

Siegel on Competency Testing and Critical Thinking

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Abstract: Harvey Siegel argues that minimum competency testing (MCT) is incompatible with strong sense critical thinking. His arguments are reviewed and contrasted with positions held by John E. McPeck and Michael Scriven. Siegel's arguments seem directed against the prevailing form of MCT. However, alternative formats which allow for the aggregate and context-sensitive nature of critical thinking are not doomed to the arbitrariness Siegel finds. MCT may be a legitimate and useful means for furthering critical thinking as one of our educational ideals.

As higher education increasingly embraces critical thinking as essential to the educational enterprise, we may find a corresponding call for comprehensive testing in this area. Such testing is already taking place for general literacy skills, particularly of those planning to become educators. These tests frequently take the form of minimum competency testing (henceforth MCT), and there is some reason to believe that such testing will increase at all levels of education, and for a widening range of skills which educators claim to impart to their students. A great deal of debate has already occurred on the topic of MCT, and sharp lines have been drawn between proponents and detractors.¹ If the movement towards MCT accelerates, and if respect for critical thinking likewise gains adherents, we can expect increasing controversy concerning MCT for critical thinking skills. Those who claim to impart such skills can expect challenges (in the name of "accountability") to substantiate the claim that critical

thinking courses or programs really produce critical thinkers. Against this background, Harvey Siegel argues that such testing is neither desirable nor pedagogically useful for fostering critical thinking within the educational system.²

While aware of general objections to the use of MCT for other skills, Siegel's primary focus is MCT's effect on critical thinking: "Does MCT help or hinder our efforts to inculcate the skills and attitudes of the critical thinker?"³ Siegel contends that MCT is a "foe" to critical thinking. Moreover, he thinks that MCT conflicts with critical thinking whether it tests critical thinking, functional literacy, or anything else! More precisely, he holds that MCT is an indefensible and irrational educational practice when assessed in terms of "our best-defended educational ideals," particularly those ideals which lead to the teaching of critical thinking. Complaining that educational policies too seldom reflect philosophical concerns about the aims of education, Siegel thinks that if these are taken into account, MCT is seen to be undesirable. However, his conclusion about MCT appears hasty, for one can endorse critical thinking as an indispensable aim of education and yet regard MCT (including MCT of critical thinking) as both rational and pedagogically useful. However, to do so we must reject the assumption that MCT must always employ standardized multiple-choice exams.

At the outset, nearly everyone grants that MCT can be abused and misused, and that it is no panacea for our educational ills. Yet it is hardly the enemy of critical thinking that Siegel portrays. Because his

arguments focus on possible effects that MCT may have on critical thinking, and because the arguments derive from consideration of philosophically informed educational ideals rather than examination of specific instantiations of MCT programs, my counterargument to Siegel is similarly focused on our goal of fostering critical thinking (particularly at colleges and universities). Consequently, my argument downplays the issue of what a specific MCT program would include and exclude in order to be acceptable, but of course any conclusions reached about the compatibility of MCT with our educational ideals will have consequences which may guide the design of specific instantiations.

I

If Siegel's position is puzzling, it is because his general characterization of critical thinking seems acceptable, albeit broadly conceived. He describes a critical thinker as "one who is appropriately moved by reasons."⁴ The ideal critical thinker possesses a range of general skills, transferable across a range of disciplines and subject-matters, coupled with a habituated "critical spirit" or "critical attitude."⁵ We should, according to Siegel, regard critical thinking "as an educational *ideal* . . . best thought of as a *regulative* ideal . . . which can be used to adjudicate between rival educational methods, policies, and practices."⁶

So the issue is twofold. First, is there an identifiable set of general skills which are necessary for thinking critically? Second, would minimum competency testing, whether for those specific skills or for any others, help students to progress towards our ideal of critical thinking? Siegel answers the first question affirmatively, the second negatively. In contrast, John E. McPeck answers the first negatively, and the second affirmatively.⁷ This divergence suggests that any connection between the

two issues is hardly straightforward. Of course, there's a third way to answer the second question, namely, by saying that MCT is neutral for critical thinking. In that case, other educational goals would be particularly relevant to the debate, as will become clearer below, in Part II.

McPeck is well known for contending that "there is no generalized skill properly called critical thinking."⁸ He has also argued that, if there is a case for such a skill or specific set of skills, the burden of proof rests upon those who advocate teaching such skills, but that there are very serious difficulties with demonstrating the presence of such skills.⁹ McPeck's challenges to the practice of teaching critical thinking courses, particularly as informal logic courses, have been discussed and criticized so frequently that there is no need to look at them in depth in the present context.¹⁰ But two points are germane to the issue at hand. McPeck emphasizes that, at best, informal logic skills are necessary for critical thinking, but are too often treated in critical thinking courses as if they were sufficient. Secondly, and more notoriously, McPeck insists that logic (formal and informal) is seldom relevant to the critical evaluation of arguments in practical life, where the criteria of assessment are subject-specific.

