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## Gifted Education: Thinking (With Help From Aristotle) About Critical Thinking

### Personal Prelude

I teach philosophy. As a responsible teacher, I listen to students and try to learn from them as often as circumstances permit. One of my university classes is devoted to the philosophical dimensions of multiculturalism. The students were recently debating the effects of early education and environment on their attitudes toward people who differed, whether in appearance or behavior, from what seemed to be the societal norm. The conversation veered into the current prevalence of diverse media and sustained forms of exposure to these media and at one point in the discussion, as an aside, I referred to myself as “fossilized,” as much of the technology driving these media remains mysterious to me. I recall this classroom vignette as an evocation of the fact that the Internet—as a paradigmatic medium—never ceases to amaze me by the sheer volume and breadth of the information available through its invisible webs. It is hardly an insight to observe that this colossally ram-bunctious technological universe will not atrophy from lack of use. However, it is also safe to assume that as the Internet becomes more and more pervasive and expansive, the need for critical thinking will become more and more acute.

I have been aware for some time that undergraduates typically turn to the Internet first to seek information and sources for any assignment that requires research. Now to us fossils, research meant wending one's way to a library, looking up things in some centralized source (the card catalog for hardcore fossils), and then maneuvering around (also up and down) shelves in quest of the sought-for works. Not so for the younger set. A few swift keystrokes and worlds of data appear on a screen, ready for instant viewing. For youthful gifted students of today, accessing information on the Internet is as

natural as breathing or texting (perhaps not in that order). But do these two diverse avenues of investigation, one fading away as archaic and the other becoming omnipresent, differ all that much from one another?

Following the same line of thought, will the practice of critical thinking by gifted students vary depending on the medium within which it is applied? This question presupposes at least a working definition, and account of, critical thinking itself. Thus, would a Google search require processes of thought (i.e., critical thinking) that could apply to *any* type of intellectual inquiry? I do not know the answer to this question according to the canons of rigor one could expect if it were posed on a Ph.D. qualifying examination. However, I can offer thoughts on characteristics, which, I believe, belong to critical thinking broadly understood.

### Critical Thinking and Creativity

We will approach critical thinking as a primarily reactive response to works or products of thought that already exist. As a result, critical thinking must coherently apply its principles to something created. But now a reflective individual might rightly wonder how critical thinking differs from creative thinking. Although literature on creativity is voluminous, it customarily remains unsatisfying because neatly formed definitions of creativity are easy conceptual balloons to pop. Here I suggest only that whatever creativity may be, it usually involves independence, initiative, and large doses of self-discipline mixed with perseverance. In short, creativity produces something new, whereas, for present purposes, critical thinking aims at understanding, interpreting, and evaluating something that already exists. Even this claim, of course, can be challenged as too pat in establishing high definitional walls between the

two endeavors. For example, one could argue that at least some of the principles of critical thinking will come into play during the creation of a new thing; if so, then creativity and critical thinking intersect, at least during certain phases of the creative process.

I grant the point. Nevertheless, the introductory approach to critical thinking advanced here is limited to primarily analytical and evaluative principles. These principles take their inspiration from the assumption that critical thinking, especially as found in the educational efforts of younger gifted students, will usually be aimed at already existing works. Although this assumption is tendered at a theoretical level, the reader should know that it is also informed by practical experience teaching primary-source philosophy to gifted students, starting in 1993 with grades 5 through 9 in gifted programs of the Chicago Public Schools as well as, for a number of years, at Northwestern University's Center for Talent Development. During this extended period, I have been fortunate to observe critical thinking often executed on a high level of precision and insight. It may be hoped that my observations were not misplaced and that I can usefully convey here at least some of what I have learned.

### Critical Thinking— Science or Art?

The following set of elements proper to critical thinking has been arranged in something like a sequential order. Thus, a student could, in theory, apply these elements to a given essay, exercise, or the like and reasonably expect positive results. However, the range of content (i.e., rules and recommendations) ascribed by many disciplines to critical thinking as a programmatic agenda is so vast and diverse that this

#### A. Recognition: Get to the point!

- Determine where the work is headed.
- Discuss what the author is trying to say.
- Identify the sense of the whole unifying the parts.
- *Summarize* the point in a few sentences.

#### B. Analysis: How did we get here?

- Analyze the route(s) taken by author to reach destination recognized under Part A above.
- *Prioritize* the steps leading to the point in terms of content and form.
- Distinguish between premises and conclusion.

