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Critical Thinking—What Can It Be?

If schools are to succeed in teaching critical thinking, educators must have a clear idea of what it is: critical thinking relies upon criteria, is self-correcting, and is sensitive to context.

If we are to foster and strengthen critical thinking in schools and colleges, we need a clear conception of what it is and what it can be. We need to know its defining features, its characteristic outcomes, and the underlying conditions that make it possible.

The Outcomes of Critical Thinking Are Judgments

Let's begin with outcomes. If we consult current definitions of critical thinking, we cannot help being struck by the fact that the authors stress the *outcomes* of such thinking but generally fail to note its essential characteristics. What is more, they specify outcomes that are limited to *solutions* and *decisions*. Thus, one writer defines critical thinking as "the mental processes, strategies, and representations people use to solve problems, make decisions, and learn new concepts."[1] Another conceives of critical thinking as "reasonable reflective thinking that is focused on deciding what to believe and do."[2]

These definitions provide insufficient enlightenment because the outcomes (solutions, decisions, concept-acquisition) are too narrow, and the defining characteristics (reasonable, reflective) are too vague. For example, if critical thinking is *thinking that results in decisions*, then selecting a doctor by picking a name at random out of a phone book would count as critical thinking. *We must broaden the outcomes, identify the defining characteristics, and then show the connection between them.*

Our contemporary conception of education as inquiry combines two aims—the transmission of knowledge and the cultivation of wisdom. But what is wisdom? Consulting a few dictionaries will yield such phrases as "intelligent judgment," "excellent judgment," or "judgment tempered by experience." But what is judgment?[3] Here again, recourse to dictionaries suggests that judgment is "the forming of opinions, estimates, or conclusions." It therefore includes such things as solving problems, making decisions, and learning new concepts; but it is more inclusive and more general.

The line of inquiry we are taking shows wisdom to be the characteristic outcome of good judgment and good judgment to be the characteristic of critical thinking. Perhaps the point where we are now, where we want to know how ordinary judgment and good judgment differ, is a good place to consider some illustrations.

Wherever knowledge and experience are not merely possessed but *applied to practice*, we see clear instances of judgment. Architects, law-

yers, and doctors are professionals whose work constantly involves the making of judgments. It is true of any of us when we are in moral situations: we have to make moral judgments. It is true of teachers and farmers and theoretical physicists as well: all must make judgments in the practice of their occupations and in the conduct of their lives. There are practical, productive, and theoretical judgments, as Aristotle would have put it. Insofar as we make such judgments well, we can be said to behave wisely.

It should be kept in mind that good professionals make good judgments about their own practice as well as about the subject-matter of their practice. A good doctor not only makes good diagnoses of patients and prescribes well for them, but also makes good judgments about the field of medicine and his or her ability to practice it. Good judgment takes everything into account, including itself.

Critical thinking is thinking that both employs criteria and that can be assessed by appeal to criteria.

A judgment, then, is a determination—of thinking, of speech, of action, or of creation. A gesture, such as the wave of a hand, can be a judgment; a metaphor, like "John is a worm," is a judgment; an equation, like $E=mc^2$, is a judgment. They are judgments because, in part, they have been reached in certain ways, relying on certain instruments or procedures in the process. They are likely to be *good* judgments if they are the products of *skillfully* performed acts guided by or facilitated by appropriate instruments and procedures. If we now look at the process of critical thinking and identify its essential characteristics, we can better understand its relationship to judgment. I will argue that critical thinking is *skillful, responsible thinking that facilitates good judgment because it (1) relies upon criteria,*[4] *(2) is self-correcting, and (3) is sensitive to context.*

Critical Thinking Relies on Criteria

We suspect an association between the terms *critical* and *criteria* because they have a common ancestry. We are

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How big? How high? It's a long way from the accepted units of measure that serve as standards, but an ordinary gesture is a spontaneous and natural beginning of the use of criteria as a basis for comparison.