Like Siegel, I think that McPeck is "partly right" in these criticisms of how critical thinking is generally approached in schools.¹¹ While McPeck is correct to emphasize the degree to which critical thought is context-dependent, he too readily slides from the idea that good critical thinking requires knowledge and information in order to determine an argument's strength, to the fact that many arguments draw upon highly specialized knowledge (and so can only be assessed by specialists), and then to the very questionable view that logic courses can teach nothing very useful about argument assessment. Based on the first idea, that critical thinking is context-dependent, McPeck rejects

standardized multiple-choice tests of critical thinking and defends the use of essays which are "subject-specific in an area (or areas) of the test taker's experience or preparation."¹²

Siegel fastens on the most important point here:

McPeck's weaker claim that specialized information is sometimes required for reason assessment is sustained, but the stronger claim that it is always required is not. . . . McPeck does well to remind us of the importance of specialized information for critical thinking. But this in no way establishes the non-importance of non-specialized, non-technical, general information, or the inappropriateness of general critical thinking courses.¹³

In brief, Siegel reminds us that there is a body of "general information" which education seeks to impart to everyone. Many arguments can be assessed adequately by reference to this general information, particularly to determine that they are unsound. Given Siegel's response to McPeck, educators should be concerned with critical thinking competence relative to "non-specialized, non-technical" contexts. And so when Siegel subsequently argues that MCT is a foe of critical thinking, we need only address its effect on critical thinking in non-specialized situations.

Basic understanding of some sort on the part of our audience must be assumed to obtain every time we communicate. When communicating with a more specialized audience, one presupposes a higher proportion of subject-specific information on the part of that audience (I assume that readers of *Informal Logic* will understand my upcoming reference to the fallacy of division without need of any further explanation).

Although a common core of general knowledge must be assumed of the whole audience, not every member of the audience will possess *all* of that knowledge. Siegel and McPeck both write as if every educated person possesses the very same

basic vocabulary and knowledge, and as if gaps only disrupt thinking in more specialized contexts. To communicate, we must act *as if* our whole audience understands all that we say. But we commit the fallacy of division if we think that each member of the audience possesses all of the basic information that we presuppose of the aggregate. Each person possesses a patchwork of non-specialized knowledge. There is very little empirical information that is so subject neutral that it can be presumed known by every educated member of our society. In our increasingly polyglot and multicultural society, such obstacles to thinking multiply.

Anyone who teaches is familiar with cases where a perfectly clear example bogs down when an intelligent student betrays ignorance of what seems to be an obvious, trivial point. In a recent group of forty, one student insisted that pistons are a necessary condition for the functioning of an automobile. Confronted with the example of solar powered cars, he retreated to the position that pistons are necessary for internal combustion engines, only to be shocked by the claim that there are rotary engines. Now, I personally know very little about automotive matters, yet I knew about rotary engines, whereas the student, who may have been an amateur mechanic, did not. Our vocabulary is no less patchwork. I recall hearing a lecture in my introductory political science course at USC; as I took notes on ambiguities in the Constitution, dozens of puzzled students around me in the lecture hall asked each other what "ambiguity" meant.

In other words, because general knowledge is an aggregate of disparate information, it has a hit-and-miss quality that frequently disrupts critical thinking. Functioning individuals possess an extremely broad but shallow and unpredictable range of information on numerous subjects, combined with a deeper grasp in a limited number of specialized areas. And just as no adult possesses *all* general knowledge,

no two possess *the same range* of non-technical information. An unspecifiable mass of it is quite sufficient to function. Much of this information is acquired haphazardly, and not through formal schooling. I find it important to know that trash is picked up on Wednesday in my neighborhood, and useful to know to ask directions at gas stations when lost. I learned neither of these things in school. Formal education imparts a broad range of information, but it cannot be the goal of education that everyone acquire all of the same information, nor all of the information that will be needed to function in future life.

Besides information, education imparts skills, and what has just been said about information applies to skills, as well. Siegel holds that various general skills are useful for assessing reasoning in any subject area, however specialized. Logic and other critical thinking skills can be taught in school and are transferable throughout life. McPeck emphasizes that such skills are not sufficient for argument assessment and systematically fail us when we lack specialized knowledge. Both positions are correct, but McPeck is mistaken to conclude that critical thinking courses are relatively worthless. Requiring such courses is compatible with the fact that these skills will fail everyone some of the time, even when dealing with relatively "non-specialized" subjects. (Straw man and equivocation are particularly dependent on background knowledge, and some weakness in spotting them is consistent with thinking critically.) I have stressed the aggregate nature of everyone's background knowledge because it supports the importance of identifying and inculcating general, transferable skills.

The further point here is that, just as general knowledge is a disparate aggregate, so are critical thinking skills. Some skills are directly related, involving a sequence where one is a prerequisite of the next, but this is not always the case. The ability to determine validity is a prerequi-

site to determining that a specific syllogism is sound, and the ability to locate and distinguish between premises and conclusion is a prerequisite to determining validity. In contrast, consider the skills involved in spotting two different fallacies, such as straw man and *post hoc*. No practical or theoretical link unites them; either of them can be understood and utilized in isolation from the other. Neither is essentially connected to formal logic. What all of these skills have in common is that each (the abilities to spot straw man, *post hoc*, and the validity of a syllogism) is sometimes useful in thinking critically. In the absence of a strong theory demonstrating otherwise, it seems that the full range of critical thinking skills is an aggregate of valuable but disparate skills, none of which are individually essential to thinking critically.

Furthermore, different skills will be of greater and lesser value to different individuals, just as the general information transmitted in our educational system is of greater and lesser value to different individuals. Some of this information is retained and some isn't, yet we don't conclude that this "general" information is worthless or should not be taught. Likewise, while not everyone benefits identically from the teaching of general skills, this fact hardly counts against a general course in critical thinking.

