IN SEARCH OF PRACTICAL WISDOM: A CONVERSATION BETWEEN RESEARCHER AND TEACHER

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Since 1994 we have worked together as a teacher (Vince) and a researcher (Merrilyn) who share an interest in secondary school students' mathematical thinking. Merrilyn conducted most of her PhD research as a participant observer in Vince's grade 11 and 12 (15-17 year-old students) mathematics classrooms. Since then we have continued to collaborate on other projects, and Vince has enrolled for a PhD with Merrilyn as one of his advisors. During this time Vince also took an active and high profile role in professional associations, culminating with his election as President of the Australian Association of Mathematics Teachers. *Recently, however, he embarked on a career change, leaving his job as a school teacher to take up a tenurable position as a university academic.*

We have published our research together (e.g., Geiger and Goos, 1996; Goos and Geiger, 1995) and separately (e.g., Geiger, 2005; Goos, 2004), and have presented many professional development workshops to share our findings with practising teachers. While this partnership has certainly been productive in terms of research output, for us the most significant benefits are related to what we have learned from and about each other and what this might mean for understanding, and perhaps bridging, the so called "research-practice gap" – the discrepancy between what we know about teaching and learning mathematics and what actually happens in mathematics classrooms (Malone, 2000). Because we think that this kind of extended collaboration between a university-based researcher and a school-based teacher is unusual, in the conversation below we reflect on how our professional relationship began and how it has developed and changed over time.

Merrilyn: Let's begin with the first time we started working together in late 1994. Where were you in your career then?

Vince: I'd been teaching for about ten years and had just finished a Masters project on mathematical problem solving in relation to applications of mathematics. I'd found that it was one thing to read about these ideas but another to put them into practice. And I wasn't seeing too many of these approaches happening in other classrooms around me either. At the time I was lucky enough to be teaching a mathematics subject with a small group of students enrolled, so there was only one class. That meant I had lot of flexibility – more than normal, because I didn't have to negotiate anything with other teachers – so I could try out ideas. That's why I was happy to have you visiting – I would have someone

there to help me know if the ideas were working because I had someone to talk to in the same language. This was not the traditional language of teachers – they don't often talk the formal language of research. They talk about what they think is working in their classrooms, not so often the reasons why, and they might just say to colleagues, "Perhaps you should have a go at this".

Merrilyn: I think that's what Lester (1998) meant when he said that researchers frame their discourse in terms of scientific rationalism but teachers use more conversational forms of interaction to influence each other.

Vince: Exactly right. In my case, though, I'd already had the experience of working on a small research project and having regular professional discussions with a supervisor. I was missing those sorts of conversations and had a desire to resume them. It had become important for me to know why, not just that it worked.

Merrilyn: My own reasons for beginning PhD research were like yours – I'd just finished a Masters project on mathematical problem solving and metacognition. But you were an experienced teacher and I wasn't; in fact I had worked in a school for a very short length of time. I wanted to research the idea of collaborative metacognition but I wondered where was I going to find teachers who were willing to have a stranger in their classroom – and a stranger whom they might regard as a fairly novice teacher in terms of years of experience. On the one hand, then, I was entering your classroom and deciding whether this was going to be a fruitful site for my research, but I was also very conscious of the kind of relationship that needed to be established with the teacher if this research was going to be productive. At the end of 1994 when I was doing my pilot study in your classroom I think we were really sizing each other up!

Vince: I don't know that I spent a lot of energy in sizing you up. I guess I didn't know what to expect but it never crossed my mind to make any judgements based on experience.

Merrilyn: Really? So I was worrying about nothing?

Vince: You *were* worrying about nothing! It was good to have someone there to talk to, maybe it was a way of validating what I was doing. I remember from the very start you only ever asked me *why* I was doing things, you never made any judgmental comments. And because of our backgrounds and interests there was some kind of symbiosis in that we thought the same way. I remember after the first visit I thought, "That was good; having someone good to talk to

was a real help". I really appreciated the opportunity to share ideas and also to have an extra set of eyes there. The interesting thing, for me as a teacher, was to think about what made it (*i.e.*, the lesson or learning experience) happen in that way, can we replicate this? Was it just a random event or something a teacher could construct? That question became more important to me as time went on too – could we manipulate what was happening to bring about particular kinds of learning and interaction between students? But to know how it happened I needed to know why.