#### C. Evaluation: Are you certain you're right?

- *Evaluate* how well the author argues for the point(s).
- Discuss clarity of the piece and whether premises justify the conclusion.
- Voice criticisms while remaining fair and separating personal convictions from the author's point.

#### D. Thinking About Alternatives: Is there another way to go?

- Look for, recognize, and articulate *alternative approaches* to establishing the same point(s).
- Find different explanatory means of achieving the same end.
- Appreciate an issue's complexity and learn to tolerate uncertainty.

#### Figure 1. Phases of critical thinking.

expectation must be tempered with caution. To the extent that a procedure can be described and steps embodying that procedure enumerated and discussed, critical thinking is tantamount to a science. In this regard, formal logic has established the most structurally stable phases of critical thinking (see Figure 1). So any standard logic text will describe basic logical principles (and, as a rule, exercises for acquiring practical skill in implementing these principles) that establish the structure of arguments and the correlative breakdown of arguments into premises and conclusions. These texts also detail informal fallacies, mistakes appearing all too frequently in places where one would expect them (shoot-from-the-hip blog entries) and, alas, in places where one would not expect them (news magazines). These fallacious patterns of thinking infect and harm human reasoning insofar as critical thinking incorporates such reasoning.

There is no need here to reproduce or even to sketch this material (see Critical Thinking Resources at the end of this article for a suggested logic

text). As a result, although the substantive section on principles of critical thinking presented below lists general observations capable of justification according to strict logical canons, here they are meant to be relevant at a level of practicality such that they can be readily understood and applied to a wide variety of material.

So much for the scientific dimension of critical thinking. For when this kind of procedure is actively applied to a newspaper editorial, blog posting, academic exercise in some discipline, work of art, or just the substance of a meaty conversation, the actual "live" contouring of abstractly stated elements and principles to the rough and ready details of a particular work is much more an art than a science. The principles of critical thinking can be theoretically laid out and grasped by an interested party, but critical thinking as applied must be learned. And the only way to learn critical thinking is to think critically as often as one can and in as many diversified contexts as possible.

Again, the elements introduced below as constituting a set of principles

Aristotle (384–322 BC)  
From Book VIII of the *Nicomachean Ethics*

1. . . . the next subject which we shall have to discuss is friendship. For it is some sort of excellence or virtue, or involves virtue, and it is, moreover, most indispensable for life. No one would choose to live without friends, even if he had all other goods.

2. Friendship also seems to hold states together, and lawgivers apparently devote more attention to it than to justice. For concord seems to be something similar to friendship, and concord is what they most strive to attain, while they do their best to expel faction, the enemy of concord. When people are friends, they have no need of justice, but when they are just, they need friendship in addition.

3. For, it seems, we do not feel affection for everything, but only for the lovable, and that means what is good, pleasant, or useful.

4. But it is said that we ought to wish for the good of our friend for the friend's sake. When people wish for our good in this way, we attribute good will to them, if the same wish is not reciprocated by us. If the good will is on a reciprocal basis, it is friendship. Perhaps we should add, "provided that we are aware of the good will." For many people have good will toward persons they have never seen, but whom they assume to be decent and useful, and one of these persons may well reciprocate this feeling.

5. We conclude, therefore, that to be friends we must have good will for one another, must each wish for the good of the other on the basis of one of the three motives mentioned, and must each be aware of one another's good will.

Figure 2. Critical thinking sample text.

for critical thinking exhibit a certain order. The selection and arrangement of these elements assume that the set is unified and coherent as a whole of parts. But it would be prudent to observe that even if the unity of this set were misplaced—or, indeed, replaced by another regimen intended to exemplify critical thinking—each of the following components can function usefully, by itself, under the general rubric of critical thinking. The principles suggested are covered under four main headings, with a concrete example illustrating each principle.

Get to the Point!

This blunt exhortation is often heard when people ramble in conversation, but what holds for a desired end in everyday talk also holds as a first step in critical thinking. The time and energy required to recognize the point (or, of course, points) of a poem, essay, article, or, on a larger scale, chapter in a textbook or a novel will vary depending on the student's academic

and personal circumstances and the length of the work under scrutiny. But being in a position to think critically about something presupposes that the student, or interested party, has some control over where that particular work may be headed and what its author or creator has intended to convey to an audience. There is, of course, a chicken versus egg type problem here, because the practitioner of this initial phase of critical thinking must have at least some intellectual control over the parts of the piece as they are gradually and consecutively laid out before the sense or import of the whole piece can effectively take shape in the mind of the student.