Successful critical thinking involves an unpredictable combination of transferable skills with available background knowledge, and success may be blocked by either a gap in knowledge or a lack of some general skill. Critical thinking courses provide the skills, but these skills will be of greater and lesser value to different students. Before exploring the ramifications of these admissions for MCT, one further aspect of critical thinking courses should be remembered. Siegel defends "strong sense" critical thinking.¹⁴ Skills are of value only if the individual understands their value. A critical thinking course that does not motivate critical thinking is an

empty addition to the curriculum. As Siegel puts it, a critical thinker needs "certain attitudes, dispositions, habits of mind, and character traits" amounting to "a well-developed disposition to engage in reason assessment." Our goal is to transform students into persons who *value* good reasoning.¹⁵ In short, successful critical thinking courses must convey both functional skills and a habituated disposition to employ these skills in every applicable situation. I agree with Siegel, and yet this commitment may count towards MCT and not against it. Furthermore, recognition of the aggregate quality of our knowledge and skills will suggest what *sorts* of MCT are compatible with critical thinking.

II

Having outlined Siegel's broad characterization of critical thinking, how is it that he opposes MCT as a foe of critical thinking? Supposedly, it is because the goal of producing critical thinkers embodies our commitment to a genuinely democratic society and our respect for individual learners, and thus our commitment to prepare them for "self-sufficient" adulthood.¹⁶ MCT, whether for critical thinking itself or for any other subject, is "incompatible" with the "best-defended" and "well-established" educational ideals, "especially" critical thinking as the regulative ideal of education. Thus, "MCT's failings are directly attributable to its inadequacy from the point of view of such ideals."¹⁷ MCT is "colossally inadequate and indefensible" because it measures for a narrow range of skills and does not foster "the autonomy to control one's life and life-decisions."¹⁸

Siegel argues that MCT is compatible with critical thinking *only if* "it could be shown that such testing was useful in fostering critical thinking."¹⁹ And it is not useful in this way, so it is "indefensible." Granted, most current MCT programs do not foster critical thinking. But Siegel's

argument is inconclusive, since failure to foster critical thinking does not demonstrate any *conflict* with our goals. And Siegel fails to show any unresolvable conflicts. If MCT is neutral with respect to our goals, it may be compatible with respect for learners and democratic life.

Suppose we employ MCT for functional literacy. Even if the test does not actively foster critical thinking, it might foster the basic literacy which is a necessary condition of thinking critically in modern society. Siegel, like other critics of MCT, assumes that any emphasis on testing for minimum necessary conditions will result in classroom emphasis on these skills, with less attention paid "to those aspects of a student's education that are crucial to the achievement of critical thinking."²⁰ But basic literacy is "crucial" to critical thinking, so crucial that it is a *sine qua non*! How is this *incompatible* with critical thinking?

Siegel's case that MCT hinders critical thinking is sketchy, and so I will try to develop it from his suggestions. Primarily, he speculates that MCT "may be counterproductive to the effort to develop the dispositions constitutive of the critical thinker." Testing "may frustrate" our attempts to develop these dispositions.²¹ But Siegel is extremely vague as to *why* this will occur. Is it because standardized tests focus on discrete items of knowledge and independent skills, rather than dispositions and a synthesis of skills? Are savvy students thus encouraged (by their teachers) to put their efforts into mastering only what the tests emphasize? In other words, the tests encourage students to employ discrete skills (perhaps even the skills of critical thinking) but do not reward them for becoming critical thinkers.²² There is no incentive to adopt new attitudes. The tests thereby impede our efforts to develop the critical spirit, that is, to develop certain sorts of *persons*.

This objection captures the obvious truth that too many MCT programs are

testing for too little. Part of the problem is that the standard format of the tests is better suited to measuring skills than dispositions. Educators favor them because they are easy to use and have an air of objectivity. We have two options. On the one hand, we can abandon MCT programs (Siegel's proposal). But then we remove an incentive for students to acquire even "weak sense" critical thinking, insofar as the skills are demanded by the tests. And what practical incentive do teachers then have for emphasizing critical thinking of any sort, weak or strong?

All the same, Siegel's argument does not show that MCT programs are inherently incompatible with our goal of producing critical thinkers. Consider an analogy: I give a midterm in my informal logic course, but the midterm does not measure everything I want to determine about students' progress. Students know this, and thus spend their time studying the materials that will be covered by the test. Does the midterm thus frustrate development of well-rounded critical thinkers, and should I therefore abandon the test? Perhaps if this were the *sole* measure of students' progress. Even then, it would only impede our goal if there were no external incentives for achievement of the goal. Thus, our second option is to include measurement relevant to our further goals at some point in an MCT program. (A good MCT program might culminate with some measure of strong sense critical thinking, using a format other than standardized, multiple-choice testing.) Better yet, MCT programs should connect critical thinking to external incentives to develop the critical spirit. Siegel's argument shows that our current testing does not go far enough, not that MCT programs must, by their very nature, frustrate our goal of producing critical thinkers.

A related problem is that a student's failure on a competency test is typically connected to a direct and serious consequence, namely, "either retesting, remedia-

tion efforts, failure to be promoted to the next grade, failure to receive a diploma, or some combination of these is the result."²³ Another perceived roadblock towards graduation and the prospect of further remedial work will no doubt turn off students who do not understand our overriding goals in educating them. And there is the associated political difficulty that many parents seem unwilling to accept MCT programs that reveal the failure of large numbers of their children to achieve minimum competency, leading to pressure to lower the standards for MCT programs.

