Knowing What We Know: Children, Teachers, Researchers
Catherine E. Snow

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What is This?
Knowing What We Know: Children, Teachers, Researchers
by Catherine E. Snow

Issues within the educational research community concern the correct relation between research and practice, the status of various sorts of research-based knowledge, and methodological squabbles between practitioners of different research traditions. These issues reflect the intrinsic difficulty of knowing in complex domains. In this article, child language development is taken as a (neutral) field in which to contemplate the nature of knowledge, and three generalizations about knowledge are formulated and exemplified from data on language acquisition: (1) Becoming knowledgeable about any complex domain requires a balance between going beyond the known and being constrained by what experts have already discovered; (2) In the right environment, one can perform quite skillfully despite quite low levels of autonomous competence; nonetheless, skilled performance is typically poorer than one’s level of knowledge about how to perform would predict; (3) The capacity to reflect on and analyze one’s knowledge emerges only after considerable knowledge has been accumulated and embedded into practice. The reflections of skilled practitioners in any field deserve to be systematized so that personal knowledge can become publicly accessible and subject to analysis.

The theme of AERA’s 2001 annual meeting, “what we know and how we know it,” had two clauses. The first clause was meant as an invitation to focus on the informative and useful products of educational research, to challenge the too widely held view that our research efforts are inadequate, ineffective, and unhelpful as a source of knowledge for guiding either practice or policy. It was designed to open up two discussions. One discussion would address the persistent issues of how research relates to practice: how educational researchers and educational practitioners generate knowledge; how researcher-generated knowledge can become relevant enough to be useful to practice; and how or when practice-generated knowledge might become sufficiently embedded in theory to be useful to researchers. The other discussion was meant to address the status and role of educational research in the world outside AERA. This intention was motivated by the observation that important decisions are regularly being made about matters of great importance with insufficient guidance from research. What sorts of intervention programs to support with federal funds, how test scores should be used, which educational reform efforts will raise achievement, how math and reading should be taught, whether to expand programs of vouchers, school choice, charter schools, reduced class size, rapid routes to certification, and bilingual education are all topics to which research is relevant. Yet in decisions about these matters educational research has been relatively invisible, and the voices of educational researchers largely muted.

The second clause of the theme, how we know it, alludes to the ambiguous epistemological status of educational research. The question of whether or not educational research even qualifies as science is often voiced. Consider, for example, Ellen Lagemann’s (2000) choice of the evocative term “an elusive science” as the title for her 2000 history of the field. Unfortunately, the methodological alliances and schisms within AERA, as well as the arguments and attacks perpetrated by AERA members on each other, do little to shore up the case for educational research as a rigorous undertaking constrained by principles of scholarly inquiry. Some educational researchers evidently believe that the choice of a research method represents commitment to a certain kind of truth and the concomitant rejection of other kinds of truth. Many seem to think, furthermore, that ways of doing research can be judged on their own, without reference to the questions they are being deployed to answer. Who of us has not had the following conversation with a doctoral student?

Sage elderly scholar: What are you planning to do for your thesis?
PYS: I don’t know, I just want to do something ethnographic.

Promising young student: I want to do an ethnography.
SES: But what question motivates your study?
PYS: I don’t know, I just want to do something ethnographic.

Doctoral students who think that choice of a method should precede the choice of a research topic or question may be forgiven, for of course they are not yet fully trained in research. Such views are considerably more troubling when held by professional researchers, those who might even be responsible for training doctoral students. Imagine the impact if conversations like the one imagined above were overheard by the members of Congress considering appropriations for OERI. They think they are funding educational research to get answers to pressing educational questions and solutions to pressing social problems, not to cast votes in methodology contests.

Methodological rigor is, of course, not a concept limited in application to particular research strategies: Examples of bad research carried out with every possible quantitative and qualitative method could be cited, and bad research is not redeemed by association with any particular research tradition. Paranoid tendencies to interpret attacks on the quality of research as attacks on...
The capacity to reflect on and analyze one’s knowledge emerges only after considerable knowledge has been accumulated and seamlessly embedded into practice. Reflection is not for the beginner, and currently available procedures for systematizing personal knowledge and analysis of personal knowledge into publicly accessible knowledge are inadequate.

I will exemplify each of these generalizations with familiar phenomena observed in child language development, then attempt to suggest how the generalization might relate to the use of research-based knowledge by practitioners and by educational policy-makers.

