

Assessment of Critical Thinking Skills Report 2003-2004

As part of university-wide assessment, UW-La Crosse administered the ACT Critical Thinking Test to freshmen and seniors during 2003-2004. In fall 2003, 319 freshmen completed the test during the first two weeks of the fall semester, and 145 seniors completed the test in spring 2004.

The ACT Critical Thinking Test. The Critical Thinking Test is part of the ACT CAAP—Collegiate Assessment of Academic Proficiency. According to ACT

The CAAP Critical Thinking Test . . . measures students' skills in clarifying, analyzing, evaluating and extending arguments. An argument is defined as a sequence of statements that includes a claim that one of the statements—the conclusion—follows from the other statements. The test consists of four passages that are representative of the kinds of issues commonly encountered in a postsecondary curriculum.

Sample passages and additional information about the CAAP Critical Thinking Test are included below. For additional information see <http://www.act.org/caap/tests/thinking.html>.

Test administration. The 319 first semester freshmen who completed the test were enrolled in Oral Communication 110 in fall 2003. Instructors in sections of the course administered the test during the first two weeks of the fall semester. In fall 2003 the Provost invited academic department chairpersons to administer the Critical Thinking Test to seniors in their programs. Six programs accepted the invitation, Chemistry, Marketing, Microbiology, Philosophy, Political Science, and Therapeutic Recreation resulting in a pool of 145 students who completed the test.

Summary of UW-L student performance on the ACT Critical Thinking Test

Freshmen. The scores are reported as scaled scores with a range of 40 to 80. The range for UW-La Crosse freshmen was 53-73. The mean scaled score for UW-La Crosse freshmen was 64.2 (S.D. = 3.8) compared to 60.3 (S.D. = 5.5) for freshmen in the national comparison group.

Seniors. The range for 145 UW-L seniors was 53-72. The UW-L seniors' mean score of 65.9 (S.D.=3.9) is 2.8 points higher than the national average. Table 1 reports the mean scores for UW-L students and the national norms on the test.

National Comparison Group		UW-La Crosse Students	
Freshmen N=13,875	60.3 S.D.=5.4	Freshmen N=319	64.2 S.D.=3.8
Sophomores N=34,361	61.2 S.D.=5.5	--	--
Juniors N=15,331	61.8 S.D.=5.4	--	--
Seniors N= 10,174	63.1 S.D.=5.5	Seniors N=145	65.9 S.D.=3.9

Student motivation on the test. A potential threat to the validity of test scores is student effort. If students do not put forth little effort, test scores may not be an accurate measure of their ability. To help account for student effort, the test includes a question about students' level of effort. Table 2 reports UW-L students' self report of effort and the mean scores for students at each level of effort. Based on student self report, the large majority of freshmen and seniors put forth moderate or best effort on the test. Thirty

seniors did not report their level of motivation due to an oversight in test administration (i.e., the test administrators did not instruct them to do so).

Self-reported performance effort	Number of Freshmen	Freshmen test average	Number of seniors	Senior test average
Tried my best	153	65.2	73	66.1
Gave moderate effort	154	63.3	41	66.0
Gave little effort	10	63.2	1	
Gave no effort	1			
No response	1		30	65.5

Discussion of the results.

This test administration provides the first comparison of UW-L students to students nationally with respect to critical thinking skills. UW-L freshmen and seniors exceeded the national averages on the Critical Thinking Test. The results indicate that new freshmen entering UW-L perform at a fairly high level compared to students nationally. In fact, the mean for the sample of UW-L freshmen was greater than the mean for the national sample of seniors. UW-L seniors also perform above the national average.

We are not able to use the test results to measure educational change at the university. The UW-L freshmen and seniors are “unmatched samples” and do not constitute comparable groups. Consequently, it is not appropriate to interpret differences between the freshmen and seniors as indicators of educational change. In order to measure educational change with the ACT Critical Thinking Test, future administration must include either a longitudinal study (e.g., test students as freshmen and then test the same students at a later point in their undergraduate experience) or administer the test to carefully match samples of students.

We are limited in terms of making generalizations about the performance of UW-L seniors because the seniors who took the test came from only six (6) academic programs, and may not constitute a representative sample of all UW-L seniors.

The ACT Critical Thinking Test measures students’ skills in clarifying, analyzing, evaluating and extending arguments. The results are reported as a single score which is a general indicator of students’ skills. The test does not indicate students’ relative strengths and weaknesses with respect to critical thinking. If faculty and staff want more specific information about students’ critical thinking capacities, we need to supplement the test with additional measures of critical thinking.

ACT-CAAP CRITICAL THINKING TEST

Material is copied from the ACT website at <http://www.act.org/caap/tests/thinking.html>

The CAAP Critical Thinking Test is a 32-item, 40-minute test that measures students' skills in clarifying, analyzing, evaluating, and extending arguments. An argument is defined as a sequence of statements that includes a claim that one of the statements, the conclusion, follows from the other statements. The Critical Thinking Test consists of four passages that are representative of the kinds of issues commonly encountered in a postsecondary curriculum.

