Distinguishing Features of Critical Thinking Classrooms

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ABSTRACT  Critical thinking comes in many forms, but all possess a single core feature. They presume that human arguments require evaluation if they are to be worthy of widespread respect. Hence, critical thinking focuses on a set of skills and attitudes that enable a listener or reader to apply rational criteria to the reasoning of speakers and writer. Those classrooms that encourage critical thinking possess distinguishing features that assist programme evaluators and teachers themselves to assess whether critical thinking is a regular occurrence in a particular classroom. This article suggests that a critical thinking classroom commonly reflects the following attributes: frequent questions, developmental tension, fascination with the contingency of conclusions and active learning. These attributes reinforce one another to provide developmental stimuli for enhanced critical thinking.

Curriculum proposals customarily contain predictions that critical thinking will be enhanced should we be so wise as to embrace whatever is being proposed (Aarons, 1985). While this claim is not as broad as it appears at first glance because of the ambiguity of ‘critical thinking’, nevertheless, this inclination is one of the few contemporary attempts to create coherence in post-secondary education (Readings, 1996). Deference to critical thinking as an educational objective is certainly more common than the actual encouragement of critical thinking in university classrooms. In the interest of bridging the gap between aspiration and achievement in the area of critical thinking, we want to suggest an aggregate of attributes that distinguish classrooms that regularly encourage critical thinking from those that do not.

This list can have at least two developmental functions. First, it suggests a formative avenue for determining whether a particular classroom is exhibiting characteristics conducive to encouraging critical thinking. Additionally, the list can stimulate reflection about how specific classroom practices contribute toward particular purposes, while perhaps discouraging others.

Our interest in doing so is to provide encouragement for faculty members who are trying to export more critical thinking into their practice. By enumerating and discussing particular characteristics of critical thinking classrooms, we want to assist both assessment teams and teachers themselves to pinpoint particular traits that require improvement in the interest of a more critical populous. We need to point
out that these attributes reinforce one another; no single one of them will, by itself, encourage critical thinking. However, as a package, they can transform the teachers’ knowledge of critical thinking into a process learners will use to reflectively evaluate arguments long after they have graduated.

Another introductory necessity is our explanation of what we mean by ‘critical thinking’. Critical thinking comes in many forms, but all possess a single core feature. They presume that human arguments require evaluation if they are to be worthy of widespread respect. Hence, critical thinking focuses on a set of skills and attitudes that enable a listener or reader to apply rational criteria to the reasoning of speakers and writer (Browne & Keeley, 1998). These attitudes and skills are the substance of critical thinking texts and curriculum materials. However, the special nature of critical thinking as an educational objective results in the necessity to design classrooms to match the demands of a mental activity that is less than welcome for many students. We now turn to a discussion of these design features.

**Frequent Evaluative Questions**

Critical thinking is very much a participant activity. The subtlety and psychological complexity of systematic evaluation of arguments is unlikely to be acquired by osmosis. However, what student activities are most likely to accelerate critical thinking? A later section discusses active learning itself, but here we want to focus on what seems to us the primary behavioral characteristic of critical thinking classrooms, viz., the room is abuzz with questions. The teacher asks some of them and students ask others, often of one another. Each declarative statement is welcomed as an opportunity for moving toward additional questions (Meyer, 1994). While Meyer’s work is not directed to encouraging critical thinking explicitly, it does indirectly highlight the conversational imperative of asking series of critical questions.

Certain questions have special significance for the critical thinking classroom. Their significance stems from their importance as stepping stones toward the evaluation of reasoning. To begin, critical thinking requires comprehension. To evaluate reasoning, one must first discover it. Consequently, questions that unearth the conclusion and reasons in an argument are necessary starting points for critical thinking (Shaw, 1996). Teachers can provide considerable benefit for their students just by systematically asking ‘why?’ and reinforcing students when they too activate the search for reasons in this manner.

After identification of the reasoning, the following questions, *inter alia*, move the class directly to the evaluative focus of critical thinking:

- What words or phrases are being used in an ambiguous fashion?
- What descriptive and value assumptions provide the foundation for the reasoning?
- What evidence was provided for the claims in the reasoning?
- What is the quality of the proffered evidence?
- Are the analogical components of the argument persuasive?
• What important omitted information is omitted from the reasoning?
• What rival causes might explain the conclusion?
• What alternative inferences can reasonably be drawn from the evidence?

