The Failure of Critical Thinking:
Considering Virtue Epistemology as a Pedagogical Alternative

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Few educators would oppose a pedagogical strategy that promised to enhance the general intellectual growth and academic development of students. It comes as no surprise, then, that the idea of critical thinking has gained such widespread popularity within contemporary educational discourse. I will not rehearse here the mountains of scholarship that emphasize the perceived importance of critical thinking, or the plethora of curricular documents that expect teachers to devote at least some attention to its mastery. Most educators are very familiar with its pervasive role in current curriculum development, and many include "critical thinking" in their own instructional practice.

In spite of its ubiquitous popularity, however, some educators have begun to express concern with its lack of actual classroom impact, and there is little reliable evidence, anecdotal or empirical, that critical thinking instruction is having any positive pedagogical influence.[1] In this essay, I want to argue that the lack of success enjoyed by critical thinking instruction arises at least in part from the significant conceptual and epistemological errors embedded in the discourse surrounding the term. These persistent errors follow from the fallacious Cartesian metaphysics on which mental process terms are often predicated. Rather than attempting to rehabilitate critical thinking, then, I propose jettisoning the concept in favor of a potentially more fruitful pedagogical approach free of this Cartesian baggage.

Although the idea of epistemic virtue has been largely ignored in mainstream educational discourse, it may provide a more effective strategy to enrich the intellectual development of students. Epistemic virtues consist of various character traits, personal qualities, and dispositions, rather than cognitive skills, problem-solving strategies, or abstract heuristic procedures. Further, virtue epistemology supercedes matters of knowledge justification since an individual's intellectual character has important ramifications for moral reasoning as well. James Montmarquet cites one of Hitler's leading biographers to elucidate this point:

> Hitler's was a closed mind, violently rejecting any alternative view, refusing to criticize or allow others to criticize his assumptions. He read and listened, not to learn, but to acquire information and find additional support for prejudices and opinions already in his mind.[2]

Hitler's contemptible moral behavior was directly related to dubious character dispositions, in this case close-mindedness, that insulated damaging false beliefs from serious criticism, and ultimately led to catastrophic international consequences. A student possessing intellectual character, then, is not only better situated to experience improved epistemological success, but may also exercise more appropriate moral judgements. I will begin the essay by detailing the various problems emerging from the meta-cognitive discourse on critical thinking, and then briefly outline a pedagogical alternative based on Montmarquet's version of virtue epistemology.

THE MYTH OF CRITICAL THINKING TRANSFER

The primary appeal of the meta-cognitive discourse on critical thinking is the assumption that the competency offers an effective generic instrument for epistemic discernment regardless of context or circumstance. Many educational psychologists seemingly believe that once the proper strategy is mastered by students, typically through some form of guided practice, then it simply becomes a matter of identifying various problems and setting the acquired critical thinking "skills" in motion. Within a labor market milieu where employment stability is undermined by various social and economic forces, the assumed transferability of critical thinking understandably elicits widespread support from a range of educational stakeholders. Workers possessing transferable cognitive skills, for example, would be able to utilize such capacities regardless of their occupational circumstances.

Within educational psychology, the term *transfer* refers to situations where something learned previously positively influences present learning or circumstances where the technique adopted to resolve a previous problem informs how a present problem is addressed. There are, on this account, two different types of transfer.[3] *Low-road transfer* identifies the spontaneous and automatic transfer of highly practiced skills in a manner not requiring significant reflection or additional knowledge. Examples of low-road transfer include operating different but technically similar vehicles or utilizing technological applications where the basic knowledge, understanding and mechanical procedures learned in one context are generally applicable to other situations. The procedures required to operate a photocopier, for example, are generally transferable since the basic knowledge, understanding and mechanical techniques learned in one setting are frequently æ although certainly not always æ applicable in others. The obvious method of perfecting low-road transfer is simply practicing the particular skill or set of skills in question.

High-road transfer, on the other hand, involves consciously applying abstract knowledge, heuristics, or procedures learned in one context to some novel problem-solving situation. The supposed key to high-road transfer is identifying general principles or strategies that apply to many different problem-solving scenarios. Woolfolk explains:

> The key to high-road transfer is mindful abstraction, or the deliberate identification of a principle, main idea, strategy or procedure that is not tied to one specific problem or situation but could apply to many. Such an abstraction becomes part of your metacognitive knowledge, available to guide future learning and problem-solving.[4]

The assumption that such "mindful abstraction," a term itself in need of considerable conceptual unpacking, can be successfully performed reifies the conviction that high-road transfer is possible, and that so-called cognitive skills such as critical thinking can be reduced to simple heuristic strategies and transferred between different problem-solving contexts.

