

Dewey's *Logic* as a Methodological Grounding Point for Practitioner-Based Inquiry

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Abstract

The purpose of this essay is to draw out something of the potentiality of Dewey's key text *Logic: The Theory of Inquiry* for the emergent field of teacher research. The specific focal point is the argument in Cochran-Smith and Lytle's *Inside/Outside: Teacher Research and Knowledge* on the importance of "systematic, intentional inquiry" as the methodological underpinning of teacher research. While Cochran-Smith & Lytle do not offer a sharply articulated definition I refer to Dewey's *Logic* as providing a cogent example of what this could mean. In doing so, I point to some of the potentialities as well as difficulties in drawing on such a systematic framework for engaging in teacher research as well as the broader challenges of moving teacher research, in the words of Cochran-Smith & Lytle, from the "fringe" to the "forefront" of educational research.

Such a view renounces the traditional notion that action is inherently inferior to knowledge and preference for the fixed over the changing; it involves the conviction that security attained by active control is to be prized more than certainty in theory. But it does not imply that action is higher and better than knowledge, and practice inherently superior to thought. Constant and effective interaction of knowledge and practice is something quite different from an exaltation of activity for its own sake. Action when directed by knowledge, is method and means, not an end. The aim and end is the securer, freer, and more widely shared embodiment of values in experience by means of that active control of objects which knowledge alone makes possible (Dewey, 1929/1988, p. 29-30).

The unique feature of the questions that prompt teacher research is that they emanate from neither theory or practice alone but from critical reflection of the two (Cochran-Smith & Lytle, 1993, p 15).

Ends in their capacity of values can be validly determined only on the basis of the tensions, obstructions, and positive potentialities that are found, by controlled observation, to exist in the actual situation (Dewey, 1938/1991, p. 497).

Teacher Research and Knowledge

In the midst of a far-reaching yearning Cochran-Smith and Lytle (1993) articulated a vision in a hoped for shift in the marginal and diffusely defined field of teacher research. As expressed in *Inside/Outside: Teacher Research and Knowledge*, the authors anticipated that their text would help alter the then current location of this peripheral field from the "the fringe" to "the forefront" (p. 103) of educational practice and theory.

This quest is part of a broader progressive movement in education to change the locus of authority from distanced administrative or academic centers of power to that of the immediacy of practice in which the researchers are none other than the classroom teachers, whether the focus is on the classroom itself or the consciousness (singular or collective) of the teacher(s) in recounting their experiences. Whether the reference is to practitioner-based inquiry or teacher research (terms I will use interchangeably in this essay), in this mode of analysis, the expertise resides amongst practitioners based on their own analyses of their irreducibly concrete pedagogical experiences and the theoretical constructs that emerge out of their own operating logics. As with academic research, problem identification and problem solving is the central task at hand. The chief difference is that in the practitioner-based mode the location of the problem is grounded in the experience that practitioners perceive in the immediacy of their situations rather than that defined by a canonical frame of reference based on issues stemming out of an academic discipline. Resources for resolution are sought for *that* problem, in which the evaluation is based on how satisfactorily it is worked out as defined by practitioners, typically, although not necessarily, outside the boundaries as to what might be defined as academic validity.

While firmly rooted in the culture of practitioners, as university professors, Cochran-Smith and Lytle traverse both worlds. In this respect, they are boundary crossers. They argue, accordingly, that teacher research will most likely realize its potential as a legitimate form of educational research only if it adds value to this broader field, while remaining firmly based in its own operative assumptions. Thus, teacher research, “[g]enerally emerg[es] from problems of practice: felt discrepancies between intention and reality, theory/research and practice; reflective and referenced to the immediate context.” “[F]indings intended for application” (p.12) are meant to address a concrete problem identified by the teacher researcher. Specific problems identified are not necessarily transferable to other situations even as the experiences practitioner-based researchers share with each other can be mutually fruitful in their influence. Put otherwise, the fruit of such research for the research community, is typically less the findings based on a particular study, than the range of issues explored and the questions raised that contribute to the knowledge base of other teacher researchers and/or to some definable body of practitioners.

University research on teaching stems from the academic disciplines, whether anthropological, historical, or the harder social sciences in which studies are designed primarily for the scholastic discourse community. Findings are viewed as valid to the extent that they meet the canonical requirements of scholarship in a given discipline, or disciplines for interdisciplinary scholarship. As an applied field there is generally the hope that the knowledge base generated at academic educational institutes will be of value to teachers. However, as research this is a secondary matter subordinated to the primary one of discipline-based academic legitimacy in which the theory-practice nexus, while sometimes addressed, is not characteristically given a primary attention of focus.

While pointing out these substantial differences, Cochran-Smith and Lytle nonetheless desire to infuse an academic-like rigor into teacher research studies in their

mandate for “systematic, intentional inquiry” (p. 5). Whether this quest for thoroughness and structure is an inherent contradiction in the genre, which I believe with the authors that it is not, it nonetheless raises perplexing issues, which require much working through that flies in the face of the considerable pluralism and eclectic nature of much practice in this emergent field. In short, the injection of discipline requires some canonical standard, however flexible, which invariably butts up against the more experiential and democratic impulses which grounds the logic of this type of research in a self-defined verification criteria, as illustrated, for example, in the eclectic collection of teacher research in Part Two of *Inside/Outside*.

For Cochran-Smith and Lytle the tension is not likely to be resolved solely from the grounding point of practitioners. It will necessitate dialogue and critical probing between discriminating practitioners and empathetic university scholars in a more interactive manner than currently operative, if teacher research is to come into its own as a legitimate branch of educational research. One of the major benefits of such dialogue would be better attunement to “[t]he unique feature of the questions that prompt teacher research...that...emanate neither from theory nor practice alone but from critical reflection on the intersection of the two” (p. 15).

On this vision, “teachers would play a role in reinventing the conventions of interpretive social science, just as feminist researchers and critical ethnographers have done by making problematic the relationships of researcher and researched, knowledge and authority, and subject and object” (p. 43). Only in such a manner, is there much hope of moving beyond the fringe with teacher research as a disciplined body of study, potentially toward the forefront, however long term this latter quest proves to be, in a manner that is both academically sound and grounded in the realities of teachers’ experiences. Only through rigorous probing of the theory/practice juncture by practitioners and scholars alike, the authors maintain, will this sub-branch of educational research realize some of its fuller potential in fleshing out “teachers roles as theorizers, interpreters, and critics of their own practice” (p. 1).

Approaches to teacher research linking feminist epistemology (Lather, 1998) and critical theory (Carr and Kemmis 1986) currently exist. This scholarship could be greatly expanded in order to bring both intellectual legitimacy and focused attention to the complexities of practice illuminated by formal theory to this marginalized sub-field, and in the process substantially enrich the broader discipline of educational research. This is a prospect in which the reach of promise extends well beyond the grasp of current realities. Nothing in principle prevents its fuller realization, although it would require acknowledgement of the critical role that theory could play along with the tools of academic research in contributing to the soundness of practitioner-based inquiry. I draw on another tradition, which is both complementary and divergent to these other schools, that of pragmatic epistemology, particularly the mode of inquiry as articulated in John Dewey (1938/1991) “new logic.”

What motivates me in particular about Dewey (1938/1963) is his desire to ground inquiry on the “intellectual organization...of experience” (p. 85). This is a concept which

has important implications for teacher research as a disciplined field even as it is problematic in its very construction on the fundamental question as to whether experience as an irreducible phenomenon can fall within the purview of intellectual organization. The more enduring reality is that the very definition of experience may resist such efforts at systematic formalization, which itself, remains a hypothesis to be tested, which is only partially probed in this essay. Even still, Dewey's mode of inquiry cannot be described as anything other than exceedingly rich in potential application to educational studies, to say nothing of the human condition. However problematic the definition of "experience" may be, and Dewey's mediated one is subtle and complex, his willingness to probe its epistemology and metaphysics is the critical link that connects it to the core objectives of teacher research; the utilization of critical inquiry for the identification of and resolution of significant problems as perceived from the grounding point of lived experience.

Finally, however problematic Dewey's intricate praxis-based probing may be to much of the democratic and experiential impulse of teacher research, the pragmatic pathway offers much by way of building knowledge from the ground of experience, for the purpose less of knowledge acquisition than that of problem solving as part of the search for more desirable ends. As put by Bryan Magee (1999), what is of ultimate importance in drawing on the work of a great philosopher, a category without argument that characterizes Dewey is less what that person actually says. Of more significance is the heuristic value of a philosophical work in opening up experience and knowledge to the reader that might otherwise be inaccessible. The question is, "Do you find it illuminating, if only temporarily, to look at reality this way? If you do, it has value" (p. 401). Such an "empathetic," but far from uncritical approach is recommended not because of the intrinsic truth value of a philosopher's statements, but because of what may be gained by imaginatively entering into "ways of looking at things" (p. 400) a philosophical vision opens up.

