

# Critical Thinking: Competency Standards Essential for the Cultivation of Intellectual Skills, Part 1

By Linda Elder and Richard Paul

Much lip service is given to the notion that students are learning to think critically. Studies consistently show that though faculty say that critical thinking is important to their instruction, they have difficulty articulating a clear conception of it and demonstrating how they foster it (Gardner 1995; Paul, Elder, & Bartell, 1997).

In order for students to learn critical thinking, instructors need to explicitly teach it through focused instruction. And standards for doing this are essential. Thus in the next few columns we focus on some essential critical thinking competency standards. In this first column of the series, we essentially argue for the importance of critical thinking to instruction. In the several columns that follow, we provide examples of the competencies (Paul & Elder, 2007).

These competencies serve as a resource for teachers, curriculum designers, administrators, and accrediting bodies. The use of these competencies across the curriculum will ensure that critical thinking is fostered in the teaching of any subject. Large groups of students can be expected to achieve these competencies only when most faculty within a particular institution are fostering critical thinking standards in their subject(s). It is unreasonable to expect students to learn critical thinking at any substantive level through one or a few semesters of instruction. However, basic critical thinking competencies can be achieved by most students. The most basic and important competencies must be reinforced across the curriculum. Some competencies might well be taught in a more restricted way.

As you read this series of columns, it should become clear that any well-educated student or citizen needs the abilities and dispositions fostered through the critical thinking competencies articulated herein. To transform classrooms into communities of thinkers, one must take a long-term view. Educators need to reflect widely and broadly as well as to be systematic, committed, and visionary. The task is challenging indeed. But it is a challenge ignored at the risk of the well-being of both students and that of the entire society.

## Assessing Students' Critical Thinking Abilities

The critical thinking competency standards articulated in this series exemplify the standards needed for assessing students' critical thinking abilities. They enable administrators, teachers, and faculty to determine the extent to which students are reasoning critically within any subject or discipline. These standards include outcome measures useful for teacher assessment, self-assessment, as well as accreditation documentation. In short, these standards include indicators for identifying the extent to which students are using critical thinking as the primary tool for learning.

By internalizing the full range of critical thinking competencies, students will become more self-directed, self-disciplined, self-monitored thinkers. They will develop their ability to

- raise vital questions and problems (formulating them clearly and precisely),
- gather and assess relevant information (using abstract ideas to interpret it effectively and fairly),

- come to well-reasoned conclusions and solutions (testing them against relevant criteria and standards),
- think open-mindedly within alternative systems of thought (recognizing and assessing, as need be, their assumptions, implications, and practical consequences), and
- communicate effectively with others in figuring out solutions to complex problems.

Students who internalize these competency standards will come to see that critical thinking entails effective communication and problem-solving skills as well as a commitment to overcoming one's native egocentric and sociocentric tendencies.

It is important to note that, only when instructors understand the foundations of critical thinking can they effectively teach for it. The simple truth is that teachers are able to foster critical thinking only to the extent that they themselves think critically. This may be the single most significant barrier to student achievement of critical thinking competencies. For teachers to aid students in becoming deep thinkers, they must themselves think deeply. For teachers to aid students in developing intellectual humility, they must themselves have developed intellectual humility. For teachers to foster a reasonable, rational, multilogical worldview, they must themselves have developed such a worldview. In short, teaching for critical thinking presupposes a clear conception of critical thinking in the mind of the teacher.

## The Concept of Critical Thinking

The concept of critical thinking can be expressed in a variety of ways, depending on one's purpose (though, as with every concept, its essence is always the same). A definition most useful in assessing critical thinking abilities is as follows: Critical thinking is the process of analyzing and assessing thinking with a view to improving it. Critical thinking presupposes knowledge of the most basic structures in thinking (the elements of thought) and the most basic intellectual standards for thinking (universal intellectual standards). The key to the creative side of critical thinking (the actual improving of thought) is in restructuring thinking as a result of analyzing and effectively assessing it.

As instructors foster critical thinking skills, it is important that they do so with the ultimate purpose of fostering traits of mind. Intellectual traits or dispositions distinguish a skilled but sophisticated thinker from a skilled fair-minded thinker. Fair-minded critical thinkers are intellectually humble and intellectually empathic. They have confidence in reason and intellectual integrity. They display intellectual courage and intellectual autonomy.

It is possible to develop some critical thinking skills within one or more content areas without developing critical thinking skills in general. The best teaching approach fosters both, so that students learn to reason well across a wide range of subjects and domains.

## Critical Thinking and Learning

The key insight into the connection of learning to critical thinking is this: The only capacity we can use to learn is human thinking. If we think well while learning, we learn well. If we think poorly while learning, we learn poorly. To learn a body of content, say an academic discipline, is equivalent to learning to think within the discipline. Hence to learn biology, one has to learn to think biologically. To learn sociology, one has to learn to think sociologically.

Students need to think critically to learn at every level. Sometimes the critical thinking required is elementary and foundational. For example, in studying a subject there are foundational concepts that define the core

of the discipline. To begin to internalize understanding one needs to give voice to those basic concepts, that is to state what the concept means in one's own words; to elaborate what the concept means, again in one's own words; and then to give examples of the concept from real-life situations.

Without critical thinking guiding the process of learning, rote memorization is likely to become the primary recourse, with students forgetting at about the same rate they are learning and rarely, if ever, internalizing powerful ideas. For example, most students never take genuine ownership of the concept of democracy. They memorize phrases like, "a democracy is government of the people, by the people, for the people." But they don't come to understand what such a definition means. And when they don't know what a definition means, they cannot elaborate or exemplify its meaning.

