

Reading the Data: Making Supportable Claims from Classroom Assessment

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Are we assessing ourselves to death? We find ourselves answering the question posed by this issue of *EJ* with reluctant affirmation, but with hope for a better answer. As we look back on the past half century, we see a steady encroachment on classroom autonomy by the forces of external assessment. Can this trend be reversed in the future? Possibly, we think, if our profession becomes more skilled at reading and explaining an increasing range of assessment information. ■ We can trace the current mania for measurement at least as far back as the 1920s to E. L. Thorndike and the “scientific” education movement,

which argued that anything important can be measured, and, conversely, anything that cannot be measured is not important (Joncich). The more recent history of assessment, however, seems driven by a complex mix of social, political, educational, and intellectual forces, beginning with Robert Mager’s pivotal book on behavioral objectives in the 1960s; continuing through the early stages of objectives writing and statewide assessments in the 1970s; catalyzed by widely misinterpreted SAT test score declines in the 70s that led to the back-to-basics movement; driven by economic crises of the 70s and 80s and the resulting demand for job and skill-oriented education; complicated by xenophobic responses to racial and ethnic minorities in this country that oddly link “equal opportunity” with rote-level testable skills; and, of course, triumphally powered by the myopic state and national standards movements of the 1990s and early new millennium. Despite the alternatives that might be posed by genuine systems analysis and critical evaluation, state after state, discipline after discipline, one nation undivided, we have been locked into a variation of Thorndikism: that anything that matters can be stated as a “standard,” that all “standards” must be measurable, and that, although alternative assessments are toler-

able, the baseline, bottom-line measurements must be through the “standard”-ized tests generated by national commercial testing empires.

Yes, we are being assessed to death.

However, in an article we recently wrote for *Assessing Student Learning: A Practical Guide*, a CD-ROM publication of the Alliance for Curriculum Reform, we presented “The Case for Evaluation as Pedagogy,” arguing the following:

1. Assessment need not be a killer of innovation if it is consistently linked to teaching; that is, assessing student work is a natural and important part of teaching and makes good classroom sense when devoted to information-gathering rather than simply to proving to outsiders that we are competent.
2. Alternative assessments such as portfolios, case studies, conferences, and student writing provide far richer data than do standardized tests.
3. Students taught and assessed via a theory-based, multiple-measures pedagogy will, in the end, do as well if not better on standardized tests than those whose curriculum has been limited to the implied lowest

common denominators of blanket standards and impersonalized tests.

In this essay we will examine ways in which educators can articulate how and why a pedagogical approach to assessment is appropriate and effective. We will then carry that argument a step further by looking at the ways in which assessments, both alternative and standardized, can inform instruction without derailing it.

Specifically, this article was triggered by a comment made by Gene Hall, Dean of Education, University of Nevada, Las Vegas, at a meeting of the Alliance for Curriculum Reform. "It's not that we don't have plenty of data," Hall remarked, "it's that we're not very skilled at reading it."

Because literacy—the reading of things—is at the heart of the English profession, we began mulling over this assertion and its implied challenge: Given the data that exist and can be generated through assessment-as-pedagogy, how can we “read” that data fully and appropriately, make valid claims or draw sound conclusions from it, and communicate those findings to our constituents? Given, for example, the wealth of information generated by a student portfolio, how does a teacher sift through the notes, scraps, drafts, revisions, and self-assessments to talk reliably and informatively about what a student knows and can do and where his or her learning might go next? Given a numerical test score that comes back from the standardized testing factory, how can we explain results to students and parents in ways that are accountable yet not limiting to our teaching?

We begin by presenting three very different bits of information, what we'll call “data” for reasons that will become clear later. These are fictionalized stories, composites based on several of our own recent experiences in the schools.

The Story of Viva

High school junior Genevieve, known as “Viva” to her friends, receives a letter from the state department of education. What are we to make of this information, these data? We could assert an immediate, if superficial, claim that this letter, despite its apparently personal tone, was probably mass-produced by a computer, not carefully word-processed by a caring employee. Drawing on our admittedly limited understanding of how computers work, we could also

claim one of the following to explain the spelling, “Geneviev,” on the computer letter:

- A. Genevieve misspelled her own name on the examination form, leaving off the final “e.”
- B. The state department computer can only recite first names of eight letters or fewer.
- C. Mr. Computer doesn't understand the nature of the silent “e” and probably needs to go back to classes with Mr. Phonics.

