Principals, Research Knowledge, And Policy Making in Schools

The Lead Paper for a Panel Discussion at the Annual Meeting of AARE

Brisbane, 5th December 2002

Bruce J. Biddle and Lawrence J. Saha

Introduction (Bruce)

Good morning, and welcome to the panel. My name is Bruce Biddle, I am from the University of Missouri, and this is Larry Saha from the Australian National University. It is my pleasure to begin this session in which Larry and I will introduce the study we have been conducting on the use of research knowledge by school principals, and Professors Bourke, Harman, and Brennan will comment on our work. Since Larry's and my initial paper is co-authored, we will alternate responsibility for its various sections. I begin first with the need for research on this important topic and an overview of how we have been trying to meet this need.

The Problem (Bruce)

As many of you know, to quote Carl Kaestle, research on education has a simply "awful reputation." For at least two generations in many countries including Australia, powerful people, some sympathetic and some hostile to that research, have been claiming that it is flawed and has little or no impact on educational practice. To illustrate such dismal claims, let us take example quotes from the past three decades.


> There is no army of educational practitioners expectantly waiting to hear what the fundamental researchers have to say, nor is there a corresponding group of researchers. The truth is that most practitioners do not turn directly to researchers for advice, nor do most researchers offer it.

A decade later, in 1988, writing while he was Assistant Secretary of Education in the Reagan Administration and publishing in *Educational Researcher*, Chester Finn opined:

> To put it simply, our labors [as researchers] haven't produced enough findings that Americans can use or even see the use of: Over the past two decades, there has been a goodly amount of systematic inquiry and a flood of studies, reports, and recommendations, yet our education system has by many measures worsened.

And in 1997, in an article also published in *Educational Researcher*, Gerald Sroufe declared:

> Education research does not provide critical, trustworthy, policy-relevant information about problems of compelling interest to the education public.

Nor have Australian scholars been reluctant to voice similar complaints. Writing about educational research in Australia in a 1992 report published by the federal government in
Canberra, Barry McGaw, David Boud, Millicent Poole, Richard Warry, and Phillip McKenzie declared:

Education administrators and practitioners perceive much of educational research to be irrelevant to their concerns.

We could easily provide more quotes on this subject, but the point is clear; many, many powerful people, publishing in major sources, have been stating that research on education is flawed and has little or no impact on educational practice. Now comes the fascinating part. Since these claims concern matters of fact, one would have thought that they would be based on strong evidence. And yet, almost no evidence has ever appeared that would assess them! You heard me correctly; systematic, well-conducted research that would support or challenge such claims has been very hard to find. Many scholars have written about the problems associated with research utilization, systematic studies of research impact have already surfaced for other types of users--among them (for example) farmers, doctors, and government bureaucrats, and a few exploratory studies related to these charges have finally begun to appear (such as the work recently supported by DETYA in Australia), but to date it has been almost impossible to find substantial, well-planned studies of research impact on persons in the education community.

The Focus of Our Study (Bruce)

About fifteen years ago, Don Anderson (also at the Australian National University) and I began to get interested in the impact of research in education, and in the early '90s we published a book that reprinted previously-published essays on the topic. This effort led to discussions involving Don, me, and Larry Saha (whom we knew was also interested in the topic), in which the three of us eventually decided that the time was right for a systematic study of research knowledge use among educators. Formal planning for our project took some months and involved our entire group, although Don eventually had to withdraw from conducting the study due to the press of other responsibilities.

In planning our study we had to make various decisions. For example, the community of educators involves many kinds of actors--teachers, school principals, administrators of school systems, politicians, school board members, parents, and other concerned persons. Whom should we study as possible users of research knowledge? And how would we gather data for our study? We eventually decided to focus on school principals, because they are trained professionals, because they are found in nearly all schools, and because they are given leadership responsibilities within education (which suggested that they might also know something about research and the knowledge it generates). Also, since we could not draw on prior studies for guidance and wanted to learn about the potential impact of research knowledge on processes within the school, we decided to build our study around focused interviews conducted with principals.

We also suspected that use of research knowledge would vary depending on the type of school within which the principal worked, so we decided to interview principals from both primary and secondary schools, as well as those from the public, parochial, and independent sectors of education, and in various types of communities. Finally, since we had opportunity to do so, we also decided to build our study as a comparative research project in which we would examine research knowledge use in both Australia and the United States. (We made this decision because we were aware of interesting structural and cultural differences between the Australian and American educational scenes that might affect knowledge use, and we return to some of these issues later in our paper.)
The final sample for our research reflected both these concerns and funding limitations. Our efforts in the United States were supported by a small grant from the Office of Educational Research and Improvement that funded interviews with 81 school principals, all sampled from Missouri—a state which fortunately has large urban centers, suburban areas, medium-sized cities, and small communities, as well as a population whose demographic distribution includes both majority and minority families. Our efforts in Australia were supported by grants from the Australian National University and generated 39 usable interview protocols with principals from both the Australian National Territory and South Australia, two venues that also enabled us to sample from several types of Australian communities, as well as schools that served students from both native-born and migrant families. We defined the population we were to study as all principals who had been in their present schools for at least a year, and we chose the names of potential respondents randomly from population lists that were kindly supplied by authorities representing the public, Roman Catholic, and independent school sectors. Nearly all principals whom we had chosen as potential participants were willing to be interviewed, but when this was not the case, we chose respondents to replace missing persons, again by random means. Our interviews were all conducted within respondents’ own schools and lasted about two hours, on average.