Critical thinking can be usefully conceptualised as understanding the use of these questions, knowing how to seek answers to them and enjoying the process of asking them at appropriate times.

None of these questions can be effectively asked nor answered without the guidance of a trained teacher. Knowledge about when and how to ask these critical questions must be complemented by creation of an emotional climate consistent with a search for stronger beliefs. The lecturer who reveals the power and joy of these questions in her or his scholarly life is exhibiting leadership that strengthens the likelihood that critical thinking will be internalised by learners.

The power of these questions is difficult to deny. Yet, they are classroom rarities. When researchers have entered higher education classrooms, they often encounter a number of questions, but almost none of them rise to the level of critical thinking (Braxton & Nordvall, 1985). In fact, so desperate were Braxton and his colleagues to find critical thinking in their sample classrooms that they conflated all higher-order cognitive skills under the rubric of ‘critical thinking’. This depressing evidence provokes us by revealing how far we have to go to encourage critical thinking in our classrooms.

The Encouragement of Active Learning

Encouraging the asking and answering of critical questions is just one aspect of a larger body of educational practices called ‘active learning’ that can under certain circumstances identify a classroom as one where critical thinking is being encouraged. However, active learning comes in many variants, only some of which are consistent with critical thinking, as we are using the term. When the activity witnessed in a classroom has as its telos, the evaluation of arguments according to certain specific standards, that active learning is fertilising critical thinking.

Teachers in higher education often have a single clear model of their instructional role. They are the experts about a body of knowledge; the students are seeking that knowledge. Thus, the one with the knowledge speaks; the one seeking the knowledge listens. The clarity of this model, however, should not be confused with its effectiveness. Lectures, even at their most eloquent and persuasive, possess a major inadequacy, viz., they fail to provide the learner with the opportunity to practice using the knowledge under the guidance of a skilled mentor.

The lecturer, however, can provide a special kind of mentorship by modelling critical thinking and by providing assignments that require critical thinking. A false dichotomy between those who lecture and those who do not can prevent us from recognising that active learning has listening components that can be enhanced by any lecturer whose words require reflection and integration.

However, for the lecturer to enhance active learning and critical thinking requires awareness of the fragility of oral communication. The presumption of a
lecturer that whatever is spoken is internalised in the mind of the learner is grandiose. The assumption seems to be that these learners are using the energy being conserved physically and expressively to process the ideas and arguments presented by their professor.

Yet many educators seeking to teach critical thinking prefer a different approach. Mayer (1986) states, 'The key to developing critical thinking lies in creating conditions for participation rather than passivity, and in providing opportunities for emotional engagement with the materials' (cited in Garside 1996). As Mayer further notes, passive spectators are not especially prone to creative social criticism (1986). Although Mayer fails to note that active learners are not themselves all that eager to embrace social criticism, he is properly observing that the psychological components that encourage passivity in a learner are probably going to impede critical thinking as well.

Providing learners with frequent opportunities for direct practice of evaluation skills and attitudes allows them to experiment with critical thought. Mayer further supports using active learning techniques by claiming that stimulating students to move from passive to active maximises the impact of the material upon the learners (1986). The strength of the active classroom is that it facilitates personal involvement with the material, thereby provoking students into discussion and evaluation.

Furthermore, when students are expected to articulate and apply course material, they begin to develop a conglomerate of associations that become attached to the material being discussed. Ideas become more meaningful as more connections are synthesised. As ideas become more meaningful, they develop richness and complexity. Awareness of the complexity of even the simplest idea is absolutely necessary to one who wishes to think critically.

In the absence of the conflicting perspectives that arise from discussion, and the subsequent awareness of complexity, students fasten upon arguments that support their current beliefs (Nickerson et al., 1985; Mynatt et al., 1977). Our proclivity to seek only information that supports our views (called 'confirmation bias' by psychologists), in addition to the human tendency to hold firmly to our beliefs, provide a sizable obstacle to developing the critical thinking abilities of students. Yet proponents of active learning emphasise that involvement with course material and verbal attention to key arguments and issues can enable students to rise above this obstacle. As students recognise that new ideas and a richer understanding of material arise naturally from active participation in class, they will become increasingly motivated to pursue the skills of critical thinking.