Less facetiously, this cryptic bit of state data needs to be interpreted and explained for various audiences: to Viva herself, to her parents, and by the teacher for purposes of instruction in English 11. For Viva and her parents, this can be delivered as simple good news: Having passed the proficiency, Viva will now receive a high school diploma, not a certificate of attendance. That's very encouraging, since Viva has been a reluctant school attendee. What's the meaning of the 62 percent and 92 percent to Viva and her parents? Frankly, who cares? The operant word here is *passed*.

Within the instructional community, however, additional claims and conclusions need to be generated. Viva's teachers will, like her parents, breathe a sigh of relief that she passes the proficiency. But the trained English language arts (or math teacher) might ask further, What's the significance of these scores? How does a 62 percent in math make Viva “proficient”? What can we make of the 92 percent in language arts? Unfortunately, standardized test score data provide very little to work with.

The Story of Cody

No standardized test score data can help a middle school teacher reach conclusions about Cody, a skater-dude kind of kid who comes into his language arts class late one day, wearing a baseball cap (turned backwards) in violation of the school's “no hats” rule, slams his notebook on the table, and then reaches over to “crash” the ring binder of the kid next to him to the floor, an expellable offense ever since last week, when a notebook crash victim retaliated by pushing the crusher down the northwest stairwell. The teacher knows Cody to be a pretty good student, though in the manner of the skater crowd, he actively cultivates his image and behavior as something of an outsider.

The teacher must assess the situation quickly, reading the data and communicating something to

Cody, to his classmates, possibly to the school principal, and even to Cody's parents.

The Story of Pam

Assessing and acting on honors senior English student Pam's behavior is not difficult, but responding to her end-of-term writing portfolio is. The essays in Pam's portfolio are interesting and fresh. Departing from the usual thesis-driven linear approaches to writing that many students latch onto for a sense of security in unfamiliar territory, Pam takes risks and approaches her essay assignments imaginatively. One of the pieces in her portfolio is particularly interesting: a screenplay written in response to an assignment asking her to articulate her position on her school's dress code. Developing her assignment as a screenplay was a risk for Pam. She learned how to conceptualize and approach a new set of writing problems that she would not have engaged in a more usual genre, but the screenplay itself needs a bit more development to be considered a finished, polished piece of writing. Here's where data reading becomes especially difficult, and again pressure is on the teacher: What claims and conclusions can we draw about Pam's competence (which clearly goes well beyond the limits of the state proficiency exam)? What does the teacher say to Pam about her work and where she might go next? How can the teacher justify a portfolio assessment in preference to conventional grading and standardized testing?

The Toulmin Model

In search of answers and interpretations, we enlist the aid of logician Stephen Toulmin, who over a period of several decades considered various models of argument in a search for understanding the reasoning behind the beliefs and actions he observed in various disciplines and in everyday life. We might phrase Toulmin's project, in Hall's terms, as examining how to "read" data generated by specific episodes within various discourse communities. In his search, Toulmin found that traditional models of logic too often focus on establishing absolute truths or validities at the expense of ignoring the situational or circumstantial nature of evidence. Truth is shifty, or, as we say in a postmodern world, truth depends on the critical lens through which you view situations, just as the interpretation of a literary text depends, in part, on the experiences and values of the reader.

The standardized numerical test scores offered so widely these days imply a kind of certainty about the levels of student proficiency. Yet teachers know, even if legislators and journalists do not, that test scores are not in any sense an absolute measure of learning or knowledge. They are, rather, a very specific and situated score on a specific test. To truly understand Viva's proficiency scores, for example, and to be able to explain them to her parents, we must be consciously aware of and able to articulate the context in which her scores were situated (background data that are not ordinarily collected by the standardized testing people).

Cody's dramatically outraged behavior is not standardized, of course, and thus it puzzles us and is subject to multiple interpretations and conclusions, none of them absolute, but each of them highly consequential in terms of what the teacher chooses to do next. And to "read" the data presented in Pam's portfolio, we must articulate not only what we conclude, but how and why we came to those conclusions.

For Stephen Toulmin, a logician needs to explain why a particular avenue is a sound and productive way to "read" data as part of a larger argument within the discourse forum or community, exactly the sort of skill we as teachers need to successfully argue for and communicate in our work as educators.