Our data were collected in 1991 and 1992, so we have been working on this study for some time now, and we have already published a couple of short articles on selected results from the project. During the past three years, however, Larry and I have been working on a major monograph from the study, a book entitled *The Untested Accusation: Principals, Research Knowledge, and Policy Making in Schools*. This work has just been published by Ablex, now a member of the Greenwood Publishing group, and is distributed in Australia by DA Publishers. Those interested can pick up copies of a flyer announcing our book from the stack here on the platform. The visual displays we present this morning are all taken from that book.

**Theoretical Concerns (Larry)**

Thanks Bruce. I turn now to some of the theoretical and methodological details of our study. When planning our effort we knew that a good deal of research and scholarship had already appeared on the nature of knowledge, the creation of knowledge through research, the dissemination and use of research knowledge in some other fields, and the many roles and leadership responsibilities of school principals. Nevertheless, we had to make some decisions about these concerns when building our instruments and conducting our interviews.

To begin with, we decided to let principals speak for themselves, so we stressed open-ended questions in our interviews and also recorded and transcribed respondents’ replies. (Among other things, this meant that we could code respondents’ replies for quantitative analyses, and we could also read their verbatim responses carefully for additional, qualitative insights. Our book includes many quotes from respondents illustrating major effects we found, and we repeat some of these quotes in our presentation this morning.)

In addition, we made basic decisions at the beginning about how we would think about research-based knowledge. Throughout our study we have assumed that knowledge is expressed (by both researchers and potential users such as school principals) in the form of propositional statements about events, that some of these statements concern events which may be investigated empirically, and that some (but certainly not all) of those empirical propositions have been supported by evidence from research. Such propositions are also normally bundled together within research traditions, and we suspected from the beginning that if the principals whom we were to interview were familiar with research, they would tell us about research traditions they knew about and the empirical propositions they associated...
with those traditions. To illustrate how these assumptions applied in our data, we provide an example quote from one of our respondents, a male American secondary principal. When asked if he could think of an example of research-generated knowledge which he had found useful in some aspect of his job, this principal responded as indicated in Figure 2.2.

Display Figure 2.2 About Here

As you can see, the respondent spoke with enthusiasm about a research tradition and volunteered several examples of empirical propositions from that tradition. He also reported information about the investigators associated with it and told us about how he had learned about it. He was less sure, however, about the nature of the research conducted by those investigators or the strength of findings, if any, supporting their propositions. Nor did he discuss how this example of knowledge had yet affected policies or practices in his school, if indeed it had. (We return to systematic evidence about these and related issues in a few minutes.)

Methodological Concerns (Larry)

Given this basic conception of research-based knowledge, what questions were we to ask principals? And how were we to structure our interviews?

After some debate, we decided to build an interview schedule that had six different sections. In the first section we asked respondents to volunteer examples of knowledge they associated with research. We used various questions for prompting respondents to volunteer those examples: a general question, a question about the domain of classroom teaching, a question about curricular issues, a question about pupil assessment, a question about staff or teacher evaluation and management, and a question about community relations. And, when respondents provided examples of research knowledge in response to these questions, we asked follow-up questions about the nature of that knowledge, where they had learned about it, and why it was useful.

In the second section of our interview we asked respondents about the details of their roles, the degree to which they could act autonomously, whether they were expected to be innovators in their schools, and their attitudes about innovation. In the third we asked them to describe a recent event in which a decision had been made about policy issues in their school and to tell us whether that decision had been affected by research. And if it had, we again probed to learn the details of that research-based knowledge.

In the fourth section we turned to questions about the knowledge-acquisition process and asked respondents about their recent involvement with sources that often provide access to research-based knowledge. In the fifth we probed the breadth of their familiarity with research-knowledge topics by asking them whether they were familiar with each of 20 different phrases representing examples of recent, important research traditions which we had chosen or had been suggested to us by informants in research and development centers. And finally, sixth, we asked respondents a set of questions about their attitudes concerning research on education and the knowledge it generates.

The details of our interview schedule were developed carefully and were pretested with potential respondents in both countries. In addition, we also used a questionnaire to probe respondents' demographic backgrounds, their job histories, details of their present working
environments, their attitudes about relevant topics, and their professional aspirations—and this questionnaire too was carefully pretested.

To analyze the data generated by these interviews and questionnaires, we developed a set of coding manuals whose variables expressed conceptual issues suggested to us by theory or by insights we gained from reading through respondents' replies, and again we carefully pretested these manuals and assessed their constituent variables for reliability in both countries. Trained coders were then employed to create data files for these variables, and those data were subsequently assessed through quantitative analyses. Since only 120 principals participated in our study, we made a decision to use only simple statistical techniques in our analyses: response distributions, means, and product-moment correlations. In addition, we discovered that data from our Australian and American respondents sometimes differed in crucial ways, so we decided to separate these two subsamples in our analyses and to compare the results we found for each of them whenever possible.

Key Results (Bruce)

Thanks Larry. I turn now to the task of presenting some of our results. For convenience, we have organized this section of our paper as a set of answers for six research questions.

First, when scholars have written about the use of research knowledge, they have often worried about how that knowledge is transmitted to users. Assuming that school principals are potential users, how do they learn about that knowledge? Are they often exposed to sources where knowledge from research on education is regularly displayed, and do they learn from those sources?

To address this question, we asked respondents how often they had been exposed, during the previous year, to eight types of sources that can provide expert knowledge for school principals. The eight sources we asked about included: professional journals, national or regional bulletins, professional meetings, workshops they might have organized, workshops organized by others, association and union newsletters, professional books, and district or system bulletins.

