

May 18th, 9:00 AM - May 21st, 5:00 PM

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Tone Kvernbekk
University of Oslo

Robert C. Pinto

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Evidence-based practice and Toulmin

TONE KVERNBEKK

*Institute of Educational Research
University of Oslo
PO Box 1092 Blindern
N – 0317 Oslo
Norway
tone.kvernbekk@ped.uio.no*

ABSTRACT: There is a vast literature on evidence-based practice (EBP) in education. Both critics of and adherents to EBP seem to think of evidence largely as quantitative data, serving as a foundation from which practice could and should be derived; in Toulminian terms, evidence is treated solely as data/grounds. I argue in this paper that it is better in educational reasoning to view the function of evidence as backing of the warrant.

KEYWORDS: Backing, data, EBP, education, evidence, judgment, reasoning, rules, Toulmin model, warrant.

1. INTRODUCTION

There exists a vast and growing literature on evidence-based practice (hereafter EBP) in education; hardly surprising given the status of “evidence-based” as a buzzword in contemporary educational debates (and also in e.g. medicine, military leadership and policy-making). In education EBP largely seems to have arisen as a government wish for better research bases to inform policy and practice; this has become known as the *what works* agenda.

It is not easy to characterize the EBP debate. It branches off in several directions, and it is also to some extent plagued by general unclarity, confusions and misunderstandings. But to a good many of the participants in the debate there is obviously something very provoking about EBP. I think that some of the criticisms of the current educational “landscape” hit EBP by contagion, so to speak. This landscape is dominated by a vocabulary consisting of concepts and ideas such as learning outcomes, testing, measurement, qualification, employability, accountability, effectiveness, competencies and predictability; here given in no particular order. Since schooling and education are considered successful when predetermined outcomes have been achieved, education makes excessive requirements of assessment, measurement and documentation. EBP is generally seen as belonging in this picture; to know *what works* in order to maximize the probability of attaining the goal. The critics claim that all these concepts taken together make for a very narrow and highly instrumental conception of education.

This criticism of the big picture of contemporary education is, to my mind, both pertinent and justified. But it cannot automatically be assumed that it thereby applies to EBP as well; EBP in itself is neither necessary nor sufficient to produce the educational landscape outlined above. When we single out EBP for special attention, two things stand out. First, the abundance of misunderstandings and confusions concerning the term *evidence*; and second, the absence of fruitful discussions about the possible *uses* or *roles* of research evidence in practice. In this paper I shall discuss the second issue, focusing on

how research evidence can enter into practitioners' deliberations and decisions – not on what teachers might *do* in their classrooms. I propose to employ Toulmin's model of arguments to discuss the role that research evidence can play in practice, and the role I shall advocate deviates substantially from the role ascribed to it by most writers. First I shall look into certain aspects of the EBP debate relevant to my issue; then I use Toulmin's model of argumentation to argue for what I take to be a more adequate role for evidence than the one that can be identified in the literature.

2. A SKETCH OF THE EDUCATIONAL EBP DEBATE

The EBP debate in education has a rather adversarial character. There are adherents and there are critics, and (at least until recently) the critics far outnumber the adherents. One thing both camps agree about, is that EBP from the beginning has had strong political overtones in the form of government wishes to improve the results of the educational system. This is of course a legitimate government concern. By extension, it is equally legitimate for governments to be concerned with how the desired results are best achieved; that is, to ask for knowledge of *what works*. The disagreements among other things pertain to what kind of results one wants. To know if your strategy works you must be able to measure its outcomes, and there is then the risk that desired results become identical to outcomes that actually are measurable. Critics argue that this is misguided because it narrows education to training and instruction and fails to do justice to broader cognitive processes such as e.g. rational reflection and appreciation of art. I think the critics have a very good point here; all educationists have good reason to worry about the thorough-going instrumentalization of even higher education that we see today. But these particular worries mainly concern the objectives of education and our understanding of what education is all about, and in this paper I am going to be concerned with the possible roles of research evidence in the deliberations of practitioners.

The kick-off for the debate was David Hargreaves' now (in)famous TTA lecture in 1996 (The Teacher Training Agency of Great Britain). Through a comparison with medicine he argues that teaching is not a research-based profession; that a radical change in the kind of research done is needed, and that the organization of research must be changed accordingly. Educational research, Hargreaves insists, should serve to improve practice. This requires research which,

[...] (i) demonstrates conclusively that if teachers change their practice from x to y there will be a significant and enduring improvement in teaching and learning and (ii) has developed an effective method of convincing teachers of the benefits of, and means to, changing from x to y (Hargreaves 1996a: 5).

This will naturally, he thinks, lead to a dramatic increase in evidence-based research, and most of this will be quantitative evidence gathered using randomized controlled trials (RCT).