**Going Beyond the Known, Being Constrained by the Known**

**Expressing New Meanings**

Inevitably, young children go beyond the known in producing language. The essence of language acquisition is the capacity to hear a relatively small sample of language (a rough estimate might be a million utterances by one year of age) and extract some regularities that enable one to produce, in principle at least, an infinite number of utterances. Of course, early language acquisition is rather slow. On average, it takes a year for the first word to appear. Thereafter children acquire approximately a word a week for a few months, then many experience a vocabulary spurt characterized by a rate of word acquisition that increases to several words a week, perhaps as many as three or four a day. Still, this means that the average three-year-old only knows 600–1000 words, hardly enough to say everything she or he might be interested to communicate. So there are two ways in which children must go beyond that which they have observed: in using a small number of words to express a wide array of meanings and in extrapolating grammatical patterns observed with one set of words to other words.

Using old words to express new meanings is referred to as semantic overgeneralization. Just to give a flavor of these, I offer a few famous examples from the child language literature and some from a corpus of child language data I collected from my son Nathaniel (see Barrett, 1978, for one source of further examples).

1. **Papa**, used by Hildegard in reference to father, grandfather, mother (at 1;0), any man (at 1;2) (Leopold, 1939)
2. **tick-tock**, used by Hildegard for wristwatches and clocks (1;6), bathroom scales (1;3), round eraser (1;9) (Leopold, 1939)
3. **woof-woof**, used by Nathaniel for dogs and pictures of dogs (1;8), horses (1;11), and cows (2;0)
4. **octopus**, used by Nathaniel referring to pictures of octopuses (2;5), spaghetti on a plate (2;8), broccoli (2;9)
5. **traffic**, used by Nathaniel referring to cars in the street (2;8), pictures of traffic (2;11), to three people sitting on one chair (3;1)

What can one conclude about the child’s knowledge base from these forms? Different researchers have concluded quite different things. The “limited knowledge” explanation is that they represent the child’s inability to distinguish between papa and the postman, or a dog and any other four-legged animal. The “limited communicative capacity” explanation suggests that the child...
The feature of early language acquisition is the phenomenon of perhaps the most frequently analyzed, widely known, and familiar accomplishments of math and science transmitted to children by doing it versus those want the cultural accommodations of math and science by doing it. Researchers of the romantic view, inclined to credit children with as much sophistication as possible in every domain, and those of the more empiricist view who are predisposed to assume that children's impressive seeming performances are a product of the effective deployment of rather low-level abilities. This same split characterizes views of knowledge in other domains as well—in fact, it would not require much stretching of the point to identify the romantic versus the empiricist positions held by child language researchers respectively with the views of educators who favor inquiry and discovery methods versus those who prefer direct instruction in a canon, those who advocate literature-based reading instruction versus those who favor focusing on sound-letter correspondences, those who want children to learn math and science by doing it versus those want the cultural accomplishments of math and science transmitted to children efficiently. Does child language research help us choose among these various views? It does at least point out one key dimension to be attended to in making such a choice, the dimension of development. Young children's overgeneralizations, like Hildegard's use of tick-tock to refer to a bathroom scale, seem on a variety of evidence to reflect limitations of knowledge: the unavailability of other ways of talking about the referent, and perhaps some genuine confusion about what the limits of the original category are. Later overgeneralizations, like Nathaniel's traffic, seem to reflect a more creative, metaphorical use of language. We have some license, in short, to be romantics about the later stages of semantic development, but not about its very beginnings.

Living by the Rules

A second example of children going beyond the language system they are exposed to comes in the domain of morphology. Perhaps the most frequently analyzed, widely known, and familiar feature of early language acquisition is the phenomenon of morphological overregularization. Overregularization involves the use with irregular stems of suffixes appropriately applied to regular stems, such as -ed for past tense. There are many examples of this phenomenon, from archived corpora of children in the appropriate age range, as well as from the literature. It is important to note that "the appropriate age range" is typically somewhere in the fourth year of life, well into the second year of using verbs in the past tense. Children start out with correct regular and irregular forms, then at some point start producing forms like the following (in these examples, the child form is given first, then the correct form, then, if applicable, a translation):