To illustrate a typical answer from a respondent, when asked if he had read any professional books during the previous year, a male, Australian, secondary principal told us:

Goodness, now that's asking me a difficult question. I've [looked at] Pygmalion in the Classroom which is relatively famous, of course, and Making the Difference; yes, I've read Making the Difference [too]. Is that [Bob] Connell? [And the interviewer answers: "Yes, Connell is 'making the difference.'"] [Laughter]

In answering these questions, then, respondents might have told us, for example, that they had read (and named) none, one, or more than one journal during the year, or that they had attended none, one, or more professional meetings, and so forth, and in Figure 4.2 we have graphed the average number of sources cited by respondents in both countries for each source type. As can be seen in that figure, respondents in both countries reported exposure to many of these types of sources during the previous year. The source they cited most frequently was professional journals, and the least popular source was district or system bulletins. In addition, respondents in the two countries differed slightly in the sources they reported. Americans were more likely to cite professional journals (a difference that was statistically significant at p<.05) whereas Australians more often named professional meetings (a difference with significance at p<.001).
You might also be interested in the titles of journals or books our respondents cited. To our surprise, taken together they mentioned the titles of more than 60 professional journals, some of which were quite new to us. Some titles were cited fairly often, however. At least 20% of Australians mentioned: The Australian Journal of Education, The Practical Administrator, SET, and The Journal of Educational Administration whereas 20% or more of Americans cited Educational Leadership and the Phi Delta Kappan. As these titles suggest, most (but not all) journals mentioned by respondents represented "secondary sources" in which research knowledge is repackaged for users. This was hardly news, but we were truly surprised by the number of different journals our respondents came up with. Moreover, respondents also cited a large number of professional books, some also with unfamiliar titles, and no book was mentioned by more than three respondents.

To summarize then, most respondents reported that they were frequently exposed to sources where research knowledge is portrayed and particularly to professional journals. So much for exposure, but did they also learn about research knowledge from those sources? Indeed they did. In the first section of our interview we asked respondents to volunteer examples of knowledge from research they had found useful, and when they did so we asked them where they had learned about that knowledge. The answers they gave to this question looked very similar to those in Figure 4.2. Again, they most often cited professional journals, and again they rarely mentioned district or system bulletins. In addition, however, they also mentioned two other sources we had not thought to ask detailed questions about: other professionals in their schools or the system, and long-term, personal interests. However, it was also true that whenever our respondents said they used a knowledge source frequently, they were also likely to report they had acquired research knowledge from it.

Second, scholars who write about the use of research knowledge often stress that users must think well of that knowledge if they are to learn about it and apply it in their lives. In addition, critics of educational research have often stated that educators are well aware of the supposed deficiencies of educational research, and, as a result, they devalue it, and this is a major reason why it has so little impact. Is this accusation justified? Do principals think that research on education is deficient and has but little value?

Far from being justified, our data suggest that this accusation is flatly wrong. To address this issue, we asked respondents several questions about their attitudes and judgements concerning research on education. One question was phrased: "In your opinion, does research generate knowledge that is useful for educators?", and we followed this question with a series of probes to explore the reasons for respondents' answers. We coded their initial answers for this question using a five-point, attitudinal scale ranging from 0 = "Research knowledge is of no value" to 4 = "Research knowledge is invaluable," and the percentages of persons giving each answer are graphed in Figure 5.1.
As can be seen, no respondents in either country gave an answer indicating that research on education had no value. In contrast, nearly half of all respondents said that it was "usually of value," and roughly a quarter asserted that it was "invaluable."

Again, let's examine a typical response to see what these figures mean. When asked about his opinion of research on education, a male American secondary principal gave the following response:

Oh, I think, I think that research is very valuable, but it has its limitations. Research done on say the Eastern Coast might not be as valuable to me as it would be to the people there. Research done in certain ethnic groups might not be as valuable to me because we don't deal with that right here. Most of, of, most of our enrollment is white middle-class. And so, I think research has a very valuable place in education, but I think you need to also understand that research is not the whole answer.

Since this opinion expressed some reservations about the value of research knowledge, we gave it only a score of "3."

Note, however, the nature of the reservations expressed by this respondent. These did not concern supposed deficiencies of research on education but, rather, expressed a legitimate--indeed sophisticated--understanding of the limitations of research knowledge. This suggests that if principals have concerns about the usefulness of research knowledge, those concerns do not often focus on the supposed deficiencies of educational research but rather concern problems associated with its generation, acquisition, and application--and, indeed, our data confirm this conjecture. When asked about the subject, only about a quarter of our respondents raised any questions about flaws in educational research. In contrast, most respondents noted other problems associated with its use, among them: that principals are often too busy to pay attention to research knowledge; that research knowledge may be poorly disseminated or poorly presented to potential users; that society devalues research on education and does not finance research on important topics; and so forth. Needless to say, these sophisticated concerns offer little comfort to those who claim that educators are put off because they believe that research on education is badly flawed.

To summarize then, our respondents tended to hold quite positive attitudes regarding research on education and the knowledge it generates, and when they were asked to talk about problems associated with that knowledge, they focused more on problems associated with the creation, distribution, and application of that knowledge than on supposed flaws in the research that generated it.

Third, so far so good. Our evidence suggests that principals are often exposed to sources where research knowledge is portrayed and that they have generally positive attitudes towards research and the knowledge it generates. But does this mean that they know about that knowledge? In order to become users they must first have incorporated examples of that knowledge in their thinking. Can evidence be found to indicate they have learned about research knowledge, and can they speak meaningfully about it?