The ideas supporting low-road transfer are as unproblematic as they are simplistic. The knowledge, understanding and mechanical procedures required to master various applied technologies, business equipment or operate similar but different machinery are frequently transferable. Transfer occurs in these cases, of course, because the context shift involves a mere change of setting rather than one

of altered epistemic requirements. In other words, an individual operating a similarly designed photocopier in two different offices normally requires no significant new knowledge about photocopying or related mechanical procedures. Similarly, the capacity to drive your own automobile easily transfers to other comparable vehicles. The efficacy of high-road transfer, however, especially as it relates to critical thinking, is far more suspect.

Some educational psychologists seemingly adopt an unquestioned reverence for high-road transfer. D.N. Perkins and Solomon reflect this misplaced faith by claiming that, "students often fail to apply knowledge and skills learned in one context to other situations. With well-designed instruction, we can increase the likelihood that they will."[5] The two researchers actually suggest teaching critical thinking for transfer by encouraging students to practice the skill in a variety of contexts, and offer the following faulty analogy to illustrate their view that critical thinking is a transferable faculty:

> Facing a move across town and concerned with economy, you rent a small truck to transport your worldly possessions. You have never driven a truck before and wonder whether you can manage it. Driving the truck is an experience unfamiliar, yet familiar. This everyday experience is a story of transfer æ something learned in one context has helped in another.[6]

Although the analogy provides an excellent example of low road transfer, it becomes entirely untenable when compared to critical thinking. The act of driving is primarily a mechanical skill where although the context has changed, the basic knowledge and procedural operations are essentially the same. Transfer would be far less likely to occur, of course, if the rented vehicle was a semi-tractor trailer with an eighteen speed gearbox and a pneumatic braking system since the epistemic conditions are significantly modified.

The impact of changing epistemic requirements on any meaningful construct of critical thinking is best understood by considering particular problem-solving scenarios. The individual capacity to resolve a technical crisis at a nuclear powered generating station reveals no unique knowledge, capacity or insight that would allow the same person to modify surgical objectives after discovering some underlying pathology during neurosurgery. A highly skilled and experienced airline pilot who successfully confronts instrument failure by employing alternative guidance techniques may be unable to substitute a missing minor ingredient when baking bread. Successful problem-solving requires rather precise knowledge about policies, protocols and consequences specific to the problem in question. An effective pedagogical technique intended to enhance the intellectual development of students, then, must recognize this basic epistemological requirement for successful critical thinking and problem-solving.

Cartesian Dualism and Critical Thinking

Other perilous misconceptions about critical thinking result from conflating mental process concepts with physical activity ones, or committing what Gilbert Ryle refers to as a category mistake. A category mistake is the logical error that occurs when a concept suffers some taxonomic impropriety. When classifying colors, for example, it is a category mistake to place the concept of hot in the same group with violet, vermilion, indigo and blue. Many category mistakes reflect more

than simple errors in concept classification, however, generating instead fundamental misunderstandings about the qualities or characteristics of the concept itself. Indeed, the category mistake committed by the meta-cognitive discourse on critical thinking is directly attributable to the improper logical mapping of linguistic concepts described by Ryle.

Although there are other metaphysical schemes he might have singled out, Ryle identifies Descartes' psycho-physical dualism as the primary source of mental process category mistakes:

> Now the dogma of the Ghost in the Machine does just this. It maintains that there exists both minds and bodies; that there occur physical processes and mental processes.…I am saying that the phrase "there occur mental processes" does not mean the same sort of thing as "there occur physical processes" and therefore, that it makes no sense to conjoin or disjoin the two.[7]

The category error committed by many critical thinking proponents begins by presupposing the Cartesian mind/body distinction, and assimilating statements about mental processes to the same logical category as statements describing physical processes. Since linguistic concepts are used to describe a wide range of physical activities such as walking, running and driving, psycho-physical dualism demands a counterpart set of idioms describing mental activities such as problem-solving, and creative and critical thinking. The idioms describing mental activities, however, represent a distinct logical category from those denoting physical activities since the former must be grammatically situated in the form *thinking* about *x*.