<table>
<thead>
<tr>
<th>Example</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>6a. *he goed</td>
<td>he went already.</td>
</tr>
<tr>
<td>6b. he goed</td>
<td>he went already.</td>
</tr>
<tr>
<td>7a. *heb vogeltje meegehelpen?</td>
<td>(Nick, 3:10.7)</td>
</tr>
<tr>
<td>7b. heb vogeltje meegeholpen?</td>
<td>(Iris, 3:01.14)</td>
</tr>
<tr>
<td>7c. has little-bird helped = did little-bird help?</td>
<td></td>
</tr>
<tr>
<td>8a. is eh niet gehangt.</td>
<td>(Iris, 3:01.14)</td>
</tr>
</tbody>
</table>

In the following example, the adult interlocutor responds by providing the correct, irregular form in response to the child's overregularization, a not infrequent phenomenon in adult-child conversations:

<table>
<thead>
<tr>
<th>Example</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>9a. heb uhtuh uhtkuh . . . kadoottie gekreegt.</td>
<td>(Iris, 3:3.9)</td>
</tr>
<tr>
<td>9b. (ik) heb een kadoottie gekrengt.</td>
<td></td>
</tr>
<tr>
<td>9c. (I) have uh uh little-present gotten = I got a present.</td>
<td></td>
</tr>
</tbody>
</table>

What does one conclude from the forms goed, meegeholpen, gekoopd, and so on? They are all more regular sounding than their correct counterparts. Certainly it seems that the child has learned a rule, or at least a regularity, and has not yet learned the limits of the application of the rule, or would prefer to operate in a world where such rules have no exceptions. In other words, this might well be taken as evidence that children start from an assumption that language is rule governed, and upon accumulating enough evidence to conclude what a particular rule might be, proceed to assume it is of unlimited or at least wide application. As it turns out, there is an active debate, well summarized in a book by Steven Pinker called *Words and Rules* (1999), about the exact nature of the knowledge underlying forms such as goed, that I will not review here. The issue of interest to me is not so much whether goed represents the application of a rule or the product of statistical analysis of associations between forms and meanings. Rather, I take children's production of forms like goed and gekoopd, like their use of words for referents outside the boundaries of the adult meaning for those words, as a metaphor for the inevitable challenge to researchers and to practitioners, as to child language learners, of getting beyond the known. Knowledge, to be useful, must be both rooted in observation and be formulated in such a way that it transcends observation. We find it very easy, as the production of goed indicates, to go beyond our observations, to assume that a method of teaching reading that works for this child will work for that one, that a method of assessing achievement that is valid for this group is valid for that group, or that because code-switching reflects the creative use of two languages it is never occasioned by inadequate knowledge of one of those languages. We find it harder to remember that our generalizations must be cautious, limited by the nature of the domain over which we are generalizing.

But forms such as goed are relatively easy to explain; indeed, the problem for the field of child language is that there are too many plausible explanations for the production of overregularized forms. Such forms do not, however, exhaust the formal inventiveness of children learning language. The intriguing obverse of overregularizations such as goed is offered by over-irregularizations, taking regular verbs and treating them like irregulars. This is the tendency that older speakers engage in for sport: using blice as the plural of blousie, or Kleenices as the plural of Kleenex. Young children do this as well and not, as far as we can tell, for humorous effect. Consider the following forms:

<table>
<thead>
<tr>
<th>Example</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>10a. Iris: dat uhs de papa (ge)koopt.</td>
<td>(Iris, 3:6.15)</td>
</tr>
<tr>
<td>Frank: heeft papa dat gekocht?</td>
<td></td>
</tr>
<tr>
<td>10b. Iris: that uh the daddy bought?</td>
<td></td>
</tr>
<tr>
<td>Frank: has daddy bought that? = did daddy buy that?</td>
<td></td>
</tr>
</tbody>
</table>

8b. Is niet (op)gehangen.  
8c. Has not been up-hung = Hasn't been hung up.  
9a. heb uhtuh uhtkuh . . . kadoottie gekreegt. (Iris, 3:3.9)  
9b. (ik) heb een kadoottie gekrengt.  
9c. (I) have uh uh little-present gotten = I got a present.  

