participate in the planning process. The school is usually approached throughout the year, and to accommodate the program staff must rearrange schedules, and such changes can be disruptive.

6. Identify an enthusiastic champion within the school

All interviewees noted the importance of practising teachers supporting the program as essential, and without that support the program "will not happen". One principal proudly remarked that the school "had many champions" (a reflection of high staff morale?), but conceded that support was not universal. Teachers may consider education research as potentially disturbing a settled class that is working productively through a crowded curriculum and it can impose on the teacher additional duties for which they are not compensated adequately. The presence of a supportive teacher also helps ensures that practical details of implementing the program within the school are addressed.

7. Develop familiarity with the routines and administrative procedures at the school

The efficiency, indeed the success, of any program depends upon attending to many practical details. The researchers must be familiar with the school's routines, procedures, systems, IT system, physical layout, and timetable. Breaches of these procedures and practices are distractions for staff, and it potentially places the school and students at risk. Schools are responsible for students' safety and security and an unfamiliar person in the school naturally raises suspicion.

A MODEL FOR WORKING IN SCHOOLS

1. Identify suitable schools

The most important of all criteria is that the school and the participating staff are highly supportive of any initiatives – if they are not highly supportive then offer the opportunity to other schools. The interests and objectives of the schools and the researchers must be broadly aligned, and collegial support that can be sustained for the duration of any program is essential. Schools

with large student populations and a wide demographic range offer flexibility in the selection of suitable student cohort and teachers. A convenient location is an important practical consideration if physical contact is frequent, and the school must have access to any essential resources and infrastructure that cannot be provided by the researchers.

2. Cultivate an active long-term relationship with the school

Researchers should contribute directly to all stages of the school's annual academic planning process. This provides schools with the maximum possible advanced notice and it allows schools to allocate time and incorporate the program into the school year – this may reduce the disturbance to the school considerably. One strategy may be to establish a routine that the school allocate a set period for a program at a set time in the year. If the duration of the proposed program is unknown, a two-week period, e.g., could be allocated: a period chosen that allows meaningful research to occur, but not place an onerous demand on the school. The details of the program can be resolved as the time for delivery is approached. Education researchers usually approach a school only when funding becomes available, or with a firm proposal, or when research is guaranteed, but this could occur at any – and often inconvenient – time in the year. The reverse approach of *first* seeking access through the planning process and *then* presenting a proposal is likely to be less disruptive to the school. Adopting a long-term approach offers many advantages including allowing a presence in the school throughout the year, providing an opportunity to maintain contact with the realities of the education "chalk-face", building familiarity with school and students, providing a greater opportunity to develop or refresh students' basic skills needed for the research, allowing colleague teachers time to contribute more substantially to the development of the program, and creating an opportunity for longitudinal studies.

3. Cultivate a multi-faceted and integrated relationship with the school

A multi-faceted relationship provides opportunities for on-going involvement in the school, but this need not be a major impost on researchers' time and resources. A university faculty of education provides many natural links including mentoring selected undergraduate teachers during professional experience, research conducted by higher degree students, collaborative projects with education departments and research groups, tutoring gifted or students requiring additional support, guest lectureships by teachers at the university, and prizes and awards for students. Professional development for teachers is a complex issue, but one of potentially great value to schools and researchers alike because presumably all share the objective of improving teaching practices. The presence of an education researchers provides a sustained focal point outside the normal teaching structure, and a potential mechanism for change. Teachers are equal partners in research and bring considerable expertise, but have different roles. Inducting teachers into the process of education research may also promote a shift towards evidence-based teaching practices.

4. Maximise the benefits of the relationship

If voluntary organisations, such as the community of practice model proposed here, survive only if the needs of its members are met, then researchers must strive to ensure that some of these key needs are met. Teachers want resources they can use immediately in class; curriculum leaders want opportunities to develop staff; and principals often have broader strategic goals for the school, students, and staff.