It is a classic category mistake to conflate logically mental and physical activity concepts, and then assume they share particular qualities related to their respective mastery. The context free approaches to critical thinking and problem-solving described in the meta-cognitive discourse, and prevalent throughout contemporary public education curricula, are predicated on fallacious faculty psychology assumptions that implicitly presuppose mental capacities, or so-called "cognitive skills," can be developed and enhanced analogous to physical ones, that is, by practice in the activity itself.[8] A recent meta-cognitive strategy designed to foster critical thinking skills reinforces the worry that faculty psychology tenets remain a contemporary pedagogical force. In stage one of a critical thinking lesson designed by Wilen and Phillips, teachers are encouraged to "introduce the skill, show examples and non-examples, and use exercises to practice the skill."[9]

HEURISTIC STRATEGIES AND CRITICAL THINKING

Many educational programs advocating a generic approach to critical thinking include an heuristic strategy that recommends following certain procedural steps for general problem-solving application. Referred to as the *designing model*, for example, one such strategy provides a series of heuristics that are intended to resolve virtually any encountered problem. The steps include: (1) identify the problem; (2) determine parameters; (3) conduct research; (4) generate solutions; (5) chose best solution; (6) implement solution; (7) test and evaluate; (8) redesign and refine.[10] Generously evaluated, heuristic approaches may provide a general framework for abstract problem-solving, but they are extremely limited in their subject specific effectiveness.

John McPeck underscores the ineffectiveness of heuristic strategies by comparing them with the challenge confronting computer programmers attempting to design artificial intelligence software: "In designing computer programs to solve ill-structured or open-ended problems, one strategy is to employ certain heuristic devices, or rules of thumb, which will suggest possible solutions."[11] As a result of this strategy's determined ineffectiveness, it is now axiomatic in artificial intelligence software design that the more general a given heuristic, the less efficacious it becomes for any specific problem-solving application. Asking students to entertain alternative perspectives on whether light travels as particles or waves, for example, seems of limited value when they lack the required knowledge and understanding to evaluate the complexities of the two theories. McPeck suggests that offering such simplistic heuristic strategies to prospective critical thinkers is about as functionally useful as instructing a baseball pitcher hopelessly behind in the count to "throw strikes!"

Ludwig Wittgenstein also implies the significant limitations of heuristic problem-solving strategies by pointing out that many concepts are entirely ambiguous in the absence of some context, or particular language game. Many words, including heuristic problem-solving injunctions, entail radically different meanings depending on the circumstances of their use, and ignoring this semantic reality can lead to confusing consequences: "What is essential is to see that the same thing can come before our minds when we hear the word and the application still be different. Has it the same meaning both times? I think we shall say not."[12] The simple procedural instructions of *wash, rinse,* and *repeat* illustrate Wittgenstein's point. Although everyone may understanding the instructions at some fundamental level, knowledge of what is actually being washed, and with what, is required to supply the steps with any practical meaning. A cashmere sweater, regardless of the provided steps, must be washed in a fundamentally different fashion from a car or a fortieth story window. When interpreted literally, situating the injunction to repeat the steps at the end of the washing procedure commands *ad infinitum* repetition of the instructions, again highlighting the unavoidable role of context when employing heuristic problem-solving strategies.

Upon close examination, most of the supposedly generic injunctions typically revealed in meta-cognitive critical thinking strategies require sensitivity to context and significant subject knowledge. Sharon Bailin, Roland Case, Jerrold Coombs, and Leroi Daniels explain:

> The kinds of acts, such as predicting and interpreting, which are put forth as generic skills will, in fact, vary greatly depending on context, and this difference is connected with different kinds of knowledge and understanding necessary for successful completion of the particular task. Interpreting a graph is a very different sort of activity from interpreting a play.[13]

Successfully interpreting a graph requires understanding the relationship between various plotted entities based on grasping a manifold of geometric conventions. Interpreting a play, on the other hand, usually involves inferring possible themes or meanings derived from particular narrative references. Simple procedural instructions such as interpreting, analyzing and predicting, then, must be understood and

applied within some specific context. They do not qualify as transferable meta-cognitive skills and the attempt to employ them as such reflects the Cartesian error identified above.

