cla+

National Results, 2017 -18

Contents

INTRODUCTION

In 2002, CAE (the Council for Aid to Education) introduced the Collegiate Learning Assessment (CLA) as a major initiative. Since its launch, CLA has offered institutions a valuable measure of their contributions—or value added—to students' attainment of higher-order skills. The assessment requires students to analyze, evaluate, and synthesize information as they demonstrate their ability to think critically and solve problems. To date, hundreds of institutions and hundreds of thousands of students have participated in the CLA testing program.

In 2013, CAE introduced CLA+, an enhanced version of the assessment that includes new subscores, criterion-referenced mastery levels, and reliable information about performance at the student and institutional levels. Advancing beyond a growth-centered model, CLA+ is designed to measure critical thinking and written communication—key higher-order skills that are valued by both educational institutions and employers. CLA+ provides students with reliable evidence that they possess these skills.

Higher-order skills are a necessity for navigating and excelling in today's complex Knowledge Economy. Employers overwhelmingly report valuing employees who exhibit strong critical-thinking and written-communication skills (Hart Research Associates, 2013). Correspondingly, students who excel in the areas measured by CLA+ have been shown to experience greater success in their immediate post-college careers (Arum & Roksa, 2014).

CLA+ enables schools to identify areas of strength and weakness so they can improve their teaching and learning processes and ultimately graduate students who are prepared to succeed in the post-collegiate arena. Concurrently, CLA+ provides graduating students with the tools to stand out in a competitive job market by highlighting key skills for professional success.

This report summarizes the performance of the **75** institutions and **16,785** students who participated in the 2017-18 academic year of CLA+.

METHODOLOGY

THE INSTRUMENT
CLA+ includes two major components: the Performance Task (PT) and the Selected-Response Question (SRQ) section.

The **Performance Task** presents students with a real-world scenario that requires a purposeful written response. Students are asked to address an issue, propose the solution to a problem, or recommend a course of action to resolve a conflict. Students are instructed to support their responses by using information provided in the Document Library. This repository contains a variety of reference materials, such as technical reports, data tables, newspaper articles, office memoranda, and emails. A full PT includes four to nine documents in its Document Library. Students have 60 minutes to complete this constructed-response task.

Student responses to the PT are scored in three skill areas: Analysis and Problem Solving, Writing Effectiveness, and Writing Mechanics. Students receive subscores based on the CLA+ rubric, ranging from 1 to 6, for each skill category based on key characteristics of their written responses. These characteristics are described in detail within the PT rubric, available on CAE's website at http://www.cae.org/claptrubric. PT subscores are then summed to yield raw total PT scores, which are then scaled and equated so that all scores are comparable regardless of which PT was administered. This process, which is accomplished via a linear transformation, puts the PT scores on a scale with an approximate mean of 1000 and standard deviation of 200.

In the second part of the examination, students are asked to answer 25 **Selected-Response Questions**. Like the PT, the 25 SRQs require students to draw information from provided materials. Students have 30 minutes to complete this section of the assessment. Each of three question sets represents a skill area: Scientific and Quantitative Reasoning (10 questions), Critical Reading and Evaluation (10 questions), and Critique an Argument (five questions).

The SRQ section is scored based on the number of correct responses that a student provides. Each set of questions is scored separately and then equated via a linear transformation. This process puts the three SRQ subscores on approximately the same scale as each other and as SRQs given previously, and results in an approximate score range of 200 to 800 for each section, with approximate mean and standard deviation of 500 and 100, respectively. A total SRQ score is created by taking a weighted average of the equated SRQ subscores, with weights corresponding to the number of questions in the subset.

In addition to receiving scores for each of the two sections of the assessment, students receive total scores, which are simply the average of the PT and SRQ scores.

MASTERY LEVELS

CLA+ Mastery Levels contextualize CLA+ scores in relation to the qualities exhibited by examinees. There are five mastery levels: Below Basic, Basic, Proficient, Accomplished, and Advanced. The full standard-setting report can be found at http://cae.org/images/uploads/pdf/cla_ss.pdf. Each mastery level corresponds to specific evidence of critical-thinking and written-communication skills. While the profiles of all five mastery levels can be found in Appendix B, the two most prominent mastery level profiles from the 2017-18 testing administration are highlighted here.

Students who score at the Basic Mastery Level provide evidence of a discernible and relevant attempt to analyze the details of the PT and demonstrate that they are able to communicate in a manner that is understandable to the reader. Students with Basic Mastery also show some judgment about the quality of evidence provided in the Document Library.

In addition, students scoring at the Basic Mastery Level know the difference between correlation and causality, and they can read and interpret a bar graph—but not necessarily a scatterplot or regression analysis. Tables may be out of reach for Basic Mastery Level students as well.