Hargreaves is one of very few educational researchers I have come across who is enthusiastically in favor of EBP, although he is not completely alone. It is a constant theme for him that educational research should improve the performativity of teachers with respect to outcomes; outcomes generally perceived as measurable outputs. For this reason, he is a strong advocate of research into practical issues. To gather evidence about what works in what circumstances is the whole point of evidence-based research, he

maintains (1996b). This kind of research is useful for policy-makers, school developers, headmasters and teachers and could thus have a *direct* impact on practice. Teachers, Hargreaves states, want to know *what works* – only secondarily are they interested in understanding the *why* of classroom events.

Virtually every aspect of Hargreaves' views has been attacked. He has become, I think, so closely associated with EBP that criticism of his views is seen as tantamount to criticism of EBP. His comparison of education to medicine is found wanting (e.g. Hammersley 1997, Norris 1996) and his description of how research is funded is problematized (e.g. Gray 1996). More importantly, his views about the nature and mission of educational research are criticized by many as being too narrow and instrumental but also too optimistic regarding what research can provide (e.g. Biesta 2007, Elliott 2003). Most importantly for my purposes in this paper, his (implied) views about the teaching profession are also criticized, generally by the same people who criticize his views on educational research. It is in the context of the profession that we find the issue which I am going to concentrate on, namely professional judgment. As we shall see, some of the EBP critics worry that EBP means a more or less complete displacement of professional judgment and argue that we for that reason (plus other additional reasons) should reject EBP altogether. And just for the record, it is of course possible to voice criticism of EBP without referring to David Hargreaves. For example, Bronwyn Davies (2003) largely sees EBP as being part of a managerial agenda to remove power from practitioners to bureaucrats. We can see from this brief sketch that in education the EBP debate branches off in several different directions. It is not obvious that all writers share the same definition of EBP, and it may well be that EBP gets an unfair proportion of criticism simply by being part of what I above called the current educational landscape. In the next section I shall expand on a small selection of these criticisms; thus leaving many interesting issues untouched. I shall argue that there are misunderstandings and confusions here which can be unraveled if we use Toulmin's model of argumentation—EBP may be innocent of some of the charges directed against it.

3. USING TOULMIN'S MODEL AS A LENS

It is noteworthy that Hargreaves does not really discuss the question of *how* research evidence is to be used in practice or in practitioners' deliberations over what to do in their practice. In fact, this question seems to be largely missing from the debate – there are hints and suggestions, but to the best of my knowledge no in-depth inquiries. In his TTA lecture Hargreaves approvingly describes evidence-based medicine (EBM) as often having a *direct* relevance to improvement of practice, and laments the view which says that research only has an *indirect* influence on policy and practice. He does not entirely agree with himself, though; other times he says that evidence should *inform* practice. However that may be, research should provide evidence of what works in what circumstances. By *what works* is meant the achievement of intended effects and/or the solving of problems (Sanderson 2003).

I shall look into some related but separable issues concerning the uses of evidence in practical deliberations. Before I embark upon my analysis I shall present the essentials of Toulmin's argument model, adding more details as they become necessary in the course of my discussion (Toulmin 1958/2003). He begins by distinguishing be-

tween the *claim* or conclusion (C) that we are seeking to establish and the facts we appeal to as a foundation for C, called grounds or *data* (D) (p.90). The question “How did you get there” draws attention to the step from D to C and how this step can be justified or bridged. Propositions that provide the justification for inferring C from D he terms *warrants* (W) (p.91). The warrant seems to me to be of great importance, yet sadly neglected in educational reasoning. It authorizes the sort of step we make, licenses the inference, as David Hitchcock puts it (Hitchcock 2003). Toulmin himself raises the question of how absolute the distinction is between data and warrants, since the same sentence may in some contexts convey information and in other contexts authorize an inferential step. In any case, he says, the task of the warrant is to “register explicitly the legitimacy of the step involved” (p.92). Warrants confer different degrees of strength on the claims that they justify; hence, we may need to use a *qualifier* (Q) to express this, e.g. necessarily, presumably, possibly. *Rebuttals* (R), linguistically expressed as e.g. “unless”, refer to exceptional circumstances which undermine the general authority of the warrant. Both Q and R have a bearing on W; they comment on it, as Toulmin calls it. Next, we come to the question which is going to be central to my concerns; namely whether the warrant is acceptable at all. Suppose you insist that some C follows from data D, and somebody asks ‘but why do you think that?’ This is where the *backing* (B) of the warrant comes in: “Standing behind our warrants, [...], there will normally be other assurances, without which the warrants themselves would possess neither authority nor currency”, Toulmin says (2003: 96). Following the lead of Milos Jenicek and David Hitchcock (2005), I shall argue that the concept of *backing* has the potential to clear up some of the fundamental misunderstandings about the functions of evidence in EBP.