<div align="center">VIRTUE EPISTEMOLOGY</div>

How, then, can educators escape the various epistemic and conceptual errors corrupting contemporary meta-cognitive critical thinking constructs and still foster desirable intellectual qualities and academic characteristics in students? Although the idea of epistemic virtue has been largely neglected in education, I believe it may provide teachers with an effective strategy to pursue this important pedagogical objective. Whereas non-virtue theories consider epistemic justification in terms of evidence requirements or evaluation procedures, virtue epistemology understands justified belief in terms of epistemic virtues. Again, epistemic virtues consist of personal qualities, character traits, and dispositions rather than problem-solving strategies, heuristics or meta-cognitive skills.

Any pedagogical approach that successfully enhances the intellectual development of students must include both an epistemological and a dispositional component. Unlike the meta-cognitive discourse on critical thinking that neglects these requirements by emphasizing heuristic strategies and cognitive skill transfer, virtue epistemology reflects a coherent recognition of their combined importance. Montmarquet suggests, for example, that the epistemologically virtuous individual aspires toward three interrelated general objectives: to discover new truths, to increase one's explanatory understanding, and to hold true rather than false beliefs.[14] By encouraging students to discover new truths and increase their explanatory understanding, virtue epistemology initially compels students to expand their subject knowledge relevant to a particular problem.

The epistemic virtues cannot be understood exclusively in terms of a general desire to acquire additional knowledge and enhance explanatory understanding. Other personal qualities are obviously required for epistemic success. In addition to the general epistemic virtues, then, Montmarquet identifies a list of *regulatory virtues,* or second order virtues, and classifies them in three additional distinct categories: Virtues of *impartiality* include personality traits such as openness to the ideas of others, willingness to exchange ideas, and a lively sense of one's own fallibility (a quality Hitler was obviously lacking); virtues of *intellectual sobriety* oppose the excitement and rashness of overly enthusiastic commitment to truth claims; and finally, virtues of *intellectual courage* include a willingness to entertain and examine alternatives to popular ideas, perseverance in the face of opposition from others, and the determination to see an inquiry through to the end.[15]

These more specific virtues are designed to regulate the general objective of epistemic conscientiousness because, as Montmarquet observes, "Bare conscientiousness by no means guarantees a proper orientation toward one's own or others' beliefs, and this is why the qualities we have been enumerating seem so necessary to intellectual inquiry (and integral to our notion of a virtuous inquirer)."[16] Although the personal qualities identified as epistemic virtues may be construed as habits, educators must always remember that they are not mindless habits, and this is where

subject knowledge and understanding once again play a pivotal role. As Montmarquet explains, "One is trying to arrive at the truth [and most importantly] be guided by the evidence."[17]

There is a crucial caveat regarding virtue epistemology that should be conveyed to those educators who consider utilizing the approach. Montmarquet's model of virtue epistemology is designed to foster intellectual responsibility, but the virtues he identifies are not necessarily or inevitably truth-conducive. Although Montmarquet's idea of epistemic conscientiousness involves a genuine motivation to arrive at truth and avoid falsehood, a well-intentioned and motivated person practicing the epistemic virtues might still adopt incorrect beliefs. In a possible world deceived by Descartes' Evil Genius, for example, the beliefs of epistemically virtuous and conscientious people could prove to be entirely false, while those held by intellectually reckless individuals turn out to be true. Even in the face of such possible deception and error, however, Montmarquet argues that we should still regard intellectual carefulness as a virtue and intellectual carelessness as a vice since the former remains consistent with his objective of epistemic conscientiousness. Nevertheless, the point remains that virtue epistemology cannot lead unequivocally to epistemic reliability, and this limitation should be clearly recognized by epistemically conscientious educators.

Some of the more sophisticated contemporary scholarship on critical thinking appears to be groping its way, albeit somewhat blindly, toward virtue epistemology. Alan Sears and Jim Parsons, for example, advocate what they describe as an "ethic" of critical thinking by encouraging students to empathize with alternative world views, adopt a skeptical stance toward text and develop a tolerance for ambiguity.[18] In another recent commentary on critical thinking, Roland Case and Ian Wright encourage teachers to foster such qualities as open-mindedness, fair-mindedness, independent-mindedness, a critical attitude and an intellectual work ethic in students.[19] A preeminent scholar in the field of contemporary critical thinking, Harvey Siegel worries that the dispositional requirements of reflective thought remain a vastly underexplored area in spite of their indispensable significance.[20] All of these positions clearly intimate toward some currently unarticulated vision of virtue epistemology.

