

WHO ARE THE BENEFICIARIES OF OUR EDUCATIONAL RESEARCH?¹

Peter Sullivan
La Trobe University

Educational research can have an audience, beneficiaries, and casualties, and researchers need to make active decisions about each. This paper argues that it is more productive for educational researchers to conceptualise their work in terms of these decisions, rather than whether it adheres to the tenets and norms of some esoteric paradigm. Particularly in an era of greater scrutiny from practitioners and funding agencies, including governments, we need to be especially explicit about the beneficiaries. To illustrate both policy and practical considerations of such an approach, examples are given from both an educational research policy development exercise, and a currently funded classroom based research project.

I start with two impressions. The first is that educational research has quite little impact on policy and practice in education. There are few results which are accepted and applied widely, there seem to be few policy decisions which are informed by findings from quality research, and researchers are not widely consulted or even respected by practitioners. At this stage, with impending assessments of research productivity, greater focus from government on the applicability of research findings, and the threats of funding regimes that may reduce research emphases in some universities, it is essential that we debate current approaches to conduct and reporting of educational research and whether action can be taken to address any legitimate or perceived concerns.

Discussion of the effectiveness of educational research even reaches the daily media. An article in the Sydney Morning Herald on 22 February 1999 titled "Physicians leave education researchers for dead", was written by Diane Ravitch, who was a research professor at New York University in New York City, and the US assistant secretary for educational research from 1991 to 1993. She hypothesised that had the physicians who treated her recent heart attack been educational researchers they would have: argued whether anything was wrong with her in the first place; claimed that her illness was merely a social construction; criticised the tests that had produced the results, arguing among other things that they provided only a snapshot of the whole person; had difficulty understanding each other because of a lack of common professional

¹ An earlier version of this article was presented at the *Contemporary Approaches to Research in Mathematics, Science, Health and Environment Education* conference held at Deakin University, December, 1998. It has not been published elsewhere.

language; been uncertain of how Diane should be treated; and have disagreed with each other about the standards for successful treatment.

There are even some education professionals who have commented on the impact of educational research. Hargreaves (1999), for example, argued that educational research makes limited fundamental contribution to theory and it is treated by practitioners as irrelevant. Tooley and Darby (1998) reviewed 264 educational research articles, 41 in depth, and concluded that there was evidence of partisanship in the conduct, presentation, and argument in a significant number, and problems of methodology, the lack of quality of non empirical research, and doubts about the adequacy of refereeing in others. It is appropriate for us to consider whether such concerns are legitimate, and if so, whether action can be taken to address them.

My second impression is that the induction of beginning education researchers often includes extended consideration of half baked philosophic arguments, definitions drawn from other disciplines and applied inappropriately to educational research, distinctions between approaches which are meaningless in educational contexts, and evangelic type appeals to subscribe to particular paradigms. The outcome is that too many of those who choose to undertake extended supervised research are studying questions of limited practical relevance using methods that are unlikely to convince policy makers or practitioners if the findings in any way conflict with their own orientations or experience.

I argue that we could address both of these impressionistic concerns if we placed more emphasis on educational research as informing policy and/or practice in some way, and if we measured the significance of particular educational research studies against the extent to which they do that. A subsidiary argument is that particular paradigms, frameworks, and perspectives are most useful when they clarify our approaches and assist us to achieve our goals.

I suggest that one way to structure our research is to reflect on the audience (who will read and interpret the reports), the beneficiaries (who will be better off as a result of the findings), and the casualties (who will suffer as by-products of the research process or who will be harmed by publication of the findings). The former two considerations could be described as active, and the last as passive, in that we should be avoiding or minimising such impacts.

To elaborate these orientations, I draw on an example of a particular research policy document and also on a specific classroom focused research project.

The policy document was the result of an extended process I was privileged to be involved in as Vice President for Research for the *Mathematical Education Research Group of Australasia* (MERGA). I quote from the policy even though its development was a collaborative exercise involving a broad cross section of

the MERGA membership. Even though it was written for mathematics, the comments apply directly to educational research broadly.

