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A Bivariate Longitudinal Study of the Malleability of Optimism

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## Abstract

Impact of informed performance on standardized tests in relation to optimism was investigated. College students ( $N = 32$ ) were given a baseline assessment of optimism using the Life Orientation Test, and then asked to take a 50 question “standardized” test (contrived by the researcher) of relatively easy or difficult complexity. Fictitious grades of either outstanding or substandard performance were subsequently reported to the students, and optimism was assessed once more. After a period of relaxation, a final assessment was given. Fluctuation in optimism was mild and apparently random; analysis of the data failed to provide significant evidence for testing effects, suggesting that optimism is indeed a stable construct.

### A Bivariate Longitudinal Study of the Malleability of Optimism

The construct of optimism is indisputably integral to everyone; it colors daily perception of events and prospects in myriad ways. The optimist views the world through rose-colored glasses, whilst the pessimist sees everything through a chronic miasma of gloom. While optimism may have some influence upon interpretation of life events, however, its primary influence has been recognized as dealing with the probability of future occurrences. Typically, optimists are defined as holding positive expectations for future outcomes – they believe that good things will happen (Scheier & Carver, 1985, 1993; Seligman, 1991; Stipek, Lamb, & Zigler, 1981). Although the prospect of posing as a perpetual Pollyanna is in itself rather enticing, optimism has been demonstrated to have far more tangible benefits.

While the caustic cynic may comment that the optimist is ignorant and headed for disaster, the truth of the matter is that optimistic orientation lends itself to a cornucopia of psychological and physical rewards, so to speak. On a basic cognitive level, optimists are observed to use adaptive, encouraging strategies when dealing with stress and goal obstruction, as opposed to the avoidant strategies of their less hopeful acquaintances (Lai & Wan, 1996). In the event that its strategies do not facilitate a successful outcome, optimism has also been demonstrated to lend itself to the maintenance of self-esteem (Cantor & Norem, 1989). Optimism also has a positive influence upon psychological well-being; it has been demonstrated to partially mitigate both the effects of postpartum depression and the distress commonly associated with the transition to college (Scheier & Carver, 1993). Furthermore, optimism seems to have significant somatic side-effects. Optimists may expect to enjoy healthier lives than pessimists – they are less likely to

suffer ailments in general, as well as specific conditions such as heart attack during surgery (Peterson, Seligman, & Vaillant, 1988; Scheier & Carver, 1993). Of primary interest to this study, however, is the effect which optimism exerts upon the realm of academia. The positive outlook and adaptive cognitive strategies of optimists lead to legion academic accomplishments – better grades, higher expectations, and use of learning strategies (Buchanan & Seligman, 1995; Robbins, Spence, & Clark, 1991). Thus, the benefits of optimism are readily apparent, although its intrinsic nature is somewhat more tenuous.

The definition of optimism, according to the *Oxford English Dictionary*, is “a disposition to hope for the best...a tendency to take a favorable view of circumstances or prospects”. The meaning inherent in such words as disposition and tendency is that optimism is a stable, unchanging trait which is constant over the course of a lifetime. Indeed, numerous studies have pointed to exactly the same suggestion. Scheier and Carver (1985) demonstrated high levels of test-retest correlation on their Life Orientation Test – designed to measure optimism – over the course of a month. Even in the face of momentous negative change, such as a stroke, LOT scores demonstrated remarkable stability over significant amounts of time (Schulz, Tompkins, & Rau, 1988). Studies conducted by Billingsley, Waehler, and Hardin (1993) to assess the stability of optimism and coping strategies yielded similar results – optimism remained constant over a four-week period. Even outright attempts to induce changes in optimism have met with failure; Terezis (1990) was unable to manipulate optimism through the use of a musical mood-induction procedure. If, however, optimism is an impermeable trait, the question

begs itself: From whence does it arise? To what do people owe this gift (or lamentable lack thereof)?

The eternal conflict between nature and nurture knows no bounds, as evidence for the origin of optimism extends into both realms. Certain substantiation exists to support the view that optimism may be partially inherited; a study of same-sex pairs of Swedish twins indicated the heritability of optimism to be approximately 25% (Scheier & Carver, 1993). Yet support exists for the idea of learned optimism, as well. Logic dictates that one's experiences with success and failure, especially in the formative years of youth, would have a significant impact upon one's resultant general expectations for the future. Similarly, the innate tendency of children to imprint upon their parents – the psychological process of modeling – lends itself to the idea that positive parents breed optimistic offspring, while pessimistic parents produce negative newborns. Furthermore, direct interaction between parent and child could further compound this effect. Parental criticism and browbeating would naturally lead to avoidant strategies and pessimism, while infusion of adaptive coping strategies would foster a sense of hope and optimism. Research on these possible origins of optimism is still somewhat spartan, but the general concepts of such processes of transference are supported by several prominent researchers within the field (Scheier & Carver, 1993; Seligman, 1991). The prospect of learned optimism seems to conflict with the idea that it is a stable construct, however. If experience is the basis upon which optimism originates, than it would stand to reason that experience may also undo what it has wrought – the optimist, confronted with unremitting failure, may eventually lose her cheerful outlook on life.

Indeed, certain researchers view optimism as open to affective influence and even outright alteration. Even if optimism is view as a trait, psychologists who deal with trait theory contend that personality formation continues through high school, college, and even the late 20s, with relative stability achieved only after the onset of true adulthood at the age of 30 (Costa & McCrae, 1994; McCrae & Costa, 1990). Certain experiments have proved that optimism may be malleable in some sense. Lewis, Dember, Schefft and Radenhausen (1995) succeeded in using mood-alteration techniques such as music and Velten induction to either buoy or depress subjects' optimism scores. Similarly, Howarth and Schokman-Gates (1982) used doctored results on a Mensa-type I.Q. test to induce alterations in participants' optimism – those who failed showed a decrease in scores, while those who excelled indicated an increase. Like results were found in Howarth's (1988) study of optimism following posting of midterm grades in a statistics class. The potential of molding optimism through repeated stimuli – positive or negative – and the specific process of affecting optimism through feedback on academic performance leads to the purpose of this particular study: to determine whether standardized-type tests may have an impact – beneficial or adverse – upon students' sense of optimism.