Ordinary Thinking	Critical Thinking/Reasoning
Guessing	Estimating
Preferring	Evaluating
Grouping	Classifying
Believing	Assuming
Inferring	Inferring logically
Associating concepts	Grasping principles
Noting relationships	Noting relationships among other relationships
Supposing	Hypothesizing
Offering opinions without reasons	Offering opinions with reasons
Making judgments without criteria	Making judgments with criteria

Fig. 1. Comparing Ordinary Thinking to Good Thinking

also aware of a relationship between criteria and judgments, for the very meaning of *criterion* is "a rule or principle utilized in the making of judgments." A criterion is an instrument for judging as an ax is an instrument for chopping. It seems reasonable to conclude, therefore, that there is some sort of logical connection between "critical thinking" and "criteria" and "judgment." The connection, of course, is to be found in the fact that judgment is a skill, critical thinking is skillful thinking, and skills cannot be defined without criteria by means of which allegedly skillful performances can be evaluated. So critical thinking is thinking that both employs criteria and that can be assessed by appeal to criteria.

The fact that critical thinking relies upon criteria suggests that it is well-founded, structured, and reinforced thinking, as opposed to "uncritical" thinking, which is amorphous, haphazard, and unstructured. Critical thinking seems to be defensible and convincing. How does this happen?

Whenever we make a claim or utter an opinion, we are vulnerable unless we can back it up with *reasons*. What is the connection between reasons and criteria? Criteria *are* reasons: they are one kind of reason, but it is a particularly *reliable* kind. When we have to sort things out descriptively or evaluationally—and these are two very important tasks—we have to use the most reliable reasons we can find, and these are classificatory and evaluational criteria. Criteria may or may not have a high level of public acceptance, but they have a high level of acceptance and respect in the community of inquiry. The competent use of such respected criteria is a way of establishing the objectivity of our prescriptive, descriptive, and evaluative judgments. Thus, architects will judge a building by employing such criteria as *utility*, *safety*, and *beauty*; and presumably, critical thinkers rely upon such time-tested criteria as *validity*, *evidential warrant*, and *consistency*. Any area of practice—architectural, cognitive, and the like—should be able to cite the criteria by which that practice is guided.

The intellectual domiciles we inhabit are often of flimsy construction; we can strengthen them by learning to reason more logically. But this will help little if their foundations are soft and spongy. We need to rest our claims and opinions—all of our thinking—upon footings as firm as bedrock. One way of putting our thinking upon a solid foundation is to rely upon sound criteria.

Here, then, is a brief list of the sorts of things we invoke or appeal to and that therefore represent specific kinds of criteria:

- standards;
- laws, by-laws, rules, regulations;
- precepts, requirements, specifications;
- conventions, norms, regularities;
- principles, assumptions, presuppositions, definitions;
- ideals, goals, objectives;
- tests, credentials, experimental findings;
- methods, procedures, policies.

All of these instruments are part of the apparatus of rationality. Isolated in categories in a taxonomy, as they are here, they appear inert and sterile. But when they are at work in the process of inquiry, they function dynamically—and critically.

As noted, by means of logic we can validly extend our thinking; by means of reasons such as criteria we can justify and defend it. The improvement of student thinking—from ordinary thinking to good thinking—depends heavily upon students' ability to identify and cite good reasons for their opinions (see fig. 1). Students can be brought to realize that, for a reason to be called good, it must be *relevant* to the opinion in question and *stronger* (in the sense of being more readily accepted, or assumed to be the case) than the opinion in question.

Critical thinking is a sort of *cognitive accountability*.[5] When we openly state the criteria we employ—for example, in assigning grades to students—we encourage students to do likewise. By demonstrating models of *intellectual responsibility*, we invite students to assume responsibility for their own thinking and, in a larger sense, for their own education.