Students scoring at the Proficient Mastery Level have shown that they are able to extract the major relevant pieces of evidence provided in the Document Library and develop a cohesive argument and analysis of the PT. Proficient Mastery Level students are able to distinguish the quality of evidence in these documents and express the appropriate level of conviction in their conclusion given the provided evidence. Additionally, Proficient Mastery Level students are able to suggest additional research or consider counterarguments.

Students scoring at the Proficient Mastery Level can correctly identify logical fallacies, accurately interpret quantitative evidence, and distinguish the validity of evidence and its purpose. Likewise, they have the ability to determine the reliability and validity of an argument. Students at this level also recognize when a graph or table is applicable to an argument.

INSTITUTIONAL AND STUDENT SAMPLE

Participating schools are individually responsible for student sampling and recruitment, with guidance available from CAE on strategies for achieving a representative sample. Schools are recommended to test at least 100 students, or 25% to 50% of the population size for each class level tested.

The relative similarity between students who tested and students who did not test increases confidence in the inferences made about schools based only on the students in the CLA+ sample.

Additionally, the sample of participating institutions was fairly representative of all four-year institutions nationwide (see Table 1A). Public school representation (45% within CLA+ institutions vs. 30% nationally) and average undergraduate student body size (6602 full-time equivalent undergraduates within CLA+ institutions vs. 3869 nationally) were notable exceptions.

TABLE 1A. School Characteristics of the CLA+ Institutional Sample

SCHOOL CHARACTERISTIC	NATION	CLA+
Percentage Public	30	45
Percentage Historically Black College Or University (Hbcu)	4	3
Mean Percentage Of Undergraduates Receiving Pell Grants	31	39
Mean Six-Year Graduation Rate	51	52
Mean Barron's Selectivity Rating	3.6	2.8
Mean Number Of FTE Undergraduate Students (Rounded)	3869	6602

Sources: The Education Trust (2010) and Carnegie Foundation for the Advancement of Teaching (2012).

TABLE 1B. Carnegie Classification of the CLA+ Institutional Sample

	NATION (N=1683)		CLA+ (N=75)	
CARNEGIE CLASSIFICATION	N	%	N	%
Doctorate-Granting Universities	283	17	17	23
Master's Colleges And Universities	651	39	39	52
Baccalaureate Colleges	749	45	15	20

Source: Carnegie Foundation for the Advancement of Teaching (2012). Percentages do not add up to 100 due to schools for which the Carnegie Classification system is not applicable.

The spread of Carnegie Classifications among CLA+ schools differed somewhat compared to four-year, not-for-profit institutions across the nation. The CLA+ institutional sample contained more Master's Colleges and Universities and fewer Baccalaureate Colleges (see Table 1B). CLA+ students were largely representative of their peers nationally in terms of race/ethnicity and gender (see Table 1C).

TABLE 1C. Student Sample Representativeness by Gender and Race/Ethnicity

DEMOGRAPHIC CHARACTERISTIC		CLA+ STUDENTS Freshmen	Seniors	ALL STUDENTS NATIONALLY
Gender	Male	46%	43%	41%
	Female	52%	54%	57%
	Decline to State	2%	2%	3%
Race/ Ethnicity	American Indian / Alaska Native / Indigenous	1%	1%	1%
	Asian [Including Indian subcontinent and Philippines]	17%	9%	10%
	Native Hawaiian or Other Pacific Islander	1%	1%	1%
	African-American / Black [Including African and Caribbean), non-Hispanic]	13%	12%	13%
	Hispanic or Latino	11%	9%	11%
	White [Including Middle Eastern], non-Hispanic	52%	61%	58%
	Other / Decline to State	5%	8%	5%

Source: Snyder and Dillow (2013). Percentages that do not add up to 100 are due to rounding error.

GROWTH ESTIMATES

CAE calculates two types of growth estimates for participating schools: effect sizes and value-added scores.

Effect sizes characterize the amount of growth that is evident across classes based on mean differences in CLA+ scores. They do so by subtracting the mean freshman score from the mean score of the sophomores, juniors, or seniors, and dividing this amount by the freshman standard deviation. This report only considers freshman-to-senior effect sizes.

While effect sizes measure growth between freshman year and subsequent years within an institution, **value-added scores** relate that growth meaningfully to the growth of students across other colleges and universities. A simple comparison of the average achievement at all schools would fail to account for the many ways that students differ from each other on factors unrelated to their institutions and would therefore present some institutions in a more favorable light than others. Value-added modeling attempts to equalize factors that are not school effects so that between-school comparisons of growth are not confounded with factors outside of schools' control, such as parent education. Compared to effect sizes, value-added scores are generally viewed as a more equitable way of estimating an institution's contribution to learning and thus of demonstrating its relative educational efficacy. Value-added scores are only calculated for growth between freshman and senior years.