To illustrate this initial phase of critical thinking, consider Passage 1 of the sample text (from Aristotle's *Nicomachean Ethics*; see Figure 2). I have used this reading hundreds of times with gifted students in grades 6–8 and have found it to be a favorite topic for implementing principles of critical thinking. In Passage 1, for instance, Aristotle is making a point about friendship, although it might

seem as if he were just as interested in describing other "good things." If a student, after reading this passage, wanted to talk about both friendship and these other good things, critical thinking shows that we must determine the point of Passage 1—it is about friendship; Aristotle's reference to "other good things" only strengthens, by contrast, the value of friendship. Subsequent passages from the sample text will progressively testify to this appreciation of Aristotle's point.

At this juncture, the various elements informing the process of critical thinking are hovering in midair, poised to move in a certain direction. The relevant sense of the central point of the piece under scrutiny thus becomes open to enunciation, ideally perhaps in a few sentences, if someone wondered—or, indeed, if the student privately asked him- or herself, "What is the author trying to say?" This exercise of *summarizing* is valuable by itself, because the student must organize a given body of material and coordinate its parts according to a unifying vision that will, in turn, engender other phases of awareness radiating from this centralized focus. With due attention, these phases can then be formulated and made explicit for purposes of recognition, clarification, and evaluation.

How Did We Get There From Here?

Establishing the point represents the core of phase one of critical thinking; determining the progression of steps leading to the point is the substance of phase two. This second phase of critical thinking, consisting primarily of analysis, may be subdivided into the familiar categories of content and form.

*Content.* Once the point of the piece has been established, even if only provisionally, the practitioner of critical thinking can begin to inquire analyti-

cally and evaluatively about the route, or routes, taken by the author (or creator) to reach the destination discovered by the critical thinker during phase one. *Prioritizing* then becomes the dominant mode of analysis in phase two.

To prioritize means, first, that the student will determine what is relevant to establishing the point and, by contrast, what may be construed as not relevant—in short, between information and misinformation. Misinformation in this broad sense can take different forms (e.g., writing that, whatever the author's intentions may have been, is factually false or, although not false, is not germane to establishing the point). The recognition of these differences is crucial for the successful application of critical thinking, because the student will now have a sharper sense of which parts leading to the point of the work need additional scrutiny.

Prioritizing has other dimensions as well. Thus, second, some of the steps leading to the conclusion will be central or pivotal, and others may be peripheral—that is, assertions, ideas, or positions included by the author as apparently relevant to the point but which, upon examination, occupy areas on its edges. At this level of analysis, the student recognizes that one element is important in leading to the point of the work, and another element is not important. These differences usually display themselves more according to degree (i.e., more or less pivotal) than to kind, as in the contrast just stated between information and misinformation. The ability to recognize these differences also assists in determining the direction of additional inquiry.

Consider the conclusion of Passage 2 from the sample text in Figure 2: Here Aristotle connects friendship and justice, but his goal is not to develop a theory of justice (which he does

elsewhere in the *Nicomachean Ethics*) but only to show the need to appreciate the difference in priority between justice and friendship. To treat other people justly is very important; yet, if our actions to others were *only* just, life would be woodenly virtuous and without the special joys that friendship brings. In this context then, friendship is more important and of more direct concern than justice.

Finally, the student, while pursuing the first two phases of prioritizing, may discover that some of the central steps are potentially fertile for further development, especially if these steps speak to the student's engagement in the matter at hand or, just as importantly, in related matters not directly within the scope of the original work but falling within the student's world of interests. By contrast, other steps, whether central or peripheral, may be barren in terms of the student's future interests, even though these steps may, within the context of the work, be crucial to establishing the point. Again, the ability to discriminate between barren and potentially fruitful steps exemplifies another dimension of prioritizing, one that can be particularly relevant to developing and fostering a student's creativity. We note then that a student who wishes to think more about what it means to be just, or about whether justice is in fact more important than friendship, has embarked on matters over and above the domain of issues represented by the brief sample text—but this student should be applauded and encouraged for such thoughtful adventurousness!

*Form.* Many, although not all, objects of concern for young gifted students will involve reasoning: the progression of thought from a series of beginnings (premises) to their culmination in the point (conclusion). A critical thinker capable of working at a relatively high level of sophistication

will apply principles of logic in determining, and then evaluating, whether the reasoning found in the target work adequately follows correct logical rules. However, the evaluative, or “critical,” phase of critical thinking, especially for younger students, does not presuppose formal training in logic. The restatement of, say, the language in an editorial into vehicles of expression amenable to logical analysis takes practice, but is an exercise that richly rewards its practitioner by enhancing the “feel” or presence of logical dimensions embedded in written language.