5. Minimise the cost of the relationship

The introduction of a novel program inevitable disturbs the school routine for both teachers and students. Students may find a teacher unfamiliar to them and a new program unsettling. Raising expectations can be double-edged; it may stimulate interest amongst students that they may find dissatisfying when returning to the normal school routine, and this disturbance may extend well after the program is completed. Re-establishing norms within the class may require effort by the teacher. Staff members are performing additional duties, and must attend to normal school duties for which they still retain responsibility. Developing a familiarity and ease with a school's systems and routines allows researchers to operate independently.

6. Exercise patience, flexibility, tact and diplomacy

Schools are complex environments and the needs of students must have priority; education researchers are visitors in schools and must conduct themselves accordingly. Professional

development of teachers is a fraught and potentially sensitive issue, particularly where teachers nominated to participate in a program may well interpret such a nomination as a criticism of their practice. Formal professional development, unless delivered by an accepted authoritative source, may not be seen as credible, but an informal cooperative learning approach within a collegial environment and a community of practice identified may be more acceptable.

7. Acknowledge and reward staff

The contribution of teachers, support staff, and students, must be acknowledged. Teaching staff feel unrecognised for their expertise and work, they must have an opportunity both to participate, and to be seen by the school community, as an equal partner, whose views and contribution are recognised. The opportunities for financial reward are often limited and may create expectations from research funding that may be difficult to meet. Reward can take the form of modest gestures such as restaurant meals; such gestures are common commercial practice, but may be rare in schools. Professional recognition includes articles in school newsletters, co-authoring publications, formal written acknowledgement for inclusion in resumes and portfolios, and the professional accolade of guest lectureships at the university.

CONCLUSIONS AND IMPLICATIONS FOR EDUCATION RESEARCHERS

The opinions expressed by the participants were broadly consistent with the position they held currently in the school: principals, with the strategic benefits for the school; curriculum leaders with professional development for teachers; and teachers, with the benefits to students and the effectiveness of the classroom program–for a community of practice to exist the needs of the participants must be addressed. Professional development is a potentially problematic issue, and several interviewees noted the practical difficulties of implementing sustainable change in schools. It is ironic that the characteristics much sought by teachers in their own students–being independent and motivated learners–are often not present in abundance within teachers themselves. It is imperative that researchers participate in a school's annual planning process, because a program introduced at relatively short notice and partway through the school year is potentially disruptive to the school. Responsibility for liaison with schools must lie with the permanent staff at the university because only they can provide continuity, but the actual presence in the schools may be through graduate research students, visiting academics and specialists, researchers, and in-service teachers. A *community of practice* could be extended legitimately beyond the classroom to embrace the whole school, and beyond the school to include the research community where education research is one aspect of a rich, multi-faceted relationship.

REFERENCES

Ben-Zvi, D. (2004). Reasoning about data analysis. In D. Ben-Zvi & J. Garfield (Eds.), *The challenge of developing statistical literacy, reasoning and thinking* (pp. 121–146). Dordrecht, The Netherlands: Kluwer Academic Publishers.

Cavanagh, M., & Prescott, A. (2007). Professional experience in learning to teach secondary mathematics: Incorporating pre-service teachers into a community of practice. In J. Watson & K. Beswick (Eds.), *Mathematics: Essential research, essential practice. Proceedings of the 30th annual conference of the Mathematics Education Research Group of Australasia* (Vol. 1 pp. 182–191). Hobart, Tasmania: MERGA.

Lave, L., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation.* Cambridge: Cambridge University Press.

Niss, M. (2007). Reflections of the state of and trends in research on mathematics teaching and learning. In F. K. Lester (Ed.), *Second handbook of research on mathematics teaching and learning.* Charlotte, NC: Information Age Publishing Inc.

Wenger, E., McDermott, R. E., & Snyder, W. M. (2002). *Cultivating communities of practice: A guide to managing knowledge.* Boston, MA: Harvard Business School Press.