In *The Uses of Argument* and *An Introduction to Reasoning*, Toulmin presents alternatives to systems of formal analytic logic, arguing that such approaches are absolutist and thus not useful in day-to-day argument. He rejects the classical syllogism, for example, and its inexorable logic chains:

Socrates is a man.
All men are mortal.
Thus Socrates is mortal.

Though the syllogism is an effective tool for parsing certain types of arguments—Socrates did indeed prove to be mortal!—in the end it cannot account for the complexities and contextualization in arguments that so concern Toulmin and other contemporary scholars. Taking the case of Cody, we might pose a syllogism like this:

Cody is a skater and a good, if irregular, student.
Cody has just engaged in provocative behavior.
Conclusion?

The syllogism model quickly breaks down. In terms of assessment, the traditional logical form encourages overly simplistic, dualistic reading of

data; it provides only yes/no answers, thumbs up/thumbs down. In contrast, Toulmin's model is expressly designed to account for the factors that result from the range and complexity represented by arguments directed to the convictions and discourse communities of the audience. Toulmin quite simply believes that logic needs to go "real world," when he says, "The learned world has been so caught up in the development of superior intellectual techniques that it has not paid enough attention to the relevance of higher learning to the problems of human life" (Tapp 21).

In terms of assessment, particular kinds of data we might work with include essays in portfolios or the portfolios themselves, standardized test scores, or even the dress of the student in baggy trousers and baseball cap.

Toulmin believes that questioning the relationship of higher learning to social problems—an often-forgotten aim of teaching and assessment—results in education, knowledge, and learning that both reflect and can then be applied to "the problems of life."

Toulmin's model consists of three major and several secondary elements. The major elements "can be found in any wholly explicit argument" (*Reasoning* 25) and are labeled *data* or *grounds*, *claims* or *conclusions*, and *warrants*. Secondly, arguments may also include *backing* in support of warrants, *rebuttals* that investigate contrary possibilities, and *qualifiers* that set the conditions under which a claim or conclusion may be valid. Especially interesting is Toulmin's observation that all arguments are *contextualized*; that is, they take place in real-world *settings* and are centered in language that is a part of *communities* or *forums of discourse*.

Toulmin defines a *claim* as an *assertion* or "conclusion whose merits we are seeking to establish," and we often *qualify* those claims to avoid sweeping generalizations, even as other people may offer *rebuttals* or alternative interpretations. *Data* or *grounds* are "the facts we appeal to as a foundation for the claim" (*Uses* 97). *Warrants* are the "reasons" people have for connecting a given set of data or grounds to a specific claim; these are "general, hypothetical statements, which can act as bridges, and authorize the sort of step to which our particular argument commits us" (*Uses* 98). *Warrants* are supported by belief systems or *backings*, which Toulmin defines as bodies of knowledge and tradition that constitute the assurances that warrants themselves possess both authority and currency (*Uses* 103).

As Toulmin notes, his aim with this model of argument is to "characterize what may be called the 'rational process,' the procedures and categories by using which claims-in-general can be argued for and settled" (*Uses* 7). The central issue that Toulmin's model seeks to address is how we can construct and analyze arguments so that the functions of the different propositions are clear, as are the criticisms that the argument must face. His model of argument provides educators with a useful, appropriate method for both reading the data generated through various means of assessment and understanding how we can more effectively support our own best practice in more public forums.

The Data

In our three teaching stories, we've given you three very different kinds of facts: the very clear data of Viva's test score, the ambiguous data of Cody's behavior, and the concrete but infinitely interpretable data of Pam's portfolio. Any claims we make must grow from these underlying facts.

Toulmin notes that data may "comprise experimental observations, matters of common knowledge, statistical data, personal testimony, previously established claims, or other comparable 'factual data'" (*Reasoning* 26). Since the data are the specific information or facts used directly to support a claim, the claim cannot be any stronger than the data supporting it.

Data can also be conceptualized as common grounds shared by the claimant and the audience. In this sense, data represent those facts that both claimant and audience accept as not needing to be

questioned. By establishing the data underlying a claim, Toulmin notes, we “establish the nature of the common ground on which we are both prepared to stand, and which we both accept as a shared starting point” (*Reasoning* 39). Establishing the starting point of an argument, the ground on which it takes place, so to speak, is essential, not only because it identifies what is *not* in dispute, but also because it shows quite distinctly what *is* up for questioning.