The research study is a current collaboration with Judy Mousley, Deakin University, and Robyn Zevenbergen, Charles Sturt University, on a project that aims to identify strategies that teachers can use to overcome the obvious disadvantage some school students experience in learning mathematics. The project is seeking to identify the factors contributing to the lack of success of these students, and offer strategies that teachers can use to ensure that students from disadvantaged backgrounds have the same opportunities to learn mathematics as other students. At the initial stage the investigation identified and described aspects of implicit pedagogy (see Sullivan, Zevenbergen, & Mousley, 2002). A manual that lists a range of strategies that teachers can use to make these aspects more explicit was produced from the analysis of literature and data from focus group meetings (Sullivan, Mousley, & Zevenbergen, 2002). This advice was used to form the basis of classroom based research in schools with a high proportion of students from lower SES backgrounds (see Sullivan, Mousley, Zevenbergen, & Turner Harrison, 2003). The action research stage now involves working with teachers who are implementing their interpretation of the ideas in their classrooms. Using our model(s) they are planning units of work, implementing and evaluating them. Among the data collection methods are: structured and naturalistic observations of teacher actions; interviews with teachers to review their intentions and actions, with some emphasis on the differentiation between students, including perceived constraints to change; teacher focus groups addressing their planning and constraints experienced; broadly based surveys of teacher beliefs and practices; pre-tests and post-tests of students' knowledge and understanding, including open-ended tasks, corresponding closed tasks, communication items, relevant tasks from national benchmark data collections, and teacher created items; surveys of students' affective responses to the teaching; and post-intervention interviews with representative students to monitor forms of mathematical understanding and reactions to particular features of the teaching approaches.

THE AUDIENCE AND BENEFICIARIES OF OUR RESEARCH

The audience and beneficiaries of research are not necessarily the same. For the purpose of this discussion, the beneficiaries of educational research are future learners, either narrow or broadly defined, in the short or long term, either directly or by a process of interpretation and/or translation. The audience of the research may be teachers, teacher educators, policy makers, the community, and other researchers. Even research by teachers in their own classrooms with no intent of formal publication has both beneficiaries and an audience, and its effectiveness or usefulness can be measured against the extent to which it is accepted or understood by the audience (the teacher and her immediate colleagues) and whether it assists the beneficiaries (the students).

The MERGA research policy takes a clear position on the audience and beneficiaries, even though they are not differentiated as such within the policy. The following are some extracts from that policy:

MERGA believes that:

- research on the teaching and learning of mathematics is essential for the development of mathematically literate citizens who can participate fully in shaping and enjoying Australasia's future;
- teaching of mathematics at all levels should be informed by research on teaching and learning;
- initiatives of governments or other agencies in teaching, curriculum, and teacher development should be based on findings of quality research and that if relevant research cannot be identified then it should be commissioned;
- formal and professionally conducted research into the effectiveness of mathematics teaching, curriculum policies, and teacher development programs on a periodic basis will contribute to strong educational systems.

The policy identifies learners as the beneficiaries, and teachers, governments and policy makers as the audience. The policy goes on to articulate the scope of research:

MERGA believes that the needs of mathematics learners are best served by mathematics education research which:

- informs and improves practices and policy in mathematics teaching and learning;
- both builds on existing research and identifies key issues for future research;
- address community priorities and goals but is not constrained by them and is sensitive to the needs of individuals, including attention to equity and social justice.

The challenge for education researchers is to consider the extent to which our research does, or should, broadly defined, address these or comparable issues. Even though the focus of this policy was mathematics learning, I argue that similar practical emphases should be evident in most, if not all educational research.

In the research project described above, it is intended that the beneficiaries be students in the classrooms of teachers who are influenced by the findings. In particular the intention is to increase the opportunities of those students who are excluded by some current approaches to mathematics teaching.

The audience is predominantly those who will communicate with teachers on their approaches to teaching. The intention is to offer generalisable and transferable models for planning, task creation, task sequencing, task variation, and pedagogical approaches that the audience can use in teacher education, teacher professional development, or other publications read by teachers. There is an intention to write some project reports in forms that might influence

teaching practice directly. Our experience is that this focus on the beneficiaries and the audience makes the research relevant, easily able to be communicated, and readily evaluated.

I suspect that the best educational research has the audience and beneficiaries clearly identified and in the forefront on the researchers' thinking and actions at each stage of the research process.

CASUALTIES

Associated with defining the audience and beneficiaries is considering the potential for harm as a direct result of the research. This can arise from all research if poorly conducted, but even well designed and conceptualised research can have unanticipated casualties. Of course, the intention in considering the potential for negative impacts is to avoid or at least minimise those impacts.