Our data suggest that these latter are also true. We actually used three different strategies for exploring respondents' understanding of research knowledge. Our first strategy involved asking them to tell us about examples of that knowledge they had found useful in their jobs, and--as you may remember--we asked several questions about this issue focused on different realms of their professional responsibilities. Most respondents found it an easy task to respond to these questions, and--as our earlier assumptions suggested--most provided answers which indicated they were talking about specific research traditions.
An example of such a response was provided by a female Australian primary principal. When asked about research knowledge she had found useful, she told us:

**Effective Schools Research, I think, is a good example of something that we try to put into practice at [our school].**... The reason it's called that way, by the term "effective schools," is because [the researchers] thought "let's look at schools that are effective and see what they do and what characteristics they have in common..." So they defined an effective school as a school at which students were at or above grade level..., and they identified seven or so characteristics that those school shared.

And then, without additional prompting, the same respondent also volunteered a second research tradition:

**But your question is what research have I found to be useful, and that's [only] one of the things I've found to be useful. There are other things too; Mastery Learning is another area.**

Such examples suggest that the typical respondent may have spoken about more than one research tradition, and Figure 6.1 indicates the numbers of distinct research traditions that were volunteered by respondents in the two countries. As can be seen, the majority of respondents volunteered 5, 6, or 7 different research traditions, and one super-achieving American came up with 14! (Or to put it slightly differently, the average Australian and American respondent each volunteered to talk about roughly five-and-a-half different research traditions.)

These data indicate that most respondents could talk meaningfully about several research traditions, but were they also familiar with the propositional knowledge associated with these traditions, and did they understand the details and limitations of these knowledge examples? To answer such questions, we also asked them a set of follow-up probes about these traditions. Without going into detail concerning those probes and how we coded respondents’ answers, we found that in most cases:

-- respondents volunteered at least one and often more than one propositional statement from the research traditions they chose to discuss;

-- the vast majority of these statements were empirical propositions;

-- more than half of those empirical propositions involved bivariate relations among two or more variables from the research tradition;

-- in most cases, respondents were able to explain easily why these examples of research knowledge were important; and
In most cases, respondents were able to tell us where they had found out about these examples. In short, not only were our respondents able to recall and talk about research traditions, but they also had command of key information, associated with those traditions, that was appropriate for a community of users.

On the other hand, they lacked some of the information we would normally have expected to find had we studied a sample of investigators. As a general rule, our respondents:

-- had only minimal information about investigators associated with the empirical traditions they volunteered;

-- knew very little about agencies that had funded or hosted those research traditions;

-- knew even less about the types of research that had been conducted within those traditions;

-- could not even begin to talk about the strengths of support for empirical propositions from those traditions; and

-- seemed unaware of any controversies concerning research knowledge, the biases of secondary sources, or that advocates often misrepresent research evidence.

Thus, though their knowledge of research traditions was broad, it was also relatively shallow, and this meant that our respondents could be, and in some cases obviously had been, hoodwinked by unscrupulous advocates, ideologues, or researchers with axes to grind. This suggests a problem that we return to toward the end of our paper.

Our second strategy for exploring whether respondents knew about research knowledge evolved from questions in which we asked them to describe a recent episode in which an innovation had been debated and adopted in their school. If they were willing to discuss such an episode—and most gladly did so—we also asked them whether research knowledge had been associated with that episode, and if so how it contributed to the decision. As it happened, in more than half the episodes respondents described for us, they indicated that research knowledge had, indeed, played a role in that decision, and when this was the case we again asked respondents to tell us about that knowledge and the role it had played.

Our third strategy was designed to generate further data about the breadth of respondents' command of research knowledge. We reasoned that it was all very well to ask respondents to volunteer examples of research knowledge, but how would they fare if they were asked about research topics that others had chosen to represent important research contributions? To address this question we prepared a list of 20 statements, phrased as technical concepts or empirical propositions, which either we or informants from major, American educational R&D centers had chosen to represent recent and important research contributions. Respondents were asked whether they were familiar with each of these phrases, and if they indicated they knew about them, we asked follow-up questions to explore what they knew about the research traditions they represented.

As it happened, all respondents recognized at least two phrases from the list, and—perhaps astoundingly—the typical respondent recognized about half of them(!)—but respondents' familiarity with these phrases also varied depending on nationality. The average American recognized 11.46 phrases, whereas the average Australian recognized only 8.41 (a
difference that was statistically significant at p<.001), but this was hardly surprising since, when preparing our list, we had taken most of our preliminary advice from American and not Australian informants. More interesting were the details of how respondents in the two countries differed in their knowledge of specific phrases. Information about this subject appears in Figure 7.1 which lists shortened versions of the 20 phrases we used.

As can be seen, most respondents in both countries indicated familiarity with research on teacher expectations and student achievement whereas very few respondents, in either country, were familiar with control-based strategies for teaching, reciprocal teaching, classroom thoughtfulness, “authentic” learning, or the use of advanced organizers. In sharp contrast, Americans (but not Australians) evidenced familiarity with research on between-class versus within-class grouping and wait time following questions whereas Australians (but not Americans) were generally familiar with research on self-regulated learning. We assume that such differences reflected concerns then prominent within the communities of educators in the two countries.

Apart from such national differences, when we probed the depth of respondents' information about these topics, we again found: (1) that respondents could phrase empirical propositions for most topics; (2) that they knew why those propositions were important; and (3) that they often remembered where they had acquired this information. And again, they tended to know very little about investigators, agencies, research methods, or the strengths of empirical support for the propositions they discussed.

