

MODELS OF KNOWING  
AND  
THEIR RELATIONS TO OUR VIEWS OF EDUCATION\*

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## I. INTRODUCTION

Bifurcating models of knowing into two groups, I aim here to commend one sort and to criticize the other. Whether epistemic models envision unmediated forms of knowing serves as the criterion for separating these two types. I will explore the differences between epistemic models that include room for some form of direct knowing and those that maintain that knowledge always arises out of what is an essentially comparative process. I clearly side with the latter. The principal problems with the former, i.e., models that *do* conceive of direct, unmediated access to reality, are that they reserve, without apology, some set of knowledge claims for which they offer little or no motive for developing penetrating criticism and, correspondingly, that they underestimate, with respect to those protected domains, the value of constructing alternative accounts of things. In short, they retain epistemically privileged preserves about which they are acutely anti-theoretical. Nonetheless, my major goal in this paper is not to make this case (at least, not directly) but rather to examine both the straightforward and the analogical relations of these two broad types of epistemic models to our views on education. In the final section of the paper I will suggest (1) that unmediated models of knowing share with some perspectives on liberal education an impulse to protect certain privileged knowledge claims, (virtually, at all costs), (2) that this impulse is incompatible with the aims of liberal education and the values that underlie it, and (3) that examples of the second type of epistemic model, what I shall call "comparative models of knowing," better serve those aims and values.

Since virtually no account of knowing holds that all knowledge is unmediated--after all, the explanation of error would gain tremendous (and unmerited) prominence--those models that contemplate the possibility of some sort of unmediated knowing consistently contrast it with other types of cognitive processes, at least, and usually with other types of knowledge as well. Consequently, regardless of which side of this divide any particular model falls, all face the challenge of explicating what constitutes epistemically significant mediation.

Three issues are salient. The first concerns *what* might do the mediating, the second concerns the *extent* of the mediation, and the third concerns its *effects*. With respect to the first, only scrutiny of specific proposals will disclose the mediating mechanisms. Ironically,

those mechanisms' details turn, most prominently, on what they do *not* influence. The various domains of our knowledge that these epistemic models reserve for special treatment (such as knowledge acquired perceptually or intuitively or common sensically or empathetically or mystically) enjoy a favored status that defines the limits of the mediating mechanisms' influence.

The interest of these mediating mechanisms, regardless of their origins or details, resides in the biases they exert upon our apprehension of and interactions with the world. It is in this sense that they might be said to embody (tacit) *theories* that constrain the form of our knowing. For those, like myself, who are unsympathetic with claims for direct knowledge, the ultimate issue in epistemic analysis concerns neither whether some knowledge claim is theoretical or not nor even whether some knowledge claim is more theoretical than some other. Rather, it concerns, in effect, how hard we must labor in order to expose the underlying system of assumptions that condition any knowledge claim's shape. I presume that all knowledge claims, in this very broad and non-standard sense, are theoretical. (Murphy and Medin 1985)

Most of the time we operate with the biases in question and the theories that engender them completely unconsciously. However, even then, those biases are no less influential on our operations than are the prejudices that consciously entertained theories introduce in our dealings with the world. In fact, it is precisely when the underlying frameworks are simultaneously cognitively influential *and unconscious* that they are most difficult to detect.

Dispositions grounded in an individual's earliest upbringing, in a culture's most ancient heritage, or (especially) in the species' evolution are the least likely to undergo our critical scrutiny and (hence) the most likely to be mistaken for direct knowledge of the way the world is. (Margolis 1987, especially pp. 38-39)

Of course, this account risks inflating the notion of the 'theoretical' to such proportions that it ceases to be recognizable. After all, if everything is theoretical, what is the point of making the claim? In one sense this entire paper is devoted to addressing this question. Here and now, though, the following comments must suffice.

(1) Claims for the ubiquity of the theoretical certainly make sense within the context of this general debate in epistemology between advocates of models that countenance direct knowing and those that emphasize the inevitably comparative character of all knowing and

learning. As the comments that I will make concerning these alternative models' relations to our understanding of education and social arrangements will indicate, this is *not* merely an abstract debate among academics.

(2) Even if claims about the pervasiveness of the theoretical make sense, they are still likely to render the concept of a 'theory' rather plain. I do not find this consequence unfortunate. Since no one holds that all knowledge is direct, all epistemic models must account for the fact that some knowledge is mediated. The biases<sup>1</sup> that come with this mediation are quite like those that our explicit theories in science introduce. This is the principal motive for extending the term "theoretical" to these more mundane cases. No doubt, such an extension of the term will tarnish the honorific image that the concept of a 'theory' (and the closely related concept of an 'explanation') has enjoyed in the philosophical analyses of the past few decades.

Those analyses reflect, though, the all-consuming preoccupations with logical formalism and scientific precision of the philosophers who created them. (See Lawson and McCauley 1990, chapter 1.) What science knows does not exhaust what we know. If this line of reasoning in defence of expanding what should count as the 'theoretical' is sound up to this point, then the diminution of that concept's prestige is both inevitable and *desirable*, since it must now serve as an all-purpose epistemic concept, applicable to forms of knowing besides the scientific. In this extended sense the 'theoretical' includes everything from our most elaborate scientific theories to our most common everyday assumptions. Indeed, its scope is even larger than that! Traditional accounts of 'theory' focussed overwhelmingly on the character of theories in science, and they focussed exclusively on theories as propositional structures. (See, for

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<sup>1</sup> No pejorative connotations attach themselves to the notion of 'bias' here. If all knowledge is mediated knowledge, then all knowledge involves biases. Within the framework of a comparative model of knowing, this notion has a relatively neutral standing.

example, Suppe 1977.) But as Gilbert Ryle (1949) noted, not all knowledge is propositional knowledge.