The MERGA research policy specifically addressed research undertaken in contexts where cultural factors are significant, and which therefore clearly has potential to do harm. With respect to cultural issues, the MERGA policy stated:

MERGA believes that mathematics education research must be done with sensitivity to the diverse cultural backgrounds within Australasia and in accordance with the highest ethical standards.

Researchers should be aware that their personal and cultural perspectives may shape the research processes in which they engage and that making these perspectives explicit in the dissemination of their work might enhance the quality of the findings.

In cases of research commissioned by government, quasi-government and commercial agencies especially, researchers should explicitly acknowledge the source of funds used to conduct their research.

The cultural contexts of the research should be fully acknowledged and for cross cultural research genuine partnerships formed with relevant communities. Where appropriate, researchers should ensure that the focus, interpretation and ownership of research is determined jointly with members of the relevant community.

Such statements of course introduce dilemmas for researchers, but the underlying theme is that educational research can have casualties.

The potential for casualties is very much related to ethical considerations. For example, the policy proposed that:

Researchers should ensure that data are collected on the basis of the informed consent of all research participants and should ensure that all arrangements entered into with participants relating to the conduct and findings of the research are met. These, for instance, may include confidentiality of the data and processes for ensuring anonymity of participants. It is assumed that researchers have negotiated the ownership of data at the commencement of the research.

This concern for ethical research is not limited to formal processes, and can include the research process itself:

MERGA believes that mathematics education researchers maximise the potential usefulness of research when they:

- ensure that the research questions, the theoretical framework, the methodology, the analysis, and the reporting of a particular study are mutually compatible;
- have all research methods, tools and results open to scrutiny;
- appreciate the objects of learning mathematics and have familiarity with relevant education contexts, or work with researchers who do;
- have appropriate training or experience in the research tradition used, and understand the relevant research tools;
- follow procedures for approval of research, from sites, systems and institutions including addressing ethical issues.

It is clear that this policy recognises potential casualties. Attention to such issues can create approaches to research that provide safeguards and ways of analysing methods and questions.

There are also potential causalities even from our research project exploring classroom processes. For example, the underlying premise of our research project is that the very approaches that are recommended in professional literature for improving the learning of mathematics may disadvantage students who are from working class or Indigenous backgrounds (Delpit, 1988, 1995; Bernstein, 1996). We are proposing, for example, that teachers should pose tasks that are *context based* and *open-ended*. Yet, in a comprehensive review of the national testing system in the United Kingdom, Cooper and Dunne (1998) found that contextualising mathematics tasks created particular difficulties for low socio-economic status (SES) students, so much so that they performed significantly poorer than their middle-class peers whereas performance on decontextualised tasks was equivalent. Likewise, Lubienski (2000), monitoring the implementation of a curriculum program and materials based on open-ended contextualised problems, concluded that target pupils who preferred the contextualised trial materials and found them easier all had high SES backgrounds, while most pupils who preferred closed, context free tasks were low SES. In fact, many of the low SES pupils claimed to be worse off with contextualised problems, and none found the new materials easier. These give a clear illustration that new practices in school mathematics might privilege some students but create unintended barriers to success for others, possibly even those students we most desire to help. Our project is taking particular care to avoid such casualties, although we are still considering the extent to which our findings might be interpreted by some as a criticism of teachers (it is not).

CONCLUSION

The basic argument here is that educational researchers would benefit from active consideration of their audience, the beneficiaries of their results, and any potential casualties. The main outcome would be greater attention to research that examines questions of interest to policy makers and practitioners and seeks to inform their decision making.

While the argument is that educational research is undervalued and that educational researchers can collectively address this, it must be emphasised that there is much valuable research being conducted and reported currently.

Of course, Ravich chose an easy metaphor. Doctors know much more about pulmonary embolism than schizophrenia, for example. Nevertheless, as education researchers we hardly know the answers to everyday questions that should be amenable to empirical study such as whether homework helps, and we don't even start on more complex questions such as why do government departments of education establish curriculum frameworks and then utilise incompatible compliance mechanisms to monitor them.