In the following example, the adult interlocutor responds by providing the correct, irregular form in response to the child's overregularization, a not infrequent phenomenon in adult-child conversations:
What does one conclude from the appearance of forms like *vergeten or *weggeraken? In both these cases, the correct form is easier and more regular than the form the child created. Does this imply that the child has detected a certain degree of complexity in the target system, and assumes that complexity is unlimited? Did Nathaniel think the correct form was insufficiently marked for past tense, and for some reason (e.g., partial analogy to sit, phonological complexity) decide that fitted was an unlikely solution? Was Nioc sufficiently impressed by the rather high frequency of the -en ending for past participles that he decided it was a better bet than the default (and even more frequent) -t-ending? Whatever the explanation, it is clear that the process of acquiring a system of inflectional morphology in languages like English and Dutch—in which the statistical tendencies are clear, but there is room both for over-regularization and for under-regularization—requires going beyond that which has been personally heard, but doing so with considerable caution. The child whose language use is limited to sentences heard, to syntactic structures that have been modeled, and to morphological forms that have been presented, is severely limited in language proficiency. Knowing a language, like knowing how to do research or knowing how to teach, involves going beyond the information modeled by extracting underlying principles and engaging in creative application of those principles. But one can go too far. In fact, generalization is a useful process only if engaged in with sage restraint. Even young children act like they know this; morphological overgeneralizations often are taught to preservice teachers, and how much its utility is limited by characteristics of the students being taught. The problem of overgeneralization from classroom ethnographies is of course exacerbated if classroom ethnographers oversample the classrooms of highly skilled practitioners for their research sites. It is understandable that no doctoral student really wants to spend a year documenting in detail the practice of a mediocre teacher. If they all indulge this tendency, though, the accumulated weight of classroom ethnographies would end up providing a rather biased view of American classrooms. Using those ethnographies as a collective basis for generalization would be rather like children trying to learn English from input that was limited to the ‘strong’ verbs with vowel changes in the past tense. Such children would have no chance to discover that the vast majority of English verbs follow the pattern of adding -ed in the past. Classroom ethnographers need to help us form detailed pictures of what normal, widespread teaching practices look like, acknowledging that there are quite a few unskilled teachers out there who also deserve the close attention of the research community.

Admittedly, children may not be the best model for self-analysis and recovery from mistakes. Their conviction concerning the correctness of the irregularized forms they have constructed is often impressive. These forms persist for months, sometimes despite consistent parental feedback suggesting that they are wrong. My own son used the past tense form *brang until his sixth birthday, whereupon I attempted to intervene, pointing out that he would soon be entering first grade where his teacher might think poorly of him for making such a mistake. Reflecting a cynical willingness to exploit his mother’s commitment to sociolinguistic variation, he responded, “In my dialect, we say brang.”

**Knowing Isn’t Doing and Doing Doesn’t Imply Knowing**

A robust phenomenon in the language-learning careers of young children is the emergence of the “why-question.” Some time in the third year of life, children often start to ask *why* frequently, and at conversational junctures that adults might find puzzling, as shown in the following conversation with Nathaniel aged 3;7.14:

12a. *ik ben het niet weggeraken. (Niek, 3;10.7)*
12b. *ik ben het niet weggeraakt.
12c. I didn’t lose it.
13. Mother: (be)cause April is spring.
   Nathaniel: why April is spring?
Or the one that followed a few minutes later:

14. Mother: on next Saturday it's gonna be April.
   Nathaniel: April.
   Mother: neat hey?
   Nathaniel: why next Saturday is gonna be April?
   Mother: (be)cause tomorrow is the last day of March.

What is going on here? Examining the emergence of why-questions in the language of one child reveals that such questions appear rather suddenly right around his third birthday, and then decline in frequency after about a year (see Table 1). The vast majority of these questions, about 80% overall, were one-word utterances, simply why? The structural simplicity of most of the questions clarifies why many have assumed that such questions primarily serve the function of keeping the child in the conversation, rather than indicating a sudden explosion of metaphysical capacity. Of course, we might well ask why children use why? rather than other possible ways of staying in the center of the conversational interaction. Why is it that why? works better than what? or who? as a general purpose participation enhancer? One answer might be related to parental tendencies actually to answer these questions, or at least attempt to do so.

In addition to noting the rise and fall of why-question frequency, though, it is instructive to consider the construction of the syntactically more complex why-questions. It turns out that the vast majority of the multi-word why-questions this child produced derived a good deal of their content and structure from the preceding adult speech. For example, at 3;0.19, the first recorded session with a high frequency of why-questions, the questions occurred in conversations like the following:

15. Mother: please don’t do that.
   Nathaniel: why?

16. Mother: it’s called peanut butter without peanuts.
   Nathaniel: why?
   Mother: no peanuts in it.
   Nathaniel: why no peanuts in it?
17. Nathaniel: (what’s) mommy do-in(g)?
   Mother: I was pulling a hair out.
   Nathaniel: why?
   Mother: because . . . hair doesn’t taste good. It makes you feel funny when you get it in your mouth by mistake.
   Nathaniel: why you get it mouth by mistake?