Merrilyn: That was important for me too. It was never just an account of practice, there were always those "why" questions. I remember, after my first visit to your classroom in 1994 I had interesting transcripts that I wanted to analyse to find out how students' thinking was shaped by their social interactions. I thought this would make a good conference paper so I suggested we should write it and present it together (Goos and Geiger, 1995). To me that was probably a marker of the kind of equality I wanted in our relationship; I was never going to take the data away and write the research papers on my own. What was your memory of that experience?

Vince: That was a really significant moment. I can remember that conversation clearly, and my reaction was "I can work with this person because they're being very fair about this." I had often been very critical of the way researchers would come in to schools and harvest everything, leaving nothing for the teacher except "Thank you" – and we would never see them again. You took a very different approach from that and I really appreciated it. It was affirming to be acknowledged in that way, especially because of where I was going with my roles in professional associations and the advocacy for teachers as professionals that was a part of those roles. I thought it was very important that there were teachers standing up at research conferences and saying that we have a stake in this, because talk about professional practice should be more inclusive of teachers. Teachers' voices also have to be heard if research is going to make a difference to teaching and learning in schools. That was also the conference where I won an award for the best paper applying research to practice (Geiger, 1995), so I started to take my role as a researcher more seriously – doing research as a classroom teacher. I remember, too, the following year we wrote another conference paper together but this time you said that I should take the lead in writing it (Geiger and Goos, 1996).

Merrilyn: That's right, you were first author on that paper.

Vince: I thought that was again a very fair and reasonable thing to do, and it's continued too with the way we've shared authorship with other colleagues (*e.g.*, Goos, Galbraith, Renshaw and Geiger, 2003).

Merrilyn: As you know, not many teachers go to those research conferences. So I always wondered if you felt a little out of place; you mentioned that people occasionally looked at you in some surprise because they may have questioned whether a teacher would be able to contribute there. Do you still feel that now?

Vince: Now that I work in a university it will be interesting going back to that conference next year! I guess it was only *some people* who reacted in that way but I was certainly left with a sense that some academics didn't think the type of research I did should be taken seriously.

Merrilyn: Is there a bigger issue about credibility of teachers as researchers?

Vince: I think there is still a little bit of that there, an attitude amongst researchers that teachers are not part of the main game, they may contribute a little around the edges but not in the way of major projects. Often researchers seem to think they are the only people who really know what mathematics education is all about – which to me seems to indicate a lack of respect for teachers' knowledge and how they develop that knowledge. But it works the other way too: since moving to a position in a university I've noticed that teachers look at me differently, as though I've acquired a whole new elevated status – I feel like I've suddenly been placed on a pedestal!

Merrilyn: I know other teachers who've had the same experience. They did excellent doctoral research in their own classrooms but had trouble interesting other teachers in their work – until, like you, they turned into university academics when suddenly everyone wanted to know them!

Vince: Schools don't give teachers much credit or recognition for being involved in research; it doesn't seem to be part of what a teacher should do in a school. I think this is because it isn't recognised that teachers are also the creators of new knowledge – it's just a different type of knowledge from what is generally regarded as the product of research.

Merrilyn: That issue of credibility has been there in different ways throughout all the time we've worked together; and it's affected me as well. For example, we've presented plenty of workshops together at professional development conferences, and in those settings I've had to establish my own credibility with classroom teachers. At the start I wondered what could I offer them? How could I communicate ideas about teaching that they would see as authentic and doable in their own classrooms? That's where I've really benefited from working with you: you've been a sounding board for me to test my ideas, and some of your own professional credibility has rubbed off on me.