Their fixation on the propositional generates three problems of continuity to which traditional epistemologists have simply remained blind. Preoccupation with the propositional has led traditional epistemologists and their followers in the philosophy of psychology to pronounce about cognition and knowledge as if the brain was exclusively a language processor, which at the level of its microstructure, *at least*, it pretty clearly is not. Mired in a rigidly propositional format, such work in epistemology and the philosophy of psychology is unable to benefit from progress in cognitive psychology and cognitive neurobiology. (See, for example, Fodor 1987.) These models have also proved thoroughly deficient on two further fronts. They must remain mute about other, quite familiar repositories of massive amounts of non-propositional knowledge, viz., preverbal infants and members of other species. The paradigmatic, language proficient, adult, human knowers of these propositional models of knowing are continuous with both--developmentally in the first case and evolutionarily in the second. Yet these accounts have few, if any, resources for addressing the respects in which the organisms in question can be said to know anything. (Churchland 1979)

If the 'theoretical' is to serve as a general purpose epistemic concept, it must not only surrender its preeminent epistemic status, it must also shed its exclusively propositional connotations. (P.S. Churchland 1986 and P.M. Churchland 1990.) If this extension of the 'theoretical' would do nothing more than force philosophers to face the limitations on their propositional analyses and begin to address these questions of continuity, it would be justified on those grounds alone. The biases that our systems of empirical and conceptual assumptions exert in our transactions with the world are infinitely more interesting epistemically than whether or not we apply the term "theoretical" in one way rather than another. Nevertheless, the simple fact that expanding this term in this way will highlight the presence and operation of factors that color our interpretations of things even in the most ordinary of circumstances is, ultimately, justification enough.

Turning to the second issue, the extent of the proposed mediation can and does vary considerably from one model to the next--even among self-described realists. Still, my initial talk of bifurcation should square with the subsequent acknowledgment that models that hold *all*

knowledge to be directly acquired are scarce. Ascertaining which side of this "divide" particular models fall on never involves more than a relative judgment. Judgments about how directly any model takes at least some types of knowing to be are always made in comparison to alternative models. Hence, the criticisms in section II of models of unmediated knowing outline undesirable conceptual affinities and philosophical proclivities of various epistemological positions *only in comparison with other epistemological positions* that are less congenial to notions of direct knowing. In light of the comparative nature of these assessments, these criticisms do not presume to be devastating, but cautionary only. They highlight untoward tendencies, not irredeemable or inevitable flaws.

The third issue concerns the effects of mediation. Alone, declarations that most or all of human knowledge is mediated do not seize the imagination. But the combination of this claim with the (standard) assumption that the mediation introduces distortions leaves most of us ill at ease. For some (e.g., Rosen 1987), accepting these two claims amounts to embracing skepticism--and, in the process, losing the world. (By contrast, see Rorty 1982.) These worries are rooted in philosophical commitments to realism and foundationalism, which have traditionally been intertwined. All realists are committed to the claim that some things, and the physical world in particular, exist independently of our minds. They disagree considerably about what the world's existence amounts to and about what else might exist. They also disagree about what we can know about both the world and these additional things (if there are any).

Traditional realists who subscribe to the possibility of unmediated knowing worry that realists who do not will give realism a bad name. Championing unmediated knowing is the traditional realists' strategy for responding to skepticism about what they take to be real. If we have an epistemically direct connection with some things, then we know them *as they are*.

This enviable outcome is the result of an unfailingly accurate correspondence between these things and our (direct) representations of them. We obtain a glimpse of the way (at least some part of) the world is, and however the world is, it is so quite independently of both us and our knowledge of it.

Typically, realists who appeal to forms of unmediated knowledge in defence of their realism are also foundationalists. For a foundationalist unmediated knowledge is the knowledge

most prized, since about it we can be certain. It has instrumental as well as intrinsic value.

Foundationalists maintain that unmediated knowledge can insure the trustworthiness of other claims related to it in appropriate ways. (Logical empiricism surely constituted the most extensive effort of this sort to date.) The objects of those further knowledge claims thereby gain a secure position in the realist's world.

Foundationalism and realism seem to make a natural team as do foundationalism and affirmations of direct forms of knowing. In recent philosophy the standard assumption of both traditional realists and their post-modernist critics is that these three positions constitute a package deal. Their relations are not merely natural; they are necessary. Realism depends upon foundationalism and foundationalism depends upon the possibility of some form of unmediated knowledge. The traditional realist affirms all three theses, whereas the post-modernist denies them. Of course, merely denying unmediated knowing would suffice to upset realists who require this package deal, since such denials undermine the foundations of their realism. (Some philosophers have rejected any necessary connection between realism and the other two positions and have insisted that a recognizable version of realism might survive the demise of both models of unmediated knowing and the various versions of foundationalism they inspire. See Popper 1965, Putnam 1983 and 1987, and McCauley 1987.)

Section II opens with a few brief illustrations of positions that endorse (sometimes unwittingly, perhaps) some form of unmediated knowing or other. It concludes with a summary of some of the major "conceptual affinities and philosophical proclivities" of such models about which I wish to caution.

The first part of section III outlines both a final problem with these models and the contrasting advantages of alternative epistemological models that look neither to a doctrine of unmediated knowing nor to foundationalism. It is an advantage of these alternative models that they hold that knowledge arises as the result of a *comparative* process. (It is this feature of these models to which the title of this piece alludes.) The second half of section III suggests that scientific inquiry most conspicuously exemplifies this and other important virtues. Specifically, the growth of knowledge in science depends upon the comparison of *idealized* theories with both the world and one another. Insisting on the centrality of modes of inquiry in science to our ideals of rationality in general does not require either

presumptions about the comprehensiveness of scientific description or unwavering fealty to the theories in science that currently reign.