To calculate value-added estimates, CAE employs a statistical technique to yield value-added scores that indicate the degree to which observed senior CLA+ mean scores at an institution meet, exceed, or fall below expectations as established by two factors: the seniors' parent education, which accounts for differences between students unrelated to their school, and the mean CLA+ performance of freshmen at the school, which serves as a baseline for growth at each school.

STATISTICAL METHODOLOGY

Most of the results reported here are comparisons of different groups of institutions on mean freshman and senior CLA+ test scores, value-added scores, and effect sizes. To determine which comparisons are statistically significant, independent-samples t-tests (yielding a t-statistic and p-value) are used to compare two groups and one-way analyses of variance (ANOVAs; yielding an F-statistic and p-value) are used to compare three or more groups. As a general rule, p-values less than .05 ($p < .05$, $p < .01$, or $p < .001$) are considered statistically significant and indicative of substantively meaningful findings. Any p-values greater than .05 indicate that any observed differences between groups are not great enough to indicate substantively meaningful differences (i.e., the results could have been obtained simply by chance).

2017-18 CLA+ RESULTS

INSTITUTION-LEVEL CHARACTERISTICS

The average institutional mean freshman CLA+ score in fall 2016 was 1044, indicating Basic Mastery of the skills measured by CLA+. The average institutional mean senior CLA+ score was 57 points higher (1101), indicating Proficient Mastery of critical-thinking and written-communication skills.

Performance differed considerably across institutions. Table 2 summarizes differences in average institutional score by each of the previously discussed institutional characteristics.

Interestingly, there were no significant differences among institutions based on Barron's Selectivity Rating [freshmen: $F_{(2, 59)} = 1.09$, $p = .34$; seniors: $F_{(2, 59)} = .75$, $p = .48$]. Additionally, there were no significant differences between public and private schools at either class level [freshmen: $t_{(64)} = .27$, $p = .79$; seniors: $t_{(66)} = .66$, $p = .51$]. However, there were small, but significant, differences based on Carnegie Classification among freshmen [$F_{(2, 60)} = 4.79$, $p < .01$, $\eta^2 = .14$]. These differences did not hold among seniors [$F_{(2, 63)} = 1.56$, $p = .22$].
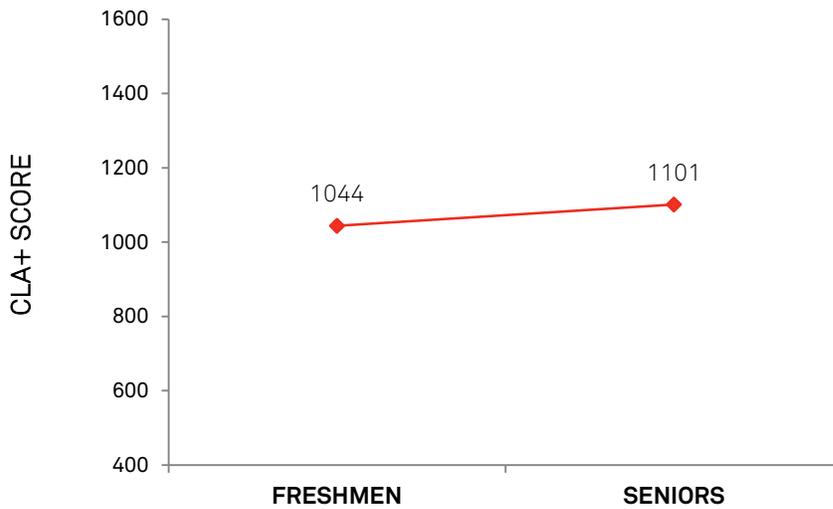
FIGURE 1. Change in Average Institutional CLA+ Score between Freshmen and Seniors

TABLE 2. Institutional CLA+ Performance by School Characteristic and Class, 2017–18

INSTITUTIONAL CHARACTERISTIC	FRESHMEN			SENIORS		
	N	Mean	SD	N	Mean	SD
All Institutions	66	1044	72	68	1101	71
Carnegie Classification						
Baccalaureate Colleges	16	1028	58	16	1100	84
Master's Colleges and Universities	35	1030	73	36	1091	68
Doctorate-Granting Universities	12	1096	71	14	1130	60
Barron's Selectivity Rating						
Non- to Less Competitive	1	--	--	1	--	--
Competitive to Competitive Plus	9	1069	60	10	1113	68
Very to Most Competitive	52	1045	74	51	1109	66
Share of Students Receiving Pell Grants						
Less than Half	52	1056	69	52	1113	64
Half or More	13	998	71	13	1060	84
Geographic Region						
Northeast	12	1034	35	12	1083	80
Midwest	21	1080	71	25	1122	56
South	23	1010	76	21	1085	88
West	9	1061	70	9	1106	48
Institution Size						
Small [≤ 3000 Students]	36	1032	64	12	1119	75
Medium [3001 – 10,000 Students]	20	1048	89	22	1113	60
Large [≥ 10,001 Students]	10	1080	54	34	1086	74
Sector						
Public	29	1047	77	32	1107	64
Private	37	1042	69	37	1066	195

Note. Because some data are not available for all institutions, the sample sizes for a given institutional characteristic may not sum to the same N as the overall number of CLA+ institutions.