Why don't students and their parents appreciate our goals? I have suggested that testing will not frustrate development of the dispositions unless there is little or no external incentive to become critical thinkers. Given Siegel's concern with dispositions, it is worthwhile to wonder why professional *educators* must inculcate "dispositions constitutive of the critical thinker." Presumably, because it is not clear to many people that such skills are worth acquiring. Consider another skill: driving. Driver's education typically occurs during high school, yet successful completion of the course does not insure a driver's license. The state demands independent MCT before issuing a license. But MCT does not frustrate students here, because they are already disposed to put their skills into practice as soon as possible. It appears that the critical thinking movement has not yet made it clear to everyone else why it is worthwhile to become a critical thinker.

To summarize this stage of the argument, it is unlikely that MCT itself deters anyone who is independently motivated to become a critical thinker. It is more likely that MCT frustrates our efforts when the skills and the testing are regarded as irrelevant by students and prospective employers. The incentive to drive is external to the education process, so MCT does not interfere with learning to drive. There is also an external incentive to achieve literacy. Yet

educators have a limited success in making everyone literate, so we might expect an even lower rate of success for critical thinking. And there is even less disposition to use such skills, because there is little perceived demand for them outside academia.²⁴ Siegel contends that critical thinking skills are desirable for every citizen in a democracy, but these skills would seem considerably more attractive if they were explicitly demanded by prospective employers. This might be accomplished by teaching and testing critical thinking in terms of materials acquired from employers across a wide range of occupations, and by presenting evidence that critical thinkers are rewarded in the job market.

It seems to me that children arrive into the hands of educators with a desire to think critically, and that many of our educational practices work against them. Surely, MCT is not the only villain here; rote learning, crowded classrooms, limited student-teacher interaction, and teachers' demands for order and "good behavior" probably share much of the blame. (Siegel's own criticisms of the tendency to indoctrinate rather than educate support the idea that our overall approach is the major problem.) To the extent that it might be a villain by concentrating on skills but not dispositions, its format is probably to blame, and I discuss this further in section III. However, if we do not devise and employ better tests of critical thinking, we are merely speculating here. We need an adequate comparison of different educational environments, to see which stimulate critical thinking and which do not. So far, MCT itself seems more neutral than negative for critical thinking.

Siegel's other serious challenge is that any MCT that promotes critical thinking "would be unrecognizable as an MCT program."²⁵ He does not explain why. But he once again seems to be directing us to the typical design of MCT programs: standardized, multiple-choice tests.²⁶ Such tests do not allow us to observe the stu-

dent's reasoning process and cannot reveal why a particular problem was answered correctly or incorrectly. More seriously, they are poor measures of ability to integrate distinct skills, which is essential to critical thinking. Finally, they seem incapable of measuring critical thinking in the strong sense, because their emphasis on testing isolated skills does not reveal whether the individual has the appropriate critical attitudes which will carry over into future situations. It is clear why these tests do not foster critical thinking. Students resent the rigidity of the format, the tightly structured testing process, and particularly their inability to ask questions, to demonstrate partial understanding, and to present alternative interpretations.²⁷

So prevailing tests are poor measures of "dispositions constitutive of the critical thinker," and their design does not encourage development of such skills. But the fact that an undesirable format currently prevails does not justify Siegel's sweeping conclusions about MCT. To make MCT non-arbitrary and more consistent with our goal of producing critical thinkers, we should look beyond standardized, multiple-choice tests.²⁸ (It does not follow that we must avoid them entirely.) And if Siegel thinks that practical necessity demands MCT with the standardized format (suggested by his remark that MCT which "fosters" critical thinking "would be unrecognizable as an MCT program"), he is simply mistaken.²⁹ Such measures often include interactive evaluation and completion of appropriate projects. By introducing assessment measures besides standardized pencil and paper tests, MCT programs could at least neutralize the purported tendency to squelch the critical spirit.

Format aside, MCT seems neutral with respect to critical thinking. Other considerations favor the use of MCT, and testing of critical thinking in secondary and higher education might have the indirect effect of fostering critical thinking programs.

Higher education still retains some

semblance of a structured, sequential program, with graduation at the end of the line. Of two students who enter college together, it is possible for both to complete the same number of courses in four years, yet only one of the two will graduate. If one of them takes a random collection of courses and does not complete general education requirements and a major, graduation is denied. I state this obvious fact to emphasize that graduation is supposed to supply official certification that specific knowledge and skills have been acquired. MCT has gained support outside academia due to a growing sense that professional educators are so eager to graduate students that the diploma certifies little more than attendance. A variety of factors have created the environment that invites MCT as an objective check on the quality of graduates. If a diploma could be taken seriously as certification of literacy, critical thinking abilities, and so on, MCT would not be mandated.

Siegel defends critical thinking as one of our most basic educational ideals. It embodies our respect for students as persons, and "to treat students with respect is, moreover, to be honest with them."³⁰ He stresses that honesty in the classroom precludes "indoctrination." In order to be honest, teachers must invite critical thinking about the very process of teaching and learning; students must be able to demand justification at any point in the educational process. So students must be given the skills and dispositions for thinking critically about their own education.