In terms of assessment, particular kinds of data we might work with include essays in portfolios or the portfolios themselves, standardized test scores, or even the dress of the student in baggy trousers and baseball cap. It is relatively easy for us to achieve agreement on what constitutes the data for Viva and Pam. But Cody’s view of “what happened” may very well differ from the observations of his teacher. Nevertheless, through general consensus, we establish data, which, in Toulmin’s model, we then subject to warrants.

The Warrants

Once data have been identified in any given situation—the cases of Viva, Cody, and Pam that we discuss here—we apply warrants, actually gathered over a lifetime, to derive claims. Warrants, again, represent the general patterns of thinking and operating that a discourse community carries to new situations and new problems. They define the established ways of arguing in these situations—for instance, the accepted practice that informs our views of assessment as educators.

A person who finds skaters, say, amusing and interesting, will have very different warrants from one who possibly has come to see skaters—to “warrant” them—as rule breakers and scofflaws. The warrants we hold will profoundly affect how we read Cody’s story. Toulmin cautions that we cannot make effective arguments unless we consciously identify the warrants on which we base our claims.

It is not enough, then, to advocate assessment-as-pedagogy without acknowledging the reasons for doing so. Since much communication by educators about assessment is aimed at a public that has little or no knowledge of our warrants and has its own well-developed set of beliefs about the state of schools and the general quality of teachers (beliefs not always based on accurate data), this acknowledgement must be a conscious articulation, an overt part of our arguments.

Backings for warrants are essential. The backings in any given community (ours being the community of language arts teachers) are specific to that particular group and help shape the community knowledge as well as how that knowledge is put to use. Backings may be as varied as research studies—such as the body of studies showing little relationship between mastery of grammatical terminology and writing or speaking skill—or may take the form of what Stephen North has labeled as teacher “lore”—a body of tradition and accepted practice that grows up in a field. In both cases, however, backings need to be articulated and defended, lest a system of warrants become founded on hidden or poorly critiqued assumptions, in which case our claims and conclusions become “unwarranted.”

For instance, in making the claim that we, as teachers, can more accurately assess Pam’s writing and language competence through the work in her portfolio than through her scores on a standardized test similar to Viva’s, we may need to back up our warrant that her portfolio does, in fact, offer an accurate picture of the work she is capable of doing (product) as well as the ways she went about accomplishing it (process). Warrants and backings are not truisms; they are subject to argument and rebuttal. Making the warrants and their support explicit is particularly important when we make claims to outside communities. Failure to take this step, we believe, is behind much of the assessment mischief we must deal with as teachers in terms of accountability.

In short, if we cannot state exactly why we believe Pam’s portfolio represents valid data for our claims, then politicians, parents, and students themselves can hardly be blamed for relying on less suitable data such as standardized tests on which to base their understanding of school performance and learning.

The Claim or Conclusion

We argue as teachers that the data represented by Pam’s portfolio are much more appropriate to assessing her language competencies than are the data represented by Viva’s test scores in assessing hers. Indeed, because Pam’s portfolio contains multiple bits of data—essays, the film script, self assessments—the claims about her competence rapidly become complex, appropriately so in a field less simplistic than the state proficiency score implies.

In Pam's and Viva's cases, given the data we have available and the warrants we operate with, what exactly do we want to discuss in assessing their skills? Where do we as language arts teachers stand on the particular issue that we want to press? Finally, and most importantly, what conclusion must the audience agree to as the outcome of the argument we make?

Our own warrants (developed through years of struggling over assessment issues) tell us that Viva has done well enough on certain test items, yet we recognize that those items are largely kept secret from teachers by the testmaker. The department of education has long rationalized the proficiency test as being useful to educators in planning instruction, but what can we actually do with these data other than give Viva a state-approved diploma? Is Viva a good reader, or good writer, or both? Can she critically analyze texts as well as remember them? Is she verbal enough with a 92 percent that we might excuse her from the rest of her English classes? The proficiency data are insufficient for analysis.

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Actually, Viva would love to be excused from the rest of her English classes. We interviewed her, seeking more insights into the significance of her scores, especially the wide discrepancy between math and English.

"I hate math," she told us candidly. "And I hate English, too, but I seem to have a good vocabulary and that's basically what they are looking for."

Now, we're not certain Viva's claim—that vocabulary is the key to success in state proficiency—would hold up under rigorous scientific analysis, but our own grounds and warrants lead us to say that hers is probably a very shrewd analysis of the test score data, that most proficiency tests in English are based on superficial indicators of competence and that a student with a good vocabulary will likely do reasonably well on those indicators.