3.1 “Based”: evidence as data or grounds

First a brief note on *evidence*. The questions of *who*, *why* and *what constitutes evidence* are much discussed by both critics and advocates of EBP. The more basic questions of what evidence is and what the nature of the relationship between evidence and the claim is, are usually not addressed. The established philosophical understanding sees evidence as something that supports a claim (belief, theory) or speaks to its truth value (e.g. Achinstein 2001). In the educational EBP context, evidence is thought to speak to the effectiveness of a strategy or a method of teaching.

But how, precisely, is evidence to be used by practitioners? I shall begin by looking into the question of what it might mean for practice to be *based* on evidence. It is not obvious that “based” is captured by the standard meaning of evidence, summed up in the term *support*. In the EBP debate, a literal understanding of it seems to be taken for granted. Bronwyn Davies (2003) is a case in point. She thinks of “based” in terms of a base or foundation consisting of facts and/or (quantitative) data. I think she voices what a good many writers on EBP, critics and adherents alike, take “based” to mean but do not say explicitly: a foundation of data that will tell you what to do in practice. Davies herself is primarily interested in issues of power, and so focuses on the *who* question: who selects the evidence, who decides what is relevant, who defines what is effective and what counts as a success.

I think we can identify a general tendency to understand the evidence–practice relationship as one of *derivation*: practice could and should be derived from a foundation of evidence. The idea is that if you derive a practice, it is pretty clear what you ought to do.

Teachers, like other practitioners, have to make many decisions about courses of action. I have poor readers in my class – what should I do? My students lack motivation to learn history – what should I do? I grant that the examples might be simplistic, but the chains of reasoning that lead up to the decisions surely are not. I think that both critics and advocates of EBP conceive of the relation between evidence and practice as parallel to the relation between data and claim. Suppose a teacher who is concerned with the reading skills of his students makes any of the following claims: “I shall try Bowyer-Crane’s method for improving phonological measures” or “I shall ask my colleague what she did” or “I shall give them the same exercises that worked so well last year”. Even an (overly) simple example like this can trigger considerations that seem to be missing from the debate. First, C may not be immediately obvious, and we may want to ask the teacher where it comes from; that is, what the basis for the claim is. The teacher may then say that he has poor readers in his class, a statement that serves as data D. I think much reasoning about what one should do in practice is set off by perceptions or felt problems such as this. But we do meet here with some problems. First, at the outset more than one C may be inferred from the same data. Second, it is not obvious that this is the kind of data that would pass for evidence in EBP – it is certainly not what Hargreaves has in mind. Third, the implied relation here is tricky ground. Many philosophers think that the relation of a claim to its putative evidence is one of support, not foundation (e.g. Achinstein 2001, Phillips 2007). Phillips states explicitly that facts (evidence) cannot be regarded as a base from which theory, policy or practice can be inferred. Yet he concedes that we in some sense might say that data generate hypotheses, but only in an indirect way as a source of puzzlement. Whatever the (somewhat uneasy) relationship between foundation and support, the following is important to note: In some sense or other, data D comprise evidence of sorts, and they do provide the basis for C, in the sense that C is at least generated from it if not downright derived from it.

There are no detailed discussions in the educational EBP literature of what role one thinks that research evidence should play for practice. Quite naturally the term *evidence-based* practice makes people think of evidence as something on which practice should be *based*. That is to say, evidence plays the role of *data* or *grounds* (D) from which practice should be derived. Adherents presumably think this is a good idea, critics think it is a bad idea. Let us look at the critics first.

In a response to Hargreaves’ TTA lecture Martyn Hammersley (1997) throws doubt on the idea that teaching can be *based* on research knowledge. There are two main reasons for this. The first is that he thinks that the kinds of problems teachers face are not open to research, since only “technical” problems are thus open (there is no explanation of what “technical” means). The second reason is that since teaching is practical rather than technical, “[...] it is a matter of making judgements rather than *following rules*” (1997: 147, my emphasis). In a similar vein, Gert Biesta (2007: 11) describes advocates of EBP (at least the most extreme of them) as “[...] those who think that research will be able to give us ‘the truth’, that ‘the truth’ can be translated into rules for action, and that the only thing practitioners need to do is to follow these rules without any further reflection on or consideration of the concrete situation they are in”. This is telling, I think. It is

not clear where the idea comes from that EBP amounts to unreflective rule-following, but their views clearly indicate that the “evidence” in question serves as the grounds from which you derive your practice. It aggravates things if the evidence emanates from RCTs, since such evidence is general and thus forces the teacher to treat every student alike. Both Hammersley and Biesta conclude that EBP must be rejected.