When we have to select among criteria, we must of course rely on other criteria to do so. Some criteria serve this purpose better than others and can therefore be said to operate as *meta-criteria*. For example, when I pointed out earlier that criteria are especially reliable reasons and that good reasons are those that reveal strength and relevance, I was saying that *reliability*, *strength*, and *relevance* are important meta-criteria. *Coherence* and *consistency* are others.

Some criteria have a high level of generality and are often presupposed, explicitly or implicitly, whenever critical thinking takes place. Thus the notion of knowledge presupposes the criterion of *truth*, and so wherever scientific knowledge is claimed, the concomitant claim being made is that it is true. In this sense, philosophical domains such as epistemology, ethics, and aesthetics do not dictate the criteria relevant to them; rather, the criteria define the domains. Epistemology consists of judgments to which truth and falsity are the relevant criteria; ethics comprises judgments to which right and wrong are relevant; and aesthetics contains judgments to which beautiful and not-beautiful are relevant. *Truth*, *right*, *wrong*, *just*, *good*, *beautiful*—all of these are of such vast scope that we should probably consider them *mega-criteria*. And they in turn are instances of the great galactic criterion of *meaning*.

One of the primary functions of criteria is to provide a basis for comparisons. When a comparison is made and no basis or criterion is given (for

example, "Tokyo is better than New York"), confusion results. On the other hand, if several competing criteria might be applicable (as when someone says, "Tokyo is larger than New York" but does not specify whether in size or in population), the situation can be equally confusing. Just as opinions should generally be backed up with reasons, comparisons should generally be accompanied by criteria.

Sometimes criteria are introduced "informally" and extemporaneously, as when someone remarks that Tuesday's weather was good compared with Monday's, while Wednesday's weather was bad compared with Monday's. In this case, Monday's weather is being used as an informal criterion. Even figurative language can be understood as involving the use of informal criteria. Thus, an open simile such as "The school was like an army camp" suggests the regimentation of an army camp as an informal criterion against which to measure the orderliness of the school.

On the other hand, when criteria are considered by an authority or by general consent to be a basis of comparison, we might speak of them as "formal" criteria. When we compare the quantities of liquid in two tanks in terms of gallons, we are employing the unit of the gallon on the say-so of the Bureau of Weights and Measures. The gallon measure at the Bureau is the institutionalized paradigm case to which our gallon measure is comparable.

So things are compared by means of more or less formal criteria. But there is also the distinction between comparing things with one another and comparing them with an ideal standard, a distinction Plato addresses in *The Statesman*.[6] For example, in grading test papers, we may compare a student's performance with the performances of other students in the class (using "the curve" as a criterion); or we may compare it with the standard of an error-free performance.[7]

Standards and *criteria* are terms often used interchangeably in ordinary discourse. Standards, however, represent a vast subclass of criteria. It is vast because the concept of *standard* can be understood in many different ways. There is the interpretation cited in the preceding paragraph, where we are talking about a standard of perfection. There are, in contrast, standards as *minimal* levels of performance, as in the oft-heard cry, "We must not lower our standards!" There is a sense in which standards are conventions of conduct: "When in Rome, do as the Romans do." There is also the sense in which standards are the units of measurement defined authoritatively by a bureau of standards.

There is, of course, a certain arbitrariness about even the most reliable standards, such as units of measurement, in that we are free to define them as we like. We could, if we liked, define a yard as containing fewer inches than it presently does. But the fact is that, once defined, we prefer such units to be unchanging: they are so much more reliable that way.

Perhaps we can sum up the relationship between criteria and standards by saying that criteria specify general requirements, while standards represent the degree to which these requirements need be satisfied in particular instances. Criteria—and particularly standards among them—are among the most valuable instruments of rational procedure. Teaching students to use them is essential to the teaching of critical thinking (see fig. 2).