Section IV considers both the direct and the analogical relations of the foregoing with our views on liberal education. Since comparative models of knowing regard virtually all knowledge as theoretical (in the extended sense of the term "theory" suggested earlier), the decisive skills in any area of inquiry are the abilities to disclose, propose, and criticize theories. Correspondingly, the goal of any program of liberal education should be the cultivation of penetrating analysis, imaginative theorizing, and informed criticism. One of the most striking consequences of this position concerns its view of the so-called canon. The great texts of the past deserve careful study, not because they contain treasured truths, but rather because, historically, they have offered the most suggestive targets for criticism and, hence, the most powerful aids in the development of our own positions.

## II. MODELS OF UNMEDIATED KNOWING AND THEIR UNFORTUNATE INCLINATIONS

All models of unmediated knowing hold that some form of knowledge or other is directly available to some persons or other--whether by means of some special sort of capacity or experience (e.g., mystical experience) or straightforwardly by nature. (Views of the second type often talk about notions such as 'intuition' or 'innate ideas'.) Foundationalist and realist commitments standardly accompany these models when they are explicitly entertained. Usually, though, we employ such views unreflectively. These positions, bereft of their fancier philosophical accoutrements, retain worrisome affinities (to be outlined in this section), nonetheless.

A frequently proposed source of unmediated knowing has been visual perception. (This yields the most democratic versions of theories of direct knowing.) Everyday idioms readily exhibit this outlook (e.g., "seeing is believing"). One sense of the term "see" is virtually synonymous with "know". Almost always we act as if the world is the way it looks, and the fact that we usually know just when hesitation is appropriate seems further evidence that visual perception is trustworthy. Still, even in the best of conditions we not only make mistakes but

we occasionally need someone else to point them out to us. Furthermore, illusions occur (even if only temporarily in most circumstances), and we only *usually* know when to hesitate.

Support for the epistemic preeminence of observation claims (of all sorts) probably reached its zenith with logical empiricism. More recently, the popularity of such positions has declined. (However, see Gibson 1979.) Indeed, outright hostility toward logical empiricism surely counts as one of the most prominent currents in contemporary scholarship in a wide range of disciplines over the past two decades. This antipathy toward logical empiricism, notwithstanding, the number of positions, for example, in recent philosophy, that *presume* some doctrine of unmediated knowing or other has, if anything, increased. The renewed interest in Hume's celebrating the forms of common life (Livingston 1984) and in Emerson's and other Romantics' reliance upon intuition (Cavell 1989) presumes the possibility of forms of unmediated knowing no less than does the emphasis placed by (at least some) Straussians on the direct accessibility of natural forms (presumably, by way of some form of cognitive intuition), by Husserlians (and other phenomenologists) on the fundamentality and immediacy of the Lebenswelt, and by Wittgensteinians and other ordinary language philosophers on the revelatory character of everyday idioms. Presumptions about the possibility of unmediated knowledge are not confined to work in epistemology and the philosophy of language. Recent work in moral philosophy manifests it too. (See, for example, Murdoch 1970, especially pp. 36-37 and 70, Williams 1985, and Clarke and Simpson 1989.)

Even in the sciences of this post-positivistic age, presumptions about the possibility of unmediated knowing occasionally arise. For example, in taxonomic biology the so-called reformed school of cladism has maintained that biological classification is concerned with discerning a "natural order of organisms" uncontaminated by evolutionary theory (or, for that matter, by theory of *any* sort). (Ridley 1986, p. 88) Transformed cladists explicitly take their inspiration from such pre-Darwinian, essentialist approaches to classification as that of Cuvier. Unfortunately, these reformed cladists have been mute about *why* the critical attributes of organisms they isolate should serve as the basis for classification. This is precisely the job that evolutionary theory performs in the standard version of cladism.<sup>2</sup>

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<sup>2</sup> See Ridley 1986 for a devastating attack of *transformed* cladism.

The appeal of such views rests with their emphasis on the practical, the common sensical, the everyday, the obvious, indeed, often with what *anyone* can see. Ironically, though, when such visual language is metaphorically appropriated in the cognitive domain, the unmediated knowledge relies on the most recondite of faculties. (The human cognitive system is proving about as complicated as anything we know.) When those faculties are not assumed to be universally available, they offer a basis for discriminating against those who *cannot* see. When they are assumed to be universally available, they offer a basis for summarily dismissing those who see something else.

The objects of unmediated knowing are just what they seem to be. That the world might be another way is not a serious possibility. Neither reservations about representations, apprehensions about appearances, nor anxieties about analyticity apply here. Unmediated knowing produces knowledge immediately known. The requisite experiences allow knowers no distance (hence they cannot help seeing what they see). Unmediated knowledge is not obtained through reflection, deliberation, or dialogue. The conviction with which it is held is self-justifying. Unmediated knowledge needs no further evidence. Hence, the very notion of evidential standards makes no sense in such contexts.

Contrary to these views, only occasionally has knowledge substantially progressed from simply seeing more or even from seeing more clearly. Rather, it is usually from seeing *differently* that our greatest advances result, and seeing differently requires a new theory about the objects of perception. To see differently in realms alleged to be unmediated is nothing short of revolutionary. It entails proposing that "the unmediated" was actually a representation, that "the reality" was actually appearance, that "the analytic" was actually synthetic, and that "the directly known" was actually mediated by one set of theoretical commitments (rather than another). Contrary to the currency, the familiarity, the immediacy, and the self-evidence of such knowledge, it is not a direct image of nature-in-itself.