Interestingly, David Hargreaves seems to ascribe much the same role to evidence: data (D) from which practice (C) is derived. This evidence should tell us what works in what circumstances. He does not elaborate on how exactly evidence is to do its job for practice, but argues in several places that the impact should be *direct*. His critics, e.g. Hammersley, take him to mean that research should tell practitioners which is the best technique for dealing with a particular kind of problem. That is, evidence provides the data from which you derive your practice. This is no mindless rule-following, though, he many times underscores that evidence should enhance professional judgment, not replace it. Nevertheless, it may be that Bridges, Smeyers and Smith have Hargreaves among others in mind when they describe EBP (the P standing in this case for ‘policy’) as follows:

The evidence-based policy movement seems almost to presuppose an algorithm which will generate policy decisions: *If A is what you want to achieve and if research shows R1, R2 and R3 to be the case, and if furthermore research shows that doing P is positively correlated with A, then it follows that P is what you need to do.* So provided you have your educational/political goals sorted out, all you need to do is slot in the appropriate research findings – the right information – to extract your policy (2008: 9).

We see here that while this type of consideration also casts evidence in the role of D (you extract your policy from it), it has also explicitly brought in a *goal*. This too is tricky ground in the EBP debate. For the moment, suffice it to say that bringing a normative entity into the picture does not seem to make difficulties for the employment of Toulmin’s model. The goal could be included in the grounds from which you infer your conclusion as to what you should do. Regretfully I have to leave this issue untreated in this paper.

3.2 Evidence as backing

It is not difficult to agree with the EBP critics that RCT evidence cannot be translated into rules for action and unreflectively implemented in practice. The literal understanding of “based” that takes evidence to have the function of data/grounds D in the Toulmin model clearly does not work – especially if the evidence in question is of the RCT kind. Before I inquire into a different role for evidence, let me bring up again the example of the poor readers. What can we do when faced with a proposed claim and proposed data? To begin with, we might look closely at the descriptions of both C and D. As Jenicek and Hitchcock (2005: 41) point out; there is no gold standard for the correctness (or effectiveness) of C. C should therefore be justified by the best obtainable evidence. That means that we have to look closely at the description of D, and in our hypothetical case we might find it to be too vague. Just how poor readers are these students? Poor in what way? With some suitable description of D we are in a position to look at possible warrants. That is, we could ask our teacher how he got from D to C. In our hypothetical example it might look something like this:

My students read poorly (D), so I shall ask my colleague what she did (C) since she is an experienced teacher (W). Alternatively: D, so I shall give them the same exer-

cises that worked so well last year (C) since these students have the same problems, the same strategy should work (W). Alternatively: D, so I shall use Bowyer-Crane's method to improve the phonological measures (C) since these particular reading problems are helped with better phonological measures (W).

The warrant is the justification for inferring C from D. It seems to me that the concept of a warrant is of great importance in educational reasoning, to draw attention to the relation between teachers' decisions of what to do and the grounds their decisions are based on and to make this relation explicit. Often the warrant is left unstated, but in situations where people are asked to justify their actions or decisions the warrant is a good place to start. But what is a warrant? Toulmin requires that warrants be general, certifying the soundness of all arguments of the appropriate type. Warrants are not data; they are rules that basically say "data such as D entitle one to draw conclusions, or make claims, such as C" (Toulmin 2003: 91). David Hitchcock (2003) describes warrants as inference-licenses; that is, general rules which we reason in accordance with to authorize the step from D to C. Importantly, he points out that the question of how you get from D to C can have a variety of answers. In my example the warrants naturally vary because they license the inference to different Cs, but one can easily imagine that the warrant from the same D to the same C can differ.

A warrant is thus not evidence in itself and must be established in a different way than the facts we invoke as data (p.92). Obviously, not just any proposed warrant should be accepted as having authority; we might reasonably question the legitimacy of warrants if they strike us as somehow not up to standard. For example, we may ask why one should think that the same strategy will work with different students, or why certain phonological skills can remedy a reading problem. Warrants above all need to be reliable, and thus it is that Toulmin introduces the concept of backing; as that which justifies our warrants and provides them with the authority they need to license the step from D to C. It is as *backing* that I think we can find a good place for research evidence in EBP, even RCT evidence. This is a different function for evidence; one that does not allow you derive decisions about what to do directly from the evidence, but one that helps you justify your decision. As a bonus, it provides a sensible answer to the much-discussed question of what it means for research evidence to *inform* practice. It suggests a more indirect role for evidence, which seems to be what many EBP writers want but clearly find hard to conceptualize.

Let us look at a (constructed) example of reasoning to get to a conclusion about what to do. Suppose you are teaching first-graders to read, and toward the end of the year you observe that some of them are reading-delayed. This observation is your data, D. So, you infer, these children should receive extra word and text training, C. When a colleague asks how you came to this decision, you may answer that this is a well-tried remedy to help reading-delayed children (W). If your colleague is not satisfied with this warrant, he may ask you why you think this remedy helps. In Toulminian terms, he is asking you to justify your warrant, to give it the authority it needs to license the inference from D to C. He is asking for backing of the warrant. And here research evidence comes into the picture. You may, for example, refer to a randomized controlled trial indicating that compared with the control group, children who received this intervention for two consecutive 10-week periods, made significant progress on measure of letter knowledge, single word reading and phoneme awareness (B). This study concludes that a reading intervention program systematically delivered over a period of time is an effective intervention for

children who show reading delays at the end of their first school year (Hatcher *et.al.* 2006). It supports your warrant and indirectly your decision.