A passage typically presents a series of subarguments in support of a more general conclusion or conclusions. Each passage presents one or more arguments using a variety of formats, including case studies, debates, dialogues, overlapping positions, statistical arguments, experimental results, or editorials. Each passage is accompanied by a set of multiple-choice test items. A total score is provided for the Critical Thinking Test; no subcores are provided.

Content Specifications Summary for the CAAP Critical Thinking Test

Content Category	Proportion of Test	Number of Items
Analysis of elements of an argument	.53-.66	17-21
Evaluation of an argument	.16-.28	5-9
Extension of an argument	.19	6
Total	1.00	45

Critical Thinking Sample Passages and Items

Sample Passage 1

Senator Favor proposed a bill in the state legislature that would allow pharmacists to prescribe medications for minor illnesses, without authorization from a physician (i.e., a "prescription"). In support of her proposal, Favor argued:

Doctors have had a monopoly on authorizing the use of prescription medicines for too long. This has caused consumers of this state to incur unnecessary expense for their minor ailments. Often, physicians will require patients with minor complaints to go through an expensive office visit before the physician will authorize the purchase of the most effective medicines available to the sick.

Consumers are tired of paying for these unnecessary visits. At a recent political rally in Johnson County, I spoke to a number of my constituents and a majority of them confirmed my belief that this burdensome, expensive, and unnecessary practice is widespread in our state. One man with whom I spoke said that his doctor required him to spend \$80 on an office visit for an uncommon skin problem which he discovered could be cured with a \$2 tube of prescription cortisone lotion.

Anyone who has had to wait in a crowded doctor's office recently will be all-too-familiar with the "routine": after an hour in the lobby and a half-hour in the examining room, a physician rushes in, takes a quick look at you, glances at your chart and writes out a prescription. To keep up with the dizzying pace of "health care," physicians rely more and more upon prescriptions, and less and less upon careful examination, inquiry, and bedside manner.

Physicians make too much money for the services they render. If "fast food" health care is all we are offered, we might as well get it at a good price. This bill, if passed into law, would greatly decrease unnecessary medical expenses and provide relief to the sick: people who need all the help they can get in these trying economic times. I urge you to vote for this bill.

After Senator Favor's speech, Senator Counter stood to present an opposing position, stating: Senator Favor does a great injustice to the physicians of this state in generalizing from her own health care experiences. If physicians' offices are crowded, they are crowded for reasons that are different from those suggested by Senator Favor. With high operating costs, difficulties in collecting medical bills, and

exponential increases in the costs of malpractice insurance, physicians are lucky to keep their heads above water. In order to do so, they must make their practices more efficient, relying upon nurses and laboratories to do some of the patient screening.

No one disputes the fact that medical expenses are soaring. But, there are issues at stake which are more important than money—we must consider the quality of health care. Pharmacists are not trained to diagnose illnesses. Incorrect diagnoses by pharmacists could lead to extended illness or even death for an innocent customer. If we permit such diagnoses, we will be personally responsible for those illnesses and deaths.

Furthermore, since pharmacies make most of their money by selling prescription drugs, it would be unwise to allow pharmacists to prescribe. A sick person who has not seen a physician might go into a drugstore for aspirin and come out with narcotics!

Finally, with the skyrocketing cost of insurance, it would not be profitable for pharmacists to open themselves up to malpractice suits for mis-prescribing drugs. It is difficult enough for physicians with established practices to make it; few pharmacists would be willing to take on this financial risk. I recommend that you vote against this bill.

Sample Items for Passage 1

1. Favor's "unofficial poll" of her constituents at the Johnson County political rally would be more persuasive as evidence for her contentions if the group of people to whom she spoke had:
 - I. been randomly selected.
 - II. represented a broad spectrum of the population: young and old, white and non-white, male and female, etc.
 - III. not included an unusually large number of pharmacists.
 - a. I only
 - b. II only
 - c. III only
 - d. I, II, and III

2. In her example of the man who paid \$80 for an office visit to treat an uncommon skin problem, Favor seems to assume, but probably should not, that:
 - a. the man would have discovered this cure without the doctor's diagnosis.
 - b. two dollars is the average price of the cortisone lotion.
 - c. eighty dollars is the average price for an office visit of this kind.
 - d. cortisone lotion is effective on all rashes.

3. Counter's concern that a sick person who has not seen a physician might go into a drugstore for aspirin and come out with narcotics is probably unfounded because:
 - a. sick persons often send others to get their drugs.
 - b. narcotics are not normally prescribed for "minor ailments."
 - c. most people do not buy aspirin at the drugstore.
 - d. most people who need narcotics go to a physician to get them.

4. It is obvious from Favor's speech that she believes which of the following?
 - a. Most prescriptions are unnecessary.
 - b. Senator Counter will oppose the bill.
 - c. If the bill is passed into law it will greatly reduce the cost of all medical treatment.
 - d. If the bill is passed the average costs for treatment of minor ailments would be reduced significantly.