An example is the influence of Freire's (1970) *Pedagogy of the Oppressed* in opening up new ways of thinking about the role of adult literacy in the political culture. In particular, Freire challenged the fundamental precepts of the prevailing modernization thesis in viewing literacy as a threshold phenomenon in terms of contributing to economic development and civic democracy in underdeveloped nations. It was less the empirical data in *Pedagogy of the Oppressed*, which is virtually nonexistent. Rather, it was the political philosophy of pedagogy Freire espoused, which linked adult literacy campaigns to the quest among the poor for liberation against the oppressive status quo via a revolutionary rhetoric against all forms of colonial oppression. This included a radical critique against indigenous elites and the "invader within" in which the poor subsumed the voice of the master class within the interior spaces of their own individual and collective consciousness. This transformative vision was designed to deconstruct the self-evident reformist impetus inherent within the modernization thesis in providing a new lens to perceive reality in which the poor would become agents in the very construction of their own history.

Less important is whether *Pedagogy of the Oppressed* was limited or flawed in some fundamental ways, which, in one manner or another is the case with all texts. Of

more relevance is its heuristic value in opening up new insights and perceptions that would otherwise likely go unnoticed or not given the degree of attention that did, in fact, become part of a significant discourse on the purpose and value of adult literacy education as a result of Freire's work. To be sure, the modernization thesis did not disappear. However, in loosening its self-evident status it became relativized. Henceforth, the modernization thesis and the *Pedagogy of the Oppressed* would become viewed as competing perspectives on the politics of adult literacy education. The result was that the knowledge base about this complex field was invariably deepened, as it would become even more so when the concept of "the new literacy studies" (Scribner, 1988; Barton, 1994; Merrifield, 1998) emerged as a mediating perspective between these two largely antithetical views.

It is in this mindset that I seek to examine Dewey's key text *Logic: The Theory of Inquiry* in light of critical issues in teacher research, particularly the nexus between Cochran-Smith and Lytle's call for "systematic, intentional inquiry" and Dewey's quest for the "intellectual organization of experience." Drawing on *Logic* for this purpose may, in some respects be viewed as a flawed proposition. For one thing, Dewey acknowledges that his thesis that logical forms accrue within the process of inquiry into specifically identified problems, is hypothetical. For another, the quest to link the systematic character of Dewey's inquiry based logic with what Cochran-Smith and Lytle proposed is at best, limited. Critical assessment is essential, which is attended to in this essay. Notwithstanding these and other limitations, my more fundamental objective is to probe into this nexus as a potent heuristic to (a) test the assumptions of both Cochran-Smith and Lytle, and Dewey, and (b) to find out something of what its pursuit illuminates about teacher research both as an independent field in its own right and as a subset of educational research discloses. Notwithstanding their important differences, what the authors of *Inside/Outside* and *Logic* provide is a thesis about the nature of effective inquiry, without which, effective research is, at the least, highly impaired.

This is precisely what Cochran-Smith and Lytle argue in their contention that systematic intentional inquiry is critically important both to underpin the methodology of teacher research in its own right and to lend this marginalized field the intellectual authority it needs to become perceived as a legitimate subset of educational research based on canonical precepts set out by the academy. Without this connection to the university, Cochran-Smith and Lytle seem to imply that the effort of teacher research to move beyond the fringe would be exceedingly impaired. With it, it has the prospect of shifting to the forefront.

Dewey's *Logic* is not the only form of systematic, intentional inquiry available. However, its linkage to Cochran Smith and Lytle's quest for systematic intentional inquiry is an intriguing one (a) because Dewey's quest to get at the intellectual organization of experience shares close affinities with the objectives of teacher research, and (b) because his pursuit of logic, however formally based, provides an exceedingly systematic approach to inquiry into problem areas of considerable existential import. Given the promise implicit in this vision of a methodological underpinning for teacher research, an examination of some of its strengths and limitations warrant a serious effort.

Experience as the Grounding Point for Reflection

Human experience, on Dewey's interpretation, is ever present. It is never raw in the sense that it is always a cultural and social construct, although it is primordial in being the most elemental dimension of human consciousness. It is the cauldron out of which the construction of reality takes place. In turning Rorty (1999) on his head, instead of discourse (language) defining experience, the dynamic is reversed wherein experience, in the most primordial sense, however ultimately constructed, gives rise to that which becomes discourse in the matrix of social behavior and cultural formation.

On Dewey's view, experience is lived rather than known. Once reflection takes place, the initial experience is changed. The reflection is of an event or a thought that has passed, however momentarily, and, therefore, has been transformed into something else, which is no longer *that* experience. This, too, is an experience, which is had rather than known, that is, the reflection of the experience that has passed has its own qualitative distinctiveness as a unique occurrence in time and place. Experience, therefore, remains an ever-present reality which reflection can never grasp in the distinctiveness of its existential particularity and immediacy. Thus stated, Dewey was less interested in experience, *per se*, which is an inescapable starting point, than that which becomes significant, as defined by human actors through the ongoing stream of time.

That which prompts reflection is a problem, or at least some type of a disjuncture, which causes a break in that which was previously unproblematic in the relationship between, in Dewey's language, the organism and the environment. In this respect, the habitual social mind is the force field in which articulated consciousness emerges as a response to the dilemma or source of wonderment roused by some type of provocation, whether of minor or of more significance. It is this signifying problematic which disturbs the equilibrium of deeply rooted patterns of association and being where much experience resides. Put otherwise, there is much within human experience that does not rise to the level of explicit consciousness. In fact, for Dewey, the affective and social modes of reality are more pervasive than the cognitive, which is only stimulated through some type of equilibrium disturbance.

There is then a need for a response in order to restore, or better, to reconstruct a more viable stability in the relationship between the organism and environment in response to the challenges at hand. More fundamentally, some apprehension is evoked that compels thinking as a response of the conscious self, whether alone or with others, which begins the query process for the purpose both of identifying the concern as precisely as the situation requires and to begin the trajectory toward problem resolution. Resolution is achieved when a level of satisfaction has been attained, which puts a close to that particular problem.

Clearly influenced by Darwin, Dewey's (1938/1991) analysis of human experience is rooted in biology wherein by extension and analogy "logic is [a] naturalistic" (p. 30) response to a precarious situation. As with any natural organism

survival requires adaptation, which prompts either some type of evolution within the internal structure of the species or a modification in behavior until a satisfactory level of restoration with the environment is attained. This biological drive is at the root of Dewey's inquiry-based logic, with the added dimension of consciousness, the unique product of human searching for satisfaction in which inquiry becomes the primary adaptive instrument in response to a problematic situation. Evolving from the biological search for resolution, knowledge is an intermediary process en route to a more satisfactory reconstruction of some charted out facet of living reality. This may be either of an impaired interaction between the organism and the environment or of an imaginative possibility opened up through an investigative process. The focal point is either into conditions that are given or that are coming into shape as a result of the expansion of the social universe, which the inquiry process opens up (Rescher, 2000). In either case successful adaptation is both a signification and a requirement of human growth.

The fluidity of culture exponentially expands the range of potential adaptation beyond that which is plausible only within nature in a manner that pushes the boundaries of both the imagination and the construction of the human environment. The indeterminate plasticity of the cultural matrix is constrained by those factors that impinge upon it, in short, the impact of history as a living force within the stream of time. What these limits are is far from precisely determined by invariable organismic or environmental constraints. What is operative is the mediation of their interaction within a fluid cultural context that has been substantially shaped by the past even as construction is ongoing, in which the reality to be, remains indeterminate.

Given that "the meaning [of any given situation] is established by agreements of different persons in existential activities having reference to existential consequences" (Dewey, 1938/1991, p. 53), the variability of what could potentially emerge in the cultural when contrasted solely to the biological matrix is, in principle, infinitely exponential. Moreover, in human communication meaning does not stand alone as a self-evident phenomenon, but is embedded in a context shrouded in symbolic significance that is culturally shaped. What counts is "its *operational* [original italics] force" (p. 54) within a qualitative situation or field in which such meaning is embedded. Situations, although bounded, remain fluid in relation to their interaction with the various fields in which they are embedded. The significance of any specific meaning has to be teased out within and through the various contexts that give them shape. There is nothing static therefore, about a given interpretation of an event within the fluid context of the "cultural matrix."