Some observations are in order. First, we may see a goal as being implicitly present, for example the goal of teaching all children to read well. Second, when research evidence serves the function of backing, it occupies a more indirect role in reasoning toward a decision of what to do. It certainly does not function as truths which we can translate directly into rules for action. It rather functions in accordance with what I above took to be the common philosophical understanding, namely as support for the warrant. But the distinctions may be very fine here, since “evidence” can be used in both capacities, both as D and B. I have treated D rather step motherly in my example, and no doubt the data comprising D can come in many different shapes, from observations in practice to test scores indicating that children may have low phoneme awareness. Or perhaps it is better to say that test scores serve to justify D? As Jenicek and Hitchcock point out:

The grounds [data D] are the underlying evidence that supports this claim, that is, the results. The argument is evidence-based in the sense that the claim rests on systematically obtained observations (Jenicek & Hitchcock 2005: 165).

That is to say, D should be justified. This means that evidence, including quantitative research evidence, can also in some cases perform the function of D, or at least can be used to justify D, to provide a more precise description of the problem and thus improve the adequacy of C. Nevertheless, it seems sensible to me that in the practical reasoning that we are talking about here, the data that provides the starting point are more likely to be an observation of a problem or a situation that requires some form of action on part of the practitioner. The important thing to keep in mind is that D and B answer different questions, perform different functions.

Third, there is the question of qualifiers and rebuttals or conditions of exception. They both speak to the bearing of W on the inference from D to C, that is, to the applicability of W. “[...] qualifiers (Q) indicating the strength conferred by the warrant on this [i.e. the D–C step], conditions of rebuttal (R) indicating circumstances in which the general authority of the warrant would have to be set aside”, Toulmin explains (2003: 94). Hargreaves (1996a), it will be recalled, wants research evidence that demonstrates *conclusively* that strategy y yields better results than strategy x. This, I take it, amounts to his wanting a universal warrant with an absolute backing, allowing no exceptions at all. Later (1997) he (albeit apparently unwillingly) softens this view somewhat and deals in probabilities instead.

Hatcher *et.al.* (2006) on the other hand, state explicitly that there are exceptions; 25% of the children did not respond to the intervention. They also provide a description of the predictors that characterize the non-responders and suggest that these account for the non-responsiveness to the intervention (p.825). If we use Hatcher’s quantitative data as backing, we cannot take “this is a well-tried remedy” to be a universal warrant, but for the sake of this argument we can take it to be a general warrant and accept it as lending authority to our warrant and to our decision. Thus, we would have to expand our practical reasoning: based on observations of reading delays (D), you infer that *unless* the children have extremely low scores on word recognition and letter knowledge (R), they will presumably (Q) respond well to extra word and text training (C), since this is a well-tried remedy for reading-delayed children (W); the warrant being backed by sound evidence (B).

Fourth, it is simply assumed here that the research evidence is sound. But to appeal to (empirical) evidence might give an aura of scientific support that is misleading, perhaps even unfounded, if the quality of the evidence is poor. It is also the case in educational research that conclusions tend to be contradicted in other studies; that is, in a good many studies there is both positive and negative evidence. In such cases it is an open question whether the warrant can be said to carry any authority at all. Decision makers (and others) may be very selective in their appeal to evidence to support or justify their views or decisions – proponents of virtually any debate can thus maintain that the “evidence” supports their views. It may also be the case that competing decisions C, inferred from the same data, are equally well justified with a warrant backed by sound research evidence. There are, for example, other forms of intervention to remedy poor, slow or delayed reading; such as programs focusing on letter-sound knowledge and phonological awareness, and on vocabulary, inference generation and narrative skills (Bowyer-Crane *et.al.* 2008). Conditions of exception are reported for both programs, to the extent that it would be problematic to say that either of them confers authority on a warrant (p.422); a general warrant is not applicable. In use of research evidence it is vital to map, as best one can, the conditions of exception.

3.3 Evidence replaces professional judgment?

Hopefully the above illustrates the difference between using evidence as data (D) and backing (B). Advocates and critics of EBP alike seem to quite naturally cast evidence in the role of data, such that practice can be directly derived from this assumed foundation of facts and statistics. Employing Toulmin’s model I have argued above that it makes more sense to cast evidence in an indirect role as backing of warrant, although I do not wish to lose sight of the potential role of evidence in justifying D. Evidence as backing makes the reasoning toward a decision of what to do more longwinded, but it has the additional virtue of forcing the practitioner to pay attention to possible exceptions.