Critical Thinking Is Self-Correcting

The most characteristic feature of inquiry is that it aims to discover its own weaknesses and rectify what is at fault in its own procedures. Inquiry, then, is *self-correcting*.[8]

Much of our thinking unrolls impressionistically, from association to association, with little concern for either truth or validity, and with even less concern for the possibility that it might be erroneous. Among the many things we may reflect upon is our own thinking, yet we can do so in a way that is still quite uncritical. And so, "metacognition," or thinking about thinking, need not be equivalent to critical thinking.

One of the most important advantages of converting the classroom into a community of inquiry (in addition to the improvement of moral climate) is that the members of the community not only become conscious of their own thinking but begin looking for and correcting each other's methods and procedures. Consequently, insofar as each participant can internalize the methodology of the community as a whole, each participant is able to become self-correcting in his or her own thinking.

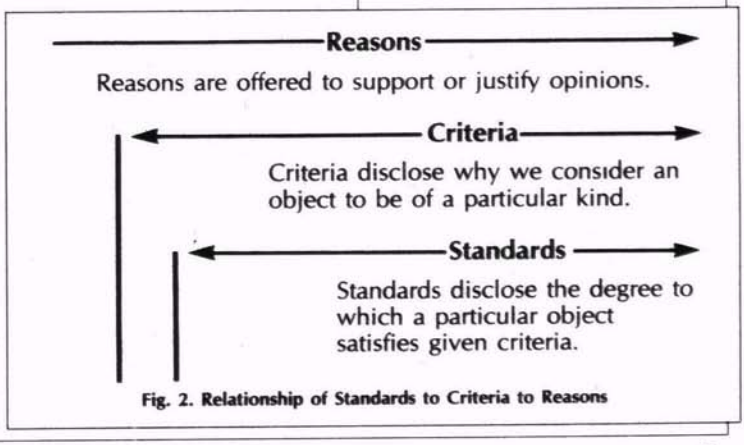

Fig. 2. Relationship of Standards to Criteria to Reasons

Critical Thinking Is Sensitive to Context

Just as critical thinking is sensitive to uniformities and regularities that are generic and intercontextual, it is sensitive to situational characteristics that are holistic or context-specific. Thinking that is sensitive to context takes into account:

(a) *exceptional or irregular circumstances and conditions*—for example, a line of investigation ordinarily considered *ad hominem* and therefore fallacious might be found permissible in a trial;

(b) *special limitations, contingencies, or constraints*—for example, the rejection of certain Euclidean theorems, such as that parallel lines never meet, in non-Euclidean geometries;

(c) *overall configurations*—for instance, a remark taken out of context may seem to be flagrantly in error but in the light of the discourse taken as a whole appears valid and proper, or vice versa;

(d) *the possibility that evidence is atypical*—for example, a case of overgeneralizing about national voter preferences based on a tiny regional sample of ethnically and occupationally homogeneous individuals.

(e) *the possibility that some meanings do not translate from one context or domain to another*—there are terms and expressions for which there are no precise equivalents in other languages and whose meanings are therefore wholly context-specific.

With regard to *thinking with criteria* and *sensitivity to context*, a suitable illustration might be an exercise involving the application of a particular criterion to a set of fictional situations. Suppose the criterion in question is *fairness* (which is itself a way of construing the still broader criterion of justice). One form that fairness assumes is *taking turns*. Figure 3 is an exercise taken from *Wondering at the World*,[9] the instructional manual accompanying *Kio and Gus*,[10] a Philosophy for Children program for children 9 to 10 years of age.

In performing this exercise, students apply the criterion of *turn-taking* (i.e., *fair play* or *justice*) to six situations requiring sensitivity to context. Classroom discussion should distinguish between those situations in which the procedure of turn-taking is appropriate and those in which it is dubious. Using exercises like these in a community of inquiry sets the stage for critical thinking in the classroom. It is not the only way to accomplish this, but it is one way.