The literature concerning the impact of grades, testing and perceived achievement upon students' sense of worth and optimism is sharply divided, with a dearth of evidence supporting a correlation and an equal wealth of knowledge contending there is no such link. A study of primary schoolchildren indicated no relationship between optimism and self-perception of competence (Evangelou, 1990). Dweck (1986) contends that students are indifferent to measures of ability such as standardized tests and IQ scores, and Koizumi (1992) posits perceived attainment – not optimism – is critically correlated with

academic achievement. Further evidence exists to extinguish any connection between optimism and performance, as the LOT was shown to have no correlation with academic performance in several trials (Aspinwall & Taylor, 1992; Robbins, Spence, & Clark, 1991). Contrarily, Lee, Ashford, & Jamieson (1993) discovered a definite positive association between LOT scores, examination scores and final course grades. Other studies concur that there is a definitive relationship between optimism and academic performance and self-concept (Chemers, Hu, & Garcia, 2001; Pajares, 2001). Bolstering this viewpoint is Knox, Lindsay, & Kolb's (1993) study of increasing optimism as a parallel of increasing level of ultimate educational attainment. Yet more evidence exists to support the connection between academic performance and self-efficacy and self-value (Waldman, 1994).

It is difficult to choose a side in the debate; both sides present valid arguments backed by painstaking research. The evidence supporting the side which purports that there is indeed a connection between performance and optimism is slightly more intriguing, however. The evidence that grades and tests may have an effect on optimism is intriguing and, to some extent, daunting. Given the knowledge that optimism inherently carries adaptive strategies and pessimism avoidant ones, the propensity for an upward (or downward) spiral seems to present itself. If a student receives negative feedback on her performance, she is likely to become pessimistic, engage in maladaptive avoidant procedures, and bring yet more failure and criticism upon her head. The converse, of course, can be said for the optimistic side. Yet a single grade, perhaps even a semester, may not have the wherewithal to truly alter a construct which is the product of life's total experience. It would take some momentous means of feedback to truly have a

chance of shaking such a solid foundation; it would seem that standardized testing provides just such an instrument.

Standardized testing has received criticism over the past few years as being racially biased and as presenting a rather skewed assessment of actual ability. Nonetheless, standardized tests are still an integral part of the United States' educational system. They represent a pivotal gateway for the youth transiting the corridors of the academic realm. Standardized tests are a factor in gaining admission to both undergraduate (i.e., SAT, ACT) and graduate (i.e., GRE, LSAT) institutions. Furthermore, these tests provide feedback which directly compares the proficiency of the student to her peers nationwide. Superior performance on such an exam, besides demonstrating excellence above the common multitude, may open doors to prestigious universities, scholarships, and more – who would not benefit from such an achievement? Similarly, failure may crush one's esteem and shatter any future hopes and dreams. Such vital consequences seem as if they must be laden with affective potential – perhaps enough to alter years of optimistic cultivation.

It was the assumption of this study, therefore, that standardized tests possess the power to alter a student's sense of optimism. Given the constraints inherent in this study, a microcosm of the testing scenario was developed in order to simulate standardized testing as a transition from one phase of education to the next. A fifty question test – half verbal, half mathematical – was devised. Two versions of the test were constructed; one was relatively easy, whereas the other was relatively difficult. Participants took the test under the premise that the applicability of these particular forms were under evaluation. A reward of 50 dollars was promised for top performance on the examination. This was



intended to simulate the somewhat more grandiose awards and opportunities inherent in excellence on actual standardized tests. The hypothesis of the study was fourfold in nature: students who performed poorly on the easy form would be discouraged and indicate a decrease in optimism; students who performed well on the easy form or poorly on the difficult would be generally indifferent and indicate no noticeable change; students who performed well on the difficult form would be elated and indicate an increase in optimism; all changes would be transient due to the microcosmic scale of the study.

### Method

#### *Participants*

32 undergraduate students (7 women and 25 men) affiliated with Carnegie Mellon University participated in the study. Participants were run in groups of up to four per session and were randomly assigned to one of four conditions (easy or difficult test; high or low reported performance). There were 7 males and 2 females in the easy, high performance condition, 7 males and 2 females in the easy, low performance condition, 5 males in the difficult, high performance condition, and 6 males and 3 females in the difficult, low performance condition. All participants were volunteers.

#### *Materials*

Standardized packets were assembled for all participants in the study; the packets were composed of three separate parts. (See Appendix A for packet with both easy (A) and difficult (B) test forms.) The initial part of the packet contained a cover sheet followed by a brief description of the testing materials. As the study was conducted under the premise that the focus concerned standardized testing, this second sheet concerned itself with a summary of the purpose of the test (to assess general academic proficiency)

and standard testing procedures (make marks complete and neat). Immediately afterwards the first assessment of participant optimism was included.

In order to assess participant optimism, a slightly modified version of the Life Orientation Test (Scheier & Carver, 1985) was utilized. The LOT uses eight items to assess dispositional optimism, with four worded in a positive direction and four in a negative direction. Responses are made on a five point Likert scale, using the following format: 4 = *strongly agree*, 3 = *agree*, 2 = *neutral*, 1 = *disagree*, and 0 = *strongly disagree*. The LOT also incorporates four filler questions to mildly disguise the overall purpose of the assessment mechanism. While the standard eight items were included in this study's questionnaire, the four filler items were discarded in favor of six filler items which were better geared to the idea of examination of the practice of standardized testing.

The initial assessment of optimism was followed by the standardized test itself. The test was comprised of 25 mathematical and 25 verbal questions. For the easy test, the questions were drawn from the introductory chapters of a calculus text, whereas they were taken from the concluding chapters for the difficult test. Similarly, the easy verbal questions were constructed (by the researcher) on a high school reading level, whereas the difficult questions were more akin to an advanced collegiate level.