Unlike critics such as Gert Biesta (2007), John Elliott (2001), Martyn Hammersley (1997) and Ian Sanderson (2003) I am not afraid that research evidence will replace professional judgment. To accord evidence the function of backing, is rather to show how it can enter into and be part of professional judgment. To the best of my knowledge, no EBP adherent has ever argued that research evidence should replace professional judgment; Hargreaves himself explicitly states that evidence should enhance judgment, not replace it – although he does not say how.

The issue of general versus context-bound knowledge is frequently discussed in education, and also in the context of EBP. Again critics and advocates largely agree that EBP mainly deals in generalized evidence, but again they disagree about the value of generality. Hargreaves thinks it is a good thing and therefore welcomes RCT; Elliott thinks it is a bad thing and recommends case studies instead (2001: 564). Most critics opt for context-bound evidence, because judgments are deeply context-dependent.

General knowledge of course is problematic if one thinks that EBP entails that practitioners are reduced to following general rules of action with no opportunity to adapt the knowledge to the concrete circumstances. It is hard to see precisely what the EBP critics take a professional judgment to be and what sort of considerations they see as entering into such judgments. They are context-dependent, so must clearly make use of con-

textual data, but which data, and how? Some critics also argue that EBP should be rejected because the generalized knowledge (evidence) in question exclusively speaks to the effectiveness of a given strategy, not only ignoring but precluding questions of ethics or appropriateness (e.g. Sanderson 2003). What works is not what matters, Sanderson argues, but what is appropriate. And here is the other element in professional judgments: they seem to be intimately associated with ethical concerns, not instrumental ones. But then again, it is hard to see why these should be seen as mutually exclusive. Elliott attributes to Hargreaves the view that generalizations can be continually improved upon, thus moving in the direction of universal statements which in turn entail a progressive diminution of unpredictability in human affairs. This is an interesting observation and quite possibly true of Hargreaves' wishes for EBP, but not necessarily true of EBP.

Does EBP imply a diminution of unpredictability in learning, such that the probability of attaining the predetermined goals is maximized, bordering on certainty? Many educationists are highly suspicious of generalized solutions to educational problems. This worry points to characteristics of the educational field itself: its (practical) problems are diverse, unstable, unpredictable and occur in messy, particular contexts (Bridges, Smeyers & Smith 2008). While I by and large agree with this description, it does not follow that practitioners cannot avail themselves of generalized knowledge or even of RCT evidence. As Jenicek and Hitchcock (2005) point out, uncertainty in a field does not speak against EBP; what happens is rather that the warrant for the D–C inference is merely provisional or presumptive.

All human affairs, including education, can be said to include some measure of uncertainty, some degree of randomness. It may be true that the educational climate today incorporates a wish for teaching methods to guarantee that the predetermined learning outcomes are attained, and EBP is part of this climate. But, thankfully, EBP cannot guarantee learning outcomes, nor should it be expected to. Hargreaves may want conclusive evidence, but the world of education is simply not like that. But neither is it completely chaotic and unpredictable and all educational problems are not unique.

The critics of EBP are surely right that professional judgment in education, practical reasoning, does not consist in the unreflective following of rules directly derived from general research evidence. Rather it consists in reasoning to a decision about a particular course of action in a concrete situation characterized by uncertainty and many unknown (and presumably ungovernable) factors. The pathway of reasoning that emerges from Toulmin's model and that is developed by Jenicek and Hitchcock, is one that begins from particular concerns, proceeds in various steps from D to C, the step authorized by a warrant which should be backed by generalized (or other) evidence, via a check on conditions of exceptions which may render the warrant inapplicable, and back to a decision about what to do in the concrete case. There is no reason why practical reasoning should leave out ethical concerns—one can know of an effective method and refrain from using it on ethical grounds. Evidently professional judgments are highly complex and there are many pitfalls along the way, such as ignoring the importance of making explicit and checking the warrant that licenses the inference from data to claim/decision. I would like again to draw attention to the pitfall of ignoring possible conditions of exception; I have a feeling this element in educational reasoning is sadly neglected. But one may “misdiagnose” the poor readers, their behavior may be misinterpreted, or their “diagnostic” test results may for various reasons be misleading (one can note here the temptation to call for

more testing of children). If a child is an exception, for example suffers from severe dyslexia, the proposed remedy might have no effect on him. But even if the problems of the children were accurately described, one has no guarantee that the preferred course of action will yield the desired result. There might in principle be other factors that influence the situation and that are not within the teacher's control. Some element of unpredictability remains.

4. CONCLUSION

There are several different elements that are discussed under the EBP heading, and I have in this paper focused on one: the possible functions of research evidence in practical reasoning – or professional judgment, as educationists tend to call it. I have chosen to use RCT evidence as my example, since this is particularly contested.