Geographically, CLA+ schools in the Midwest had higher-performing freshmen than did schools in the South [$F_{(3, 64)} = 4.18$, $p = .01$, $\eta^2 = .17$]. However, there were no other significant differences among regions. Furthermore, this pattern did not hold with seniors, for whom there were no statistically significant regional differences [$F_{(3, 66)} = 1.37$, $p = .26$]. With respect to institution size, there were no significant differences among either freshmen [$F_{(2, 64)} = 1.86$, $p = .17$] or seniors [$F_{(2, 65)} = 1.48$, $p = .23$].

It should be noted that, in some cases, the lack of significant findings may result from small sample sizes rather than an absence of institutional differences.

STUDENT-LEVEL CHARACTERISTICS

As with the institutional characteristics, there was substantial variation in performance across student-level characteristics (see Table 3).

Freshman performance differed significantly by gender [$F_{(2, 10142)}$ = 4.06, p = .017]. However, the effect was too small to be practically meaningful, as gender accounted for less than 1% of variance in total score ($\eta^2 < .01$). Gender differences among seniors were not found to be statistically significant [$F_{(2, 6637)}$ = 6.10, p = .79 , $\eta^2 < .01$].

Among freshmen, there was a significant difference between students whose primary language was English and those for whom English was not their primary language [$t_{(2674)}$ = 1.99, p = .05, Cohen's d = .05]. However, the effect size was negligible. Conversely, among seniors, there was a meaningful, but small, significant difference. Seniors whose primary language was English on average scored 48 points higher than students for whom English was not their primary language [$t_{(6638)}$ = 8.68, $p < .001$, Cohen's d = .32].

Student performance at both class levels also differed slightly by field of study [freshmen: $F_{(5,10139)}$ = 105.29, $p < .001$, η^2 = .04; seniors: $F_{(5, 6634)}$ = 43.47, $p < .001$, η^2 = .03]. While these differences were generally small, there was a notable pattern of science and engineering students outperforming other students, with the largest differences being between science and engineering students and either business or helping/services students. This pattern held for both freshmen and seniors.

CLA+ results show a small performance gap across racial and ethnic groups [freshmen: $F_{(7, 10137)}$ = 165.05, $p < .001$, η^2 = .10; seniors: $F_{(7, 6632)}$ = 68.94, $p < .001$, η^2 = .07]. Among freshmen, Asian students outperformed White students, who in turn outperformed Latino students, who themselves outperformed African-American students. Among seniors, White students outperformed Asian students, who in turn outperformed Latino students, who themselves outperformed African-American students. Overall, the performance gap was smaller among seniors than among freshmen.

Parental education was similarly associated with CLA+ performance [freshmen: $F_{(5, 10139)}$ = 129.99, $p < .001$, η^2 = .06; seniors: $F_{(5, 6634)}$ = 56.76, $p < .001$, η^2 = .04]. Among seniors, each additional level of parental education was associated with a 20- to 30-point increase in CLA+ score. A similar pattern held for freshmen, with one exception. That is, there was no significant increase in CLA+ performance for students whose parents held high school diplomas compared with students whose parents did not complete high school.

TABLE 3. Student CLA+ Performance by Class and Demographic Characteristic, 2017–18

DEMOGRAPHIC CHARACTERISTIC	FRESHMEN			SENIORS		
	N	Mean	SD	N	Mean	SD
All Students	10145	1059	143	6640	1102	146
Transfer Status						
Transfer Student	--	--	--	1487	1069	141
Non-Transfer Student	--	--	--	5153	1111	147
Gender						
Male	4762	1063	148	2581	1102	149
Female	5280	1055	138	3858	1102	144
Decline to State	193	1062	152	201	1095	159
Primary Language						
English	8352	1058	144	5847	1107	145
Other	1793	1065	139	793	1060	148
Field of Study						
Sciences and Engineering	3295	1097	140	1455	1138	144
Social Sciences	932	1066	151	947	1115	148
Humanities and Languages	729	1062	136	873	1118	147
Business	1773	1041	139	1579	1085	140
Helping / Services	2259	1025	135	1442	1076	146
Undecided / Other / N/A	1157	1036	142	344	1056	142
Race/Ethnicity						
American Indian / Alaska Native / Indigenous	72	987	138	36	999	125
Asian [Including Indian Subcontinent and Philippines]	1681	1106	133	579	1106	143
Native Hawaiian or Other Pacific Islander	91	1016	124	71	1044	137
African-American / Black [Including African and Caribbean], Non-Hispanic	1349	956	124	777	1051	136
Hispanic or Latino	1151	1044	131	598	1076	130
White [Including Middle Eastern], Non-Hispanic	5271	1078	138	4073	1126	142
Other	269	1013	145	188	1066	153
Decline to State	261	1051	153	318	1082	154
Parent Education						
Less Than High School	344	1018	128	181	1037	146
High School	1715	1011	135	1033	1066	142
Some College	1965	1030	137	1556	1086	143
Bachelor's Degree	3134	1070	140	2111	1112	144
Graduate or Post-Graduate Degree	2882	1102	142	1680	1138	145
Don't Know/Decline to State	105	1101	141	79	993	136