Historical Excursus

Notwithstanding their substantial differences, the *situation* may be one shaped by "common sense" or by what Dewey viewed as the more objectified scientific realm as exemplified in contemporary physics, chemistry, and post-Darwinian biology. In the former "[t]he system [of organization] may be simply the language in use. Its meanings hang together not in virtue of their examined relationship to one another, but because

they are current in the same set of group habits and expectations” (pp. 55-56). In short, the logic that gives shape to its organization is a cultural product, the reasoning of which is a manifestation of some significant aspect of the collective consciousness in which it is situated. By contrast, “[s]cientific language... is subject to a test over and above this criterion.” This is so because:

Each meaning that enters into the language is expressly determined in its relation to other members of the language system. In all reasoning or ordered discourse this criterion takes precedence over that instituted by connection with cultural habits (p. 56).

As Dewey further explained this pre-Kuhnian position, “[t]he ideal of scientific language is construction of a system in which meanings are related to one another in inference and discourse and where the symbols are such as to indicate the relation” (p. 56) on its own terms without the intrusion of cultural variability. Dewey does not deny that science is a cultural product. He does, however stress the difference between its formal, systematic mode of reasoning in contrast to the vicissitudes of “common sense,” a more direct product of any given social construction of reality as determined by place and time.

The difference between scientific and cultural reasoning is, therefore, a fundamental one. However, on Dewey’s account, its roots are historical rather than ontological in that there is nothing in principle disallowing the utilization of what he views as the more exacting methodology of scientific inquiry in the analysis of the problems of social organization, politics, culture, and business. The disjuncture, rather, is a reflection of the evolution of western formal thought, which, since the Platonic era has posited a great divide between higher and lower knowledge as reflected respectively in the contrast between the life of the mind and the world of action. Philosophy in ancient Greek thought became the queen of human knowledge in which all other forms were deemed inferior. This was compounded by a sharp divergence in Plato between the ideal, discerned through abstract reason and the actual as but an inferior product of the ideal. This placed the politician, soldier, and craftsperson, whose skills were predominantly practical, in an inferior intellectual status in relation to the philosopher king, given the highest aim in this craft-based epistemology, the achievement of excellence exhibited in the quality of work.

Based on these ancient Greek divisions, “knowledge as well as action can only meaningfully be final ends if there is a sort of knowledge that does not refer beyond itself to action and a sort of action that remains inaccessible to knowledge, or at any rate, to scientific knowledge” (Lobkowitz, 1977, p. 27). Both Plato and Aristotle accepted this epistemological separation of reality, even as the latter sought to attenuate some of the sharper polarities of his mentor’s idealism. The key point for Dewey was that both philosophers posited the same hierarchy of values in which the knowledge base of the craft-practitioner remained subordinate to the insights of the abstract philosopher.

In the Platonic tradition empirical knowledge of the everyday world remained subordinate to the search for the essence of truth gleaned via purified reflection based on the logic of abstract reasoning. Notwithstanding the crucial importance of elevating rational thought over mythology, Dewey argues that the cost was exceedingly high in establishing a great divide between the ideal and the actual as well as elevating philosophical reflection over practical and even scientific modes of knowing. This Platonic influence, on Dewey's reading, has cast a powerful shadow on the development of western thought from the ancient to the current period even as it has taken some highly variable turns, among the most notable, the emergence of the modern scientific era beginning in the 17th century.

In the elevation of empirical knowledge over abstract reasoning, the break with Platonic philosophy in modern scientific thought was substantial, although until Darwin and the advent of quantum physics, key similarities were also evident. In this radical turn, observation of the concrete and experimentation replaced abstract reasoning in search of truth as essence residing somewhere above human experience. Consequently, the tools of inquiry "constitute(d) a kind of language" by which "the syntax of operations" set out in the scientific method, "provides a model for the scheme of ordered knowledge more exacting than that of spoken and written language" (Dewey, 1938/1991, p. 99). This phenomenal breakthrough turned the Platonic world upside down. What remained was an intellectual hierarchy in which science replaced philosophy as the crowning mode of human knowledge. What also remained, according to Dewey, was the continuing polarity between empiricism and reason, so that what counted as knowledge was that which was discovered through methodologies of rigorous inductive observation, which rendered other ways of knowing irrelevant on their face if not nonsensical in the most fundamental sense of the term.

These polarities were attenuated by post-Darwinian developmental biology and the relativism of 20th century quantum physics, which enabled Dewey to construct his epistemology on a more open-ended understanding of the nature of science, which did not rely on positivistic modes of reasoning. This shift, in turn, gave greater scope to the potential applicability of the richness of the scientific methodology in juxtaposition to the more evidently cultural dimensions of human experience. Dewey was not overly optimistic that a common unification of thinking between common sense and scientific inquiry could be developed based on the methodological assumptions of the latter. Moreover, even in his quest for the intellectual organization of experience, he did not reject the ancient Greek argument that there was something intractable about the fundamental difference between conception and action.

Nonetheless, he was compelled to search for creative convergences between them as the most viable way out of an embrace of any hierarchy that placed either thought or action in the superior category. However indubitable the gap, Dewey remained troubled by the prospect that unless scientific modes of inquiry became increasingly commonplace it would be practically impossible to work through the many concrete issues confronting 20th century life on the grounding point of reason, evidence, and experimentation instead of myth, prejudice, invariable conflict, and outmoded absolutist modes of thought.

Without such a methodological grounding point in inquiry-based scientific logic, there would be little basis in fact, Dewey (1917, cited in Hickman and Alexander, 2000, Volume I) reasoned, for a naturalistic “faith in the power to imagine a future which is a projection of the present and to invent the instrumentalities for its realization” (p. 69).

Without this, any basis for even a tempered optimistic outlook for the future would be a dubious proposition, which remained for Dewey, a prevailing need that penetrated to the core of his identity, however seemingly distant the object of his hope. In short, logic was the ultimate instrument upon which Dewey relied for the fulfillment of the human vocation. This was premised on a naturalistic mode of inquiry in application to all the spheres of public life through which he sought to close the gap of a broad range of contradictions. Whether in the realms of culture, politics, epistemology, aesthetics, or metaphysics, Dewey held hope of at least proximate resolution through exacting inquiry as a means of mediating the fluid nature of the expanding social universe that he assumed. Notwithstanding the magnificence of his accomplishment in *Logic*, in his quest for a universal methodology, which could in principle, bring all of knowledge within the rubric of a scientific sensibility, Dewey’s grasp extended well beyond his reach, which he acknowledges at the outset in characterizing his effort as “hypothetical” (p. 14).

Dewey’s Logic as a Mode of Teacher Research: Overview

Chapters 6-9 of *Logic: The Theory of Inquiry* provide an abundance of complementary resources to flesh out and considerably extend Cochran-Smith and Lytle’s call for “systematic intentional inquiry” to ground teacher research as a legitimate sub-discipline of educational research. The argument is not that *Logic* is the only, or necessarily the best way of achieving this objective. One assumes in principle that there are multiple approaches and methodologies that could be utilized, as well as diverse theoretical perspectives. I say “in principle” because the substance of that work in relation to teacher research has yet to be done. In this respect, teacher research as a well-developed sub-discipline of educational research has not yet come into its own, notwithstanding the growing body of work at the grounding place of practice, which remains for the most part *theoretically* underdeveloped.

A primary focal point of this essay is that Dewey’s key text provides one compellingly clear framework for addressing this issue both in terms of his pragmatic epistemology and his related theory of the intellectual organization of experience through formal inquiry. *Logic*, therefore, provides a plausible pathway that teacher researchers could pursue, notwithstanding the difficulty of working through Dewey’s prose, nor the more troubling dilemma of tightly sequencing an approach toward grappling with experience that by its nature may defy such “logic” as Dewey proposes. These are problems that point to some of the limits of appropriating Dewey’s *Logic* for the development of this emerging genre. Acknowledging the importance of these limitations is an inevitable by product of fleshing out the potential of what Dewey’s *Logic* has to offer in strengthening of teacher research as a sub-field of educational research.

In the following two sections, I lay out a framework by focusing on Dewey's methodology of inquiry and proximate resolution in the construction and practice of judgments. This line of development has the potential of serving both the theoretical purposes of expanding our collective understanding of practitioner-based inquiry in relation to the broader discipline of educational research, and in providing a broad array of concrete tools for the purpose of enhancing empirically based teacher research classroom studies. Fleshing out these two purposes from the premises of philosophical pragmatism via Dewey's theory of inquiry is the primary focus of this essay, which would require further expansion and elaboration than I can provide in a single paper. My other intent, largely by way of example, is to encourage scholars and critical practitioners, representing other schools of thought, to chart out or more fully develop the relationship between the theoretical constructs upon which they draw and corresponding approaches to practice. Notwithstanding the problems that it poses, formally linking theory and practice has the potential of enhancing the quality of teacher research in its own right and more effectively integrating it as a legitimate subset of educational research.