These why-questions show clear signs of being constructed with the support of previously heard utterance chunks, often even without the niceties of switching the pronouns from second to first person. Nathaniel had often produced pronoun switches— you for I and vice versa—much earlier in his acquisition of language, but had resolved his understanding of how to refer to first and second person in other domains. This previously acquired capacity, evidently more fragile than it had looked, dissolved again in the context of producing why-questions.

Slightly later produced why-questions start to have a bit more of their own structure. For example, at 3;5.20 Nathaniel produced the following why-questions, with no immediately preceding model and considerable dysfluency signaling the effort being expended:

18. Nathaniel: wh- why is night?
   Nathaniel: wh- why is this dark?
   Nathaniel: wha wha wha eh why . . . why is dark ?

Table 1. Production and Length of Why- and Other Wh- Questions by One Child

<table>
<thead>
<tr>
<th>Age</th>
<th>Total # of Utterances</th>
<th>% Why-Q’s</th>
<th>MLU* of Why-Q’s</th>
<th>% Other WH-Q’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>2; 5.18-2; 6.17</td>
<td>3896</td>
<td>00.0</td>
<td>—</td>
<td>00.9</td>
</tr>
<tr>
<td>2; 6.19</td>
<td>210</td>
<td>00.5</td>
<td>1.00</td>
<td>00.5</td>
</tr>
<tr>
<td>2; 6.21-3; 0.17</td>
<td>3457</td>
<td>00.0</td>
<td>—</td>
<td>01.9</td>
</tr>
<tr>
<td>3; 0.19</td>
<td>704</td>
<td>05.5</td>
<td>1.92</td>
<td>1.90</td>
</tr>
<tr>
<td>3; 0.22</td>
<td>571</td>
<td>08.4</td>
<td>2.46</td>
<td>06.6</td>
</tr>
<tr>
<td>3; 1.6</td>
<td>201</td>
<td>02.4</td>
<td>1.00</td>
<td>01.5</td>
</tr>
<tr>
<td>3; 2.24</td>
<td>748</td>
<td>07.1</td>
<td>2.32</td>
<td>04.1</td>
</tr>
<tr>
<td>3; 4.8</td>
<td>609</td>
<td>09.0</td>
<td>3.04</td>
<td>11.6</td>
</tr>
<tr>
<td>3; 4.9</td>
<td>628</td>
<td>14.6</td>
<td>2.58</td>
<td>09.7</td>
</tr>
<tr>
<td>3; 4.10</td>
<td>974</td>
<td>08.8</td>
<td>3.05</td>
<td>11.2</td>
</tr>
<tr>
<td>3; 4.17</td>
<td>324</td>
<td>21.9</td>
<td>2.87</td>
<td>07.1</td>
</tr>
<tr>
<td>3; 4.20</td>
<td>416</td>
<td>22.1</td>
<td>3.35</td>
<td>11.7</td>
</tr>
<tr>
<td>3; 5.20</td>
<td>163</td>
<td>06.1</td>
<td>3.60</td>
<td>03.7</td>
</tr>
<tr>
<td>3; 7.14</td>
<td>188</td>
<td>05.9</td>
<td>3.18</td>
<td>08.5</td>
</tr>
<tr>
<td>3; 9.2</td>
<td>202</td>
<td>18.3</td>
<td>1.11</td>
<td>27.2</td>
</tr>
<tr>
<td>3; 9.4</td>
<td>80</td>
<td>01.3</td>
<td>1.00</td>
<td>41.3</td>
</tr>
</tbody>
</table>

*MLU (mean length of utterance) is an omnibus indicator of language sophistication. It is calculated by counting the total number of morphemes produced in a sample of speech and dividing by the number of utterances.
Note though that these are quite simple structures, considerably below the syntactic complexity of which he was capable in utterances that were not why-questions. This strongly suggests that there was a cognitive load associated with the production of why, perhaps reflecting some minimal understanding of the semantics of the question. At this same age he managed to analyze the internal structure of a maternal utterance so as to substitute pronouns in a why-question, but he still didn’t get the resultant pronouns correct, just partly different from the model.