Viva's teacher does *not* plan to excuse her from class and, to the contrary, will continue to work hard on her negative attitude toward English. In this case, the teacher placed her in a guided individualized reading program and encouraged her to keep a journal, two instructional tactics or "claims" that are generated by the teacher's competence and only peripherally from the raw data of the proficiency exam. Whether those tactics will work remains to be seen, but it's clear from this story—this bit of data—that the teacher's understanding, experience, and assessment skills are more powerful by far than the state's examination.

For Pam, the teacher brings the same kind of expertise to bear on the more complex data of her portfolio. The teacher/reader marshals all her warrants—her years of experience reading student writing—to form her assessment. These warrants might be folded into some sort of scoring rubric—the common criteria of *voice, organization, content, style, correctness*, for example—or the teacher may do a holistic analysis to derive, not a score, but a series of statements to Pam and her parents about where she seems to be doing well in writing, where she might do better, how her script successfully registers her concerns about the school dress code, how it falls short of being an excellent play in its own right.

What warrants do we apply to Cody's behavior? We've already suggested several, including the teacher's beliefs (right or wrong) about the significance of skaters' dress and the previously established belief that Cody is a decent, if sometimes erratic, student. Another warrant in play here would be the teachers' beliefs about the flexibility of the school's discipline codes. Cody has committed two clear-cut rule violations: the hat and the ring-binder crashing. For some teachers, that would lead to an immediate trip for Cody to the office and possible suspension, growing from the warrant that "Rules are rules and should be enforced." Cody's teacher actually had a different warrant: "Sure, rules are rules, but they must always be subject to interpretation, to contextualization." She did not send Cody to the office.

Given any teacher's warrants—when the claims have been stated and all of the necessary grounds, warrants, and backings have been brought to light—the *claim* becomes, after critical analysis, a more-or-less supported *conclusion* and, in Toulmin's terms, "practical or theoretical consequences may flow from it as a result" (*Uses* 30). Cody *isn't* sent to the office; Viva joins an independent reading

circle; Pam revises her screenplay and is invited to direct a reader's theater presentation of it.

Qualifiers and Rebuttals

Language arts professionals recognize that few blanket statements can be made about assessment issues, despite the willingness of various members of the general public to do so and the frustrating willingness of others to believe these weak generalizations. Warrants are of different kinds, and they confer differing degrees of force on the conclusions or claims they justify. Some warrants, Toulmin notes, lead us to accept claims unequivocally, necessarily, even, if the supporting data is present; other warrants authorize this acceptance subject to certain conditions. This characteristic leads to two ways of modifying the relationship of warrant to claim: *qualifiers* and *rebuttals*.

Qualifiers are statements showing the kind and degree of reliance to be placed on a claim, given the supporting data and warrants. Rebuttals are statements or phrases signaling circumstances that would cause a warrant to be set aside. That Toulmin's model accounts for such phenomena is a reflection of the ways that real-world disciplines and communities build knowledge in a dynamic and changing manner. While warrants may account for the general procedures and accepted ideas in a discipline, very rarely is knowledge constituted in such a way that a general warrant will serve all particular cases. Thus, Cody's teacher decides not to apply school rules unequivocally, and Viva's teacher decides that, the proficiency exam aside, Viva still needs work in English. Qualifiers and rebuttals are particularly important for our purposes, since very few issues in assessment—praxis or theory—are of an unconditional, general nature.

At this point in our look at Toulmin's model of argument, we have shown that a set of data supports a specific claim according to the warrant(s) and backing that the claimant is operating under and subject to any qualifications or restrictions implied by the warrant itself. However, as the model suggests, there is one last question that needs to be asked: How are arguments worked out in the real world, with real audiences of doubters and skeptics, supporters and detractors?

Field Dependence and Forums of Discourse

This variability in arguments reflects what Toulmin calls "field dependence" (*Uses* 104). Sometimes accepted practice and traditions will suffice as warrants

and their backings, but at other times, warrants must be subjected to rigorous analysis. The crucial consideration here is that these criteria vary immensely and fundamentally from field to field. For instance, Toulmin notes that the athletic ability of a runner to win an Olympic event is one thing, the power of Einstein's theory of relativity to explain nuclear physics is another, the classic features of Bach's Fourth Brandenburg Concerto are another. And, there is no easy way to compare these possibilities in the same manner, since they are each of a particular kind, and "because they are possibilities of *different* kinds, the standards by which their claims to our attention are judged will vary from case to case" (*Uses* 37).