5. It is clear from Senator Counter's speech that he believes:
 - a. physicians are not having difficult economic times.
 - b. Favor's description of the crowded physician's office is not completely inaccurate.
 - c. the cost of malpractice insurance is not growing at an accelerated pace.
 - d. the quality of health care will not diminish if pharmacists are allowed to prescribe drugs.

Sample Passage 2

A: The domestic spending policies of the current administration are simply reprehensible. The real enemy of our democracy is not big government, but big business. As our society becomes increasingly dominated by enormous corporate conglomerates, there is less and less room for real individual initiative. Our lives are becoming completely determined by what happens in the board room as the rich get richer and the poor get poorer.

B: How can you say that? You have it just backwards. Excessive government regulation and high taxes lead to complete totalitarianism. Only when there is less government intervention in our lives and lower taxes allow us to employ our assets to our own best advantage does talk of individual initiative make any sense at all.

A: You elitists are all alike. You think only of the freedom of opportunity for the privileged few. You have no concern for those members of society who may not have the resources to be entrepreneurs or investors. Democracy means "liberty and justice for all," not just for those of you with a lot of money.

B: Justice? What justice is there in taking away my hard-earned dollars to pay for welfare programs for people who don't want work? And besides, liberty is simply a question of the existence of possibilities. Everyone can succeed in our society, if they only use their talents and assets wisely. You can lead a horse to water, but you can't make it drink.

A: You're confusing liberty with license. Having the right to do something doesn't mean that there's any real opportunity for you to actually do it. The least-advantaged of our society do not have the ability to exploit the system successfully. Freedom is a matter of choice between real alternatives, alternatives the poor do not have.

B: People don't choose their parents. It wouldn't be my fault if mine were a little better off than most. It's a fool's dream to think that you can get rid of the inequalities of birth. But the glory of democracy is that everybody has an equal say in where we go from here, given those natural inequalities. Besides, the only purpose of government is to protect the property rights of its citizens.

A: But the authority of the government is the authority given to it by the people. And there is no apparent reason for the poor to recognize your so-called "right of property" when they do not have any property. How could you convince them that it is for their own good to recognize this right?

B: Of course it's for their own good. Without the government—human nature being what it is—there would be constant strife and violence. One of the reasons for having a government is to ensure "domestic tranquility," right? Since life would be so uncertain in a state of anarchy, everybody has an interest in recognizing the authority of the government. Besides, as long as the poor can have property, the principle is completely fair—if they had property, the government would protect it.

A: And if wishes were horses, then beggars would ride. Look, it's only fair that the better-off members of a democratic society provide for the support of the least-advantaged. A democracy consists in the free will of its citizens to self-government—you know: "We, the people, in order to form a more perfect union. . . ." The economic structure of a democratic society must be such as to command everyone's consent from a standpoint of self-interest and complete equality. From such a standpoint, I cannot base my decision on the basis of the position I currently occupy within society or the amount of property I now have, so I must choose to make the best of what may be a bad situation—I must choose from the standpoint of the least-advantaged. So only if the fundamental institutions of a democracy provide real opportunities for the least-advantaged is there any justification for individuals to give their allegiance to the government and recognize the right of property.

B: But that's just what I mean. If we only encouraged investment, a free and growing economy would provide for more opportunity for the least advantaged. The profits might be reaped in the first instance by the investors, but they would eventually trickle down through the economy to raise the standard of living of every member of the society.

A: You're incorrigible. I don't know why I put up with you.

B: Think what you want; after all, it's a free country.

Sample Items for Passage 2

1. What is A's complaint about the current administration's policies?

- a. They allow businesses to own property.
- b. They don't permit the poor to own property.
- c. They favor business interests at the expense of social programs.
- d. They restrict the freedom of all citizens.

2. A's argument in favor of social welfare programs relies on which of the following assumptions?

- a. It is unreasonable to think that everyone desires property.
- b. It is unreasonable to submit to any authority besides yourself.
- c. It is reasonable to expect society to give everyone an equal opportunity.
- d. It is unreasonable to expect someone to submit to an authority if it is not to his own advantage.

3. Which of the following justifications of the necessity of our government's intervention in the affairs of some other country would be consistent with B's position?

- a. To ensure the freedom of that country's citizens
- b. To protect the property rights of that country's citizens
- c. To foster the individual initiative of our country's citizens
- d. To protect the property rights of our country's citizens

4. If disputes about property are not the only source of strife and violence, then B argues inconsistently with respect to the:

- a. nature of freedom.
- b. nature of equality.
- c. purpose of government.
- d. rights of a citizen in a democracy.

5. A and B clearly disagree on which of the following?

- a. What form of government our society should have
- b. Whether individual initiative is desirable
- c. What constitutes freedom and equality in a democratic society
- d. Whether the government should protect the right of property

Answers:

Sample Items for Passage 1: 1. D. 2. A. 3. B. 4. D. 5. B.

Sample Items for Passage 2: 1. C. 2. D. 3. D. 4. C. 5. C.