Dewey's discussion of inquiry and the formation and practice of judgments occupy the substance of Chapters 6-9 in *Logic*. In one respect any special focus on the judgment is redundant since the formation of well grounded "warranted assertions" is the ultimate purpose of inquiry. This, in turn is based on Dewey's thesis that logic "accrues" in the systematic work of progressively resolving a problematic state of affairs in which "an indeterminate situation" is transformed "into one that is so determinate in its constituent directions and relations as to convert the original situation into a unified whole" (italics removed) (p.108). Settled judgments establish a new existential situation in which the resolution, or the warranted assertion, represents the close of a given problematic situation. This is the case even as the outcome may open up a new line of investigation wherein the resolution for the original situation reverts back to a proposition, which requires its own inquiry process in a new problematic situation.

The Pattern of Inquiry

Chapter 6, "The Pattern of Inquiry," is the most programmatic section of *Logic* in the linkage of Dewey's mode of inquiry with the five common stages of the scientific method that one would find in any textbook on the topic. Even in this chapter, Dewey's highly specific vision of inquiry stands out. His first thesis is that "a common structure or pattern" (p. 105) guides critical inquiries both in the realm of "common sense" and formal science. The second, that "logical [italics removed] forms accrue to existential materials" (p. 106), underlies Dewey's central point that specific forms and modes of logic that emerge in a particular investigation have functional validity in the progressive and cumulative movement from problem identification to problem resolution. There is nothing intrinsic whether in states of the mind, data, or methodologies as such that gives shape to an underlying investigation. Rather, the guiding focal points are the nature of the problem and the modes of resolution in which the means for its investigation emerge in the process of working through the issues that are operative in any problem situation.

The Antecedent of Inquiry: The indeterminate situation

At the beginning of a learning process, there may be perplexity, confusion, and/or doubt, due to an unclear situation whose full character is not yet determined. This situation unleashes an inquiry process in which the quest first for definition, then for resolution becomes a compelling necessity. While the situation is, at this stage indistinct, the problem is of a “peculiar quality” and “not just uncertainty at large.” Rather, it is “uniquely qualified in its very indeterminateness” (p. 109) in which certain variables are relevant and others are not. The underlying factor is that some imbalance in the relationship between the organism and environment emerges which requires rectification through “operations which actually modify existing conditions not merely... ‘mental’ processes” (p. 109). What those operations are at this stage is not evident since the situation is not clear. Whatever steps follow need to lead to the pathway of restoration of the disturbance that set the inquiry afoot. There may be various solutions, the validity of which can only be determined prospectively on whether and the extent to which a resolution has been attained. Operations of inquiry, themselves are “leading principles” designed to orient the trajectory of investigation toward resolution, which can never be fully achieved given the irreducible openness of existential experience.

A student enters an adult literacy program with a certain apprehension, but nonetheless with the expectation that over time progress will be achieved that makes some substantial difference to him. The impact he expects is the ability to process print-based texts encountered outside the program as well as to advance his reading and writing ability within the program. The student makes a good faith effort, notes some progress in being able to read a few words better and even begins to recognize some basic print-based text at home and at work. The instructor also observes the gains— imperceptible as they may be—and shares her observations with the student, who thereby gains an additional source of confirmation of his own observations. The program seems to be working for that person, and so it is to some extent. Yet, what also becomes clear to the student is the reality of how limited that progress is in terms of the enduring gaps he continues to experience, particularly in the very limited impact of such learning in the environmental contexts where he encounters the realm of print at home and at work.

At this stage, a well defined problem situation is not articulated, as perceptions remain fluid. Rather, anxiety overwhelms him when, in concrete situations, the confident expectations gleaned as a result of taking on the venture of learning to read and write butts up against the reality of how limited his progress may actually be in terms of what it is he seeks to accomplish. Doubt begins to overshadow his confidence which unleashes pessimistic streams of apprehension that the effort may not worth the while. This, in turn, begins to reinforce a negative self-perception, which was only temporarily abated when the student initially began the program.

The Institution of a Problem

On Dewey’s view, “a problem well put is half solved.” That is so because the indeterminate situation could lead to a variety of pathways, which may or may not

prove productive and thereby “cause subsequent inquiry to go astray” (p. 112). The first step in the identification of a “problem” is the very notion “that a situation requires inquiry” (p. 111). Without that the indeterminate situation might easily remain submerged within the pre-reflective, simply dismissed as not worthy of notice, not something resolvable, part of a taken for granted “reality,” or a perceived figment of one’s imagination and forgotten. In short, a problem well stated becomes a focal point of concentration, which then requires resolution.

The critical challenge at this point becomes “to find out *what* [original italics] the problem and problems are which a problematic situation presents to be inquired into” (p. 112). An initial incongruity, which, in some manner, de-stabilizes the person’s relationship to her environment may be experienced as a ‘precognitive’ perception, in which there is little “intellectual or cognitive” (p. 111) reasoning involved. What initiates a specific problem focus is its authentic emergence “out of an actual situation” (p. 112), which by its very nature compels attention. Something emerges that starts to bring the problem into focus, some sense that the problem in sight can be articulated and is the actual concern. This more concrete focus requires further refinement until the problem situation, an existential phenomenon, is stated with as much acuity as possible, as relevant to the case at hand. Ideally, a careful survey follows: an examination, inspection, exploration, and analysis of all the factors that seem relevant in further defining and clarifying the problem situation. While not all problems require such a systematic analysis, many do, which is the assumption I will build on in order to flesh out some of the fuller potential of Dewey’s logic for the emergent field of teacher research. To the extent that the problem focus is sufficiently grounded, the inquiry can proceed toward problem solution.

The student has participated in the literacy program for two years, attends regularly, but misses occasional sessions, and does not attend during summers. The student entered the program, successfully reading seven words out of ten on Level 1-1 of the Diagnostic Assessment of Reading (DAR). The student recognized the following words: “see,” “go,” “can,” “look,” “no,” “at,” “stop,” but could not get, “fish,” “down,” and “run.” The student could also read the first oral reading passage consisting of 13, mostly single syllable words that included much repetition. In terms of spelling, the student recognized “we,” “me,” and “look,” and “ran,” but misspelled “play” as “pay” on the first level of the spelling section of the DAR. After two years the student has progressed from 1-1 to 1-2 on the three DAR indicators of Word Recognition, Oral Reading, and Spelling, reflecting very modest progress (Roswell & Chall, 1992). His phonemic mastery, sight vocabulary and independent reading fluency remain extremely limited. Outside the program the student can recognize a few print-based items in the supermarket, some words he encounters in his mail, and in the notices his daughter brings home from school. He cannot read his mail independently, help his second grade daughter with her homework, fill out applications and forms, and work effectively in a position that requires the most rudimentary reading aptitude. His problem, in a word, is that he is frustrated with his limited aptitude in reading and writing despite the concerted effort he has made over these past two years.

He is frustrated because he entered the program with the expectation of helping his daughter with her homework as she progresses through the school years, and to obtain a better job at his workplace than his current position as a fork lift driver at a local warehouse. He also needs to be able to read and understand his mail on his own and to take care of other “personal business” in matters that involve print literacy. After two years of faithful participation in the local literacy program he has not made what he views as a satisfactory dent in accomplishing any of these objectives even as he has made modest improvements on the DAR assessment. He has an overall better sense of his life possibilities, notwithstanding nagging doubts of persisting inadequacy of accomplishing what he seeks to do through the medium of print literacy.

The Determination of a Problem Solution

Based on Dewey’s theory of the “means-ends continuum” of grounded inquiry, the statement of the problem needs to contain the potentiality of a solution. Otherwise the problem situation remains ill-defined. For Dewey, research entails a “*progressive* [original italics] inquiry” in which the resolution emerges in the process of carefully delineating the problem and laying out the key variables toward the pathway of increasingly refined problem identification in the movement toward plausible solution. The specific challenge at this stage is setting up a controlled inquiry so that facts and concepts, which Dewey defines as dependent variables, can be carefully correlated with each other and assessed for their potential viability toward resolution of the problem at hand. An initial step “is to search out the given *constituents* [original italics] of a given situation” in the determination of which aspects of the problem situation “are settled” (p. 112). These are primarily discerned through a close observation of “the facts of the case” (p. 113). These facts, on Dewey’s notion “constitute the terms of the problem, because they are the conditions [or factors] that must be reckoned with or taken into account of in any solution proposed” (p. 113).