Note. Table may include students with missing information on other demographic characteristics.

MASTERY LEVELS

The average freshman score of 1059 corresponds to the Basic Mastery Level.

More than half (59%) of the college freshmen who tested in fall 2017 did not demonstrate Proficient Mastery of CLA+ skills—scoring at or below the Basic Mastery Level. Another 27% scored at the Proficient Mastery Level, 12% scored at the Accomplished Mastery Level, and 1% of entering freshmen scored at the Advanced Mastery Level.

The average senior score of 1102 corresponds to the Proficient Mastery Level.

Across college seniors testing in 2018, slightly more than half (53%) were at least proficient in CLA+ skills—scoring at the Proficient (32%), Accomplished (19%), or Advanced (3%) Mastery Levels. A total of 29% scored at the Basic Mastery Level, while 18% were unable to demonstrate even Basic Mastery of CLA+ skills.
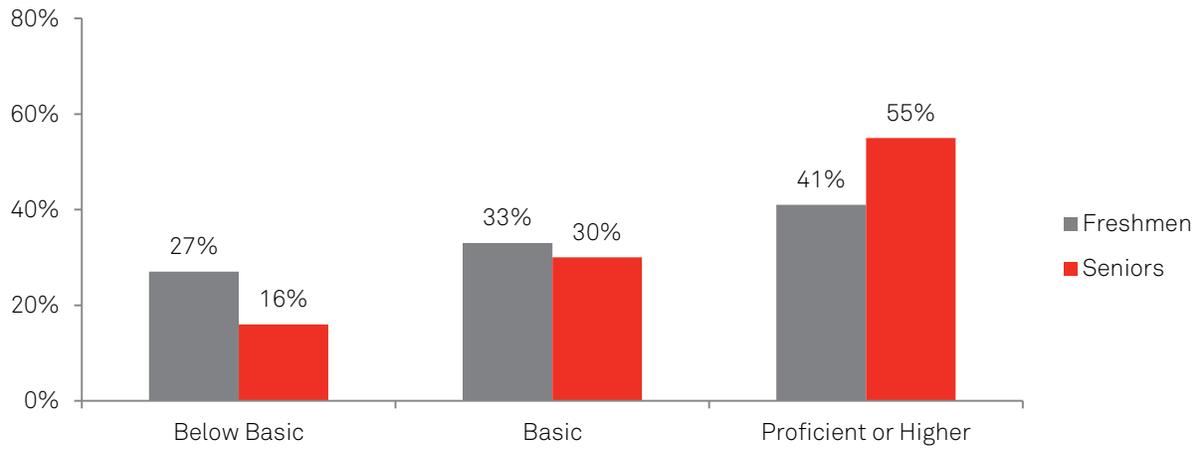
FIGURE 2. Student Distribution of CLA+ Mastery Levels

SUBSCORES

On the PT, the average student scores for freshmen were 3.1, 3.1, and 3.5 for Analysis and Problem Solving, Writing Effectiveness, and Writing Mechanics, respectively. Some improvement was observed among seniors in the latter two subscores: student averages increased to 3.1, 3.3, and 3.6, respectively.