A possible desirable by-product of such consideration could be greater acceptance of quantitative methods. To clarify this point, consider the way that empirical methods are discussed. Denzin and Lincoln (1994), for example, list one of two purposes of qualitative research as being to provide "ongoing critique of the politics and methods of positivism" (p.4). Connole (1990), in delineating four perspectives on research, criticises the empiricist ontology as seeking to describe a single reality. Yet empiricism includes well developed approaches to scientific style research. Far from accepting results uncritically, researchers operating from a scientific point of view incorporate methods that are specifically designed to overcome potential shortcomings (see, for example, Campbell & Stanley, 1963). The issues of context, complexity, theory ladenness, and cultural and political bias are recognised by such researchers, who are urged to establish a variety of counterbalances. Even then the knowledge produced is viewed circumspectly.

This is in no way to suggest that qualitative or participatory methods are overused, and indeed both are prominent in the research project mentioned above. We may, though, have become adept at identifying the flaws in quantitative methods, and but less vigilant in ensuring compliance with the disciplines of interpretive research.

Researchers should be encouraged to use methods adapted to the goals, to recognise that they are constrained by culture and language, that they have political biases which make interpretation difficult, that the objects of education research are complex, that relationships may be more important than individual variables, and that they can draw on, or create, methods appropriate to their tasks. The identification of audience and beneficiaries, and the consideration of

casualties, has the potential to provide a way of evaluating the appropriateness of research foci and methods, and to direct researchers' attention to answering questions that can make a difference.

REFERENCES

- Bernstein, B. (1996). *Pedagogy, symbolic control, and identity: Theory, research, critique*. London: Taylor & Francis.
- Campbell, D.T., & Stanley, J.C. (1963). *Experimental and quasi-experimental designs for research*. Chicago: Rand McNally.
- Connole, H. (1990). The research enterprise. In H. Connolle, B. Smith, R. Wiseman (Eds.) *Issues and Methods in Research: Study Guide*, Distance Education Centre, University of South Australia, Underdale, SA
- Cooper, B., & M. Dunne (1998). Anyone for tennis? Social class differences in children's responses to national curriculum mathematics testing. *The Sociological Review (Jan)*, 115–148.
- Delpit, L. (1988). The silenced dialogue: Power and pedagogy in educating other people's children. *Harvard Educational Review*, 58(3), 280–298.
- Delpit, L. (1995). *Other people's children: Cultural conflict in the classroom*. New York, NY: New Press.
- Denzin, N.K., & Lincoln, Y.S. (1994). Introduction: Entering the field of qualitative research. In N.K. Denzin & Y.S. Lincoln (Eds). *Handbook of Qualitative Research* (pp. 1-17). London: Sage.
- Guba, E.G., & Lincoln, Y.S. (1994). Competing paradigms in qualitative research. In N.K. Denzin & Y.S. Lincoln (Eds). *Handbook of Qualitative Research* (pp. 105-117). London: Sage.
- Hargreaves, D.H. (1999). Revitalising educational research: Lessons from the past and proposals for the future, *Cambridge Journal of Education*, 29(2), 239-249
- Lubienski, S. T. (2000). Problem solving as a means toward mathematics for all: An exploratory look through a class lens, *Journal for Research in Mathematics Education*, 31, 454–482.
- Sullivan, P., Mousley, J., & Zevenbergen, R. (2002). *Overcoming barriers to mathematics learning: Advice to teachers*. Bendigo: La Trobe University.
- Sullivan, P., Zevenbergen, R., & Mousley, J. (2002). Contexts in mathematics teaching: Snakes or ladders? In B. Barton, K.C. Irwin, M. Pfannkuch & M. Thomas (Eds), *Mathematics Education in the South Pacific: Proceedings of the 25th annual conference of the Mathematics Education Research Group of Australasia* (pp. 649-656), Mathematics Education Research Group of Australasia, Auckland, July.
- Sullivan, P., Mousley, J., Zevenbergen, R., & Turner Harrison, R. (2003). Being explicit about aspects of mathematics pedagogy. In N. A. Pateman, B. J. Dougherty & J. T. Zilliox (Eds.) *Proceedings of the 2003 Joint Meeting of PME and PMENA* (Volume 4, pp 267-275). CRDG, College of Education, University of Hawai'i.

Tooley, J., & Darby, D. (1998). *Educational Research: A Critique*. London: OFSTED –
Office for Standards in Education