The second part of the packet was comprised of two sheets. The first contained the percentage grade the student attained on the examination, which was actually randomly assigned by the experimenter. Below the grade were four categories of possible performance, which gave detailed explanations of the level of academic proficiency demonstrated by the participant's performance in relation to fictitious overall averages.

The second sheet was a second assessment of participant optimism, with the order of the eight critical LOT items reversed and six new filler items interspersed therein.

The third section of the packet was also composed of two sheets. The first page was designed to resemble an assessment of current mood, with five-point Likert responses to affective states such as *tense* and *sociable*. This page was merely included as an additional means of disguising the overall purpose of the study. The second page was yet another iteration of the optimism assessment measure, with the order of presentation of the eight key LOT items randomized amongst six novel filler items.

### *Procedure*

The participants were assembled in a quiet classroom setting and informed of the basic premise of the experiment. In order to achieve somewhat more truthful results concerning levels of optimism, the importance of the dispositional measures was downplayed. Thus, the participants were informed that the purpose of the study was to evaluate the applicability of standardized testing, and that the measures of mood were included merely to ensure outside influences did not factor into their performance on the test itself. The participants subsequently filled out consent forms and were given the first section of the packet. Form A (easy) and B (hard) were randomly distributed amongst the participants. After reading the introductory page, participants completed the initial optimism measure. Once all participants had completed the section, they were informed they would have 25 minutes to complete the examination and told to begin. The experimenter remained in the classroom for the entire 25 minutes, sitting quietly at the head of the room. Following the completion of the examination, the forms were collected and the experimenter left the room to grade the tests.

Grading involved arbitrary assignment of either high or low scores to the participants. This was done primarily to maximize the results of the study; conventional results would indicate a large cluster of scores tapering off towards high and low outliers – a typical bell curve. It was the researcher's conclusion that powerful results would best be achieved by concentrating resulting scores at high and low poles. The scores were written down on the first page of the second section. After sufficient time had passed to grade the tests (on the order of 10 minutes), the experimenter returned with the fictitious results and distributed them to the participants. After allowing several minutes for the participants to digest their score and read the resultant evaluation of their performance, the participants were instructed to complete the second part of the packet, which was the second assessment of optimism.

Following completion of this task, the second section was collected and the participants were told to spend the next 15 minutes relaxing – talking amongst themselves, reading, or even taking a nap. After fifteen minutes had elapsed, the experimenter distributed the third part of the packet, which contained the mood measure and the third assessment of optimism. After participants completed this final section, it was collected and debriefing forms were handed out. The experimenter proceeded to verbally debrief the participants and fielded any questions which they might have. The participants were subsequently dismissed.

## Results

The purpose of this study was to examine whether or not participants' perceived achievement on the so-called standardized test would have any measurable effect upon their level of optimism. To that end, mean optimism and pessimism scores were

compared in relation to positive and negative valence of reported achievement and easy and difficult levels of testing forms. The resultant means and standard deviations are presented in Table 1.

A 2 (valence) x 2 (difficulty) ANOVA for optimism revealed no significant effects whatsoever. The ANOVA was run using the scores for optimism change at assessment 2 and assessment 3, but to no avail. The effect of difficulty level was more promising than that of valence, at both assessment 2 [ $F(1, 27) = 0.77, p = 0.387$ ] and assessment 3 [ $F(1, 27) = 0.85, p = 0.366$ ]. Statistics for valence were, surprisingly, even further from significance.

### Discussion

This experiment was designed to distinguish whether or not standardized testing had any appreciable effect upon the levels of optimism or pessimism of its participants. As all participants were college students, it was hypothesized that standardized testing might touch upon something central to their self-image as students, and the results presented would thus diminish or enhance that image. The data collected failed to verify the hypothesis earlier stated, but in no way has it been disproved, either. There are a host of potential factors which may have inhibited the effectiveness of the current study.

Emotional disengagement from the experiment is the primary possible confound. Participants may have merely “run through the motions” – conditioned as college students are to taking experiments – without any sort of investment or true attention to the experiment. They may also have been focused solely on the prospect of earning a monetary reward from the experiment; due to the fact that the reward was contingent upon performance on the test, however, it seem likely that focus on the reward would

lead to effects similar to focus on one's abilities. A good score would enhance one's chances of obtaining the reward and boost optimism, whereas a poor score would dash one's hopes. More likely is the possibility that the reward was not significant enough to truly capture participants' attention. Perhaps, even, their attention was elsewhere as they took the test, and any affective change which they exhibited was due to some external source.

It is also possible that, as certain literature had pointed out, students place little value in the results of standardized tests. As noted in the introduction, however, there is evidence supporting the affective power of tests as well. It seems more probable that participants may have not placed much value in this *particular* test, as it was not one of the typically accredited examinations which confront undergraduates.

Yet another possible explanation for the obtained results is the propensity of participants to put down similar responses when confronted with similar questions. This was recognized as a danger in using solely the LOT to measure optimism for this experiment, especially as it was presented three times within the course of an hour. It was believed that the randomization of order, different filler questions, and dearth of testing material would distract participants to the extent that they would be unable to remember having seen the questions previously or, at the very least, what their previous responses were. This, unfortunately, may not have proved to be true after all.

A final factor which almost certainly played into the equation was the small sample size which was obtained for the experiment. Unfortunately, administrative oversight more than halved the amount of time available for conduction of the study, and

convincing lackadaisical undergraduates to devote an hour of their time to – of all things – a test is indubitably a Herculean feat.

Of course, there is the possibility that optimism is, in fact, a stable, immutable construct. Nonetheless, the schism evidenced by the literature available on the subject begs for future research into the matter. While this study has failed to produce any definitive evidence concerning the malleability of optimism, it certainly deserves further investigation with provisions made for certain revisions. A larger sample size, more tangible reward, accredited testing materials, and better concealment of optimism measures (perhaps involving adapting several different scales so their results are interchangeable) would all prove a boon to future research in this area. Given the inherent benefits of optimism it would seem foolhardy to allow such a potentially powerful mechanism of influence as standardized tests to lie uninvestigated.