I have argued that both adherents to and critics of EBP seem to hold the same view of the role that research evidence is to play in EBP, namely as a foundation, consisting of facts, data and evidence about *what works*, from which practice could and should be derived. It may be that this understanding is brought on by a literal interpretation of the meaning of “based”. For the adherents this is a good thing, since it presumably will make education much more effective in attaining its goals. While this view may be a bit caricatured, it does capture the optimism expressed by advocates of EBP. The critics, who far outnumber the adherents (at least if you do not count politicians and bureaucrats), understand the function of evidence in the same way, but see it as a bad thing. Some interpret it as implying that EBP reduces practice to mere unreflective rule-following; the evidence decides what you should do. Others problematize the usefulness of general knowledge for professional judgments that are inevitably context-bound, and still others see effectiveness as precluding ethical concerns.

Using Toulmin's model of the lay-out of an argument, inspired by Jenicek and Hitchcock, I have argued that it makes more sense to view research evidence as *backing* of the warrant. The direct impact of research evidence is intimately linked, both by adherents and critics, to an understanding of evidence as *data* or *grounds*. The critics are right that generalized evidence cannot tell you directly what to do with your students. As backing, evidence gets an indirect role in complex reasoning toward a decision. It is not enough just to possess evidence of how things are or of how they work; one must also be able to *use* it. There is plenty of room for sound professional judgments in deliberations concerning what to do and how to use available general knowledge and evidence. This is very far from being unreflective rule-following. There are good, bad, logical and illogical ways of using evidence; merely having it is not sufficient.

To use research evidence as backing of the warrant is to accord it an indirect role in professional judgment, and may be one way of explaining how research can *inform* practice. This might make EBP more acceptable to the critics, since many of them explicitly acknowledge that research should inform practice – they just do not tell us what that comes down to. Evidence as backing also leaves room for uncertainty, for the unpredictability of human affairs, and Toulmin's model calls attention to the importance of investigating conditions of exception which might make the warrant weak or inapplicable altogether.

EBP can thus be said to have received criticism it does not deserve. It does not entail unreflective rule-following. On the other hand, we must not let it get away with its part in the broad and highly troublesome instrumentalization of education that we see today.

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Comments on “EVIDENCE-BASED PRACTICE (EBP) AND TOULMIN” by Tone Kvernbekk’s

ROBERT C PINTO

*Centre for Research on Reasoning, Argumentation and Rhetoric
University of Windsor
Windsor, Ontario N9B 3P4
Canada
pinto@uwindsor.ca*

1. INTRODUCTION

Professor Kvernbekk’s paper addresses what has become a contentious issue, namely, the desirability of evidence based practice (EBP) in education. She comments

In education EBP largely seems to have arisen as a government wish for better research bases to inform policy and practice; this has become known as the what works agenda.

She offers a brief overview of early proposals advocating EBP in education (in particular, those of David Hargreaves) and a sampling of the fairly widespread negative reaction to those proposals, noting that opposition to EBP is often connected with concerns about certain trends in contemporary education. Against this background, she situates what she attempts in her paper as follows:

This criticism of the big picture of contemporary education is, to my mind, both pertinent and justified. But it cannot automatically be assumed that it thereby applies to EBP as well; EBP in itself is neither necessary nor sufficient to produce the educational landscape outlined above. When we single out EBP for special attention, two things stand out. First, the abundance of misunderstandings and confusions concerning the term *evidence*; and second, the absence of fruitful discussions about the possible uses or roles of research evidence in practice. In this paper I shall discuss the second issue, focusing on how research evidence can enter into practitioners’ deliberations and decisions—not on what teachers might *do* in their classrooms. [Underling added.]

The result is, in my estimation, an admirably balanced and illuminating account of the role that research evidence—and in particular evidence gathered using randomized controlled trials (RCT)—*might* play in the deliberations and decisions of classroom teachers.

2. THE CORE OF KVERNBEKK’S PROPOSAL

Professor Kvernbekk proposes that we view the deliberations teachers must engage in—the reasoning through which they arrive at their “professional judgments”—through the lens of Toulmin’s model of argument. If we do that, she suggests, we can begin to view the principal role of research evidence not as “data” on which “claims” or conclusions about what to do in the classroom are “based,” but rather as backing which can validate some of the warrants which license the move from data to claim. I assume that members of this audience are familiar enough with the Toulmin model to understand the implications of Professor Kvernbekk’s suggestion on this point and can appreciate the light that

this suggestion throws on the role that research results can play in the deliberations of practitioners. What I'd like to underscore are three of the four very important "observations" she offers in section 3.2 of the paper.