In this spirit, Siegel's demand for honesty in education suggests a duty to provide an evaluation of student progress. If one of our educational aims is to produce critical thinkers, we are dishonest unless we demonstrate our ability to produce critical thinkers, and unless we can inform each individual about the degree of his or her own strength or weakness as a critical thinker. The same is true for literacy, mathematical reasoning, and other basic skills. MCT is supported by parents and legisla-

tors because they do not believe that public education is providing an honest evaluation of its successes and failures.

Siegel's discussion of honesty emphasizes respect for students as persons. Fair enough, but what about respect for, and accountability to, others involved in our collective educational enterprise? To ignore their input and to avoid any test of competency on the grounds that it will "frustrate" learning is itself a disrespectful form of paternalism. One of the strongest reasons to support MCT is the public stand that it requires, forcing us to make a case for our goals to parents, legislators, and future employers, and not merely to our students. Such tests involve a public commitment to specific educational goals and forces us to determine and publicize what level of competence is acceptable and what is not. MCT, whether of critical thinking or of other areas, commits us to identifiable goals and invites critical scrutiny (by parents, employers, and *students*) of our choice of educational goals. So MCT contributes to honesty in education.

Furthermore, if we adopt Siegel's challenge to treat students as individuals capable of self-determination (particularly at the university level), many will choose not to develop as critical thinkers. And we cannot force them to learn what they do not want to learn, even by requiring specific courses for graduation. But if we regard critical thinking as central to education, it is imperative that we identify those who do become critical thinkers. And since none of us really thinks that mandatory critical thinking courses will transform every student into a capable critical thinker, MCT can serve a legitimate function in identifying and certifying those who acquire the skills.

Without supposing that MCT is the only way to certify the achievement of graduates, MCT also focuses debate on the issue of *which* skills, knowledge, and attitudes are most valued and most worthy of certification. The National Council for the Social Studies therefore supports criterion-

referenced competency testing in social studies, with particular emphasis on "reflective thinking."³¹ The California State University system requires critical thinking as a component of the graduation requirements; if the diploma is to mean "this student can think critically," we must be clear about *what* has been certified. Because MCT requires an operational definition of whatever is tested, it impels educators to clarify and specify the goals which are to shape the instructional curriculum. "Fostering critical thinking" is hardly a precise educational goal, and coupling it with MCT demands a sharper empirical identification of this goal. At the same time, it may serve as an empirical test of our ability to teach critical thinking.³²

Finally, MCT of critical thinking may indirectly promote critical thinking by making it more desirable in the non-academic community. By establishing an empirical definition of critical thinking and providing certification of those who actually achieve it, critical thinking may become an identifiable skill demanded by employers. Schools that certify the attainment of critical thinking may thereby produce students with brighter job prospects, and thus greater "self-sufficiency" in determining their futures. In other words, MCT of critical thinking may work towards creating a demand for critical thinkers, thereby giving students an external incentive for becoming critical thinkers. Given that literacy is a minimum necessary condition for critical thinking, the number of functional illiterates gives reason to suppose that formal education will be even less successful at achieving critical thinking than at achieving literacy. Certifiable critical thinking may turn out to be a valuable commodity in the job market.

III

So far, I have argued that MCT is not "indefensible" in relation to critical

thinking. MCT may be made neutral with respect to critical thinking, and MCT of critical thinking might indirectly foster our educational goals. But I have not fully addressed Siegel's emphasis on promoting the desired character traits and critical spirit. In light of this goal, he offers us the following dilemma: either MCT is arbitrary with respect to our educational ideals, or it "avoids the charge of arbitrariness only by exposing its inadequacy from the point of view of well-established educational ideals," particularly strong sense critical thinking.³³

Siegel notes that MCT may be arbitrary in either of two ways. "First level arbitrariness" is the problem that, for whichever skills are tested, "setting mastery levels is arbitrary."³⁴ As Michael Scriven puts it, the problem is that we take an imprecise standard and then "draw a sharp line where in fact there is a gray area."³⁵ Scriven rectifies this by proposing that, on the one hand, "no one who was a clear winner or loser in terms of the old [imprecise] concept will be miscategorized by the new one."³⁶ On the other hand, we can mitigate arbitrariness by using multiple approaches over a range of items drawn from "the real world," particularly items which employers expect graduates to handle. In other words, the expectations of the non-academic world should determine the level for which we'll test.

Siegel grants that skill levels can always be identified for specific jobs, such as "typist or mechanic," but the skills thus identified are too narrow. Scriven's proposal is thus subject to "second level" arbitrariness, the first horn of Siegel's dilemma for MCT. Supposing that first level arbitrariness is less serious than it seems, the second level problem is to identify specific skills which are "basic" and which make one "functional" in society. But in identifying specific skills, we settle on such a minimal level that we do not address our goals with respect to the *attitudes* of critical thinkers. We thus arrive at the other horn of

the dilemma: our educational ideal demands students who are "minimally *critical*," and not merely students who demonstrate competence with various minimal skills "for holding a place in the current economic order."³⁷ MCT doesn't address this ideal.