Table 1

*Mean Change in Optimism (and Standard Deviation) by Valence and Difficulty at Assessments 2 and 3*

Valence	Difficulty	Assessment	
		2	3
Positive	Easy	-0.333 (1.936)	0.111 (2.619)
Negative	Easy	-0.111 (1.764)	-1.222 (2.108)
Positive	Difficult	0.800 (1.483)	-0.400 (1.517)
Negative	Difficult	0.000 (1.500)	0.333 (1.581)

Note: Units for “mean change in optimism” are based upon a scale of 0 to 32, with 32 representing maximum optimism. Positive change thus indicates an increase in optimism, whereas negative change indicates a decrease.



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Appendix A

# **College Academic Proficiency Test Form A**

This test is designed to measure general academic proficiency of undergraduate level students. It has been designed in order to provide a more valid measure of competence than is currently available. Included with the standard test items are measures of psychological focus designed to ensure outside stimuli do not interfere with the testing process and the student's focus.

Please answer all items truthfully and efficiently. Be certain to make your marks complete and neat. You may use pen or pencil, and may use the right-hand side of the test as scratch paper, if necessary.

The time given for completion of the initial testing packet is 25 minutes. Two supplemental packets will be administered by the researcher after completion of initial testing – these will not carry a strict time limit.

Remember to do your best – there is a fifty dollar reward to the highest performing student on each of the two forms!

Please turn the page.

## CAPT-PSY I

1. In uncertain times, I usually expect the best.  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree
2. It's easy for me to relax.  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree
3. Tests stress me out more than most people.  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree
4. If something can go wrong for me, it will.  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree
5. I always look on the bright side of things.  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree
6. Time constraints disrupt my focus.  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree
7. I'm always optimistic about my future.  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree
8. It's important for me to stay abreast of my studies.  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree
9. I hardly ever expect things to go my way.  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree
10. I would be described as a procrastinator.  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree
11. Things never work out the way I want them to.  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree
12. I don't get upset too easily.  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree
13. I'm a believer in the idea that "every cloud has a silver lining".  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree
14. I rarely count on good things happening to me.  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree

**Do not turn the page until instructed to do so by the researcher.**

## CAPT-MAT

1-3. If  $f(x)=2x^2+3x-4$ , find:

$f(0)$

1

-1

-2

-4

$f(2)$

3

10

6

1

$f(-x)$

$2x^2-3x-4$

$-2x^2-3x-4$

3

-11

4. If  $|3x-7|=8$ , then  $x=$ :

$-1/3$

5

both a and b

neither a nor b

5-7. If  $f(x)=x^2-4x+6$ , find:

$f(0)$

-6

0

2

6

$f(3)$

5

-3

3

-28

$f(-2)$

18

16

20

10

8. What is the limit of the following sequence:  $5, 4, 11/3, 7/2, 17/5, \dots$ :

- 0
- 1
- 5
- 3

9.  $\sin/\cos =$ :

- sec
- csc
- cot
- tan

10-12.

Mark true if the following triples of points are the vertices of a right triangle.

(10,6), (3,3), (6,-4)

- True
- False

(3,1), (1,-2), (-3,-1)

- True
- False

(5,-2), (0,3), (2,4)

- True
- False

13. Which point is equidistant from A(-1,7), B(6,6), and C(5,-1)?

- $(48/25, 147/50)$
- (2,3)
- $(52/25, 153/50)$
- none of the above

14-16.

Find the value for which the inequality is false:

$$18x - 3x^2 > 0$$

- 6
- 5
- 1
- $3/2$



$$(x+3)(x-2)(x-4) < 0$$

- 3
- 3/2
- 2/3
- 8

$$(x+1)^2(x-3) > 0$$

- 2
- 4
- 6
- 8

17. The point (3,-2) lies on the line through the points (8,0) and (-7,-6):

- True
- False

18-21.

Are the following pairs of lines a)parallel, b)perpendicular, or c)neither:

$$y=3x+2 \text{ and } y=3x-2$$

- a
- b
- c

$$3x-2y=5 \text{ and } 2x+3y=4$$

- a
- b
- c

$$x=3 \text{ and } y=-4$$

- a
- b
- c

$$5x+4y=1 \text{ and } 4x+5y=2$$

- a
- b
- c

22-25.

Match the following equations with their derivatives:

$$y=x^5+5x^4-10x^2+6$$

$5x(x^3+4x^2-4)$

$-30(1-5x)^5$

$(2-x)/y$

$2x(x^2+3)^3(2x^3-5)^2(17x^3+27x-20)$

$$y=(3+4x-x^2)^{1/2}$$

$5x(x^3+4x^2-4)$

$-30(1-5x)^5$

$(2-x)/y$

$2x(x^2+3)^3(2x^3-5)^2(17x^3+27x-20)$

$$y=(x^2+3)^4(2x^3-5)^3$$

$5x(x^3+4x^2-4)$

$-30(1-5x)^5$

$(2-x)/y$

$2x(x^2+3)^3(2x^3-5)^2(17x^3+27x-20)$

$$y=(1-5x)^6$$

$5x(x^3+4x^2-4)$

$-30(1-5x)^5$

$(2-x)/y$

$2x(x^2+3)^3(2x^3-5)^2(17x^3+27x-20)$

CAPT-VER

1. Foot is to toes as hand is to:
  - fingers
  - palm
  - arm
  - toes
  
2. Fish is to water as bird is to:
  - tree
  - nest
  - air
  - feathers
  
3. Star is to planet as planet is to:
  - asteroid
  - star
  - comet
  - moon
  
4. Birth is to death as alpha is to:
  - beta
  - omega
  - pi
  - zenith
  
5. Tree is to sapling as person is to:
  - newborn
  - people
  - zygote
  - child
  
6. Book is to library as artifact is to:
  - artificer
  - collection
  - museum
  - e-bay
  
7. Today is to tomorrow as present is to:
  - era
  - past
  - then
  - future

8. Car is to gasoline as person is to:

- food
- air
- sleep
- omnivore

9. Cold is to heat as ice is to:

- steam
- vapor
- water
- lava

10. Day is to week as second is to:

- hour
- minute
- seven seconds
- millisecond

11. Book is to page as film is to:

- screen
- segment
- video
- frame

12. Art is to paint as cuisine is to:

- food
- eat
- cook
- entrée

13-17. Choose the words which best fit the selection.