Of particular interest to English language arts teachers is that these "fields" are *language-based*; that is, the English teacher's favorite medium of *words* creates a *field* and the kinds of backings and warrants that it will accept. Another way to phrase this is simply that different *discourse communities* have differing sets of traditions, values, and standards that they apply in their quest to make valid claims. We must give careful consideration to the demands and needs of audiences for our arguments. Strategies that are successful when "preaching to the choir" will fail utterly when preaching to a field or forum of agnostics or atheists.

Given this field-dependence for any given argument, it is of vital importance for a sound analysis to define the particular field that an argument takes place in. Toulmin says:

The use of language for the purposes of argumentation plays a major part in our lives, and it is natural and proper that we should set about trying to understand this particular use of language—and so become self-aware also about the arts of speaking and writing, communicating and expressing ourselves, presenting "claims" and supporting them with "arguments." (*Reasoning* 18)

Such self-awareness is ultimately what we see as being at the heart of interpreting and acting on assessment data: the ability to read the data generated through assessment-as-pedagogy, to make valid claims about our work as teachers, and to communicate our findings to our constituents.

Let's return briefly to the case of Cody. As you'll recall, the teacher has made a decision—reached a conclusion, made a claim—that sending him to the office immediately is not a valid way of proceeding. Yet the clock is ticking: The students in the class are well aware that Cody has thrown down

a gauntlet. Fortunately, our teacher has considerable experience and a carefully crafted set of warrants and backings to deal with the case. First, she tells Cody to take off his hat, which he does grumpily, saying that he has a cold and needs to keep his head warm, and he will hold her responsible if he gets sick—rebellious, jailhouse lawyer talk—which he continues when she confronts him about crashing his neighbor's binder. He claims that he didn't do it deliberately and that the kid had stuck his binder over into Cody's space anyway. Coming to a conclusion that leads to action, the teacher next tells Cody to move his chair over to the corner of the room to isolate him from the others at his table. After giving him cooling off time, she sidles over to him and playing a hunch asks, "So what's going on, Cody? Something happen? At home? In class?" Her "hunch," of course, is not magic, it is a Toulmin-style conclusion based on years of experience with middle schoolers. She turns out to be right: Before school, Cody was busted for skateboarding at the very edge of school property, testing the "no skateboard" rule to its limits. Furthermore, Mr. Gymteacher, a notorious rule enforcer, was the one who caught him and berated him in public.

The teacher does not send Cody to the office for suspension, which would be even more likely when compounded with his skateboard violation. With a few minutes to go before the bell, she starts a class discussion on school rules, what the kids feel is unfair and fair about them, why rules seem to be necessary or unnecessary. The teacher even uses Toulmin terminology to have the students qualify their claims, back their warrants, consider rebuttals. The discussion is fruitful, and Cody participates. At the end of the class period, the teacher says, within hearing of most of the students, "I'm going to let this one go, Cody, but don't try to push the limits here."

Now that may not be the best of all possible decisions, just as a teacher might prove to be "wrong" in her belief that Viva's proficiency score is not enough to certify her as literate or that Pam's flawed play is enough to validate her higher literacy. Toulmin's model does not promise simple right or wrong answers. Rather, it acknowledges the complexity of argument and urges reflective rather than knee-jerk decision-making. In fact, Toulmin, like a good debate coach, invites thinkers to generate possible rebuttals to their claims as a way of making their analysis more precise, their conclusions more firmly justified. Moreover, he acknowledges the cumulative value of experience,

even while recognizing that "truth" may vary from one community or discourse forum to another.

Our case for evaluation as pedagogy, then, recognizes that reading the data of assessment is a skill that evolves over time, with experience, and is, above all, an essential part of the reflective practice of educators. It is also a fundamentally rhetorical and logical process that takes place in discourse communities that have hot differences of opinion over warrants and how to apply them. Toulmin's scheme has been faulted (or *rebutted*) for being too general (after all, *data* can be anything from an observable, replicable laboratory test to the observations of a trained or untrained observer, and *warrants* can range from well articulated values systems to idiosyncratic biases and downright bigotries), but if we employ his formula—*data, warrants, claims, backings, and qualifiers*—as guides to analyzing evidence and discussing it in diverse discourse forms, we, the English profession, have the skills and experience to read and interpret data productively and successfully, without leading to death by assessment.

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