The crushing assault in the philosophy of science on the distinction between observational and theoretical claims over the past three decades<sup>3</sup> suggests that it is not seeing rightly (the accomplishment esteemed by advocates of unmediated knowing) on which

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<sup>3</sup> See Bechtel 1988, pp. 44-48 for a brief but penetrating summary.

epistemic eminence turns but the arduous process of assembling and assessing evidence in support of competing theories. According to this view, so-called observation claims constitute a subset of theoretical claims, because *all* claims are theoretical--at least in the extended sense suggested in the previous section. (Popper 1965, p. 388) The pivotal issues on this account are how obvious and how complex the theoretical commitments are that sustain the claims in question. Unlike more obviously theoretical claims, the so-called observation claims do not post their theoretical commitments for ready public inspection. Normally, it is only the onset of theoretical competition that discloses their theory-impregnated character. The most important illustration in human history concerned the question of whether people saw a rising sun or failed to detect a moving earth. Radical innovations of theory in one century become the common sense of the next.

It is precisely when imaginative theorizers have dared to see what is, allegedly, the most transparent and the most directly known, *differently* and then supplied independent evidence for what they see that knowledge has progressed the most. The more entrenched the claim, the more likely we hold it unreflectively. Entertaining new theories is central to the process by which we reveal that many of our generally esteemed truths are held dogmatically. Einstein's success in shaking the dogmatic confidence that had settled around Newtonian mechanics is, surely, at least as important in the history of thought as the empirical accomplishments of the theory of relativity. (Popper 1965, pp. 27, 93-94)

Models of unmediated knowing are troublesome because they deny the possibility that their favorite claims might just be theoretical after all.<sup>4</sup> Models of unmediated knowing suggest that no alternatives--for example, to the Lebenswelt--are even possible. The crucial point is that without options inquiry ceases. With regard to their respective, privileged domains, models of unmediated knowing declare a moratorium on the possibility of critical

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<sup>4</sup> Sometimes, the authors of such models are explicit about the atheoretical features of their views. Rosen claims (1987, p. 130), for example, that "we have more or less direct or pretheoretic access to natural kinds"--a positively astounding claim in light of developments in taxonomic biology over the past twenty-five years. (See Ridley 1986.) Less often, though still occasionally, advocates of forms of direct knowing acknowledge outright their *anti*-theoretical views (e.g., Williams 1985, p. 17).

discussion. This foreclosure of further inquiry often raises no protest whatsoever, since, typically, the knowledge claims in question are, *at worst*, intuitively appealing.

The consequences of failing to recognize the possibility that *all* knowledge may be conjectural can be far reaching, depending upon the domain that proponents of unmediated knowing reserve for special treatment. All models of direct knowing underestimate the role of imagination in the growth of knowledge. In the domain that each prefers, models of direct knowing leave *no* room for "unrealistic," impractical, or counterintuitive hypotheses. In fact, they leave no room for hypotheses of any sort, since they maintain that knowledge in these domains is not hypothetical. They offer no impetus for imaginative endeavor.

Such profoundly anti-theoretical positions generate either misoneism and intolerance in their epistemically optimistic forms or a relativism that can just as easily occasion intolerance as not in their epistemically pessimistic forms. The most prominent recent example of the pessimistic sort is deconstructionism. By contrast, traditional realists committed to foundationalism exemplify anti-theoretical positions of the former, optimistic type. They are epistemically optimistic because they seriously envision the possibility of knowledge (and on that count I have no quarrel). Problems arise, however, when they attempt to account for the growth of knowledge.

The difficulties originate in their assumptions about the qualities of the unmediated knowledge they foresee. The problem is that models of unmediated knowing have few resources for discussing fundamental *changes* in what we know. They offer little direction for making sense of, for example, what Thomas Kuhn has called "scientific revolutions." The only thing we can do, presumably, with knowledge that has been acquired directly is to *accumulate* it. When models of unmediated knowing are conjoined, as they so frequently are, with foundationalism, the accumulation of unmediated knowledge inevitably receives overwhelming emphasis. This is not to deny that knowledge does indeed grow through accumulation at times, but only to deny that it always or inevitably does. No story about mere accumulation can ever account for those basic reorientations that have persistently, even if infrequently, occurred in the history of Western thought.

Before turning to discuss comparative models of knowing in section III, it is worth mentioning briefly some consequences for moral and political matters of models of unmediated

knowing. Since the major concern of these discussions is human conduct rather than human knowledge, they are sometimes less explicit about their underlying epistemological assumptions.

Many recent discussions of moral and political philosophy also reflect an anti-theoretic bent.<sup>5</sup> Whether their focus is on our straightforward knowledge of the forms of common life or the ready accessibility to participants of their culture's "thick" ethical concepts, these positions all presuppose that theoretical reflection<sup>6</sup> only tends to muddle what we can already know directly about moral and political life.

Systems of moral and political judgment that rely overwhelmingly on participants' familiarity with prevailing practices do not offer many grounds either for innovation or critical distance about moral and political questions. Consequently, they have little to say about the growth of moral consciousness beyond recognizing the possible importance of changing the company we keep. Inherently conservative, moral philosophies that focus on members' familiarity with the community's prevailing moral standards provide a feeble picture of moral imagination and its role in moral deliberation. Positions preoccupied with insuring that their oughts imply cans fail to appreciate how newly minted oughts can enlarge our vision of what we can do and of what we can be--whether in the form of a society gradually reassessing its use and treatment of animals or in the form of a thoroughly modern male reconsidering his familial roles and responsibilities. This is no less true at the political level. The history of the American republic traces not merely the continuing attempt to realize cherished political ideals but also the ongoing struggle to reconsider what those ideals might demand of us in an ever changing world.