Susan disliked Bill intensely; she found him to be \_\_\_\_\_(13) and \_\_\_\_\_(13). His \_\_\_\_\_(14) cologne reminded her of the city dump, and his \_\_\_\_\_(15) habit of staring at her chest unnerved and angered her. She was pleased when he finally received his \_\_\_\_\_(16) at the hands of one of her colleagues, who filed suit against the \_\_\_\_\_(17) chauvinist.

13.

- mean, petty
- agreeable, talkative
- engaging, loud
- hither, yon

14.

- O French
- O putrid
- O expensive
- O lack of

15.

- O charming
- O infrequent
- O pleasant
- O disgusting

16.

- O lawsuit
- O comeuppance
- O transfer
- O black eye

17.

- O loathsome
- O typical
- O short
- O gregarious

18-21. Choose the words which best fit the selection.

Steve was \_\_\_\_\_(18) his upcoming physics final, which was rumored to have an average of forty-two percent last year. His friends told him to study \_\_\_\_\_(19) or there would be no hope at all. With gloomy visions of \_\_\_\_\_(20) chances of admission to graduate school, Steve hit the books in the hopes of gaining some miraculous \_\_\_\_\_(21).

18.

- O dreading
- O anticipating
- O welcoming
- O writing

19.

- O lightly
- O intensely
- O spartanly
- O tomorrow

20.

- adequate
- good
- diminishing
- exponential

21.

- grade
- insight
- hope
- problem

22-25. Choose the answer that is true based upon the passage below.

Then, at the beginning of the sixteenth century, the Mamelukes were simultaneously confronted by the gunpowder revolution in its developed form from two different directions. Their control of the Red Sea was contested by the Portuguese, who had sailed around Africa in ships mounting heavy cannon. And the security of the frontiers of Egypt was threatened by the Ottoman Turks, whose cavalry armies had been heavily supplemented by well-trained musketeers. In haste, the Mameluke sultan tried to repair a century of military neglect. Large numbers of cannon were cast. Units of gunners and musketeers were formed. The *furusdiyya* exercises were revived and the Mamelukes set to re-learning the skills of lance, sword and bow with intensity. But, fatally, the re-militarization of the Mamelukes and the espousal of gunpowder were kept quite separate. No Mameluke was trained or would train in any use of firearms whatsoever; gunners and musketeers were recruited from outside the Mameluke caste, from black Africans and people of the Maghreb, the Arab west.

22. The Mamelukes' problems began in the:

- 1500s
- 1600s
- 1700s
- east

23. The problem they faced was:

- enemies with superior firepower
- lax military training
- attack from two directions
- all of the above

24. They responded by:

- embracing gunpowder
- conscripting Mongols
- using new melee weapons
- none of the above

25. They ultimately failed due to their refusal to:
- accept other races
  - integrate new weapons with their elite troops
  - form large units of musketeers and gunners
  - put cannons on their ships

**This concludes the first section of the test. Please turn it over and wait for further instructions.**

# **College Academic Proficiency Test Form B**



This test is designed to measure general academic proficiency of undergraduate level students. It has been designed in order to provide a more valid measure of competence than is currently available. Included with the standard test items are measures of psychological focus designed to ensure outside stimuli do not interfere with the testing process and the student's focus.

Please answer all items truthfully and efficiently. Be certain to make your marks complete and neat. You may use pen or pencil, and may use the right-hand side of the test as scratch paper, if necessary.

The time given for completion of the initial testing packet is 25 minutes; you must complete both the math and verbal sections in these 25 minutes. Two supplemental packets will be administered by the researcher after completion of initial testing – these will not carry a strict time limit.

Remember to do your best – there is a fifty dollar reward to the highest performing student on each of the two forms!

Please turn the page.

## CAPT-PSY I

1. In uncertain times, I usually expect the best.  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree
2. It's easy for me to relax.  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree
3. Tests stress me out more than most people.  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree
4. If something can go wrong for me, it will.  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree
5. I always look on the bright side of things.  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree
6. Time constraints disrupt my focus.  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree
7. I'm always optimistic about my future.  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree
8. It's important for me to stay abreast of my studies.  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree
9. I hardly ever expect things to go my way.  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree
10. I would be described as a procrastinator.  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree
11. Things never work out the way I want them to.  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree
12. I don't get upset too easily.  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree
13. I'm a believer in the idea that "every cloud has a silver lining".  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree
14. I rarely count on good things happening to me.  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree

**Do not turn the page until instructed to do so by the researcher.**

## CAPT-MAT

(note –  $a \times b$  (with spaces) denotes cross product;  $axb$  is simply a variable)

1. If  $f(x)=2x^2+3x-4$ , find  $f(-x)$ :

- $2x^2-3x-4$
- $-2x^2-3x-4$
- $2x^2+3x-4$
- $-2x^2+3x-4$

2.  $a \cdot (a \times c) =$ :

- $a^2 \times ac$
- $a^2 \times c$
- $a \times ac$
- 0

3. Find the smaller angle of intersection of the planes  $5x-14y+2z-8=0$  and  $10x-11y+2z+15=0$ :

- $22^\circ 25'$
- $25^\circ 22'$
- $22^\circ$
- $25^\circ$

4. Find the directional derivative of the given function at the given point in the indicated direction.  $z=x^2+xy+y^2$ ,  $(3,1)$ ,  $\theta=\pi/3$

- $\frac{1}{2}(7+5\sqrt{3})$
- $21\sqrt{13}/13$
- $\frac{1}{2}(1+\sqrt{3})$
- $11\sqrt{5}/5$

5-7. Given that  $a=i+j$ ,  $b=i-2k$ , and  $c=2i+3j+4k$ , solve for the following:

$a \times b$

- $-2i+2j-k$
- $6i-8j+3k$
- $-4i+4j-k$
- 0

$(a+b) \times (a-b)$

- 0
- $4i-4j+2k$
- $2i+2j$
- $i+j$

- $a \times (b \times c)$   
  $-11i-6j+10k$   
  $0$   
  $3i-3j-14k$   
  $24i+6j+12k$

8-10. Do the following equations possess a maximum or minimum value, both, or neither?