In controlled inquiry it is through such a grounding point that possible solutions to the problem at hand emerge as ideas, or hypotheses which “are anticipated consequences (forecasts) of what will happen when certain operations are executed under and with respect to observed conditions” (p. 113). Thus, facts and provisional ideas are correlated in their contributory role as providing possible solutions to the problem in which neither stands alone as independent variables. At this stage there is a close mediation between emergent idea formation and a continuous collection and analysis of data in the progressive work of teasing out their just fit in the work of consecutively moving toward the identification of the problem solution, which, without implementation in actual settings, can only *but* remain hypothetical.

Ideas emerge from intuition or suggestion, which may or may not lead toward the path of resolution. The extent of their logical status as accruing from the problem at hand depends entirely on their “functional fitness... as a means of resolving the given situation” (p. 114). What emerges moves beyond the given facts of the case toward an

increasing plausible hypothesis, a “leading principle,” (p. 19) which Dewey characterizes as a symbol whose meaning hovers above the actual given, yet providing it, if it sound, with its propulsive trajectory in moving toward resolution. Thus, a problem solution, or, more likely, a set of solutions is offered, which requires further assessment in the crucible of experience to test their mettle.

Dewey notes how impractical and undesirable would be any overly literal application of the scientific methodology to the existential problems of everyday life. What he seeks is a scientific sensibility in modes of inquiry to cultural problems in which any fit would be but an approximation in which “the nature of social relations” (p. 482) would be ultimately determinative. In this respect, Dewey views science as a symbol for a mode of communication in dealing with the many seemingly intractable situations in which problems are exacerbated by an approach to human problem solving in which rigorous systematic reasoning is largely dismissed from the tools of inquiry at our collective disposal. Dewey’s objective is to elevate scientific reasoning to a central location in the resolution of “the problems of men” regardless as to their “existential” nature.

As I continue to build on the fictitious adult literacy student, I focus on the results of Dewey’s intermediary stage of inquiry rather than teasing out the process through which they would have emerged, as the latter would have involved more uncertainty, trial and error, and best-fit hypothesis than I depict below. I seek only to be illustrative in this essay format, allowing the reader to fill in some of the imaginary gaps. I note as well that any effort toward scientific precision can go only so far in the working out of complex existential situations in which there may well be several problem solutions and various articulations of the problem itself. My purposes throughout this essay are only heuristic in exploring something of the extent to which *Logic* could, in principle, be drawn upon as a resource for teacher research in making inquiry more intentional and systematic. In the process I also seek to point to some of the problems in the quest to achieve such organization of thought in a genre that may require another form of “logic” altogether than Dewey’s “new logic.” With these caveats noted, I move forward in this teacher research experimental effort of theory and genre elaboration.

Thus, in this situation one of the pre-eminent facts of the case is the intractability of this student’s limited reading capacity in the processing of print-based text inside and outside the program in the light of what he seeks to accomplish, which includes all of the Equipped for the Future’s Four Purposes (access, voice, independent action, and bridge to the future) (Stein 1995). Specifically, this student seeks to decode and process print independently on his job and at home, especially in reading his own mail, setting up a budget, paying his family’s bills, and helping his daughter with her homework without asking for his wife’s assistance. He seeks the latter in order to take a more active role in his daughter’s life and to represent himself to her in a manner that he deems she will respect. He is also concerned about her education and wants to make sure she gets the best support both at home and at school in which he feels the need to take an active role.

This student may modestly improve his independent reading ability over the next couple of years. It is also highly probable that he will plateau at Level 3 on the DAR Word Recognition and Oral Reading sections with material that he manages to deal with in the supportive instructional setting of the program. It is reasonable to deduce that he would be less likely to read similar level material in environments away from the classroom setting without substantial instructional support that the program provides. A related second given, therefore, is his need for empathetic support on reading tasks that he encounters away from as well as within the program. At his level of mastery, it is surmised that this will remain a critical need notwithstanding his desire for independent mastery. For it is the latter objective when pressed too hard, which butts up against the support he needs to develop the skills to be successful in enhancing his capacity to utilize print-based texts wherever and however he encounters them.

On the assumption that the plateau effect is a powerfully limiting factor, the critical pivotal task in moving forward may be in part a psychological one. Specifically, a significant portion of the problem solution may reside in this student's willingness to draw on support from empathetic others in his home and work environment that will help rather than hinder or stigmatize him in the risk taking he will need to reach out for just the level of support he requires. This includes support he already has from his program and in his home and work environment from trusted others, along with identifying additional areas of support, which at first blush, may not be readily apparent. This support, which is potentially within range, needs to serve as a buttress for the specific purpose at hand. That would be the enhancement of this man's capacity to work with texts in real world settings that are accessible to his current reading competency level, while simultaneously helping him to progressively increase his mastery of the decoding tasks and more inferential content of such texts. If these factors can be effectively blended, some substantial progress will have been traveled toward the problem solution of his felt perception that his sustained effort in the literacy program may not net the results he desires.

One critical challenge is the capacity of this man to make a shift in his self-perception from a quest for independence to one of establishing interdependent relations, where he, along with the significant others in his life, both learn and teach as they encounter various problems and challenges in their lives together. For this man, this very well may include his willingness to place himself in a modestly risk taking vulnerable relationship with others with those he knows will be supportive, in addition to searching out additional areas of support in the strengthening of a still emergent "literacy identity" (Fingeret and Drennon, 1997) where he neither perceives himself nor is perceived as merely dependent. The related challenge is the construction or identification of bridging texts, both those authentic to the literacy domains he encounters and those created for pedagogical purposes that he can study in helping him to progressively work on the concrete reading and informational processing tasks with which he needs to deal in order to connect what he is learning in his reading program to what he seeks to accomplish outside the program.

Reasoning

Dewey makes several key points in relation to this stage in the progressive movement from problem statement toward the testing of proposed resolutions. Viewing inquiry as a process of hypothesis formation, collection of relevant data, comparative/contrastive analysis, and continuous refinement of emerging conclusions, Dewey exhibits considerable caution against accepting the first solid idea that seems to be appropriate to the situation at hand. While intuitive perceptions are essential, his concern is that if they are immediately accepted inquiry is short-circuited and the problem focus may go awry. For Dewey, then, such solutions as those suggested in relation to this man have *propositional* merit in fitting the situation within an overall system of meaning. Solutions “accrue” in the teasing out and testing of the core variables until the inquiry process for the specific problem at hand is complete.

In focusing on “existential” application, Dewey veers between scientific reasoning in the strict sense as applied to physics and mathematics on the one hand and “common sense” on the other hand in which in the latter, social interpretation plays a more direct controlling role. Thus, “semantic coherence” (p 119) in terms of the logic of pure science does not pertain in the realm of such complex socio-cultural constructs as adult literacy education. What Dewey advocates in moving toward effective resolution of human problems is sustained application of a scientific sensibility. What he is searching for is a means of transcending conflict in the quest for a type of unity of thought where interests can converge toward a broader good that all, in principle, can recognize as valid. Given the nature of the realm in which he is working—culture—he does not expect absolutely conclusive resolutions, but temporal ones that in some profound sense, bring a close to a given problem at hand, even as questions and problems invariably continue as an inevitable condition of the human project. While rejecting any teleology of progress, it is that broadly speaking for which Dewey places his faith, when people of good will work together disinterestedly through a common discourse as reflected in the logic of a scientific sensibility in coming to terms with complex human problems.

Dewey does not go so far as to claim that science *is* the indispensable tool in moving toward effective problem solving. It is, rather, an exceedingly potent *proposition* that begs for systematic exploration in the various realms of cultural application as well as that of formal scientific investigation. At the very least, scientific reasoning, which has greatly expanded our knowledge of the physical and biological universe, may well have application in moving beyond relativism and dogmatism that mires so much attitude formation in the reinforcement of seemingly intractable human conflict, particularly in the social and political arena. The extent to which this proposition is plausible remains uncertain, Dewey argues, because systematic infusion of scientific logic into the human affairs has been greatly stymied as a result of the prevalence of orthodox thinking in the academy and the dominance of “common sense” in the realm of popular culture. In short, the efficacy of science in the realm of culture has yet been tried in which the promise of fulfillment calls for systematic application. If the effort is not made, he argues, traditional prejudices to the contrary will only be reinforced.