Vince: As you were talking, it reminded me of times when I didn't really feel part of the research crowd at conferences, times when I remember thinking "I'll just follow Merrilyn around – this is her world." Of course, now there are always people who will come and talk to me at research conferences because I think I've gained some credibility in my own right. But it just occurred to me before, I can remember thinking when we were wandering around a couple of teacher professional association conferences, "Now Merrilyn is in *my* world!"

Merrilyn: That's right.

Vince: Because of what I had done in my professional life as a teacher I could move around freely at those conferences and I knew everybody … so now *I* could introduce *you* – which was the opposite of how it was when we were together at research conferences. And I wondered how you were actually feeling about that?

Merrilyn: I felt the same way as you had at research conferences – as though I didn't quite belong at first. You talked earlier about entering someone else's world – but when I

started going to professional development conferences, around 1996 and 1997, I had *no* world of my own. I was in a very uncertain position at the university working as a casual research assistant and tutor, with no prospect of a permanent position after finishing my PhD. So I had to establish credibility on *two* fronts, academic and professional. As it turned out, I did eventually get a tenurable position at the university – and we've now entered into a different kind of relationship because you've enrolled for a PhD yourself. How did that happen?

Vince: I don't remember – I just woke up one morning and I was doing it! Aren't you to blame for getting me into this?

Merrilyn: I probably am! But you've also recently had a career change and started working full-time in a university. What brought that on?

Vince: I had arrived at a point where I couldn't do anything more, professionally, as a teacher –

Merrilyn: But you seemed to be arguing before that teachers' knowledge needs to be respected, and you've always been a real advocate for teachers as professionals … are you saying now that the only career path for excellent teachers takes them out of school and into the university?

Vince: I'm certainly not suggesting that teachers' work is less valuable than university work, or that I have nothing left to learn as a teacher! But I had been the Head of Department for Mathematics in my school for 15 years and I'd come to a point where I needed different challenges. It's well documented that – in Australia, at least – there are few options available to teachers in this regard unless they have an interest in school administration, which eventually takes you away from the classroom and teaching. This was not for me. At the same time I wanted to get more involved in research. For a large part of my time in schools I had been involved with research in one form or another in a part-time capacity but I had also arrived at the point where I wanted to find out what would happen if I could devote more time and energy to this aspect of my professional life. Moving to a university meant that I could continue teaching but I could also pursue my interests in research. I hadn't actually anticipated this move until after I finished my PhD, but it will still be a year or so until I'm ready to submit the thesis. My new colleagues are very good to me but I get the sense some are not really aware of my previous research and professional experience, so it's very much like starting all over again. And I suppose the first challenge is to prove myself again in a different professional community. I have to remind myself, often, that this will take time, and that the things I've done before as a teacher won't necessarily count for much in this new environment.

Merrilyn: I think what we've both been talking about is the challenge of entering different worlds – the world of the classroom, the world of research. It's almost like being an immigrant and trying to find a place in a new culture. People who work in schools and people who work in universities do live in different worlds, they have different roles and they're rewarded for doing different kinds of work. So there are *two* mathematics education research communities, university academics who do formal research defined by rigorous methodologies and well-articulated theory, and school teachers whose research is more like practical inquiry about what works with their students. So perhaps the real question is, how can these two communities work together to develop *practical wisdom* – knowledge that's not only based on evidence and argument but that also moves people to action (Lester, 1998)?

Vince: I think that's why our own collaboration has worked so well over a long period of time – it's been long enough for you to come to know the students and what works for them and for me to know about research and what we're trying to achieve with it. It also means we know each other so well that we've developed respect for each other's particular type of knowledge and expertise. We've also learned to trust each others' instincts.

Merrilyn: That's happened, I think, because all of our work together has been fuelled by conversations like this one – and because we've rejected any hierarchical division of labour between teacher and researcher.

Vince: We've found something that works. And we've begun to think about why. Perhaps, in time we'll be able to convince other teachers and researchers of the mutual benefits of working together like this. All we can do for the moment is to keep talking about it to whoever will listen.

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