- (1) Her first observation is that "we may see a goal as being implicitly present, for example the goal of teaching all children to read well." I personally would want to add that a variety of goals may be relevant to the decision to be made, a fact that may complicate decisions because a course of action which satisfies one goal may frustrate the satisfaction of another. In this respect it's worth recalling that Toulmin himself (203, p. 109), commenting on proposed "universal warrants" in the context of reasoning about ethical matters, says that they "can authorize only presumptive conclusions."¹
- (2) Kvernbekk's third observation concerns the "qualifiers and rebuttals or conditions of exception" which "speak to the bearing of W on the inference from D to C". Where a rebuttal or "condition of exception" obtains, a warrant W is simply not applicable. And where qualifiers such as "probably" or "presumptively" are required, they can have considerable bearing on our decisions, especially when conflicting goals complicate the decisions that have to be made.
- (3) Her fourth and final observation is that "appeal to (empirical) evidence might give an aura of scientific support that is misleading, perhaps even unfounded. For one thing, the quality of the evidence is poor." For another, "in educational research ... conclusions tend to be contradicted in other studies; that is, in a good many studies there is both positive and negative evidence. In such cases it is an open question whether the warrant can be said to carry any authority at all."

These observations help to spell out the constraints that quite naturally impose themselves on any sensible reliance on research evidence in the context of educational decision-making.

3. CONCLUSION

Professor Kvernbekk has focused on "on how research evidence can enter into practitioners' deliberations and decisions," and has identified two ways in which such evidence can have a bearing on those deliberations:

- Most interestingly, "research evidence" can function as backing for many of the warrants on which the practitioners rely in moving from "data" to a "claim" or conclusion.
- In addition, since the "data" themselves must be justified., "[t]his means that evidence, including quantitative research evidence, can also in some cases perform

¹ The recognition that a variety of goals can be relevant to educational decisions which may draw in some way on empirical research goes a long way to meet Sanderson's concern (as reported in Biestra [2007: 10]) that the "what works agenda" precludes recognizing the ethical and "normative" of problem-solving. It also addresses Biestra's own concerns (2007: 20) about a "democratic deficit in evidence-based education."

the function of D, or at least can be used to justify D, to provide a more precise description of the problem and thus improve the adequacy of C” (section 3.2).

If the bearing of research evidence on the decisions that practitioners must make is conceived along these lines, there should be no temptation to think that such evidence will “dictate” what practitioners must do or will obviate the need for “professional judgment.” Nor will taking account of research evidence in the course of such deliberations require practitioners to ignore all other considerations and give in to a *mindless* pre-occupation with “what works.” At the same time, it is clear that such evidence can make useful and important contributions to such decisions. In my estimation, these are important points, and Professor Kvernbekk is quite right about them.

Reflecting on what she has said in this paper, I can see three areas for further study that the view developed here invites.

- (1) The deliberations in which a practitioner engages in order to arrive at a thoughtful decision about what to do can be fairly complex. They will often, if not typically, involve bringing several different goals to bear on the problem at hand and require the practitioner to weigh the relative importance of those different goals on possible solutions to the problem which has prompted the deliberations. Further development of Kvernbekk’s ideas about the role of research evidence in the deliberations of practitioners should probably attempt to lay out in more detail the role that goals can play within a Toulmin model of reasoning and deliberation, and should deal with the question of how, within the Toulmin model, pro and con considerations are to be “weighed.”²
- (2) Professor Kvernbekk envisages the teaching practitioner as engaging in fairly sophisticated use of warrants—and perhaps making sophisticated judgments about the backing on which those warrants depend. Questions can be raised, in light of data on typical American and Canadian teacher education at the B.Ed. level, about whether current teacher education equips practitioners to make the judgments about warrants and about research evidence—in particular about RCT evidence—required by the sort of deliberation envisaged here. It might, for example, turn out to be the case that reform of teacher education might be a prerequisite for effective use of such evidence in the deliberations of “practitioners.” Alternately, universities may need to play a larger (and perhaps more formal) role in “knowledge mobilization” to communicate and interpret research for such purposes.³ This is an issue that needs to be addressed in a fuller elaboration of the view presented here.

² Though Toulmin, as indicated above, acknowledges that some warrants authorize only presumptive acceptance, and also makes explicit provision for exceptions and ‘rebuttals’ which render a warrant inapplicable, he has little to say about how to handle situations in which two “presumptive” conclusions are at odds with each other.

³ This idea is developed in Cooper, Levin and Campbell (2009): see their claim that “Most people, including most professionals, get their knowledge of research not from reading the original studies, but through various mediating processes” (p. 162). They also report that “studies contend that changing practice is often a result of the interactions of informal teacher networks” (p. 166).

- (3) This paper focuses on the role of “research evidence” in the deliberations of teaching *practitioners*. I suspect that there are interesting and important questions to be raised about its role in the deliberations of *educational administrators* and of the government agencies which set the constraints under which educational administrators must work. The deliberations of teaching practitioners typically focus on what to do in specific, concrete situations with particular groups of students. The deliberations of administrators and government agencies are much more likely to focus on decisions about policies which are intended to apply “across the board,” as it were.⁴ As a result, the role of research evidence in the deliberations of administrators and politicians will very likely have to be different from its role in the deliberations of practitioners.

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⁴ See for example the discussion of the development educational policy in the curriculum reform undertaken in Ontario in the 1990s in L. E. Pinto (forthcoming)