To summarize then, our evidence suggests that principals are not only in touch with sources for research knowledge and think well about research and the knowledge it generates but also that they are aware of a surprising range of research traditions and generally understand one or more empirical propositions from those traditions as well as why those propositions are important for policy decisions in their schools. Again, however, they are a population of potential users and seem to have but little interest in, or possess little information about, the details of research activities associated with those knowledge examples.

Fourth, but is that knowledge also used in principals' schools? A core complaint of those who criticize educational research is that it has no real impact in education, that it creates no knowledge which educators find useful in their schools. But is this true? Clearly, our respondents knew about various examples of research knowledge, but did these examples lead anywhere? Did they help to generate changes in policies or practices in respondents' schools, or were they mere curiosities, bits of isolated information that had not (perhaps yet) been put to use?

Although we certainly found examples of the latter, the vast bulk of respondents, in both countries, reported that at least some of the research knowledge they knew about had also been used. Again, we employed three different strategies to explore this issue. You will recall that early in our interview we asked respondents to talk about examples of research knowledge they considered useful, and when they did so this often prompted a story about how that research had been applied in their school. To illustrate, when asked about research on classroom teaching, a female American secondary principal told us:
Fitting into that category is Madeline Hunter's steps in lesson planning, and I know her steps are based on research.... These are really important in effective teaching, effective classrooms, as well in effective lesson planning which is the base for effective teaching....

[Interviewer: "I see. Can you tell me a little bit about her theory or her steps, you know, what her concept is?"] Okay. Well, I'll just use a point of reference here. ... (I really should have some of my little forms to use with this.) ... Okay, she believes--again, based on research--that before the student is ready to learn the student needs to be primed, prepared--she calls that "anticipatory set"--to get the student excited, to make a transition from what they already know to what the teacher is going to teach them. [Then, in] the next step ... [and the respondent goes on to describe the various steps of Hunter's theory]. So she really has seven steps in her plan for lessons, and it's all based on research.

[Interviewer: "Is Hunter's scheme something that you have integrated into your school?"] Yes. That is something that I expect every teacher's lesson plan to follow.

This was a clear example of application for knowledge the respondent presumed to be associated with research, but how often did respondents describe applications for such research knowledge? As it happened, answers to this question also differed depending on national context. Roughly 90% of Australian respondents described applications for at least one of the research traditions they volunteered, whereas only 70% of Americans came up with equivalent applications. (Or to portray this effect in other terms, the average Australian volunteered roughly two-and-a-half applications, whereas the typical American came up with only about one-and-a-half applications, a difference that was statistically significant at p<.01.) It is possible that this nationality effect reflected differences in the way we conducted interviews in the two countries, but--as we will explain shortly--on balance we think this was not the case.

But to summarize evidence from this first strategy, although the rate of use we found differed by nationality, most of our respondents claimed that at least one of the research traditions they volunteered to talk about was already being applied in their schools.

Our second strategy evolved from the questions we asked about decisions concerning innovation that had recently been made in their schools. As will be recalled, we asked respondents to describe one such incident, most were able to do this, and when they did so we also asked them whether research knowledge had been involved in the incident in any way. As suggested earlier, more than half of all respondents stated that research knowledge had been involved. Sometimes that knowledge was described as initiating the incident, whereas in other cases research knowledge had been sought or applied after the incident was already underway but had clearly played a significant role. Taken together then, these responses suggest that when decisions about innovation were made in their schools, respondents thought those decisions were likely to reflect research knowledge, at least in part.

Our third strategy reflected the 20 phrases, chosen to represent important examples of research knowledge, that we asked respondents about. As reported earlier, the average respondent knew something about roughly half of these phrases, and when they indicated familiarity with those phrases we also asked them about possible applications of that knowledge in their schools.
Much to our surprise, a substantial number of respondents reported applications for eight of these research topics! These eight, high-application phrases are listed in Figure 8.5, together with the percentages of respondents who reported applications for them in each country. As can be seen, American respondents—who knew more about these phrases—were also more likely to report applications for most of them, but Australians were more likely to report applications for two phrases: gender differences in achievement, and cooperative learning in the classroom.

Since these results reflected research topics that our respondents had not chosen to talk about, such high percentages of use may seem unlikely on the face of it, so we provide two examples of quotes from respondents to show how they described such applications. When asked about cooperative learning in the classroom, a male Australian primary principal answered:

Again, I can't quote, I can't comment on any particular research that's been conducted, but I've got a couple of teachers here on the staff who have been very keen on that as a thrust. They've been doing reading and they've conducted a staff development session or two on cooperative learning in the classroom; and I guess cooperative learning is basically one of the strategies of learning that is going to be much more in the 21st century than what it is today because people individually know a lot, but they have to put it together to make a machine work. That's cooperative learning, cooperative instruction.

This respondent described an application in the form of "staff development sessions," although he did not claim that he was responsible for organizing those sessions.

In another example, when asked about teacher expectations and student achievement, a female American secondary principal stated:

Yes, I've used this [knowledge] in classroom supervision and in assisting teachers in their own professional growth. Mainly that teacher expectations do directly affect student achievement, and generally the greater those teacher expectations the greater the student achievement. There is a limit there, I'm sure, but I haven't paid a whole lot of attention to the extent of that. I've used it as a moderating kind of principle, knowing that research shows that if teachers have high expectations of their students, those students will achieve higher than they would otherwise.

In this case, the respondent described an application that she, herself initiated in the form of "classroom supervision and assisting teachers in their professional growth."