On the SRQ section, the average student scores for freshmen were 513, 514, and 541 for Scientific and Quantitative Reasoning, Critical Reading and Evaluation, and Critique an Argument, respectively. Only very slight improvement was seen among seniors, with averages increasing to 539, 537, and 565, respectively.
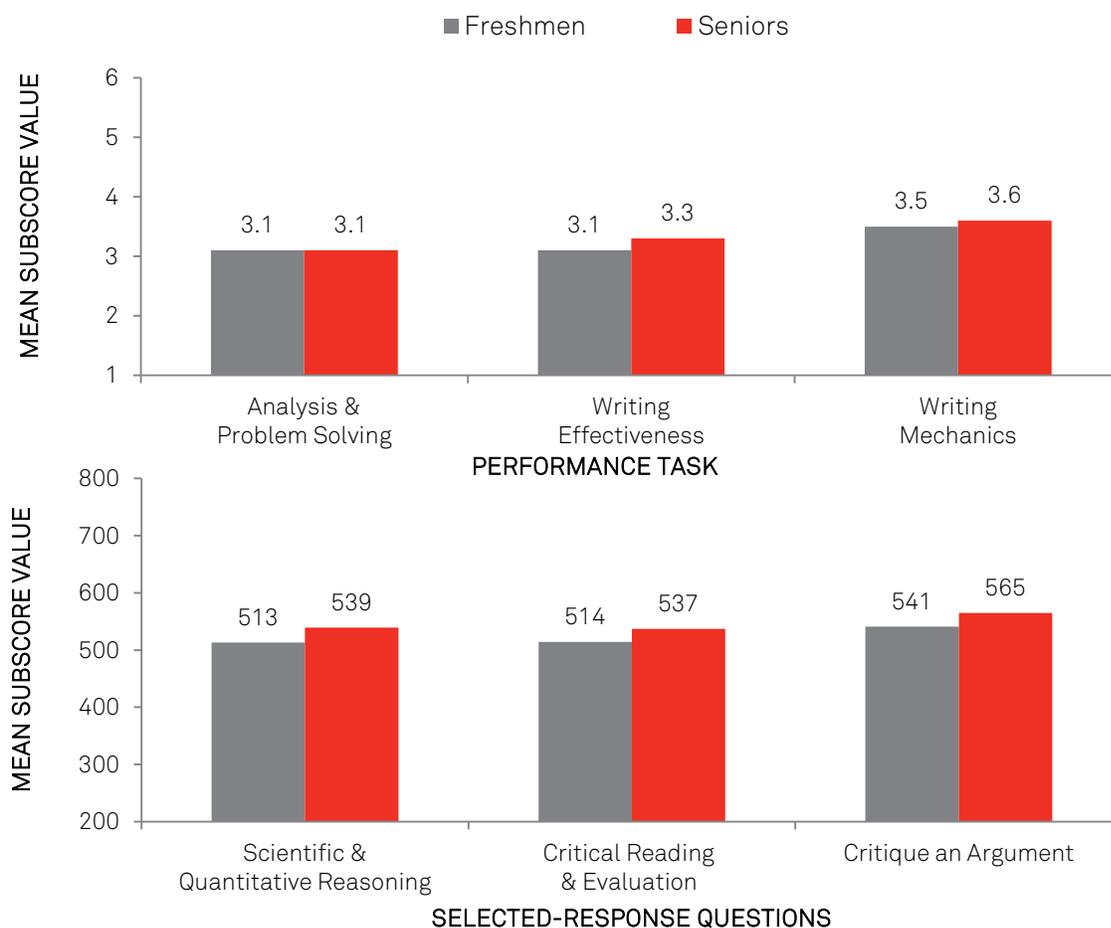
■ Freshmen   ■ Seniors

FIGURE 3. Average CLA+ Subscores across Institutions

GROWTH ESTIMATES

The average effect size for freshman-to-senior growth across all CLA+ institutions in 2017-18 was 0.48, representing almost half a standard deviation of improvement relative to freshman scores. Only 5% of schools showed negative growth (freshmen outperforming seniors), while 8% of schools showed growth larger than one standard deviation, which is a substantial improvement in performance (see Figure 4).

As noted in the methodology section of this report, value-added scores meaningfully relate the growth within an institution to the growth of students across similar colleges and universities.

Figure 5 illustrates the observed and expected performance of all CLA+ institutions. The diagonal line in the figure represents the points at which expected and observed senior mean scores are equivalent. The vertical distance from the diagonal line indicates the value added by an institution. Institutions above the diagonal line add more value than expected based on the model; institutions below the line add less value than expected.

Value-added scores can be categorized into levels of performance relative to expectations. These levels are as follows:
- above 2.00: well above expected
- 2.00 to 1.00: above expected
- 1.00 to -1.00: near expected
- -1.00 to -2.00: below expected
- below -2.00: well below expected