Developing an aptitude for critical evaluation is dependent upon such motivation on the part of the learner (Keeley et al., 1995). Active learning is not merely a matter of the instructor's provoking students to engage with the material. A student experiencing active learning impels herself to consider and carefully evaluate the arguments of both her teacher and her peers, and eventually, the arguments of her own construction. As she learns, she is rewarded by the joy of discovery (Browne et al., 1995) that accompanies the awareness that there are many more options than one originally thought and that none, without exploration, can or should be accepted.
Developmental Tension

The kinds of classrooms typified by active learning focusing on critical questioning are quite different in tone and effect from a visit to an amusement park. A classroom with critical thinking as a major objective is encouraging change of a particular kind; amusement parks pander to the current self of the visitor. The move toward critical thinking will come at a price, just as does any growth we seek.

Anyone suggesting improved pedagogical practice needs, we believe, to consider initially the benefits associated with current practice. One logical inference from this paper so far would be that we believe current pedagogical habits are not optimal for the development of critical thinking. But current practice has its own logic. To the extent that a simplified consumer metaphor is used to guide teaching behaviour, the lecturer who does not encourage critical questioning may be right on target (Browne, et al., 1995).

However, as flattering as it might be to our disciplines for us to portray them as collections of verities, we know that such a picture distorts their reality. Were academic disciplines comprised of unarguable facts and derived truths, critical thinking would lose much of its mandate. However, all disciplines contain open-ended questions about which reasonable people disagree, possess knowledge used in controversial ways and report conflicting evidence. These controversies represent the organic aspects of our disciplines.

For controversy or any other tactic to encourage critical thinking it must enhance the likelihood that one would either desire or know how to evaluate contentions. Controversy, unlike several other stimuli to active learning, has the special merit of increasing the probability that evaluative behavior will occur. One facet of this comparative advantage is that controversy creates a state of discomfort for the reader. This discomfort can cause a healthy intellectual uneasiness among those learners who have brought to classrooms an epistemology that sees their task as absorbing the wisdom of experts. This sponge model of learning is terminally disrupted when the learner encounters multiple experts, each of whom answers the same question in a unique and seemingly reasonable fashion.

Thinking begins only when a state of doubt about what to do or believe exists; all conscious thought has its genesis in uncertainty (Baron, 1985). Doubt motivates thinking to occur and controversy presents situations in which doubt naturally arises. This same insight is fundamental to Rokeach’s model of value transformation. Rokeach spent much of his prolific career seeking greater understanding about the process of moral development. He concluded finally that the process of value change depends on learners’ awareness of contradictions, tension and confusion in their current belief system (Rokeach 1968, p. 167, 1973, p. 286). His insight is one that pervades the atmosphere of classrooms that encourage critical thinking.

However, inserting controversy into classrooms does much more than create cognitive dissonance. Our thoughts tend to flow in a limited number of channels or conceptual ruts (Wicker, 1985). When students read or view conflicting perspectives, their conceptual ruts are over-run. Something new enters their purview.
as the first half of ‘Divorce Court’ or any legal proceeding is threatened by the revelations in the second half, conflicting academic perspectives challenge the learner to reconcile or evaluate (Makau, 1985). By stimulating controversy intentionally, a professor can engage in a form of intellectual affirmative action whereby minority positions are conscientiously given fair treatment (Brod, 1986).

An additional advantage of controversy as a stimulus for critical thinking deserves mention. Experiencing disagreement, even when the encounter is vicarious, gives the learner permission to enter the rough and tumble of evaluation. Students are much more willing to challenge and test when they can see that experts habitually question formulations of other experts (Resnick, 1987, p. 41).

Suggesting that the tension associated with controversy in the classroom is an effective strategy for developing critical thinking skills raises a serious concern for many teachers. Will controversy prove so potent a fuel that some learners will choke on its fumes? In short, can tension become antagonistic to learning? Of course it might. However, all such paternalistic protection of learners from robust conversation fails to explain how students will ever grow to be participants in that conversation, unless they are encouraged to practice a critical engagement with serious discourse.

If controversy is such an exciting pedagogical vehicle, why is it not a standard inclusion in every course? To expand on the fear voiced in the previous paragraph, controversy clearly makes some people uncomfortable. Conflict may be viewed as divisive, creating resentment and thus alienating students.

These sources of resistance to classroom controversy deserve a response. Will controversy create discomfort? Certainly! However, this discomfort arises from challenging students’ and, perhaps, professors’ fundamental beliefs and values. Frequently, as a result of encountering critical thinking in this mode we learn that we do not have reasons for our beliefs. They are shot full of ambiguities, questionable assumptions and significant omitted information. This awareness that our beliefs may not be flawless makes us uncomfortable, while at the same time it provides us with an incredible stage for building critical thinking skills. By evaluating controversies brought into the classroom, we are promoting an atmosphere of reflection that can result in acceptance or rejection through reasoned judgment, not through blind acceptance, osmosis or ‘sponging’.