Younger students can testify to such awareness by distinguishing between *reasons for* a conclusion and the conclusion as such, and then reflecting on whether the reasons, once identified, collectively hang together in showing the conclusion. Here again, practice makes perfect—or even if it does not result in perfection, practice leads to improvement in deciding whether the reasoning exemplified in a work has been coherently and persuasively executed. Thus, in the sample text in Figure 2, the student should be invited to determine how Aristotle has reasoned when he combines Passages 3 and 4 in order to state the conclusion reached in Passage 5. A student thinking through what 3 says, then adding to 3 what is asserted in 4, acquires useful experience in understanding and appreciating the kinds of connection that frequently characterize the logical flow of this sort of discussion.

### Are You Certain You're Right?

The critical evaluation of a given piece of work embodies an important goal for any student practicing critical thinking. Is the conclusion tenable? Has the conclusion been rigorously demonstrated by the observed premises? Is the writing, which leads to the conclusion, clear? Responses to these

questions are essential to the evaluative phase of critical thinking.

But the evaluative phase includes additional benefits. Students practicing critical thinking must be fair to the content of whatever they are studying. An appropriately applied process of critical thinking will therefore compel the student to separate his or her personal beliefs from those of the author of the work. This separation establishes a distance in understanding between (a) the often intense personal beliefs and convictions of the gifted student and (b) the point of the scrutinized work. The resultant clarity of understanding sharpens the student's self-awareness as well as heightens respect for works expressing visions of reality that may run counter to those of the student.

If, for example, the student does not think that a friendship can be based on usefulness (which, in fact, Aristotle does affirm in Passage 5), then thoughtfully considering situations where two people can indeed be considered friends precisely because they are useful to one another will enlarge the student's understanding of the concept of friendship. If, however, the student continues to believe that such relationships are not legitimate friendships, then determining reasons against Aristotle's position will contribute to the student's now more fully examined grasp of what it means to be a friend. The student will also win an increased awareness for how challenging it is to formulate—and to defend critically—a definition of this sort of concept.

Indeed, the "critical" phase of critical thinking often, although not always, leads to voicing criticisms of a given work. The more students practice such criticisms, the more they will appreciate that these criticisms are not personal barbs aimed at denigrating the humanity of an author, speaker, artist, and the like. The issue under scrutiny; securing the highest degree of under-

standing of that issue; identifying the means and determining the adequacy of justification for a given conclusion relative to that issue—these are the crucial components underlying critical thinking. Students must, as best they can, distinguish between the issue with all of its ramifications and their own selves insofar as they have become "critically" involved in this issue. Even partial success in achieving this separation will allow students to streamline and coordinate their own interests while they concurrently sharpen their understanding of questions and problems that exist outside the scope of their immediate concerns. In sum, increase in knowledge about the world runs in tandem with self-knowledge. This enhanced self-knowledge will contribute to the student's ability to grow and mature not only in academic settings, but also in every area of life that includes a measure of thoughtful concern.

### Is There Another Way to Go?

Thinking through and evaluating the transition between steps in a given work should not be taken just as an end in itself, although that phase of critical thinking is clearly important. Assume that after the student evaluates the work, the degree of persuasiveness that the work exhibits is, in the student's mind, very high. Even so, a student versed in the principles of critical thinking will become proficient in looking for, recognizing, and articulating *alternative approaches* to establishing the same point. The ability to secure different explanatory means in order to achieve the same end broadens the student's overall awareness of factors relevant to establishing this end. This skill both engenders and testifies to a sensitive and flexible intelligence, a source of habitual insight into the complex issues that will become

increasingly common as the student advances to higher levels of formal education and broader experiences of the world at large.

To return briefly to Aristotle on friendship: Assume that the student has concluded a critical examination of Aristotle's position. It might then seem more appropriate to approach friendship by trying to discover and state the difference between a friend and an acquaintance (in my experience, a distinction often drawn by gifted students). The resulting account of friendship might be quite different if we move toward our definitional goal by following this route of inquiry rather than the one Aristotle pursues. A student reflecting in this way will also learn more about the difference between a friend and an acquaintance—a very challenging and practically important distinction to establish with any measure of certainty!