Thus (returning to Dewey's fourth stage of inquiry), depending on the complexity of the matter at hand, various propositions are articulated and examined in light of their relationship to each other within the context of the overall problem situation. "Through a series of intermediate meanings, a meaning is finally reached which is more *relevant* [italics in original] to the problem in hand than the originally suggested idea" (p. 115). That more refined idea, in turn, "directs the activities which, when executed, provide needed evidential material" (p.115). Stated otherwise, the efficacy of the proposed solution, itself, will be partly determined by the cogency of the evidence, the search for which the new idea, itself, opens up. A priori concepts and assumptions can help and are often essential in a given investigation, but their merit is determined exclusively by their functional utility in providing the needed work to achieve the desired solution.

In terms of the case at hand, a focus on this fourth stage could provide some resources for further articulating the conditions that would need to be in place in order for this man to successfully access, decode, and comprehend print-based texts in home and work environments. Since this is not a laboratory experiment, refinements would likely be made in the course of working through the general approach laid out in the previous stage. These are, to review, the need for supportive scaffolding (a psychological shift on the part of the individual from an autonomous stance to one of interdependency) and an approach to instruction both inside and outside the program focused on growth from knowledge and skills already accrued to the competency that can be gained through deliberate study and direct application.

In broader terms, the issue is the extent to which with appropriate support and instruction, this individual can expand his notion of a "literacy identity" (Fingeret and Drennon, 1997) through the processes of his own maturational development. In *Literacy for Life* the emergence of a literacy identity is linked to what the authors identify as a five-stage model of change. For this student, the "turning point" (stage two) was the decision that enhanced literacy could make a difference in his life. This intent would only be efficacious, however, if he could get to the next stage of utilizing literacy in a "problem solving and seeking mode." The problem was that he had not progressed much beyond the earlier stage even as the press of his own life challenges was pushing him to seek out a more satisfactory appropriation of a literacy identity.

Specifically, as difficulties surfaced new decisions and adaptations had to be made. Fingeret and Drennon note that "change is [often] difficult no matter how positive" (p. 79). Yet, without modest risk taking in searching out support from others at home and work, combined with the adaptation of real-world print materials close to his reading level in those environments, this individual would not likely be able to make the critical breakthroughs in mastery where he needed them the most. What needed to be factored in was not only the importance of these adjustments, but their feasibility. For if there were roadblocks impeding their implementation, the proffered solution was not likely to be realized and other courses of action would need to be considered. Identifying these subtle nuances in working through the problem as they evolve through the "means-ends continuum" is the substance of Dewey's fourth stage, "reasoning." This, in short, is

the making of ongoing adjustments and refinements as called for in the midst of the resolution process. Not all problems require such exhaustive elaboration, but for those that do Dewey's methodological "pattern of inquiry" provides a working model.

The Operational Character of Facts-Meaning

This last stage in the pattern of inquiry firms up the previous stages while also more fully bringing out the experimentation and application phases of the means-ends continuum. Thus, Dewey's key point, "the operative force of facts is apparent when we consider that no fact in isolation has evidential potential." This was apparent in the earliest stages of an institution of a problem, which requires a right fit between data and hypothesis formation in which the organization of knowledge "can be achieved only as they *interact* [italics in original] with one other" (Dewey, 1938/19991, p. 117). That fit arises in "*just that* [italics in original] object or occurrence which is decisive in the stage of development arrived at in the whole situation which is determinative of what is to be next" (p. 126) at each and every stage of the inquiry process. A key issue is how extensive the inquiry process needs to be, which in principle, does not end until a proximate solution, which at some profound level satisfies, is achieved.

The critical point at this stage is the experimental, which, as stated, has already been implicit throughout the inquiry process. Without some form of embedment of the proposed solution into the actual state of affairs where they are encountered throughout the inquiry process, concepts at best remain provisional, at worst, downright illusory, regardless as to how compelling or "evident" they may seem. Thus "the operative force of both of ideas and acts is...practically recognized *in the degree in which* [italics added] they are connected with experiment" (italics removed) (p. 117). For the fictitious case at hand, this would be based on the extent to which the man under discussion is making and feels he is making satisfactory progress in his literacy development so that the effort that he undertakes seems like a valuable investment of time and energy. This would need to be reinforced by sufficient evidence for the individual to prove it to his own satisfaction, and to those significant others in his life for whom that would be important. While no solution is absolutely definitive, Dewey banks on the notion that a problem situation holds capacity for resolution, yielding in judgment that is temporally decisive for that case. It is precisely such a reconstruction of the problematic into the decisively better which is also the end point in teacher research.

In general terms these five stages of the pattern of inquiry are the core elements of the scientific method, which one might find in many textbooks. The focal point here is on Dewey's particular interpretation as applied to his operating ideal, the intellectual organization of experience in which logical forms accrue throughout the means-ends continuum from organismic-environmental disequilibrium to reconstructive resolution. In one sense this quest expands beyond its capacity for realization in that any notion of the "better" experience cannot be captured through the categories of conception. However, given Dewey's emphasis on an open universe in continuous development, the value of this pursuit lies in the fruit that such learning and knowledge construction leads toward whether or not it can be fully articulated. What is foundational to Dewey is not

experience, per se, but the plausibility of its reconstruction leading to more fructifying ends. In stemming from a problem situation, systematic inquiry, when it is successful, leads to its progressive resolution through a means-ends continuum along the various stages of an investigation until a grounded judgment is realized. This is precisely the objective of systematic intentional inquiry as laid out by the authors of *Inside/Outside: Teacher Research and Knowledge*.

The Formation of Judgment

For all practical purposes a teacher research project which rigorously worked through Dewey's pattern of inquiry would be well on the way toward the practice of "systematic, intentional inquiry" envisioned by Cochran-Smith and Lytle. Moreover, the five stages are complete in themselves in leading from problem identified to problem resolved at least in any proximate sense. However, this essay is not only focused on practice, which, despite its abstract nature, it partially is, but also has an exploratory theoretical component in probing the potential of Cochran-Smith and Lytle's vision in light of the nuanced intricacies of Dewey's *Logic*. In order to even proximately fulfill the aspirations of this essay, we will proceed, to follow Dewey, from modes of inquiry to the construction and practice of judgment "in the resolution of an indeterminate situation" (p. 160).

In Dewey's terminology inquiry is propositional and thereby tentative. Judgment is resolution in terms of the specific problem at hand, and is, therefore, existential in that it is a settled decision about a particular event, situation, or problem. The former is gathering information, forming ideas, and testing. The latter is definitive resolution stemming from the logical weight of the problem solving process. It is a reconstructed "unified qualitative whole" (p. 125) which fits the situation bringing a settlement of the matter at hand, a cultural process analogous to a Darwinian view of biology as Dewey articulated in his second chapter, "The Existential Matrix of Inquiry: Biological." This adaptive drive is the basis of Dewey's naturalistic epistemology. What is discerned in judgment is a fallibilistic human achievement, what Dewey variously describes as a "close," an "ends in-view," or a "warranted assertion." Notwithstanding an invariable faith element in what comes to be the fulfillment, particularly of existential human problems rooted in culture, there is, nonetheless, a solidly-evidence based weighty decisiveness stemming from the logic of the inquiry process, itself, that gives the resolution substantial authoritativeness.

Dewey identifies three aspects in the construction of judgment. The first is what he refers to as the "subject," or the "observed facts of the case" (p. 127). The corresponding aspect is the "predicate," which are "the conceptual concepts which anticipate a possible solution" (p. 127). Their interrelationship is the "copula," representing "their functional and operative correspondence with each other" (p. 128) in the leading to the resolution, hence, the judgment. These three aspects of judgment formation are incorporated into Dewey's previous chapter on inquiry in that every step along the continuum from problem identification to resolution requires the formation and practice of judgment. At the same time, Dewey presses more fully toward the resolution

phase in Chapter Seven, “The Construction of Judgment,” which I focus my attention on below.

The “observed facts of the case” have a “dual function in bringing the problem to light and of providing evidential material with respect to its solution” (p. 127). Hence, in our fictitious case these facts would include the persistent sense of inadequacy this individual experienced once the initial euphoria waned that continued to perplex him even after two years in the literacy program. Such facts would also include the results achieved after the game plan was established, which featured a scaffolding role by significant others at home and work on types of support provided, and the results therein that followed. In this matter “the facts” contribute to the formation of judgment to the extent that they progressively lead to the desired result.