Taken together, these (and other) examples made clear that, even when talking about knowledge from research traditions which we had nominated, many of our respondents described applications now underway in their schools. They spoke about several types of application, some focused on actions they had taken, some focused on the actions of others. In addition, they did not always view themselves as agents who had initiated those applications but sometimes described others as taking the lead in ferreting out and applying research knowledge.
The bottom line then? Taken together our evidence suggests that principals in Australia and America are convinced that a good deal of research knowledge application is now underway in their schools. This does not mean they are familiar with all examples of research knowledge they should know about or that, once they are familiar with an example, it will always be applied. Nor does it mean that they always see themselves as the agent responsible for those applications. But if our respondents are to be believed, widespread and continuing applications of research-generated knowledge are now underway in the schools of these two countries. Once again, the sour claims of those who have criticized research on education were simply not supported by our evidence.

Fifth, so much for the broad thrust of our findings. But does this mean that all respondents in the two countries were alike in responses to our questions about research knowledge and its use? No, it does not. As our figures have illustrated, respondents varied a good deal in their reports about exposure to knowledge sources, their attitudes regarding research and the knowledge it generates, their familiarity with examples of research knowledge, and their reports about knowledge application. If so, then, which principals were "high" and which were "low" on these indicators of knowledge utilization? Was it possible to find demographic, background, or contextual variables that were associated with these differences?

Indeed, not only was it possible to find such variables, but one learns useful insights from the results of these analyses. However, before turning to those results, I must tell you how we did the work. Our general strategy was to examine product-moment correlations between predictor variables and the various indicators of knowledge utilization I have been describing. But since we had a lot of predictor variables to work with—in many cases, close to 100 for each indicator of knowledge utilization(!)—this meant that we were in danger of finding some apparent effects that were "statistically significant" but were not real findings but only the results of random errors. To guard against such mistakes, we developed analysis strategies in which we looked for patterns of similar results in closely-related variables, and the results I now report made use of those strategies.

As indicated by the way we constructed our samples, we expected to find lots of differences between the responses of principals in primary and secondary schools, as well as differences among respondents representing the public, parochial, and independent sectors of education, but neither of these expectations was borne out. Also, we found few differences between the responses of male and female respondents, nor did respondents differ greatly in knowledge utilization when they came from different types and sizes of communities. In contrast, however, we found substantial response differences, in both countries, between principals who evidenced high and low levels of a quality we shall term scholarly interest. As a rule, principals exhibiting high levels of scholarly interest were more likely to report:

-- that they had come from high-SES families;

-- that they had completed more formal education;

-- that they did not attend religious services frequently;

-- that they held strong desires to return to the university (either for further study or to join the faculty); and (above all)

-- that they read more professional books.

And, in turn, those with higher levels of scholarly interest also:
-- reported more positive evaluations of research knowledge;

-- volunteered more examples of research knowledge;

-- recognized more research traditions that we asked them about;

-- expressed more in-depth information about research knowledge; and

-- reported more research-knowledge applications.

Again, these results appeared in both countries.

To summarize then, although other predictive findings also cropped up in our data, some of our key findings suggested that principals high in scholarly interests are more likely to utilize research knowledge effectively and that this effect appears in both Australia and America.

Sixth and last, what have we learned from the different responses of our Australian and American principals? Australia and the United States offer interesting contrasts when it comes to education and the likely impact of research knowledge. Australia has a smaller population which allows more opportunity for direct contact between investigators and users in the education community. In contrast, America has a much larger population hence is more dependent on the media, particularly secondary sources, for linking researchers and users. But despite this greater need for reliable media to link investigators and users, only Australia has ever offered a service, available to all educators, that provided definitive, user-friendly reviews of knowledge from research. This service, called SET and widely distributed in Australia at the time of our study, consisted of regular bulletins about research topics that were prepared jointly by the Australian and New Zealand Councils for Educational Research. This service obviously provided useful, focused, reliable information about research knowledge for our Australian respondents. The total absence of such a service in the United States meant that our American respondents had to sort through a lot more chaos generated by the haphazard American research-knowledge-distribution system.

By comparison, America is also more politically conservative, and attacks on both public education and educational research have been more prevalent in that country than in Australia in recent years. Americans are also more workaholic, and our American respondents reported spending significantly more hours per week on the job, in their schools, than did our Australian respondents. In addition, most schools in the United States are operated by local boards whereas schools in Australia are more likely to be responsible to state-level authorities.

Efforts in Australian schools also tend to be focused more narrowly on academic matters, whereas American schools are likely to take on a wider range of curricula and a host of extra-curricular activities ranging from highly publicized, semi-professional sports competitions to drivers' education classes, community outreach programs, recreation programs, cooperative enterprises involving local businesses, public nursing services, and the like. And if these were not differences enough, by comparison American schools must contend with far more violence, poverty, illegal drug use, and other social problems in their communities which means that Australian educators have the luxury of focusing more of their efforts on academic matters.

These context differences generated various effects in the response data generated by our Australian and American principals. Among others, by comparison, the responses of Australians indicated:
-- more scholarly interests (which meant higher evaluations of, more in-depth information about, and more applications of, research knowledge);

-- more direct contact with investigators;

-- more uses of primary-source journals; and

-- more influence from state-level bureaucratic forces.

In contrast, Americans indicated:

-- more use of secondary sources (particularly journals and workshops);

-- more influence from local authorities; and

-- more familiarity with the research traditions we had chosen.

Results such as these provide food for thought when one is pondering about the strengths and weaknesses of education and research knowledge impact in these two countries.