Unlike critical thinking, epistemic virtue represents an ideal to be strived toward rather than a measurable standard to achieve. The intellectual character developed through virtue epistemology will not appear after a single lesson or after an entire course, but reflects instead the likely educational journey of a lifetime. Although Montmarquet provides a general framework, the epistemic virtues cannot be neatly compartmentalized for fragmented instruction, nor can they be clearly marked for easy assessment. Many teachers and administrators may find the amorphous and often inconstant nature of the epistemic virtues profoundly disturbing during an era marked by curriculum standardization and high stakes assessment. To those individuals, I would simply submit that in spite of educational rhetoric to the contrary, there are no quick facile recipes to enhance the knowledge, understanding, and academic development of students.

<div align="center">C<small>ONCLUSION</small></div>

The belief that meta-cognitive critical thinking "skills" can be perfected through practice and circumvent the significant time and energy required to increase subject knowledge and understanding is little more than a chimera. Whenever teachers speak of critical thinking as a generic transferable skill or a simple set of heuristic procedures, they are potentially harming students more than helping them by encouraging what may be uninformed judgments and analyses. Educators genuinely concerned with the intellectual growth of their students must simply accept, and indeed model, that the formidable path leading from the ignoble darkness of the Cave to epistemic enlightenment inevitably requiring an extraordinary measure of unremitting scholarly effort. I believe that virtue epistemology embodies this recognition by fostering dispositions, attitudes, and character traits designed to increase explanatory understanding while, unlike the meta-cognitive discourse on critical thinking, avoiding the conceptual traps of Cartesian metaphysics. A teaching approach that encompasses epistemic virtue will not deliver us to the educational promised land, but it should, at the very least, point us in the proper pedagogical direction.

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1. See Roland Case and Ian Wright, "Taking Seriously the Teaching of Critical Thinking," in *The Canadian Anthology of Social Studies: Issues and Strategies for Teachers*, ed. Roland Case and Penny Clark (Vancouver: Pacific Educational Press, 1999), 179.

2. James Montmarquet, *Epistemic Virtue and Doxastic Responsibility* (Lanham, Md.: Rowman and Littlefield, 1993), 13.

3. See Anita A. Woolfolk, *Educational Psychology*, 7th ed. (Boston: Allyn and Bacon, 1998), 320.

4. Ibid.

5. D.N. Perkins and G. Soloman, "Are Cognitive Skills Context-bound?" *Educational Researcher* 18, no. 1 (1987): 22.

6. Ibid.

7. Gilbert Ryle, *The Concept of Mind* (New York: Barnes and Noble, 1953), 22.

8. See Robin Barrow, "Skill Talk," *Journal of Philosophy of Education* 21, no. 2, (1987): 191.

9. W.W. Wilen and J.A. Phillips, "Teaching Critical Thinking: A Metacognitive Approach," *Social Education* 59 (1995): 135-38.

10. Ministry of Education, *Business Education* (Victoria: Ministry of Education, 2000).

11. John McPeck, *Critical Thinking and Education* (New York: St. Martin's Press, 1981), 10.

12. Ludwig Wittgenstein, *Philosophical Investigations*, trans. G.E.M. Anscombe (New York: The Macmillan Company, 1953), 55e.

13. Sharon Bailin, Roland Case, Jerrold Coombs, and Leroi Daniels, "Common Misconceptions of Critical Thinking," *Journal of Curriculum Studies* 31, no. 3 (1999): 271.

14. Montmarquet, *Epistemic Virtue and Doxastic Responsibility,* 23-26.

15. Ibid, 23.

16. Ibid, 25-26.

17. Ibid., 41.

18. Alan Sears and Jim Parsons, "Principles of an Ethic of Critical Thinking" in Case and Clark, *The Canadian Anthology of Social Studies*, 172-73.

19. Case and Wright, "Taking Seriously the Teaching of Critical Thinking," 183-84.

20. Harvey Siegel, *Rationality Redeemed: Further Dialogues on an Educational Ideal* (New York: Routledge), 36.