19. Mother: [reading] you can’t see me but I see you!
   Nathaniel: so why can’t see you?

I present these data about why-questions with no illusion that I have plumbed the depths of this linguistic phenomenon, but more as a demonstration of how rather sophisticated looking language forms can initially be generated by rather simple strategies, how performing with limited competence leads to greater competence, and how much work children engage in to analyze the systems which they are already using with apparent skill. A related observation is that Nathaniel continued to ask the simple, one-word version of why-questions throughout the entire period studied; the capacity to produce more complex, more specific forms did not lead directly to generally improved performance. In child language, as in many other fields, knowing isn’t doing any more than doing implies knowing.

Child language examples from any number of domains could be offered to demonstrate that speakers continue to make errors with structures that they give evidence of actually knowing. This phenomenon informed Chomsky’s formulation of the important distinction between performance (one’s actual use of language, with its dysfluencies, ungrammaticalities, and limited exploitation of syntactic possibilities) and competence (one’s underlying knowledge, undistorted by limitations of attention, memory, or planning capacity). But distinguishing performance from competence leaves us a very long way from the actual grain of gradations that characterize behavior on the continuum between ignorance and expertise, a continuum that extends from the young child learning a word at a time to the fluent and largely correct 12-year-old language learner to the linguist who can reflect on and analyze her own knowledge.

If child language acquisition provides an illuminating metaphor for the acquisition of knowledge in any complex domain, then perhaps it is useful to think about it in relation to the task facing teacher education students, that of acquiring knowledge that will enable them to teach effectively. Performing with limited competence works well for young children; it gets them involved in conversations in the course of which they can actually acquire competence. Exploiting the support of the environment (i.e., helpful conversational partners in the case of language learners) enables children to look considerably more knowledgeable than they are. At the same time, though, they persist in making errors with many structures that one can demonstrate they actually know. The parallels to teacher preparation are, I hope, sufficiently obvious that need not be belabored. Young teachers have to perform in classrooms before they really understand what they are doing, while at the same time their performance fails to incorporate many of the things they have learned in their preservice programs and know well. It may be that the task of conscious reflection on and analysis of knowledge about teaching cannot be expected of novice teachers any more than reflection on and analysis of language can be expected of three-year-olds. Only after the integration of ‘knowing what’ and ‘knowing how’ has proceeded beyond the early stages, those characterized by performing with limited competence while simultaneously failing to perform as well as one knows how, is cognitive capacity freed up for serious reflection.

The Power of Personal Knowledge

Jason, approaching his third birthday, had recently taken his first plane ride. On hearing from his grandmother that she was taking a trip by air, he was of course eager to confirm that her experiences would match his:

20. Gramma, the lady gonna take your ticket for the airplane?
   Gramma, the lady gonna tell you to fasten your seatbelt?
   Gramma, the lady gonna give you orange juice?
   Gramma, the lady gonna tickle you?

Personal knowledge, knowledge based on one’s own experience and practice, is an irreplaceable source of wisdom. In fact, if the best teacher-education programs turn out to be those that insist that teacher education candidates have personal experiences with child learners before they start to acquire the research-based knowledge that is also such an important part of their education. But personal knowledge is also a limited source of wisdom, as Jason’s use of it demonstrates. It must be compared to knowledge from other sources, connected with knowledge based in research, and interwoven with knowledge derived from a theoretical perspective to be made useful.

A major challenge of the power of personal knowledge is that everyone has it. Even more disquieting is that everyone, including congresspeople, mayors, governors, and members of the school board, has personal knowledge about schools, knowledge against which the power of research findings often pales. Evidence that bilingual programs in which language minority children acquire initial literacy in their first languages reduce the risk of reading failure is easily dismissed by those who themselves first learned to read in a second language with little trouble. Evidence that being encouraged to write with invented spelling promotes literacy development is irrelevant to the mother whose ten-year-old remains a terrible speller after initial instruction with invented spelling. Evidence that, when other factors are held constant, age correlates with speed of second or foreign language acquisition and that adult second language learners can achieve native-like proficiency are rejected as nonsense by adults who themselves have found it difficult to learn foreign languages. Individuals who rely on the power of personal knowledge rather than research-based medical practice in curing their own heart problems or cancer mostly die before they can influence policy. Being wrong by relying on personal knowledge about bilingual education, invented spelling, or foreign language teaching does not, fortunately, kill those in error, but it may have disastrous consequences for policy decisions and for classroom practice.