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<sup>5</sup> Consider, for example, Bernard Williams's statement that "philosophy should not try to produce ethical theory." (1985, p. 17)

<sup>6</sup> On at least one occasion Bernard Williams seems to suggest that reflection of any sort will have this effect. (1985, p. 163)

### III. THEORY COMPARISON, OBJECTIVITY, AND SCIENCE

Hilary Putnam has argued, correctly I believe, against what he calls "criterial" conceptions of rationality. (1983, p. 188) Promoting some criterion or other that claims must meet in order to count as true, these conceptions then hold that only claims that satisfy these criteria are rationally acceptable. Putnam points out that the statements advancing these conceptions (and their various criteria) do not themselves satisfy those criteria and, therefore on these accounts, are not themselves rationally acceptable. Although not all models of unmediated knowing presuppose criterial conceptions of rationality, all of them face a similar problem.

Models of unmediated knowing do not themselves involve the sorts of knowledge claims that they contend can be directly known. In fact, the problem can be put even more forcefully. Without disintegrating into question begging, no model of unmediated knowing can ever maintain that epistemological claims (such as those that comprise all such models) are what is directly knowable. In short, all models of unmediated knowing themselves constitute *theoretical* positions. These models' claims that some forms of knowledge are non-hypothetical are themselves hypothetical. Contrary to the rhetoric that frequently accompanies many of these positions, knowledge claims about supposedly unmediated knowledge are not themselves unmediated or self evident. The plausibility of these models depends neither exclusively nor even primarily upon the reliability of the knowledge that they maintain is unmediated but, instead, upon the relative power (in contrast to that of alternative positions) of the whole range of arguments and evidence that their proponents can offer in their behalf.

I am not absolutely denying the possibility of direct knowing (though it should be clear by now that I am profoundly skeptical about it), but I am denying the possibility of directly knowing when we might directly know. We can only proceed as if all knowledge is theoretical knowledge, even if some is not.

It might seem possible, I suppose, that our most idealized notion of objectivity could itself rest on presumptions about unencumbered apprehension of the way things really are. But that is a kind of objectivity available only to the gods. Objectivity on the hoof emerges out of theoretical conflict. Consequently, the vital issues concern: (1) the depth of our

knowledge about the underlying biases of the theories, models, and other cognitive constructs that we employ and (2) how effectively these competing proposals address problems (including problems about what is true) that occupy us. The principal preliminary in most inquiry is not to get all of the facts straight, but rather to ascertain the (often covert) theoretical constructs that give those facts their form.

A comparative model of knowing accentuates the recognition of covert theories, the construction of overt theories, and the comparison of both with experience and with one another. A putative deficiency of this approach is its selectivity. But this selectivity is, in fact, a virtue not a vice, for it is impossible (both empirically and logically) to attend to *all* available information. The idealized nature of our cognitive constructs and the predispositions that they dictate in our responses are not obtrusive barriers to appreciating the way the world is, but rather indispensable tools for rendering inquiry manageable. We create idealized worlds that we can easily control--at least, in comparison to our control of the real world. Knowledge grows, first, by comparing how well these idealized theories make sense of the world that we experience and how usefully they shape it and second, by either tinkering with such theories or replacing them with alternatives that fit even better.<sup>7</sup>

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<sup>7</sup> Bernard Cohen (1985, p. 167) describes how Newton's work fits this sort of pattern:

In this kind of contrapuntal alternation between mathematical constructs and comparisons with the real world, between a phase one and a phase two, Newton advances from a one-body system not only to a many-body system but also to a system of orbiting bodies which have satellites, such as the moons of the earth, Saturn, and Jupiter. Thus far he has been considering mass points rather than physical bodies, because he has not yet introduced considerations of size and shape, but eventually he shifts the level of discussion from mass points to physical bodies with significant dimensions and figures.

The progression I have described . . . corresponds to the documented stages of development of Newton's ideas.

The term "fit" in the previous sentence is not meant to be a weasler. Among anti-theoretic positions of the pessimistic sort, it has become popular to decry the realist's desire to represent the world accurately. This skepticism about accurate representation motivates these positions' pessimism about knowledge and, consequently, further motivates the respect in which they hardly qualify as models of *knowing* at all.<sup>8</sup> The pessimists are perfectly correct to repudiate presumptions of accuracy for any particular set of representations, but they are utterly mistaken to surrender the general project. Galileo was persecuted by the Church not because he argued merely for the instrumental value of the Copernican system, but because he argued that it *truly described the world*. (Popper 1965, p. 98) Neither the Church nor Galileo had any delusions about what was provocative about Galileo's views. Assertions about the truth of theoretical descriptions are simultaneously the object and the engine of the critical process through which our knowledge grows. Even if, in an attempt to avoid controversies about the fidelity of representation, a theoretician advocates a proposal on the basis of its instrumental virtues alone, questions indisputably remain and inevitably arise about the *grounds* of that proposal's effectiveness.

I do not mean, by approving of the search for true description, to arouse baseless aspirations about the possibility of conclusively establishing the truth of any description. Theoretical knowledge is fallible knowledge. The only thing that critical exchange can establish very well is where competing proposals will likely fail. It is through this process of critical comparison, though, that we assess our theories' relative merits--with an eye toward their improvement or their (eventual) displacement in favor of a superior alternative.

Contrary to the science bashing so popular among humanists and activists today, it is the process of theory generation and evaluation in the sciences that most clearly displays this comparative picture of knowing and, hence, it is with the example of the sciences prominently in mind that we must formulate our general ideals of rational acceptability. (McCauley 1988) Certainly, the sciences and the non-sciences differ considerably in terms of the

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<sup>8</sup> Their pessimism, notwithstanding, all such positions (whether cultural relativism, deconstructionism, or what) presume all sorts of knowledge and, therefore, must presume some modes of knowing. Since they are inconsolable about the possibility of knowledge by the indirect route of theoretical intervention (theoretical bias, on these views, is both inevitable and fatal), they presume unmediated knowing at the same time they try to deny it.

determinateness of their objects of study and of their standards of evidence. However, these differences mitigate neither the applicability nor the advantages of a comparative model of knowing in non-scientific contexts as well.