Even when the judgment is negative, inquiry progresses in providing new evidence not previously available. This, in turn, provides a basis for the investigation to turn in another direction. In this process there is a spotlight out, too, for “misleading clues” (p. 129) which may seem to be relevant, but on close examination do not fit the facts of the case, such as a graphic organizer in reading a job manual that still remained too complex for this individual to decipher and therefore useless, in itself, for his situation. What is required is a tight fit between the facts of the case and the emerging hypotheses based upon exactly what is called for in the given context in which validity is premised on the results obtained.

Based on the hypotheses in operation in this fictitious case, this would call for establishing just that fit between some prompt in the materials with the availability of supportive others who could mediate the distance between what this person could read on his own and what he could accomplish with minimal assistance from a more knowledgeable other (Vygotsky, 1978). Thus, it is not just that the modified job manual has more descriptive captions, larger print, and summary-based highlighted quotations, but that a qualified and accessible mentor is also available to work with this man to decipher certain aspects of the manual for a text that would otherwise remain closed to him without such support. In short, the availability of the modified text alone as a prefabricated solution would be an example of a “misleading clue,” which, without a careful analysis of the intervening role of other factors, namely, the availability of a mentor, could lead the inquiry astray. The search for a plausible resolution is propelled by two driving questions; (a) what is required to enable this man to extract the information he needs from his job manual and print based material at home, and (b) how can he come to be able to accomplish these reading tasks in an increasingly independent way?

The example provided predominantly addresses the first point, only, which might be termed a nearer term “ends-in-view.” This is an important objective in its own right and is a potentially contributory factor toward the realization of the longer-term aim within the boundary limits of the plausible, given the relative durability of the plateau effect among adult literacy learners at his level. Notwithstanding these limitations, given the built in modification signified by the qualifying word, “increasingly,” one might reasonably hypothesize that such progress *toward* relative independence within some

highly constrained limits is plausible, and therefore could function as a provisional end-in-view. Such a focal point, in turn, would require additional refinement in the various operations needed in the long term effort of moving toward the aim.

The critical point is the functional fit of the data at hand in matching the resolution of the specific problem under focus. It is in this respect that the logic accrues in the process of investigation in that such resolution is an existential phenomena that includes the incorporation of “a *singular* [italics in original] this or a set of singulars” (Dewey, 1938/1991, p. 131). What these are in any given context cannot necessarily be predicted beforehand, nor perhaps even thought of until well along the investigative process toward resolution, and only after certain ideas have been brought in as possible solutions. What such “singulars” do point to is the irreducible concreteness of highly particular human circumstances wherein judgment becomes enacted. Knowledge not only accrues in the process of working toward the end-in-view. It is sometimes created and certainly discovered in the intentional effort of undertaking an inquiry project. Consequently, under many circumstances, even the facts of the case at hand (which may be relatively unproblematic and self-evident in positivist and neo-positivist models of scientific research) can, on the basis of Dewey’s *Logic* be discovered only after a certain amount of conceptual work has taken place.

In the case at hand, the modified job manual, created because of this person’s situation at work, only became relevant when it was hypothesized that this man required a double scaffold. This consisted of the accessibility of mentors to help facilitate the reading process, and a modification of the manual so that he could read important text at least partially on his own, along with increasing ease with modest assistance from others. It was this dual hypothesis that stimulated the search for confirming or disconfirming data which would either help to refine this emerging plan of action, or if disconfirmed, possibly lead to another plan altogether which then would require the input of other relevant data as a means of testing its validity in meeting the need at hand. Thus, in Dewey’s language, the “copula,” or right fit between the two is the essential factor in determining the functionality of both the data and conceptual information related to the problem at hand. The result, in this case, the man’s capacity to utilize print-based texts in environments that matter to him, “is a process of temporal existential reconstitution” (p. 136) in which the efficacy of the means aimed to achieve it are evaluated in the light of what follows.

The stated goals (the desired mastery in the respective environments) are at least in part representative symbols for a sense of adequate achievement that will only be known once attained. Words themselves are articulated efforts, or even artifacts, designed “to obtain *that* [italics in original] meaning or conceptual structure” leading to the desired pathway. What this is can only be known when it is within the confines of a “singular or set of singulars,” that is, within the context of a specific existential reality, namely, the one under study. In the process, “the subject matter [as well as concept formation] undergoes reconstitution in attaining the final state of determinate resolution and unification, which is the objective that governs judgment” (p. 137). One is banking on the prospect that this individual will attain some assured sense that the plan in

operation is sufficiently efficacious based on the trajectory of his starting point in satisfactorily moving toward the desired destination, of which he does not fully know. If this is not, in fact, the right pathway, and something would have to make that judgment clear given the regulative weight of the current hypothesis, another will need to be pursued.

If he is on the right pathway, certain indicators in his environment at home and work, as well as in the literacy program itself will emerge to provide him with a felt sense that he is on a reasonably satisfactory course. This will depend in part on how he processes his own “modest” progress in light of the gap he experiences between what he has learned and what he would like and needs to know in application of print based literacy to the contexts in his life that matter. This will invariably be influenced by the acuteness of the environmental pressures he experiences. These, in turn, are at least partially determined by his underlying psychological predispositions.

At this point we simply lack the knowledge to determine what such “singulars,” would be. Such factors could be anything from a hug from his daughter for providing the help she needs in school, to added responsibilities at work as a result of his increasing competence on the job. Such evidence could also be based on continued progress, however modest from the viewpoint of an observer, but substantial to him, in his studies at the literacy program. Whatever set of factors emerge they will need to be decisive in breaching the gap between what this individual experiences and those aspects of the social environment that brought the problem to the surface in the first place. Such judgment, which is the resolution, does not typically occur all at once.

Rather, it emerges in the process of moving toward it, and in the realization of certain peaks or “consummations” that signify promises of things to come, but which remain far from fully attained. Although an elusive ideal, the sought for resolution is a powerful source of stimulation in the Deweyan concept of growth, an ever expanding, but in some compelling way a potentiality unleashed toward the plausible which this individual aspires. More perhaps than even concrete attainments is the growth of the cogency of this man’s perception that through ongoing literacy development he has the prospect of experiencing an effective enhancement of his capacities and the skills to effectively negotiate the challenges of his social environment.

On this perspective of gradualism, the hallmark of Dewey’s progressive hope, “there are a series of landmarks” that characterize the effort throughout what he refers to as the “means-ends-continuum.” These “are signs of factual material and the constancy of conceptual material” (p. 178) such as ways in which literacy is being enhanced and appropriated at work, home and the literacy program, itself, and the means selected in attaining such competence. Such landmarks or what Dewey also refers to as “phases,” which are sometimes exceedingly “intense” in their “consummatory” or aesthetic power, are essential, without which “no inquirer would have the experiential sign that his inquiry,” at whatever phase along the means-ends continuum, “had reached its [proximate] close” (p. 178).

In Dewey's naturalistic epistemology, such signposts are essential as a reflection itself of organismic resolution within an environmental matrix of both biological and cultural origin. The danger of relying on intuition as an ultimate criterion of satisfaction is to mistake "the feeling of harmony and congruity from the *operations* [italics in original] by which discrepant materials is brought into harmonious union" (p. 178). The feelings, themselves, are but indicators, often compelling ones, which provide a powerful *intuitive* sense of resolution that without sufficient behavioral anchoring in critical environmental settings, the *sense* of fulfillment attained can too easily lead to a false assurance for something that remains a process, in any event, which requires continuous adjustment on an ongoing basis.

In the example at hand the critical ground of judgment is this individual's routine and obviously relative mastery of the "problem solving and seeking stage," the third spiral along the continuum of a literacy identity, in home and work environments (Fingeret and Drennon, 1997, p. 67). While problems persist in mastering the literacy practices even in these supportive settings, at some definable point the progress he has made has signaled to him that the time and energy committed in learning to read and write has been and continues to be worthwhile. That is with the support systems built in he comes to realize that he is decisively better off in some evidentiary visible ways than if he had not taken on the effort and had given up on the literacy program. Much remains open, but in terms of the identified problem a "close" has been achieved. With this assurance he is able to continue to work along the pathway of "the spiral of change" along the continuum of an increasingly durable "literacy identity." This is so even as he will invariably face new challenges and problems that will require additional decision-making and resolution, including that of determining the continued role of formal education within his life plans.