As in the case of actual CLA+ scores, both of these growth estimates—effect sizes and value-added scores—differ, in some cases to a large degree, across various types of institutions. Table 4 provides average value-added scores and effect sizes across the CLA+ institutional sample, as well as for specific categories of institutions.
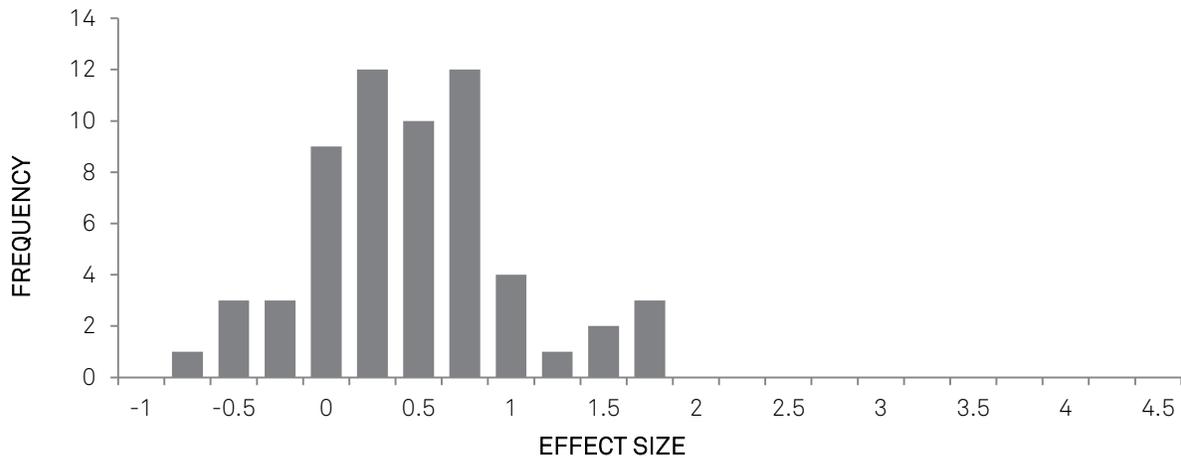

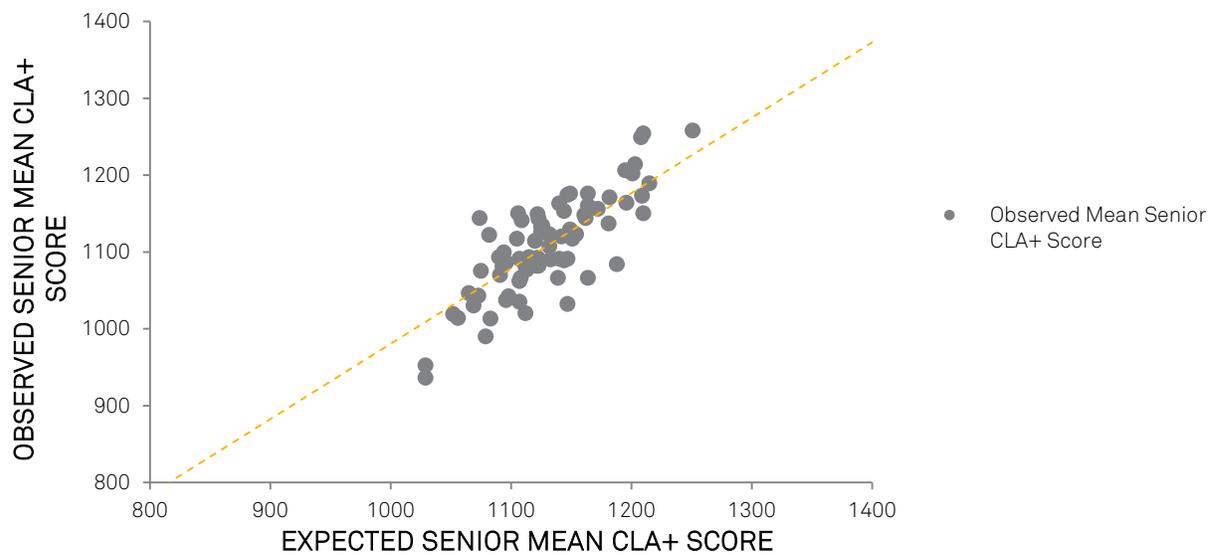**FIGURE 4. Distribution of Institutional Effect Sizes**

FIGURE 5. Expected vs. Observed CLA+ Scores

Differences across the mean effect sizes of the three primary Carnegie Classifications were statistically insignificant [$F(2, 55) = .55$, $p = .58$], as were differences in value-added scores [$F(2, 55) = .37$, $p = .78$].