Taking Turns

To the teacher: There are times when people engage in sharing. For example, they go to a movie and share the pleasure of looking at the movie together. Or they can share a piece of cake by each taking half.

In other cases, however, simultaneous sharing is not so easily accomplished. If two people ride a horse, someone has to ride in front. They can take turns riding in front, but they can't both ride in front at the same time. Children understand this very well. They recognize that certain procedures must be followed in certain ways.

For example, ask your students to discuss the number of ways they "take turns" in the classroom during the ordinary day. They take turns washing the blackboard, going to the bathroom, going to the cloakroom, and passing out the papers. On the playground, they take turns at bat, they take turns lining up for basketball, and they take turns at the high bar.

Ask your students what they think the connection is between "taking turns" and "being fair." The resulting discussion should throw light on the fact that sometimes being fair involves the way children are to be treated simultaneously, while at other times it involves the way they are to be treated sequentially. For example, if it is one child's birthday and there is going to be a party with cupcakes, there should be at least one cupcake for every child. This is being fair simultaneously. Later, if you want to play "Pin the Tail on the Donkey," children should sequentially take turns in order to be fair. (The prospect of everyone *simultaneously* being blindfolded and searching about with a pin boggles the mind.)

Exercise: When is it appropriate to take turns?

	Appropriate	Not Appropriate	?
1. Pam: "Louise, let's take turns riding your bike. I'll ride it Mondays, Wednesdays, and Fridays, and you ride it Tuesdays, Thursdays, and Saturdays."	☐	☐	☐
2. Gary: "Burt, let's take turns taking Louise to the movies. I'll take her the first and third Saturday of every month, and you take her the second and fourth Saturday."	☐	☐	☐
3. Jack: "Louise, let's take turns doing the dishes. You wash and I'll dry."	☐	☐	☐
4. Chris: "Okay, Louise, let's take turns with the TV. You choose a half-hour program, then I'll choose one."	☐	☐	☐
5. Melissa: "Louise, what do you say we take turns doing our homework? Tonight I'll do yours and mine, and tomorrow you can do mine and yours."	☐	☐	☐
6. Hank: "Louise, I hate to see you struggle to school each day, carrying those heavy books! Let me carry yours and mine today, and you can carry yours and mine tomorrow."	☐	☐	☐

Fig. 3. "Taking Turns" Exercise

Reprinted from Matthew Lipman and Ann Margaret Sharp. *Wondering at the World.* Lanham, Md.: University Press of America and IAPC, co-publishers, 1986.

The Promise of Intellectual Empowerment

What, then, is the relevance of critical thinking to the enhancement of elementary school, secondary school, and college education? Part of the answer lies in the gradual shift that is occurring in the focus of education—the shift from *learning* to *thinking*. We

want students to think for themselves and not merely to learn what other people have thought.

But another part of the answer lies in the fact that we want students who can do more than merely think: it is equally important that they exercise good judgment. It is good judgment that characterizes the sound interpretation of written text; the well-balanced, coherent composition; the lucid comprehension of what one hears; and the persuasive argument. It is good judgment that enables one to weigh and grasp what a statement or passage states, assumes, implies, or suggests. And this good judgment cannot be operative unless it rests upon proficient reasoning skills that can assure competency in inference, as well as upon proficient inquiry, concept-formation, and translation skills. Students who are *not* taught to use criteria in a way that is both sensitive to context and self-corrective are *not* being taught to think critically. If teaching critical thinking can improve education, it will be because it increases the quantity and quality of meaning that students derive from what they read and perceive and that they express in what they write and say.

Last, a word about the employment of criteria in critical thinking that facilitates good judgment. Critical thinking, as we know, is skillful thinking, and skills are proficient performances that satisfy relevant criteria. When we think critically, we are required to orchestrate a vast variety of cognitive skills, grouped in families such as reasoning skills, concept-formation skills, inquiry skills, and translation skills. Without these skills, we would be unable to draw meaning from written text or from conversation, nor could we impart meaning to a conversation or to what we write.