If a comparative model of knowing is equally applicable to all areas of inquiry, then whatever epistemic advantages the sciences may possess (should) reside exclusively in their added determinateness and not in any privilege that, in principle, attaches solely to their methods.<sup>9</sup> Proposals in the humanities are no less theoretical than those in the sciences. Presumptions about or claims in behalf of unmediated knowing have no more advanced debates within the humanities than they have within the sciences. Disciplined inquiry, whether scientific or humanistic, requires the analysis and critical comparison of the theoretical propositions that underlie substantive proposals. That process of critical comparison assesses those propositions by exploring their consequences for the parts of the world to which they pertain, by considering how well they aid us in addressing the problems we are out to solve and by examining their relative readiness to cohere with what we already know.

To repeat, the only differences are ones of determinateness--of the propositions, of their consequences, of the pertinent parts of the world, of the tests, and of the comparisons.

Not even here, though, are the differences ones of principle. I make this claim not to advance some apocalyptic vision of an imminent, scientific usurpation of the arts and letters, but, on the contrary, because it seems to me that we far too frequently overestimate the determinateness of science.

I do not wish to be pegged with the charge of "scientism." (Putnam 1983, pp. 210-11) The point is not that science uniquely possesses the truth, but rather that, among our various knowledge seeking activities, it most clearly exemplifies a comparative model of knowing and, therefore, that its intrinsic structure is least hospitable to claims of unmediated knowing. It most explicitly acknowledges the importance of theories in its activities, and it most straightforwardly retains a notion of truth (where truth is conditioned, at least in part, by a

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<sup>9</sup> It follows on the view I am advancing that strong distinctions between the Naturwissenschaften and Geisteswissenschaften (with the aim of preserving an implicit domain of direct knowing in the human sciences) are, *at best*, unhelpful epistemically. (See Lawson and McCauley 1990, especially Chapter 1.)

concern for the accuracy of representation) as one of its ideals. All of these claims, though, are relative, not absolute.

Although it follows on this position that familiarity with scientific accomplishments and scientific methods is a necessary feature of a liberal education in our times, defending that assertion is not the point of this discussion. The central focus is, instead, *the model of knowing* that science illustrates. The next section explores the relationships of these two broad sorts of models of knowing that I have been discussing to our views on liberal education.

#### IV. RELATIONS TO OUR UNDERSTANDING OF LIBERAL EDUCATION

Models of unmediated knowing encourage the view that there are some bits of knowledge that are intrinsically "most worth having" (Booth 1967)--for epistemological purposes, at least. This is, of course, that knowledge we possess without mediation and about which we can be more confident than all of the rest. In these pristine domains unmediated knowledge is final, theoretically driven inquiry is unnecessary, and critical questioning is either openly unwelcome or instantly dismissed.

These implications of these models are not only controversial, they also suggest some regrettable analogies. Unmediated models of knowing suggest that knowledge is principally something had, something possessed, and, presumably, therefore something accumulated. Furthermore, within the domains they reserve for special treatment, these models discourage any sense of the tentative, theoretical, and dynamic features of learning and knowing. *In these important respects*, at least, they share the same impulse that motivates those views of liberal education, associated most recently with Allan Bloom (1987), that overwhelmingly stress retention of and reverence for the great pronouncements of the past. That said, I want to emphasize, straightaway, that I am *not* arguing that any philosopher who explicitly holds that some of our knowledge is unmediated or any persons who tacitly presume the same automatically subscribe to this retentive view of liberal education. Clearly, many do not. I merely wish to highlight a, perhaps unforeseen, similarity between these positions.

Neither such "retentive" views of liberal education nor models of unmediated knowing in epistemology have much tolerance for criticisms of the knowledge claims to which they accord

privilege, respectively. In what remains I aim, first, to criticize these views of liberal education and this impulse they share with models of unmediated knowing and, second, to outline an alternative account of liberal education commensurate with comparative models of knowing.

According to this "retentive" view of liberal education the classic works of Western culture contain the answers to all of the most important questions that humans face. Thus, the primary goal of a liberal education becomes the acquisition of these answers. This view emphasizes the scholarly (as opposed to the intellectual) virtues, since the most important task is to insure that we have got the answers right. Canonic erudition is primarily for consultative purposes.

Liberal education is discredited, though, when it degenerates into bookishness or intellectual sycophancy. While underscoring the importance of proficiency with the most profound positions from the past, comparative models of knowing leave little room for *revering* anything. A liberal education on such a comparative view should finally stir rather than still criticism even of historic positions--their documented insight, power, and fecundity, notwithstanding. We celebrate the distinguished accomplishments of our predecessors not because they capture answers tried and true, but rather because their ever-so-difficult-to-locate imperfections inspire us to try to do even better. Instead of working to insure that we get the answers that are in our grasp right, a comparative model of knowing induces continued grasping for right, i.e., better, answers.

The great works of the past constitute worthy targets for our critical energies, since they have consistently stimulated challenging and fruitful exchange. The ultimate goals of liberal education on a comparative model, then, are not so much concerned with the accumulation of accepted wisdom as they are with *developing skills* for living more richly human lives. (McCauley 1982) Liberal education is an invitation to a way of living that emphasizes learning and especially learning about the sorts of lives we ought to live. I am questioning both the notion that some particular pieces of knowledge are most worth having and the notion that the having of them, i.e., their possession, is either the only or the ultimate consideration.