We educate so as to enable the student to *create* her future, not to submit to it. Unless "education" is to mean "training and socialization into pre-determined adult roles and jobs," we cannot specify in advance what a student's future will be and so *we cannot specify in advance the needs of students which testing will serve*. . . . Education is not geared to any particular job performance; consequently, Scriven's needs assessment approach will not help our efforts to set non-arbitrary standards for MCT.³⁸

As long as we tie our testing to the demands of the job market, we abandon the educational ideals which encourage us to produce critical thinkers. It is disrespectful to students and undercuts their self-sufficiency in shaping their own futures. So MCT is woefully inadequate.

Siegel's argument is challenging, but incomplete. In responding to McPeck, Siegel emphasizes that critical thinking involves specifiable, transferable skills and attitudes which can be taught and which are of value across many fields. Is he objecting to MCT because it fails to test for these? In that case, he has given us reason to push for the incorporation of broader objectives in any MCT program. However, Siegel goes on to deny that this argument supports MCT for critical thinking.³⁹

Is Siegel arguing that we cannot employ MCT for critical thinking, because we cannot "specify in advance" what the test should cover? He suggests this interpretation with his claim that "for the job of life . . . needs assessment seems a hopeless task."⁴⁰ But if specifiable thinking skills are applicable to the "job of life," they must be transferable. And if they can be inculcated by educators, we seem to be

committed to the possibility of specifying *what* students need to learn, and therefore of some means of measuring it. Otherwise, Siegel's belief that we can foster critical thinking is merely an article of faith. And the same holds for the attitudes, habits of mind, and dispositions which he identifies with "strong sense" critical thinking.

After all, his position is that some people are critical thinkers and some aren't, implying that we can identify who falls into each group. If so, there are observable differences between students who become critical thinkers and those who don't (otherwise, we couldn't know that we *ever* foster these skills and dispositions). And what distinguishes the one group as critical thinkers is their disposition to think critically *whenever* they reason. By observing how people respond across a range of situations which involve reasoning, we can differentiate the two. So in principle such testing is not doomed to second level arbitrariness; the best evidence that someone is a critical thinker is his or her propensity to transfer a specifiable assortment of skills to a range of new situations.

The difference between critical and uncritical thinkers may be vague and difficult to quantify. It may be the case that we seldom test for these skills and dispositions in prevailing MCT programs and that, as such, most MCT programs are "colossally inadequate and indefensible." However, to imply that we cannot specify and so cannot assess strong sense critical thinking conflicts with the assumption that we sometimes foster it. At best, Siegel's arguments show that concentrating on isolated skills does not lead to the critical attitudes we hope to develop, and testing for isolated skills with standardized tests is somewhat counter-productive.

So Siegel evidently thinks that we can but should not employ MCT for critical thinking. However, he demands too much if he thinks that testing must *itself* be "useful in fostering critical thinking."⁴¹ If the second horn of his dilemma presupposes

such a demand, he is setting a standard that would indict most of our current pedagogical practice. (I doubt whether most informal logic courses produce critical thinkers, but Siegel does not advocate abolishing such courses on this account.) Yet in the end, such a demand is Siegel's main impediment to MCT in this area. However, Siegel has slipped from his initial proposal of critical thinking as a regulative ideal to a stronger demand: that of fostering critical thinking as a necessary criterion of a pedagogical practice. But MCT of critical thinking may meet his idea of a regulative ideal; as I argued in section II, such testing might make an indirect contribution to the critical thinking movement, and thus foster more critical thinking. If so, MCT meets Siegel's test of a regulative ideal for adjudicating among pedagogical practices.

The most that Siegel can reasonably demand from MCT is that rethinking the tests in light of our objective—producing critical thinkers—will stimulate other pedagogical changes intended to foster this goal. So suppose we want a competence test addressing critical thinking skills and attitudes. Suppose we are willing to modify our test format. If the items are drawn from real-life situations and various subjects that the students have studied, and are not all multiple-choice in nature, could we mitigate second level arbitrariness? If we can, the charge that MCT is inadequate and indefensible does not carry much weight.

Because lapses in background knowledge will sidetrack any critical thinker, we must test in ways that will mitigate this problem. It seems best to test for critical thinking across a broad range of academic subjects and, in each, for a range of transferable skills. Incorporating critical thinking into MCT programs should demand more than the recall of memorized information. We must test for transfer of skills to new situations, and must judge whether students are "appropriately moved by rea-

sons." The behaviors indicative of critical thinkers must be incorporated into the criteria of success. One plausible approach would be to require students to construct critical thinking portfolios, analogous to the portfolios demanded of students in the visual arts and in writing programs, but ranging over all the subjects which the student studies. Non-academic interests can also be brought in. (Such an approach strikes me as a paradigm case of competency testing.) Such projects *are* a form of MCT, and may foster the desired dispositions. I have used them for four years and student comments in course evaluations indicate that they regard the portfolio as challenging, but also as an experience that confirms the practical rewards of critical thinking in everyday life. Of over two hundred students, I cannot locate a single one whose comments suggest that this means of testing is counter-productive to the goal of developing critical thinkers.

At the very least, we could incorporate our testing of critical thinking into any other areas for which we employ MCT (rather than use a separate test of critical thinking). Those who teach informal logic and critical thinking should build bridges to other academic disciplines, both to get a clear idea of when reason assessment is most appropriate and to integrate informal logic and related skills with the student's education in other academic areas. (From my own experience, I sense that writing instructors are becoming more sensitive to argumentative writing as a distinct genre; an integration of composition and critical thinking instruction is probably desirable.) Of all subjects, critical thinking profits least from being taught or tested in an ivory tower. To determine whether students are "appropriately moved," we should test students across a range of argumentative materials involving an assortment of subjects (e.g., social science, biology). We might present materials ranging from sound to the patently unsound and ask them to identify those which

incline them to accept the conclusion and those which do not, and to explain their response in each case. Such testing for critical thinking across a variety of subjects is hardly arbitrary, since it will indicate the student's ability and inclination to transfer skills to novel situations and to different subjects.