- $z=xy(2x+4y+1)$   
 maximum  
 minimum  
 both  
 neither

- $z=3x-3y-2x^3-xy^2+2x^2y+y^3$   
 maximum  
 minimum  
 both  
 neither

- $z=2x^2+y^2+6xy+10x-6y+5$   
 maximum  
 minimum  
 both  
 neither

11. Find positive numbers  $(x,y,z)$  such that  $x+y+z=12$  and  $xy^2z^3$  is a maximum:  
 1,2,9  
 2,4,6  
 2,2,8  
 1,1,10

12. Find the point on  $z=xy-1$  nearest the origin.  
 0,0,0  
 1,0,1  
 0,1,-1  
 0,0,-1

13. Which point is equidistant from  $A(-1,7)$ ,  $B(6,6)$ , and  $C(5,-1)$ ?  
  $(48/25, 147/50)$   
  $(2,3)$   
  $(52/25, 153/50)$   
 none of the above

14. Find the equation of the plane through (1,1,2) that cuts off the least volume in the first octant.

- $x+y+2z=4$
- $x+2y+2z=4$
- $2x+2y+z=6$
- $x+y+2z=6$

15. What is the volume cut from  $9x^2+4y^2+36z=36$  by the plane  $z=0$ ? (in cubic units)

- $3\pi$
- $36\pi$
- 0
- outside volume

16. What is the volume in the first octant bounded by  $x^2+z^2=16$  and  $x-y=0$ ? (in cubic units)

- 64
- 32
- $64/3$
- 16

17. The point (3,-2) lies on the line through the points (8,0) and (-7,-6):

- True
- False

18-21.

Are the following pairs of lines a)parallel, b)perpendicular, or c)neither:

$y=3x+2$  and  $y=3x-2$

- a
- b
- c

$3x-2y=5$  and  $2x+3y=4$

- a
- b
- c

$x=3$  and  $y=-4$

- a
- b
- c

$5x+4y=1$  and  $4x+5y=2$

- a
- b
- c

22-25.

Match the following equations with their derivatives:

$$y=x^5+5x^4-10x^2+6$$

$5x(x^3+4x^2-4)$

$-30(1-5x)^5$

$(2-x)/y$

$2x(x^2+3)^3(2x^3-5)^2(17x^3+27x-20)$

$$y=(3+4x-x^2)^{1/2}$$

$5x(x^3+4x^2-4)$

$-30(1-5x)^5$

$(2-x)/y$

$2x(x^2+3)^3(2x^3-5)^2(17x^3+27x-20)$

$$y=(x^2+3)^4(2x^3-5)^3$$

$5x(x^3+4x^2-4)$

$-30(1-5x)^5$

$(2-x)/y$

$2x(x^2+3)^3(2x^3-5)^2(17x^3+27x-20)$

$$y=(1-5x)^6$$

$5x(x^3+4x^2-4)$

$-30(1-5x)^5$

$(2-x)/y$

$2x(x^2+3)^3(2x^3-5)^2(17x^3+27x-20)$

## CAPT-VER

1. Psyche is to mind as soma is to:
  - sleep
  - soul
  - body
  - Descartes
  
2. Plesiosaurus is to water as archaeopteryx is to:
  - water
  - ground
  - air
  - lava
  
3. Galactic is to stellar as stellar is to:
  - planetary
  - star
  - lunar
  - big bang
  
4. Alpha is to omega as zenith is to:
  - hitachi
  - secant
  - pi
  - nadir
  
5. Pine is to coniferous as maple is to:
  - vociferous
  - assiduous
  - foliage
  - deciduous
  
6. Relic is to museum as tome is to:
  - court
  - palace
  - library
  - bell tower
  
7. Assertive is to obsequious as belligerent is to:
  - malevolent
  - sycophantic
  - ambivalent
  - tenacity

8. Death is to necrosis as fatigue is to:

- O Mitosis
- O Glycolysis
- O Endometriosis
- O Cramps

9. Temperate is to indulgent as reticent is to:

- O flamboyant
- O depressive
- O pensive
- O philistine

10. Stench is to olfactory as miasma is to:

- O visual
- O aural
- O tactile
- O tasty

11. Sublime is to base as fantastical is to:

- O ocular
- O burgeon
- O acid
- O mundane

12. Hedonism is to profligacy as audacious is to:

- O impudent
- O heretical
- O gustatory
- O wretched

13-17. Choose the words which best fit the selection.

Susan disliked Bill intensely; she found him to be \_\_\_\_\_(13) and \_\_\_\_\_(13). His \_\_\_\_\_(14) cologne reminded her of the city dump, and his \_\_\_\_\_(15) habit of staring at her chest unnerved and angered her. She was pleased when he finally received his \_\_\_\_\_(16) at the hands of one of her colleagues, who filed suit against the \_\_\_\_\_(17) chauvinist.

13.

- O belligerent, gregarious
- O egotistical, sycophantic
- O truculent, charitable
- O pitiful, accusatory



14.

- O supercilious
- O abhorrent
- O pugnacious
- O lambaste

15.

- O odious
- O infrequent
- O nihilistic
- O fortuitous

16.