Conclusions (Larry)

Thanks again, Bruce. I turn now to our last task, summarizing some of the major conclusions we have reached as a result of our efforts and discoveries in this study. Assuming that our small samples represented crucial features of the populations of school principals from Australia and America, the following conclusions seem warranted:

For one thing, our findings suggest that school principals play a very active role in the utilization of knowledge from research on education. In a recent article, Carol Weiss suggested that, as a rule, teachers probably know but little about research knowledge whereas principals, in contrast, have opportunity to learn about that knowledge and are counted on to use it in leading their schools. When it comes to principals, our findings support this suggestion strongly. The typical principal we interviewed was in frequent contact with sources for research knowledge, held positive attitudes regarding that knowledge, spoke readily about knowledge examples, knew about a surprising range of research topics, and easily described research applications that were ongoing in his or her school. When it comes to knowledge utilization, this, indeed, describes an active role.

For another, school principals are potential users of research knowledge, and they retain somewhat different details about examples of that knowledge than those normally of concern to investigators and academic scholars. They are more interested in reasons why examples of research knowledge might be important in education and the sources to which they might turn for additional information, and they are less interested in the evidence supporting that knowledge or how it had been generated. Moreover, they are generally trusting persons and tend to depend on others to assess the details of research and give them an unbiased report of the knowledge it generates.

But this means that they may not be aware of controversies that have erupted concerning research and its findings, and they are vulnerable to biased interpretations of research that may be promoted by investigators, reviewers, advocates, and ideologues. (To illustrate, one respondent cited a then recently-published book by Chubb and Moe as an example of research with which he was familiar without apparent awareness of the ideological biases,
distorted scholarship, and questionable claims about evidence that had appeared in this source.) American principals, in particular, are vulnerable because no national service (such as SET) has ever been available for them that would provide regular, unbiased, sophisticated, user-friendly reports of research on crucial issues.

For a third, principals with stronger scholarly interests (in both countries) are more likely: to evaluate research knowledge positively, to be familiar with that knowledge, and to report applying it in their schools. (Of all the variables we examined, the strongest predictor of research knowledge utilization was the respondent's report of reading professional books! This variable had similar effects in both countries and was a far stronger predictor of utilization than claims about reading professional journals. Beware of those educators who have the habit of reading serious books; they are obviously up to no good!)

And for a fourth, Australian and American school principals work in somewhat different environments, and this generates significant differences in the ways in which they have access to, think about, and utilize research knowledge. Australian principals seem to have more direct access to investigators and are more likely to read primary journals in their fields. Australians also have more in-depth information about examples of research knowledge and, when they know about them, are more likely to report applying that knowledge in their schools. Thus, they seem to be somewhat more "thoughtful" about research knowledge issues than their American counterparts--although it is not clear to us whether this difference reflects more frequent contact with investigators in Australia; the greater relative focus on academic matters in Australian schools; the lower levels of threats from violence, poverty, and drugs in Australian communities; the fact that American principals are too busy with other things to spend much time thinking about research knowledge; or merely the advantageous presence of SET when we conducted our study.

In contrast, our American respondents volunteered more examples of empirical propositions and seemed to know more about the research-knowledge examples we had chosen to ask them about (although the latter may have reflected bias in the way in which we prepared our list). In addition, American principals are probably more likely to use professional journals (particularly those providing secondary information). And Americans are more likely to be aware of pressures from school boards and district-level authorities, whereas Australians more often experience pressures from the state level.

Finally, however, we should return to the original theme that set our study in motion. For some years now, a host of powerful critics have been claiming that research on education is badly flawed, that educators are well aware of this shortcoming, and--as a result--that knowledge created by such research has little effect in schools.

The study we have reported does not bear on the first of these claims. As far as our evidence is concerned, it remains possible that research on education is more flawed than other forms of research with human subjects--although, on balance, we suspect that this charge is groundless. In a recent article attacking educational research, D. W. Miller provided extensive quotes from Diane RavitchB another former Assistant Secretary of Education during the administrations of Ronald Reagan and the elder George Bush--who made the absurd claim that educational research is far inferior to medical research. If you want to find examples of truly awful research, we suggest that you take a look at studies, appearing today in leading medical journals, concerned with the effects of treatment alternatives for serious maladies. Most of the studies you find there will frighten and depress you because they provide so many text-book examples of how not to construct research designs, choose samples, collect evidence, analyze data, and interpret evidence. But sooner or later, many of us will have to make major decisions about the life-threatening matters that
these studies address, so we must somehow convince ourselves that the research they represent is competent.

This does not mean that all medical research is incompetent; rather, as is true for research on education, it exhibits a wide range of both well-constructed and weak studies. But educational research offers another strength; some of its practitioners are also pioneers for new and ground-breaking techniques for analyzing complex data sets, such as those generated in comparative studies and panel research designs. For instance, recent major advances in Hierarchical Linear Modeling have tended to come from researchers concerned with education. Indeed, the case may be made that research on education today provides world leadership for quantitative studies concerned with human affairs.

However, our evidence clearly does bear on claims that educators think that research on education is badly flawed and, as a result, they do not use it in their schools. If our respondents are to be believed, school principals, at least, do not think that research on education is seriously flawed, they are not disinterested in the knowledge such research generates, they are not ignorant about that knowledge, and they do not serve in schools where it is ignored.