This is not to say that we can ignore teaching and testing of discrete skills, of the sort covered in informal logic courses, provided our testing allows for the inevitable gaps in competence which are consistent with functional competence. But we must also allow for the aggregate character of general knowledge and of functional skills. As Scriven points out, correct spelling is part of basic literacy, yet he knows "a very good Australian philosopher who spells very badly."⁴² Siegel makes the similar point that "some members of the graduating class may succeed in life perfectly well, even though they are unable to calculate compound interest payments."⁴³ Being a bad speller doesn't make someone illiterate, provided most other literacy skills are good, just as a weakness at some sorts of calculation doesn't make one mathematically dysfunctional, provided enough other mathematical skills are mastered. Likewise, ignorance of a number of informal fallacies does not preclude critical thinking. So any competence test of critical thinking must cover the whole gamut of skills, and passing must rely on competence in *many* but never all of them. No student should fail because any specific skills are lacking.

In short, I am adapting the conclusions of Scriven and McPeck, who observe that a successful MCT will not be a standardized, multiple-choice test. Constructed as a criterion-referenced test which involves interactive evaluation, MCT need not pose a serious problem with respect to second level arbitrariness. As long as the skills and attitudes are indeed transferable, such testing does not conflict with our general

educational goals, and might foster them. We need only take care that any "mechanical" skills which are tested are indeed among the many skills which are sometimes needed by critical thinkers. If such testing does not actively foster critical thinking, it at least seems neutral with respect to such skills. And such testing will address the needs, however undetermined, of each student's future life.

Conclusion

In the final analysis, I have argued that there is no inherent incompatibility between MCT and our regulative ideal of producing critical thinkers. But there is the lingering issue that, no matter what format is employed in competency testing, it might hinder development of strong sense critical thinking by encouraging students to concentrate on mastering the minimum needed to pass the test. And this might even occur with an MCT of critical thinking. Only experience will reveal the extent to which this will occur; at present, we simply don't know. As an objection to MCT of critical thinking, it does suggest our general failure to communicate the non-academic benefits of becoming a critical thinker.

Countering Siegel's concerns are several distinct reasons favoring MCT of critical thinking. If critical thinking is to be a regulative educational ideal, we must provide empirical evidence of success or failure. Furthermore, we should certify which students are critical thinkers. MCT of critical thinking might be a legitimate means for determining these. Teaching and testing in terms of real-life examples drawn from a broad range of occupations is not doomed to arbitrariness. Finally, MCT can be administered in a manner consistent with the educational ideals which lead us to push for critical thinking, and appropriate testing may promote them.⁴⁴

Notes

- 1 In the United States, MCT is most often used at the high school level. For an introduction to the range of the debate, see Richard M. Jaeger and Carol K. Tittle, eds., *Minimum Competency Achievement Testing* (Berkeley: McCutchan Publishing, 1980); for a critique of MCT of high school graduates, see Mitchell Lazarus, *Goodbye to Excellence: A Critical Look at Minimum Competency Testing*, NAESP Studies in Education and Public Policy (Boulder, Colorado: Westview Press, 1981).
- 2 MCT typically involves some form of standardized, multiple-choice test, where a minimum score is set as either a necessary condition for school graduation or as an indicator that remedial work is required before graduating. *But the idea of MCT does not preclude other forms of testing*, and others are sometimes used (see below, n. 28). MCT also serves the function of measuring teaching effectiveness, with local success and failure rates compared to regional or national scores. MCT may be useful as a graduation requirement even if we find it suspect as a measure of institutional effectiveness.
- 3 Harvey Siegel, *Educating Reason* (New York: Routledge, 1988), p. 116.
- 4 *Ibid.*, p. 32.
- 5 Despite his criticisms of individual writers, Siegel falls into the camp that advocates strong sense critical thinking, with the creation of critical habits, attitudes, or dispositions regarded as essential to being a critical thinker; weak sense critical thinking is restricted to the acquisition of specific technical skills. Notable among strong sense advocates are Robert Ennis, Richard Paul, and Edward D'Angelo; an overview of strong sense critical thinking is provided by Arthur B. Millman, "Critical Thinking Attitudes: A Framework for the Issues," *Informal Logic* Vol. X, No. 1 (1988), pp. 45-50.
- 6 *Ibid.*, p. 46.
- 7 John E. McPeck, *Critical Thinking and Education* (New York: St. Martin's Press, 1981), particularly p. 149.
- 8 *Ibid.*, p. 5.
- 9 John E. McPeck, "The Evaluation of Critical Thinking Programs: Dangers and Dogmas," *Informal Logic* Vol. VI, No. 2 (1985), pp. 9-13. McPeck has challenged the usefulness of two major standardized tests, the Watson-Glaser Critical Thinking Appraisal and the Cornell Critical Thinking Tests. See McPeck, *Critical Thinking and Education*, chap. 6.
- 10 Notable challenges to McPeck include Richard Paul, "McPeck's Mistakes," *Informal Logic* Vol. VII, No. 1 (1985), pp. 35-43, and Richard B. Miller, "Toward an Empirical Definition of the Thinking Skills," *Informal Logic* Vol. VIII, No. 3 (1986), pp. 113-23.
- 11 Siegel, *Educating Reason*, p. 27.
- 12 McPeck, *Critical Thinking and Education*, p. 149.
- 13 Siegel, *Educating Reason*, p. 28.
- 14 For a comparison of Siegel and other advocates of "strong" versions, see Richard Smith's review article, "The Limits of Rationality," *Journal of Philosophy of Education* 22 (1988), pp. 277-82.
- 15 Siegel, *Educating Reason*, p. 39.
- 16 *Ibid.*, pp. 55-61. Siegel has one other desideratum in his case for critical thinking as our educational ideal, "initiation into the rational traditions," but it appears to be irrelevant to the arguments that follow.
- 17 *Ibid.*, p. 117.
- 18 *Ibid.*, p. 125.
- 19 *Ibid.*, pp. 174-75 (n. 26).
- 20 *Ibid.*, p. 125.
- 21 *Ibid.*, p. 174 (n. 25).
- 22 *Ibid.*, p. 9; the distinction comes from Robert H. Ennis.
- 23 *Ibid.*, p. 117.
- 24 My experience has been that pre-law students and those planning on graduate work are the most motivated to become critical thinkers.
- 25 Siegel, *Educating Reason*, p. 175 (n. 26).