Finally, many questions and problems that attract the exercise of critical thinking are of such complexity that a single, well-defined, and articulated solution is next to impossible to secure. In short, gifted students must become acclimated to tolerating uncertainty. Critical thinking, however it may be construed or constituted, is not a panacea for eliminating the world's ills, or even assuaging the intensity that envelops so many of the issues and disagreements igniting the emotions of the human family. The capacity to live with uncertain resolutions for problems marked by intractable edges signals a degree of intellectual maturity, not the least valuable benefit of critical thinking when duly mastered and practiced.

### Contexts of Application

Critical thinking can be done anywhere and anytime, although the most likely locations are home and school.

Whether the approach to critical thinking outlined above (or a similar procedure) can be effectively realized at home without parents morphing into Motherly Martinets or Paternal Prodders is an aspect of the matter worth taking to heart. Prudence suggests that parents interested in inspiring attitudes and practices of critical thinking in their children should apply critical thinking in order to determine the most congenial way to proceed. For example, can critical thinking be instilled in offhand conversations, or is it necessary to coordinate this kind of exercise within a more formally defined family setting? Would the topics for practice be improvised, taking off from a young person's chance comments about something read or discussed in school or among friends, or would they be based on preexisting sources such as books, blogs, and movies? Thoughtful parents, sufficiently aware of their home environment, will make the relevant procedural decisions.

The implementation of critical thinking in a classroom involves additional factors. The most obvious difficulties facing any teacher who believes that critical thinking represents an essential technique in the education of gifted students (indeed any students!) include the number of students to be reached and evaluated as well as the necessity to cover designated material in an often severely limited amount of time. Whatever expertise in critical thinking that I can claim has been the product of many years of reading, thinking about, and discussing texts in philosophy. I may then recommend to teachers not to attempt to master principles of critical thinking the way one would control grammatical paradigms in learning a foreign language. Rather, the teacher should be as fully aware as possible of the basic outlines and goals of critical thinking—however the process of critical thinking is defined

**Critical Thinking Resources**

**Logic**  
Westin, A. (2008). *A rulebook for arguments* (4th ed.). Indianapolis, IN: Hackett.  
An accessible source that details principles and rules of logic as they pertain to critical thinking.

**Philosophy**  
White, D. A. (2001). *Philosophy for kids*. Waco, TX: Prufrock Press.  
White, D. A. (2005). *The examined life: Advanced philosophy for kids*. Waco, TX: Prufrock Press.  
Two books by the author provide philosophical material for critical thinking, as well as additional discussions of critical thinking in general.

**Fiction**  
Any literary text appropriate for language arts instruction in a gifted curriculum will contain elements of plot and narrative suitable for critical thinking. The teacher or parent must be alert to types and instances of conflict—but as soon as conflict arises, critical thinking enters! The challenge is to control how the disputed issue should be stated, although in my experience gifted students will not hesitate to indicate such situations and react to them in a variety of ways. One of many possible texts is Antoine de Saint-Exupéry's *The Little Prince*, a brief but profound work overflowing with episodes that inspire the need for critical thinking.

**Nonfiction**  
Any public forum (the fossilized author prefers newspapers and news magazines) contains editorials and statements of opinion on current events. These discussions often take strong positions on one side of an issue, so the ideal pedagogical goal is to present students with balanced viewpoints. Then the challenge is to formulate a sufficiently restricted issue so that critical thinking can be done within a set context. Here again, collaborating with students in determining the focus of inquiry is a reasonable and productive strategy for both teacher and parent.

and developed—and then keep a critical eye on whatever happens in the classroom. The more practice teachers command in this kind of intellectual orientation, the more frequently the teacher will seize the opportunity to help students recognize what they should be thinking about in order to appropriate the sustained insights that critical thinking can provide. Here, as so often in education, teachers will teach themselves while they teach their students—a collaborative endeavor improving everyone involved in it.

## Conclusion

However the structure and process of critical thinking may be defined and elaborated, the very awareness that critical thinking is crucial represents a significant advancement in self-knowledge. In fact, anyone reading this article has already taken the first step in investigating in more detail

and greater depth what critical thinking might mean. Everyday thinking aimed at planning how to satisfy one's immediate self-interest is easy. Critical thinking, which reaches beyond to establish and evaluate the point of a given work and the steps leading to this point, is often intellectually difficult and personally demanding. But the exhilaration and clarity derived from the habit of critical thinking will help direct its protagonists to an informed and satisfying realization of its value and importance. If at least some readers of this article act in order to appreciate and propagate this kind of learning experience, the article will have served its purpose. **GCT**

## Author Note

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