There are, then, two challenges set by the power of personal knowledge. The first, relevant to influencing policy, is to figure out how to present research findings so that their messages can compete effectively with conclusions from personal knowledge.
Direct confrontation seems not to work, but perhaps there are ways of connecting personal experience to research, or of effectively contrasting personal experience with research, that could raise the impact of research findings, without denying the value of personal knowledge.

The second challenge is to enhance the value of personal knowledge and personal experience for practice. Good teachers possess a wealth of knowledge about teaching that cannot currently be drawn upon effectively in the preparation of novice teachers or in debates about practice. The challenge here is not to ignore or downplay this personal knowledge, but to elevate it. The knowledge resources of excellent teachers constitute a rich resource, but one that is largely untapped because we have no procedures for systematizing it. Systematization would require procedures for accumulating such knowledge and making it public, for connecting it to bodies of knowledge established through other methods, and for vetting it for correctness and consistency. If we had agreed-upon procedures for transforming knowledge based on personal experiences of practice into ‘public’ knowledge, analogous to the way a researcher’s private knowledge is made public through peer-review and publication, the advantages would be great. For one, such knowledge might help us avoid drawing far-reaching conclusions about instructional practices from experimental studies carried out in rarified settings. Such systematized knowledge would certainly enrich the research-based knowledge being increasingly introduced into teacher preparation programs. And having standards for the systematization of personal knowledge would provide a basis for rejecting personal anecdotes as a basis for either policy or practice.

Conclusion

I hope that child language development serves as a productive metaphor for how any of us comes to know anything, even if it offers, perhaps, too much optimism about ultimate outcomes. After all, every child does end up a native speaker of his or her native language, with a much higher level of expertise than is universally achieved by practitioners or researchers. Nonetheless, there are parallels. Perhaps the most unifying is that, in all these cases, the learner must construct anew what is already known, daring to invent but simultaneously respecting the constraints of expertise. If children constructed language anew without attending to the constraints of their parents’ language, they would end up inventing brand new languages in every generation. If teachers must construct their practices anew, without attending either to the accumulated expertise of their elders or the constraints inherent in the subject matter being taught, we can hardly hope to improve educational outcomes.

Having reconstructed the knowledge base leaves the child, the teacher, and the researcher far from proficient in using it. Linguists formulated the notion that performance falls below competence. In many cases however we also can perform at a level beyond our knowledge or understanding. The challenge for the child learning language or for the classroom practitioner is to use the knowledge accumulated so as to be able to perform fluently, responsively, in ways that even approach the richness of the knowledge base, while at the same time performing adequately in a wide array of domains where the knowledge base is inadequate. For this part of the system, competence is the product of the structures in which one operates as much as of individual capacity. Children learning language, like the rest of us when operating in complex domains, make errors again and again, approaching highly proficient performance stochastically, eliminating errors slowly. Of course child language learners like teachers and researchers have insights, but insights relate more closely to knowing than to doing, and those insights might not translate into greatly improved performance immediately.

Personal knowledge is powerful and can be powerfully used in expanding competence if and only if we understand its limitations. The challenge is not just to understand these limitations but to communicate about them in cases where personal knowledge is trumping research findings in guiding policy.

Ultimately, the child learning language, the aspirant teacher, the young researcher, and the educational policy maker all need the full resources of a seamless epistemology, one in which creating knowledge, recreating knowledge, extracting knowledge, and uncovering knowledge have their place. It will no doubt be an epistemology replete with errors, overgeneralizations and undergeneralizations, overreliance on personal knowledge, and skepticism about the contributions of one’s dispreferred methods. But it will, I hope, also have a robust set of built-in mechanisms for correcting these failings, since procedures for self-correction are the one absolute condition for learning a language, improving one’s practice, or doing science.

NOTES

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1 I follow here the standard conventions within the field of child language for indicating age: year;month. If information about the exact day is unavailable, then only year;month is given.

2 I have relied in particular on the archived data from the Wijnen and the Groningen corpora, both collected by Frank Wijnen, and from the Snow corpus. These and other child language corpora are accessible at http://childes.psy.cmu.edu/.

3 I am grateful to researcher and grandmother Jessica Hoffman Davis for recording this bit of data and recounting it to me.

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