- O dissertation
- O comeuppance
- O transition
- O abrasion

17.

- O loathsome
- O tyrannical
- O quirky
- O metronomic

18-21. Choose the words which best fit the selection.

Steve was darkly \_\_\_\_\_(18) his upcoming physics final, which was rumored to have an average of forty-two percent last year. His friends told him to study \_\_\_\_\_(19) or there would be no hope at all. With gloomy visions of \_\_\_\_\_(20) chances of admission to graduate school, Steve hit the books in the hopes of gaining some \_\_\_\_\_(21) insight.

18.

- O dreading
- O anticipating
- O welcoming
- O foretelling

19.

- O zealously
- O arithmetically
- O spartanly
- O lackadaisically

20.

- adequate
- bolstered
- ravaged
- flagrant

21.

- perpetual
- mystical
- facetious
- climactic

22-25. Choose the answer that is true based upon the passage below.

Then, at the beginning of the sixteenth century, the Mamelukes were simultaneously confronted by the gunpowder revolution in its developed form from two different directions. Their control of the Red Sea was contested by the Portuguese, who had sailed around Africa in ships mounting heavy cannon. And the security of the frontiers of Egypt was threatened by the Ottoman Turks, whose cavalry armies had been heavily supplemented by well-trained musketeers. In haste, the Mameluke sultan tried to repair a century of military neglect. Large numbers of cannon were cast. Units of gunners and musketeers were formed. The *furusiyya* exercises were revived and the Mamelukes set to re-learning the skills of lance, sword and bow with intensity. But, fatally, the re-militarization of the Mamelukes and the espousal of gunpowder were kept quite separate. No Mameluke was trained or would train in any use of firearms whatsoever; gunners and musketeers were recruited from outside the Mameluke caste, from black Africans and people of the Maghreb, the Arab west.

22. The Mamelukes' problems began in the:

- 1500s
- 1600s
- 1700s
- east

23. The problem they faced was:

- enemies with superior firepower
- lax military training
- attack from two directions
- all of the above

24. They responded by:

- embracing gunpowder
- conscripting Mongols
- using new melee weapons
- none of the above

25. They ultimately failed due to their refusal to:
- accept other races
  - integrate new weapons with their elite troops
  - form large units of musketeers and gunners
  - put cannons on their ships

**This concludes the first section of the test. Please turn it over and wait for further instructions.**

Your composite score was \_\_\_\_\_%

↑ 100-85% indicates excellent verbal and mathematical comprehension and ability. Cognitive speed is superior and abilities are more developed than the majority of one's peers.

↑ 70-84% indicates average verbal and mathematical comprehension and ability. Cognitive speed is good and abilities are developed on par with the majority of one's peers.

↑ 55-70% indicates borderline verbal and mathematical comprehension and ability. Cognitive speed is adequate and abilities may be slightly below the majority of one's peers.

↑ <54% indicates severely lacking verbal and mathematical comprehension and ability. Cognitive speed is deficient and abilities are severely behind the majority of one's peers.

## CAPT-PSY II

- |  |                         |                         |                         |                         |                         |
|--|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| 1. I feel relieved after testing.                                | <input type="radio"/> 4 | <input type="radio"/> 3 | <input type="radio"/> 2 | <input type="radio"/> 1 | <input type="radio"/> 0 |
| Strongly agree   | Agree                   | Neutral                 | Disagree                | Strongly disagree       |                         |
| 2. I rarely count on good things happening to me.                | <input type="radio"/> 4 | <input type="radio"/> 3 | <input type="radio"/> 2 | <input type="radio"/> 1 | <input type="radio"/> 0 |
| Strongly agree   | Agree                   | Neutral                 | Disagree                | Strongly disagree       |                         |
| 3. I'm a believer in the idea "every cloud has a silver lining". | <input type="radio"/> 4 | <input type="radio"/> 3 | <input type="radio"/> 2 | <input type="radio"/> 1 | <input type="radio"/> 0 |
| Strongly agree   | Agree                   | Neutral                 | Disagree                | Strongly disagree       |                         |
| 4. I get upset easily.   | <input type="radio"/> 4 | <input type="radio"/> 3 | <input type="radio"/> 2 | <input type="radio"/> 1 | <input type="radio"/> 0 |
| Strongly agree   | Agree                   | Neutral                 | Disagree                | Strongly disagree       |                         |
| 5. Things never work out the way I want them to.                 | <input type="radio"/> 4 | <input type="radio"/> 3 | <input type="radio"/> 2 | <input type="radio"/> 1 | <input type="radio"/> 0 |
| Strongly agree   | Agree                   | Neutral                 | Disagree                | Strongly disagree       |                         |
| 6. Tests make me flustered and nervous.                          | <input type="radio"/> 4 | <input type="radio"/> 3 | <input type="radio"/> 2 | <input type="radio"/> 1 | <input type="radio"/> 0 |
| Strongly agree   | Agree                   | Neutral                 | Disagree                | Strongly disagree       |                         |
| 7. I hardly ever expect things to go my way.                     | <input type="radio"/> 4 | <input type="radio"/> 3 | <input type="radio"/> 2 | <input type="radio"/> 1 | <input type="radio"/> 0 |
| Strongly agree   | Agree                   | Neutral                 | Disagree                | Strongly disagree       |                         |
| 8. I'm always optimistic about my future.                        | <input type="radio"/> 4 | <input type="radio"/> 3 | <input type="radio"/> 2 | <input type="radio"/> 1 | <input type="radio"/> 0 |
| Strongly agree   | Agree                   | Neutral                 | Disagree                | Strongly disagree       |                         |
| 9. I enjoy my friends a lot.                                     | <input type="radio"/> 4 | <input type="radio"/> 3 | <input type="radio"/> 2 | <input type="radio"/> 1 | <input type="radio"/> 0 |
| Strongly agree   | Agree                   | Neutral                 | Disagree                | Strongly disagree       |                         |
| 10. I always look on the bright side of things.                  | <input type="radio"/> 4 | <input type="radio"/> 3 | <input type="radio"/> 2 | <input type="radio"/> 1 | <input type="radio"/> 0 |
| Strongly agree   | Agree                   | Neutral                 | Disagree                | Strongly disagree       |                         |
| 11. I am not usually relaxed.                                    | <input type="radio"/> 4 | <input type="radio"/> 3 | <input type="radio"/> 2 | <input type="radio"/> 1 | <input type="radio"/> 0 |
| Strongly agree   | Agree                   | Neutral                 | Disagree                | Strongly disagree       |                         |
| 12. If something can go wrong for me, it will.                   | <input type="radio"/> 4 | <input type="radio"/> 3 | <input type="radio"/> 2 | <input type="radio"/> 1 | <input type="radio"/> 0 |
| Strongly agree   | Agree                   | Neutral                 | Disagree                | Strongly disagree       |                         |
| 13. In uncertain times, I usually expect the best.               | <input type="radio"/> 4 | <input type="radio"/> 3 | <input type="radio"/> 2 | <input type="radio"/> 1 | <input type="radio"/> 0 |
| Strongly agree   | Agree                   | Neutral                 | Disagree                | Strongly disagree       |                         |
| 14. I have problems managing my time.                            | <input type="radio"/> 4 | <input type="radio"/> 3 | <input type="radio"/> 2 | <input type="radio"/> 1 | <input type="radio"/> 0 |
| Strongly agree   | Agree                   | Neutral                 | Disagree                | Strongly disagree       |                         |