If there are not particular pieces of knowledge most worth having, though, there may at least be some generally describable *skills* that qualify, viz., the skills (the most important of which is literacy) necessary for recognizing and acquiring *what it takes* in any particular

area of systematic inquiry to participate in its most critical and productive exchanges. That may sound too general to be of much help. I will have more to say on this and related topics below. However, in light of our *elected leaders'* dawdling over the deficit, their equating the absence of a criminal indictment with morally acceptable (even commendable!) conduct, (until recently) their complete refusal to acknowledge even the existence of, let alone the ravaging effects of, acid rain, their insisting that public exchanges between candidates on any particular issue be limited to no more than two minutes, and their failing to admit that the primary engine behind the drug crisis is American demand (to offer but a few examples), it should be clear that even this blunt of a comment is already sharp enough to draw plenty of blood concerning some of the most pressing issues facing our nation today. We live in a time when public affairs receive shockingly superficial treatment with little protest from even the most educated sectors of our society.

A liberal arts education is an invitation to *participate* in inquiry in order to understand better not only what human beings are but also what we might become, both individually and collectively. It is not quite true that the goal is the process, but it is imperative that each fully inform the other. It is participation in this process of inquiry (and all that that entails) that fills out phrases like "living more richly human lives." The richest forms of human living are not a birthright. Instead, they are achievements. "We are not born reasonable, but become reasonable through participation in the give-and-take . . ." (Colapietro 1987, p. 285) The process is more than merely social, it is inevitably communal. Claiming that liberal education inevitably involves *communal* experiences in the cultivation of *skills* has some important implications.

The critical skills that develop in the course of a liberal education can never be fully exercised in isolation. This is one of the reasons why correspondence schools can never supplant programs in the liberal arts. Even the most preliminary experiences with critical discussion rapidly reveal how incapable we are of anticipating the weaknesses of our own positions and not only the strengths of the alternatives but, often, even their roughest outlines. This revelation is simultaneously the single most captivating (yet frightening) feature of Socratic dialogue. Preparing to participate in the most productive exchanges in any field demands immersion in the traditions that define that field's communal life. It is

learning to speak the languages of the various communities of ideas. Fluency in these or any other languages requires more than merely memorizing vocabulary and grammatical rules.

These considerations suggest an important weakness in E. D. Hirsch's (1987) discussion of cultural literacy. In short, his famous lists too easily lend the core of his project to misrepresentation. By themselves, they seem to indicate that procuring cultural literacy amounts to no more than vaguely recognizing canonic allusions.

In fact, the critical section of *Cultural Literacy* is the second chapter where Hirsch reviews recent research in cognitive psychology on the representation of knowledge and its bearing on reading. Like many contemporary cognitive psychologists, Hirsch proves a bit too optimistic about the explanatory power of cognitive schemata. (Brewer and Nakamura 1984) Still, he is quite right to highlight the general issue of the representation of knowledge and to explore how schemata are acquired and improved as well as how we enlist them in our reading.

Cognitive schemata have typical structural features in virtue of which they organize our knowledge so that it is rapidly retrievable and readily applicable. The integration and elaboration of schemata rely on repeated exposure to and ingestion of the appropriate materials (at which Hirsch's lists only briefly hint).<sup>10</sup> Hirsch argues that the crucial issue for cultural literacy is the relative dimensions of the culture (e.g., local versus national) that informs this elaboration. "The shared schemata necessary for reading and writing are always those of the wider community." (1987, p. 69)

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<sup>10</sup> Recently, connectionist researchers have proposed mechanisms for the representation of knowledge that are more flexible than schemata, as standardly conceived, and that more readily model humans' abilities to accommodate such phenomena as variation, uncertainty, and degradation in the information they confront. (Bechtel and Abrahamsen 1990)

Hirsch insists that nothing can replace cultural literacy, i.e., familiarity with history, literature, philosophy, and science, as a preparation for effective reading. Although, in the course of advancing this position, Hirsch severely criticizes the prevailing view among educators that the ability to read is essentially possessing the ability to decode text, it is often overlooked that Hirsch, himself, follows schema theorists in holding that the elaboration of our knowledge structures involves, at least in part, the acquisition of *skill*, or more precisely, the acquisition of *many* skills. Research in cognitive psychology overwhelmingly indicates that most cognitive skills are task specific and, hence, do not usually fare well in new problem contexts. Consequently, the extremely general formulation I offered earlier of the skills most worth having may not be so far from the mark. "What it takes" in each case is "the possession of a lot of diverse, task-specific information" that has been integrated on the basis of extensive experience in the field in question.<sup>11</sup> (Hirsch 1987, p. 61)

Cognitive skills, no less than physical skills, require continual *practice* for their development. This is the activity in virtue of which the disciplines are so called. Such exercise also purges students of their Romantic delusions about imagination. Mastering the great traditions instructs students in the forms of knowing within a given domain. Imaginative accomplishments issue not from spasms of inspiration, *ex nihilo*, but rather from years of disciplined elaboration of these forms, i.e., elaboration of what Hirsch and the psychologists call "procedural and substantive schemata." (Hirsch 1987, pp. 60-61) This elaboration depends upon the formulation and consideration of alternatives at every turn. Such elaboration is productive only when it is disciplined, and it is disciplined, ideally, when participants are proficient with established materials. We approach that ideal through the constant *exercise* of our critical powers.

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<sup>11</sup> Nothing I have said so far has been meant to deny the tremendous importance of mastering this information. I am only suggesting that it is not the only end or the ultimate end of a liberal education.