It may be that politicians like to criticize educational research and are disinclined to pay attention to it. After all, they may reason, 'I spent a lot of time in classrooms, and certainly don't need research from egg-heads to tell me what is wrong with education!' Besides which, right-wing ideologues have always thought that social and educational research reflects liberal values, and a good deal of White House hostility to such enterprises was expressed, in America, during the Reagan and George Bush-The-First administrations. And the temptation among politicians to make scapegoats out of educators and educational researchers and to substitute slogans for serious educational reforms seems to be nearly overwhelming.

It may also be true that historians and other scholars in the humanities or physical sciences like to bash their academic colleagues in education and are delighted to repeat derogatory accusations about educational research and its supposed lack of impact. But to say that politicians and some historians have little respect for research on education is one thing; to claim it has no impact among educators is something else, and our evidence suggests that the latter claim is baseless.

Clearly, claims about the supposed feckless character of educational research and the knowledge it generates are like reports about the supposed early death of Mark Twain--greatly exaggerated! We submit that it is now time to abandon these damaging claims and to demand that those who utter tirades against research on education and its supposed lack of effects express views that are more balanced and are based on evidence. Our study provides some of that needed evidence, and we have provided a brief overview of it here. For those wanting more details of our concepts, methods, findings, and conclusions, you may find them in the book we have just published.

Endnotes

[Interviewer: Let's begin with knowledge that you associate with research. Can you think of an example of research-generated knowledge which you have found useful in some aspect of your job as principal?]

Yes. Do you want the example? Learning Styles Research by Dunn and Dunn.

[Interviewer: Can you tell me a little bit about what that is?]
Dunn and Dunn are Mr. and Mrs. Dunn (or Dr. and Dr. Dunn), and they are out of St. John=s University of Schenectady, New York. About 20 years ago, they--working together--developed a theory that each individual student has his or her own individual learning style, based mainly on the way in which they process new and difficult information, in that some students prefer, and their style is, to learn visually, some audially, some tactile, kinesthetically, etc. They believe that students have a better chance of learning if new and difficult information is presented to them in one of those four areas. So in any given classroom you teach everything basically four times. They also, in further research, discovered that room design has a lot to do with the individual student=s learning style; for example, some like to be near a window, some don=t. Some like to sit in soft chairs, others need very straight, very straight-back kinds of chairs. Some want light, others like dark. Some like cold, some like hot. Some like it in the middle. So, they have spent 20 years doing research on that, and they have developed a whole learning styles network, and they have workshops every summer, and their research has been very helpful to me in trying to work with the needs of our students.

[Interviewer: And where did you come across that research?]

The [diocesan office] brought the Dunns in for an inservice district write-in service about three years ago, and I heard them then, and then I also attended one of their workshops.

[Interviewer: Do you recall any of the specifics of how they went about their research? What they might have done, the methods or design and that type of thing?]

To be real honest with you, I really don=t remember. I do know that Rita Dunn directs a number of doctoral students at St. John=s University, and a number of them do research on learning styles and that sort of gathering. Whether it was field research or, you know, questions or whatever, I am not sure.

Figure 2.2. An Example of a Principal Talking About Research Knowledge

Figure 4.2. Average Numbers of Examples Named for Precategorized Sources
Figure 5.1. Percentages of Respondents Revealing Various Evaluations of Research Knowledge

Figure 6.1. Numbers of Research Traditions Respondents Volunteered (in %)
**Among Australians**

**High Recognition** Moderate Recognition Low Recognition

(100% - 66.6%) (66.5% - 33.3%) (33.2% - 0%)

<table>
<thead>
<tr>
<th>Among Australians</th>
<th>-</th>
<th>Teacher expectations and student achievement (77/95)</th>
<th>Time-on-task and achievement (38/84)</th>
<th>Between-class versus within-class grouping (23/72)</th>
</tr>
</thead>
<tbody>
<tr>
<td>- High Recognition (100% - 66.6%)</td>
<td>-</td>
<td>-</td>
<td>At-risk students (62/85)</td>
<td>Wait time following questions (23/81)</td>
</tr>
<tr>
<td>- Moderate Recognition (66.5% - 33.3%)</td>
<td>-</td>
<td>-</td>
<td>Gender differences in achievement (64/68)</td>
<td>-</td>
</tr>
<tr>
<td>- Low Recognition (33.2% - 0%)</td>
<td>-</td>
<td>-</td>
<td>Cooperative learning in the classroom (49/72)</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Among Americans</th>
<th>-</th>
<th>Teacher morale and teacher retention (41/59)</th>
<th>Active teaching or direct instruction (38/64)</th>
<th>School bussing and white flight (0/57)</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Moderate Recognition (66.5% - 33.3%)</td>
<td>-</td>
<td>-</td>
<td>Student and teacher engagement (51/38)</td>
<td>Racial differences in measured intelligence (0/65)</td>
</tr>
<tr>
<td>- Low Recognition (33.2% - 0%)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>National differences in student achievement (18/65)</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>Self-regulated</td>
<td>-</td>
<td>Phonics instruction (28/46)</td>
</tr>
<tr>
<td>Low Recognition (33.2% - 0%)</td>
<td>learning (69/33)</td>
<td>Control-based strategy (18/21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------------------</td>
<td>------------------</td>
<td>-------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reciprocal teaching (13/14)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classroom thoughtfulness (13/23)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A Authentic@ learning (5/19)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advance organizers (8/16)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Numerical entries are, respectively, the percentages of Australian and American school principals indicating recognition of knowledge.

**Figure 7.1. Percentages of Respondents Indicating That They Recognized Research Knowledge Associated With Phrases**

![Graph showing percentages of Australian and USA school principals indicating recognition of research knowledge associated with phrases](image-url)