We all know that an otherwise splendid musical performance can be ruined if so much as a single instrumentalist performs below acceptable standards. Likewise, the mobilization and perfection of the cognitive skills that make up critical thinking cannot omit any of these skills without jeopardizing the process as a whole. We cannot be content, then, to give students practice in a handful of cognitive skills while neglecting all the others necessary for the competency in inquiry, in language, and in thought that is the hallmark of proficient critical thinkers. Instead of selecting and polishing a few skills that we think will do the trick, we must begin with the raw subject matter of communication and inquiry—with reading, listening, speaking, writing, and reasoning—and we must cultivate all the skills that the mastery of such processes entails. It is only when we do this that we realize that the philosophical disciplines alone provide both the skills and the criteria that are presently lacking in the curriculum.□

The improvement of student thinking—from ordinary thinking to good thinking—depends heavily upon students' ability to identify and cite good reasons for their opinions.

1. Robert Sternberg, "Critical Thinking: Its Nature, Measurement, and Improvement" in *Essays on the Intellect*, ed. Frances R. Link (Alexandria, Va.: Association for Supervision and Curriculum Development, 1985), p. 46.

2. Robert H. Ennis, "A Taxonomy of Critical Thinking Dispositions and Abilities" in *Teaching Thinking Skills: Theory and Practice*, ed. Joan Boykoff Baron and Robert J. Sternberg (New York: W. H. Freeman and Co., 1987), p. 10.

3. For a penetrating discussion of judgment, see Justus Buchler, *Toward a General Theory of Human Judgment* (New York: Columbia University Press, 1951).

4. Useful discussions of the nature of criteria are to be found in Michael Anthony Slote, "The Theory of Important Criteria," *The Journal of Philosophy* LXIII, 8 (April 1966): 221–224; and Michael Scriven, "The Logic of Criteria," *The Journal of Philosophy* 56 (October 1959): 857–868; and Stanley Cavell, *The Claim of Reason* (Oxford: The Clarendon Press, 1979), pp. 3–36.

5. I see no inconsistency between urging "cognitive accountability" and urging the development of intellectual autonomy among students. There are times when we cannot let other people do our thinking for us; we must think for ourselves. And we must learn to think for ourselves by thinking for ourselves: no one can instruct us in how to do it, although a community of inquiry makes it relatively easy. The point is that students must be encouraged to become reasonable for their own good (i.e., as a step toward their own autonomy) and not just for our good (i.e., because the growing rationalization of the society requires it).

6. The Stranger remarks to young Socrates, "We must posit two types and two standards of greatness and smallness .... The standard of relative comparison will remain, but we must acknowledge a second standard, which is a standard of comparison with the due measure." *Statesman* (283e) in *Plato: The Collected Dialogues*, ed. Edith Hamilton and Huntington Cairns (Princeton: Princeton University Press, 1961), p. 1051.

7. For a contemporary interchange regarding comparison of things with one another vs. comparison of things with an ideal, see Gilbert Ryle, "Perceiving" in *Dilemmas* (London: Cambridge University Press, 1966), pp. 93–102; and D. W. Hamlyn, *The Theory of Knowledge* (London: Doubleday and Company and Macmillan, 1970), pp. 16–21.

8. Charles Peirce, in "Ideals of Conduct," *Collected Papers of Charles Sanders Peirce*, ed. by Charles Hartshorne and Paul Weiss (Cambridge, Mass.: Harvard University Press, 1931–35) discusses the connection between self-correcting inquiry, self-criticism, and self-control.

9. Matthew Lipman and Ann Margaret Sharp, *Wondering at the World* (Lanham, Md.: University Press of America and IAPC, co-publishers, 1986), pp. 226–299.

10. Matthew Lipman, *Kio and Gus* (Upper Montclair, N.J.: IAPC, 1982).

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