Please turn over your paper so the researcher may collect it. Relax for the next 15-20 minutes – read, chat with friends, take a nap, etc.

## CAPT-PSY III

Mark all of the following which describe your current state:

Tense	<input type="radio"/> 4	<input type="radio"/> 3	<input type="radio"/> 2	<input type="radio"/> 1	<input type="radio"/> 0
Strongly agree		Agree	Neutral	Disagree	Strongly disagree
Happy	<input type="radio"/> 4	<input type="radio"/> 3	<input type="radio"/> 2	<input type="radio"/> 1	<input type="radio"/> 0
Strongly agree		Agree	Neutral	Disagree	Strongly disagree
Thoughtful	<input type="radio"/> 4	<input type="radio"/> 3	<input type="radio"/> 2	<input type="radio"/> 1	<input type="radio"/> 0
Strongly agree		Agree	Neutral	Disagree	Strongly disagree
Angry	<input type="radio"/> 4	<input type="radio"/> 3	<input type="radio"/> 2	<input type="radio"/> 1	<input type="radio"/> 0
Strongly agree		Agree	Neutral	Disagree	Strongly disagree
Sad	<input type="radio"/> 4	<input type="radio"/> 3	<input type="radio"/> 2	<input type="radio"/> 1	<input type="radio"/> 0
Strongly agree		Agree	Neutral	Disagree	Strongly disagree
Anxious	<input type="radio"/> 4	<input type="radio"/> 3	<input type="radio"/> 2	<input type="radio"/> 1	<input type="radio"/> 0
Strongly agree		Agree	Neutral	Disagree	Strongly disagree
Energetic	<input type="radio"/> 4	<input type="radio"/> 3	<input type="radio"/> 2	<input type="radio"/> 1	<input type="radio"/> 0
Strongly agree		Agree	Neutral	Disagree	Strongly disagree
Curious	<input type="radio"/> 4	<input type="radio"/> 3	<input type="radio"/> 2	<input type="radio"/> 1	<input type="radio"/> 0
Strongly agree		Agree	Neutral	Disagree	Strongly disagree
Sociable	<input type="radio"/> 4	<input type="radio"/> 3	<input type="radio"/> 2	<input type="radio"/> 1	<input type="radio"/> 0
Strongly agree		Agree	Neutral	Disagree	Strongly disagree
Aggressive	<input type="radio"/> 4	<input type="radio"/> 3	<input type="radio"/> 2	<input type="radio"/> 1	<input type="radio"/> 0
Strongly agree		Agree	Neutral	Disagree	Strongly disagree
Content	<input type="radio"/> 4	<input type="radio"/> 3	<input type="radio"/> 2	<input type="radio"/> 1	<input type="radio"/> 0
Strongly agree		Agree	Neutral	Disagree	Strongly disagree
Confident	<input type="radio"/> 4	<input type="radio"/> 3	<input type="radio"/> 2	<input type="radio"/> 1	<input type="radio"/> 0
Strongly agree		Agree	Neutral	Disagree	Strongly disagree
Fatigued	<input type="radio"/> 4	<input type="radio"/> 3	<input type="radio"/> 2	<input type="radio"/> 1	<input type="radio"/> 0
Strongly agree		Agree	Neutral	Disagree	Strongly disagree
Preoccupied	<input type="radio"/> 4	<input type="radio"/> 3	<input type="radio"/> 2	<input type="radio"/> 1	<input type="radio"/> 0
Strongly agree		Agree	Neutral	Disagree	Strongly disagree

Finally, please answer the following:

1. In uncertain times, I usually expect the best.  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree
2. Standardized tests are representative of actual knowledge and skill.  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree
3. If something can go wrong for me, it will.  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree
4. I always look on the bright side of things.  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree
5. I rarely count on good things happening to me.  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree
6. Timed tests are an unfair representation of ability.  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree
7. I'm always optimistic about my future.  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree
8. I'm a believer in the idea that "every cloud has a silver lining".  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree
9. Standardized tests represent general knowledge acquired over a lifetime.  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree
10. Things never work out the way I want them to.  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree
11. Tests are biased towards a certain type of mindset or thinking.  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree
12. Proper time management and strategies ensure true measures of performance on tests.  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree
13. I hardly ever expect things to go my way.  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree
14. This test was a fair and unbiased examination of my competence.  
 4       3       2       1       0  
 Strongly agree      Agree      Neutral      Disagree      Strongly disagree