Teacher Research Revisited

A critical question at this point is whether *Logic* is *too much* of a schematic model which intrudes into the efficacy and unique genre of practitioner-based inquiry. Given the very nature of teacher research as embedded in the experience of practitioners, that that concern is a valid criticism would be pointless to deny. For one thing, to the extent that any model becomes overly rigid or dogmatic it impedes the value of structure in providing a framework for creative work and critical analysis. For another, some teacher researchers in the field of adult learning may prefer to rely on more well known formal theory such as Mezirow's (1996) "perspective transformation" or Gardner's (1983) "multiple intelligences." Others do not depend on formal theory at all, even as the broader argument of this essay pertains that theory is implicit in the very construction of human reality. In addition, given the complex argument of *Logic* to say nothing of its general unfamiliarity, its intricate analysis of the "logic of inquiry" is not likely to comport with the ways that many practitioners interpret their own experience or engage in research.

What saves Dewey from utter obtuseness is his perpetual return to experience and his reconstructive drive toward the construction or the attainment of warrantable

assertions. No matter how complex his “theory of logic” may seem, its perpetual focal point is the articulation of experience in its many transformations toward the progressive fulfillment of experience within the stream of time and circumstance. Upon this functional aspiration his entire philosophy is based, however contentious the definition of “progressive fulfillment” (my quotes) may be in any given context. In drawing out something of the potential contribution of *Logic* to the emerging discipline of teacher research I do not see to colonize the field with my own presuppositions, but to open up another discourse to critical perspective.

The argument held by Cochran-Smith and Lytle and Dewey that perception cannot *but* intrude upon the construction of reality is not synonymous with a mandate for *academic* theory, but only with the assumption that reflection itself, hence theory construction is intrinsically embedded in human consciousness. It is this latter assumption in particular that makes Dewey’s “metaphysics of experience” (Shook, 2000, pp. 8-12) a potent underlying source in the theory construction of practitioner-based inquiry. For it is such a metaphysics which underlies Dewey’s quest for the intellectual (and aesthetic) organization of experience—the concept that the knower is an indispensable factor in that which is ultimately known. This is a metaphysics which comports with the fundamental precepts of teacher research in that practitioners are both creators and critical interpreters of their own experience. In this respect Dewey’s key text may have something of value to offer in the articulation of the logic of an experientially-based inquiry project, at the least as a powerful heuristic in the stimulation of research from the vantage point of the practitioner—the potential knower in the quest for the known.

Whether “experience” is susceptible to the type and level of “organization” that Dewey sought through instrumental reasoning is another matter. Given the plurality of human experience there is reason to doubt (Stuhr, 2003). Such uncertainty is not synonymous with rejecting *Logic* as offering illuminating insight to both the theory construction and methodological design of the emergent genre of teacher research. As an ideal standard of coherent reasoning *Logic* is also useful in grappling with Cochran-Smith & Lytle’s (1993) key methodological definition of “systematic, intentional inquiry.” The effort to tease out something of the potential contribution of *Logic* to teacher research is undertaken throughout this essay. The fictitious case study speaks at least to its plausibility. Doing so, however, would require a high level of intentionality in working through the five stages of Dewey’s “pattern of inquiry” to attain something of its contributory potential to practitioner researchers, which I have sought to simulate in the example. Such a degree of systematic analysis will appeal to some and not others.

It is to those some that I am addressing as well as other practitioners and theory constructors of this particular genre of educational research. For the former I am seeking to provide the basis for a rationale and a methodological sketch of what working from Dewey’s *Logic* might look like, a project, itself that requires considerable refinement beyond the sketch provided in this essay. For the latter, I am calling for a broad tolerance of methodologies, approaches, and theories in the hard and often isolating work of moving teacher research from the “fringe,” if not to the “forefront,” at least to a more

respectable place in the quest for legitimacy as a subset of educational research. For unless teacher research moves, in fact, purely from the immediacy of practice to include the hard work of theory construction, taking into account the validity and viability of a more formal grappling with academic scholarship, the likelihood of it remaining largely an isolated enclave of a peculiar subset of practitioners, is substantial.

The danger of cooptation is ever present and is already pervasive in current policy prescriptions that juxtapose formal academic research of a predominantly positivist type with “practitioner wisdom” (Redfield & Sivin-Kachala, 2003; Bingman, 2005). While certain practitioner researchers might interpret this as a type of equality, one needs to closely examine the connotations in the words “research” and “wisdom” in light of the contemporary political climate in which these terms are used. Given the emphasis on “scientific-based” educational research as the sine non qua of policy legitimacy in the contemporary politics of education, there is little doubt as to which term is the superlative in this relationship. This concern does not negate the value of working with and re-appropriating this terminology in search of becoming policy effective, but it is intended as a word of caution. This quest among practitioners to seek greater legitimization, despite its dangers, is essential if one is to connect what one experiences in the field with larger discourse communities. At the same time the importance of building up practitioner research communities and networks on the field’s emerging terms and supportive resources, as Cochran-Smith & Lytle have argued, needs to continue at full pace on its own terms.

In addition to the interface with the policy sector, the need is to broaden the linkage as well to the academic sector, which also is risky given the canonical weight of traditional academic disciplines to set the defining terms of legitimacy for what comes to be viewed as scholarship in any form. What makes *Logic* and much of Dewey’s entire body of work potentially relevant to the effort is the central role that experience plays as the subject of his analysis and philosophical probing. To *its* logic he subjects a wide body of academic theory for the very purpose of shedding light on experience that would not otherwise likely come to the fore. This is accomplished by probing into the underlying logics and historical analyses of a wide range of academic assumptions, sifted, in turn, through his undeniably functionalist objective of helping to create, or at least usher in a better world. With Marx, Dewey’s objective is not so much to interpret the world, but to change it.

It is this unique focus on illuminating the intricacies of experience through the framework of formal intellectual disciplines for the purpose of improving some realm of practice in which Dewey turns the academic realm upon its head. It is this immense reversal of the value of scholarship itself, upon which a great potential for teacher research resides. The realization of any such potential would be greatly enhanced by an embrace of formal pragmatic philosophy at least by some significant sector of the practitioner research community. This would be valuable in order to probe the theoretical as well as practical implications of such a reversal, and to locate theory itself, as a form of practice in which both theory and practice are mutually enriched. An effort has been made here, but the work is far from complete.

In terms of an overall rationale for a Deweyan-based model of teacher research, the discussion at least for this essay is complete. The more specific issue of whether *Logic* provides a potential resource to buttress Cochran-Smith & Lytle's underlying methodological call for "systematic intentional inquiry," is another matter. That it can be drawn on for this purpose should not, at this stage, be in dispute. Whether teacher research necessitates such a methodology is another matter. Certainly, the terms in dispute would neither be the words "intentional" nor "inquiry," for by definition these aspects of teacher research are inescapable. The critical word, obviously, is "systematic," whether that is an essential part of the definition or is an added burden that puts more responsibility on this type of research than that found in much academic scholarship particularly in the humanities and softer social sciences, which gives wide scope to a broad range of interpretation.

I would argue that the broader intent of *Inside/Outside: Teacher Research and Knowledge* is not so much the quest for systematic knowledge in a formal sense, but legitimacy of which the term "systematic" symbolizes in a subfield in which canonical boundaries are anything but settled or clear. A related factor also merits consideration. Given the location of teacher research as a subset of educational research, there is a built-in bias toward science in pushing toward the systematic organization of knowledge even as its content is existential to its core. *Logic: The Theory of Inquiry*, which seeks the intellectual organization of experience, provides a way of bridging the space between experience and science for those who seek to pursue this direction. What the intent of *Logic* and *Inside/Outside* perhaps imply about research methodology is "thorough familiarity with material, sagacity in discrimination, acuteness in detection of leads or clues, persistence and thoroughness in following them through, cherishing and developing suggestions that arise." Given these criteria, "there are no rules to be followed. The only 'rule'...is to be as intelligent and as honest as lies within ones powers" (p. 480). The extent to which the term "systematic" might apply to these criteria is a secondary concern to these characteristics themselves (applicable to such diverse fields as history, literary studies, and physics) if thoroughly adhered to in their conjoint capacity of leading to high quality research whether the specific focus is practitioner-based inquiry or formal scientific investigations.

The intent of this essay is not to diminish the legitimacy of other approaches and theoretical constructions of teacher research that draw more on the poetic, the imaginative, the cultural, or different academic traditions. It is to give substance to another orientation, one that takes science, culture, and experience in their interface with utter seriousness. That is one core objective of this essay. The other is to lend credence to the plausibility of the intellectual organization of experience, even if ultimately as only a regulative ideal, a topic that I have only partially probed in this essay. These objectives point to what I have elsewhere referred to as a "postpositivist temper" (Author, 2005, pp. 36-38) to which I seek to connect teacher research at the least, as one compelling intellectual orientation supported by a corresponding substantive body of academic scholarship.

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