Regardless of the field, however, a comparative model of knowing suggests that it is not the preservation of the treasured truths but rather their creative appropriation that should be the final goal of liberal education. This will elicit theoretical innovation, which provokes critical discussion, which leads to the improvement of our knowledge. The whole process entices us to undertake better intellectual projects better. This is the sense in which liberal education is a preparation for life. The underlying picture of human capabilities prompts the bet that in the course of pursuing those projects we shall, in fact, live better lives. Putnam argues that such a picture is broadly Kantian in outlook. "The Kantian moral image does include the claim that thinking for oneself about how to live . . . is a virtue . . . this virtue is not just a virtue . . . our capacity for exercising this virtue is the most significant moral capacity we have; it includes the claim that a human being who has chosen not to think for himself about how to live . . . has failed to live a fully human life." (1987, pp. 61-62) Hence, the primary responsibility of instructors is not to venerate the texts, but rather to *exhibit* to students how learning about historic alternatives can invigorate their lives.

On a comparative model of knowing *respect* does not necessitate the sort of unquestioning *reverence* for (at least some) knowledge claims that characterizes the approach to the liberal arts that I have been questioning. Traditions survive or are, at least, remembered because they ask good questions and provide the best known solutions to recurring human problems. It follows neither that those traditions, either individually or collectively, offer *any* answers that are right-come-what-may nor that they exhaust the set of questions worth asking. Consequently, the general issue of the revisability of the canon should not be controversial. Revision and addition are inevitable. (After all, once a canon is formed, is nothing of any cultural importance supposed to occur in the remaining time our species survives?)

If the position for which I have been arguing is sound, it shows that a *canon* has never been what we have had and that a canon should never be what we want. The metaphor has its darker side. Canonical works possess an authority that is not supposed to be questioned and *especially not by the initiated*. When the formally educated trade in innovative thinking and

productive citizenship for the closed, self-serving society of intellectual refinement that Bloom seems to prize, they will fuel divisiveness, anti-intellectualism, and mistrust.

By contrast, the view of liberal education that comparative models of knowing suggest never loses sight of the thoroughly conjectural character of respected positions from the past.

This view of liberal education is both democratic and Darwinian. It thrives on open debate and the free exchange of ideas. Positions must win their audiences, and this *includes* those positions that have enjoyed the respect of previous generations. A comparative model is anti-authoritarian. As Cohen remarks about the effects on Western culture of the modern scientific revolution "discovery of truth . . . [is] no longer vouchsafed to a chosen few . . ." (1985, p. 147) Among ideas, this model promotes equality of opportunity rather than guaranteeing equality of outcome. (See Putnam 1987, p. 56.) All contributions are welcome but not all survive. Participation in the greatest conversations does not rely upon the possession of secret skills but on the diligent development of our cognitive and imaginative capacities.

Claims of this sort introduce risks that frighten proponents of the retentive approach to liberal education. Over the last decade especially, numerous studies have documented the dismal failures of our educational system, and Bloom is articulate about what he takes to be other comparably foreboding trends in our culture. One of his major concerns, indeed, one that has some legitimacy, is that neither our educational system nor our culture generally are especially hospitable either to a life dedicated to the study of the greatest traditions of the past or to an intellectual life generally. Bloom's concern, in short, is that the competition for students' minds will not be fair. The problem is to get students to take Aristotle seriously at all (let alone to actually agree with him about anything). Presumably, on an even playing field these historic positions will at least hold their own. But the contest, Bloom fears, is one where both the current cultural and political forces as well as the cultural and historical distance of these positions impose upon them insurmountable handicaps in the minds of students today.

In the face of our cultural decline, however, we should not resort to the sort of exclusive, intellectual cliques that Bloom seems to recommend. The crucial underlying issue is maintaining the accessibility of classical views (since their appreciation requires linguistic, cultural, historical, and philosophical sensitivities that take years to develop) by insuring

that as many citizens as possible have the opportunity to develop the requisite skills. A comparative model of knowing actively entertains the notion that a liberal education could, quite possibly, be for everyone. It certainly debar no one. It has no favorites. It will compensate classical positions fairly for unjustified handicaps, but so long as the competition of ideas is conducted forthrightly, it will not interfere to secure one outcome rather than another.

What proponents of the retentive view of liberal education and partisans of models of unmediated knowing have in common is an unwillingness to concede the tentative, conjectural, and hypothetical status of some set of privileged knowledge claims. This unwillingness renders them incapable of condoning truly free debate, even when the competitive conditions are entirely fair. Such views inevitably have authoritarian propensities. Taking themselves to possess (in some domains) at least some truths with a capital 'T,' these positions cannot abide alternatives. What I am suggesting is that proposals for totally open exchange will alarm them, *regardless of the state of our culture.*

The obvious question that remains is, what assurances does a comparative model of knowing offer concerning the perpetuation of our cultural heritage? Does it provide any motive for concern with the preservation of past cultural achievements? It does. If we must operate as if all of our knowledge is hypothetical, which it very well may be, then the tentativeness of our knowledge claims is double-edged. Not only does the proposition that our knowledge claims are conjectural indicate their susceptibility to improvement (or even replacement), it also supplies the principal motive for *preserving* knowledge of past positions that no longer enjoy our favor. Ironically, the preservation of these positions helps to protect us from slipping into authoritarianism, since they embody alternative perspectives from which, with a little hard work, we can see some of the limitations and biases of the views we currently prefer. Furthermore, frequently in the history of thought, debates have advanced by resuscitating ideas that have been previously rejected. Copernicus' revival of Aristarchus' heliocentric solar system is, perhaps, the most striking illustration.

A comparative model of knowing grants no grounds whatsoever for absolutely discarding any view--no matter how heinous or preposterous. (Following Mill, this does not preclude a society from setting limits on citizens' liberties to act on such ideas--*especially* the heinous

ones.) In an ideal world where large numbers of people are adequately prepared to participate in the great conversations, on comparative models of knowing (in contrast to the positions I have been assailing) we can rely on the crucible of critical exchange to insure that neither the genuinely heinous nor the genuinely preposterous flourishes.

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