**Fascination with the Contingency of Conclusions**

The developmental tension associated with critical thinking can be made more palatable by the lecturer’s sharing with students the excitement of accepting the contingency of conclusions. When learners see our open bewilderment and our sifting through contextual variables as a rewarding response to bemusement, they are much more likely to tolerate the discomfort associated with a loss of certainty.

Upon being diagnosed with a serious illness, a man asks his doctor what the
best option is for treatment. The doctor explains that even the best treatment would allow the man to live for only a few months. Understandably shaken, the man seeks a second opinion, a common practice among the seriously ill. This second consultant tells him of a treatment that will allow him to live for up to 10 years, but involves some painful side effects. A third consultant advises him to use a new and experimental treatment that promises even better result than the other two possibilities. Although the man may not know which treatment to choose, most of us would agree that he was wise to seek a second and third opinion.

Seeking multiple perspectives before making a cognitive commitment is equally judicious. It is easy to commit to a particular argument when we have only approached the issue from one direction. However, becoming a more discriminate consumer of information, one who is able to protect herself from coercion and construct well-informed decisions (Gilbert, 1979; Rudinow & Barry, 1994; Damer, 1995) requires that arguments and ideas be approached from multiple points of view.

Critical thinking can widen one’s intellectual horizons if approached with a ‘spirit of openness’ (Browne & Kubasek, 1993; Taube, 1997) that includes willingness to consider novel approaches to an issue. Such an approach to ideas forces learners to appreciate contextual subtlety and gain a richer understanding of the position to which they may eventually commit. Understanding the importance of multiple perspectives and of context is obligatory for critical thinkers because it prevents premature commitment.

A ‘controlled sense of skepticism’ aimed at finding sufficient reasoning and evidence in support of an idea is a key component of critical thinking (Garside, 1996) because it enables the learner to confront alternative possibilities of meaning. When searching for substantiation of a claim, the learner will come into contact with contrary evidence, some of which may be stronger than that supporting her original conclusion. In this manner, a skeptical approach to argument fosters the valuable search for multiple perspectives. Learning to approach all intellectual commitments with such skepticism requires students to accept the contingency of personal conclusions and to allow further information to continually shape their opinions. Browne & Kubasek (1993) note that it is quite natural for individuals to hold tightly to their personal beliefs as cognitive maps that must be protected from contrary claims.

However, critical thinking requires that we evaluate arguments without infatuation with our prior beliefs (Stanovich & West, 1997), a requirement that proves quite difficult in practice. Sir Francis Galton noted that our thoughts flow in a limited number of channels (Wicker, 1985), which Browne refers to as ‘conceptual ruts’ (1996a,b). They serve as mental impediments to the tone of skepticism required to determine an argument’s worth.

Although it may be difficult for the learner to change existing mental commitments (Keeley et al., 1995), the achievement of such a goal is essential to critical thinking. Classrooms alive with critical thinking encourage commitment, but also urge the wisdom of frequent reexamination of those commitments as learners encounter fresh logic, evidence, metaphors and narratives.
Conclusion: critical thinking can be taught with the active assistance of our students

Suppose we enter a classroom where all the incidents of critical thinking are on active display? Does it follow that critical thinking will result? Not necessarily! Learning is always a partnership; this nexus is especially necessary for critical thinking because there is so much about it that is unnatural. First it is very hard work. *Inter alia*, it demands careful reading and listening. Discovering what has been written or stated is a prerequisite for any fair-minded critical evaluation. Secondly, critical thinking threatens the calm of assumed amiability that governs much of our interactions with one another. Very rare is the individual who is eager to have his or her reasoning placed under the bright light of critical questions.

However, when teachers and students are aligned in pursuit of improved critical thinking, cognitive magic is possible. Reasoning improves without the encumbrance of the automatic animosity that can ruin the atmosphere for prospective critical thinking. Each attribute of a critical thinking classroom discussed herein plays a facilitative role in the fragile potential for a broad community of critical thinkers. However, their function is linked to the willingness of both teacher and student to engage in the hard work necessary to realise that exciting aspiration.

REFERENCES

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