Through critical thinking, then, one is able to acquire knowledge, understanding, insights, and skills in any given body of content. To learn content it is essential to think analytically and evaluatively within that content. Thus critical thinking provides tools for both internalizing content (taking ownership of content) and assessing the quality of that internalization. It facilitates constructing the system (that underlies the content) within the mind, to internalize it, and to use it reasoning through actual problems and issues.

### Critical Thinking and the Educated Person

Developing critical thinkers is central to the mission of all educational institutions. Ensuring that students learn to think critically and fairly-mindedly also ensures that students not only master essential subject matter but become effective citizens, capable of reasoning ethically and acting in the public good.

Education, properly so called, alters and reworks the mind of the student. Educated persons function differently from uneducated persons. They are able to enter and intellectually empathize with alternate ways of

looking at things. They change their minds when evidence or reasoning requires it. They are able to internalize important concepts within a discipline and interrelate those concepts with other important concepts both within and among disciplines. They are able to reason well enough to think their way through complex problems. If students are to become educated persons, teachers must place thinking at the heart of the curriculum; they must require students to actively use their thinking to work ideas into it.

### Conclusion

In this column we have introduced the concept of critical thinking competency standards and argued for the importance of critical thinking to education. In the next few columns, we will detail some of the competency standards by providing the relevant critical thinking principle, performance indicators and dispositions, and expected outcomes.

### References

Gardiner, L. (1995). *Redesigning higher education: Producing dramatic gains in student learning*. ASHE-ERIC Higher Education Report No. 7. Washington, DC: The George Washington University, Graduate School of Education and Human Development.

Paul, R., & Elder, L. (2007). *A guide for educators to critical thinking competency standards*. Dillon Beach, CA; Foundation for Critical Thinking.

Paul, R., Elder, L., & Bartell, T. (1997). *California teacher preparation for instruction in critical thinking: Research findings and policy recommendations*. Sacramento, CA: California Commission on Teacher Credentialing.

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## RESEARCH IN DEVELOPMENTAL EDUCATION

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College Students' Perceptions of the Impact of Developmental Courses on Their Academic Performance and Persistence

By Lucille A. Green

An extensive amount of faculty time and institutional financial resources have been committed to the formulation and delivery of developmental courses at the college level. According to research by the National Center for Education Statistics (2005), a large number of college students are underprepared for college-level coursework and are required to take at least one or more developmental courses. Although the design and delivery of developmental courses has been documented, limited research has been done to assess the perceived academic benefit of these courses—especially from the perspective of the student. This research was designed to fill this void. This report examines the perceptions of college students about the impact of required developmental courses on their academic performance and persistence in college.

Rao (2005) noted that faculty members teaching college-level courses lament the fact that many students are not able to read and understand the required course materials, which can lead to failure of classes. Boylin and Saxon (1999) asserted that the vast majority of first-time college freshmen are administered prescribed placement tests in reading, writing, and mathematics, yet there is no mechanism in place that requires students to complete the sequence of remedial courses. Bettinger (2009) stated that many students who do choose to complete the remedial sequence may struggle in college-level courses. Bailey, Jeng, and Cho (2010) showed that many students who failed to complete their developmental sequence did so because they never enrolled in a developmental course to begin with.

The need for remedial or developmental coursework is not new. In the 1700s, entrance requirements at some well-known institutions were based on students' knowledge of foreign language and their moral character. However, those early colleges found very few applicants academically qualified to enter college doors open. It was during the early nineteenth century that many colleges admitted the sons of wealthy slavers regardless of their level of preparation. They also began admitting economically disadvantaged, but academically bright students on scholarships to boost enrollment numbers (Stephens, 2001).

Meanwhile, by the mid-nineteenth century, entrance requirements had been elevated substantially. An example was the change in requirements in mathematics at Yale between 1720 and 1855. In 1720, arithmetic was not required for admittance and Euclidean geometry was a sophomore-level course. However, by 1743 geometry was a sophomore-level course. In 1825 it became a freshman course and by 1845, it was an entrance requirement along with algebra (Stephens, 2001). These increases in the rigor

of college curricula and the number of students arriving without the necessary preparation led to the creation of preparatory departments within colleges. The most noted of these was the University of Wisconsin during the period of 1849 to 1880 (Stephens, 2001).

The Morrill Act and opportunities for the education of women, number of underprepared college students but also heightened the concern of underprepared students entering college sparked a report by the Committee of Ten, commissioned by the National Education Association, to call for the strengthening of secondary schools and to allow only fully prepared students to apply to college. However, by 1907 students applying to Yale, Princeton, and Columbia were still not prepared to meet the entrance requirements (Stephens, 2001).

In recent times, research has indicated that with so many students participating in developmental coursework, adequate performance and retention through the college-level is a major concern. However, disparities exist with regard to underpreparedness across subject areas and skill levels. For example, students needing remediation in writing or intermediate algebra were more successful at attaining college-level success than those needing remediation in other subject areas and levels. When students need developmental coursework in reading, basic mathematics, or a combination of subjects, their risk of failing to achieve their academic goals increases significantly. Statistics have shown that one in eight students needs remediation in reading. Of those students, 65% need remedial courses in at least three additional areas, including mathematics (Adelman, 1998). Fifty-five percent of students who needed no remedial coursework, and 47% of students who needed no remedial course, persisted to complete their degree. However, only one remedial student who needed three or more remedial courses completed their degree. Given these statistics, students who understand and believe in the purpose of developmental courses and the benefits they may provide may be more highly motivated to proceed with and excel in them.

### Research Questions

- The following questions were used to guide this research:
1. To what extent do students believe that participating in developmental courses enhances their academic performance in subsequent courses at the college level?
  2. To what extent do students believe that participating in developmental courses enhances their persistence to remain in college until graduation?