- ²⁶ There are two types of standardized tests. Norm-referenced tests rate performance in comparison with others who've taken the same test (the "normative" group). Grading on a curve is a very crude form of norm-referencing. If the normative group is one that previously took the test, it is a "standardization group." Major screening exams, such as the SAT and GRE, are of this sort. In contrast, criterion-referenced tests rate performance against some fixed criterion (e.g., behavioral objectives). Competency tests are of this latter sort, yet the process of standardizing the tests relies on some normative group to establish that the test reliably separates the sheep from the goats. See Lazarus, *Goodbye to Excellence*, pp. 35-41.
- ²⁷ For similar criticisms, see McPeck, *Critical Thinking and Education*, chap. 6.
- ²⁸ Standardized, multiple-choice literacy exams are avoided at some universities by using essays which are independently scored by several faculty (e.g., at the University of South Alabama). The essays are judged relative to the desired level of skill (criterion-referenced), employing holistic grading techniques. A degree of objectivity is maintained by reference to model "pass" and "fail" essays, and "gray area" answers are decided by additional independent scorers. Similar exam practices could be used for all sorts of MCT, including of critical thinking.
- ²⁹ Siegel, *Educating Reason*, p. 175 (n. 26); his overall characterization of MCT is on p. 117. For alternatives to the multiple-choice format, see H. H. McAshan, *Competency-Based Education and Behavioral Objectives* (Englewood Cliffs, NJ: Educational Technology Publications, 1979), chapters VII-VIII. McAshan explicitly notes the need for teacher judgment in determining success. Along the same lines, see Jason Millman, "Reporting Student Progress: A Case for a Criterion-Referenced Marking System," *Phi Delta Kappan* 52 (1970), pp. 226-30, and Jerry R. Moore, Paul L. Williams, and Richard L. Needham, "Improving Testing in the Social Studies: Organizing for Local Assessment," in Paul L. Williams and Jerry R. Moore, eds., *Criterion-Referenced Testing for the Social Studies*, National Council for the Social Studies Bulletin 64 (Washington, D.C., 1980), pp. 38-46. See also Robert Frahm and Jimmie Covington, *What's Happening in Minimum Competency Testing* (Bloomington, IN: Phi Delta Kappa, 1979), pp. 20-25; Frahm and Covington report that in 1978, the state of Oregon required MCT in various areas but did not establish any standardized test (testing was left to individual school districts), and the Open School plan available in St. Paul, MN left it to each student to demonstrate competency in six areas to a graduation committee.
- ³⁰ Siegel, *Educating Reason*, p. 56.
- ³¹ Williams and Moore, *Criterion-Referenced Testing For Social Studies*, passim.
- ³² See Miller, "Toward an Empirical Definition of the Thinking Skills," pp. 117-19. Even where critical thinking is required for graduation, it is usually a single course in informal logic that fulfills the requirement, in which case we must be sceptical whether the diploma genuinely certifies critical thinking.
- ³³ Siegel, *Educating Reason*, p. 117.
- ³⁴ *Ibid.*, p. 123.
- ³⁵ Michael Scriven, "Critical Thinking and the Concept of Literacy," *Informal Logic* Vol. IX, Nos. 2&3 (1987), p. 100.
- ³⁶ *Ibid.*, p. 101.
- ³⁷ Siegel, *Educating Reason*, p. 125.
- ³⁸ *Ibid.*, pp. 122-23. Emphasis added.
- ³⁹ *Ibid.*, p. 174 (n. 25).
- ⁴⁰ *Ibid.*, p. 122.
- ⁴¹ *Ibid.*, p. 174 (n. 26).
- ⁴² Scriven, p. 95.
- ⁴³ Siegel, *Educating Reason*, p. 123.
- ⁴⁴ I am indebted to the two anonymous referees for *Informal Logic*, whose many suggestions contributed to numerous revisions in this paper.

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