Differences between Barron's selectivity ratings were not statistically significant for effect sizes [$F(2, 53) = .42$, $p = .69$], as well as for value-added scores [$F(2, 52) = .56$, $p = .66$].
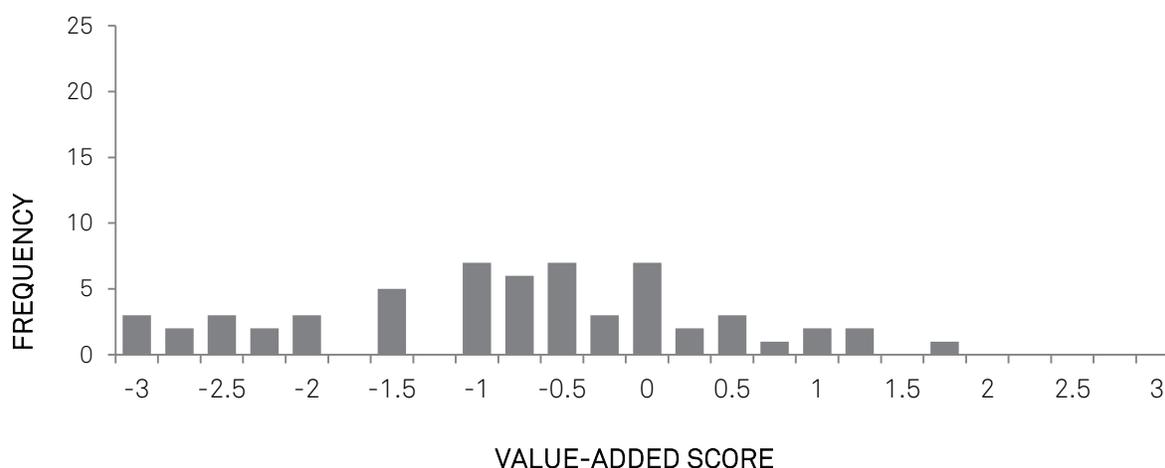
FIGURE 6. Distribution of Institutional Value-Added Scores

TABLE 4. Institutional CLA+ Growth by School Characteristic, 2017-18

INSTITUTIONAL CHARACTERISTIC	VALUE-ADDED SCORE			EFFECT SIZE		
	N	Mean	SD	N	Mean	SD
All Institutions						
Carnegie Classification						
Baccalaureate Colleges	15	-.67	1.32	15	.54	.50
Master's Colleges and Universities	32	-.91	1.28	32	.50	.64
Doctorate-Granting Universities	11	-.70	.72	11	.32	.34
Barron's Selectivity Rating						
Non- to Less Competitive	1	--	--	1	--	--
Competitive to Competitive Plus	9	-.94	1.26	9	.34	.43
Very to Most Competitive	45	-.67	1.15	46	.53	.60
Percentage of Students Receiving Pell Grants						
Less Than Half	46	-.78	1.13	47	.46	.58
Half or More	12	-.91	1.47	12	.50	.49
Geographic Region						
Northeast	11	-1.11	1.55	12	.35	.65
Midwest	21	-.76	.91	21	.33	.52
South	20	-1.00	1.23	20	.61	.51
West	6	.13	1.08	6	.73	.58
Institution Size						
Small [≤ 3,000 Students]	31	-1.08	1.33	32	.48	.61
Medium [3,001 – 10,000 Students]	19	-.40	.94	19	.49	.57
Large [≥ 10,001 Students]	9	-.85	1.02	9	.35	.24
Sector						
Public	27	-.72	1.04	27	.44	.50
Private	32	-.91	1.32	33	.48	.60

Note. Because some data are not available for all institutions, the sample sizes for a given institutional characteristic may not sum to the same N as the overall CLA+ sample.

Significant differences in value-added scores were not seen across geographic regions [$F(3, 54) = 1.68$, $p = .18$]. Similarly, effect-sizes were not significantly different among regions [$F(3, 55) = 1.51$, $p = .22$].

The size of institutions did not appear to contribute to students' attainment of critical-thinking and written-communication skills, as neither differences among effect sizes [$F(2, 75) = 1.52$, $p = .23$] nor value-added scores [$F(2, 62) = .45$, $p = .64$] were significant.

Finally, the institutional sector did not make a difference in terms of either effect sizes [$t(57) = 0.60$, $p = .55$] or value-added scores [$t(58) = -.263$, $p = .79$].

CONCLUSION

With ballooning student debt and a higher un- and underemployment rate among recent college graduates than in the labor force overall (Shierholz, Davis et al., 2014), it is easy to dismiss college as an unnecessary cost. What CLA+ data show, however, is that colleges and universities are contributing considerably to the development of key skills that can make graduates stand out in a competitive labor market.

College certainly matters; it can narrow achievement gaps across students from different racial/ethnic and socio-economic backgrounds, and it can help students develop and enhance the complex, broadly transferrable skills that are valued by employers across fields and sectors.

What CLA+ data likewise show is that where a student goes to college can matter, as well—and that the schools contributing most heavily to their students' growth in CLA+ skills are not necessarily the schools one would expect. There are clear differences in students' raw performance on skills measured by the CLA+ and in the growth fostered by schools on these skills.

While there is marked variation in performance across schools, the students, on average, enter college with basic critical-thinking and written-communication skills and leave college proficient in these skills. Graduating from college—especially from a college that fosters critical thinking and written communication—can be crucial for long-term career success.

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APPENDIX A: LIST OF PARTICIPATING INSTITUTIONS, 2017-18

The colleges and universities listed below in alphabetical order agreed to be identified as participating schools in 2017-18, and they constitute the institutional sample for CLA+. To view a list of currently participating schools, please visit http://cae.org/images/uploads/pdf/claschoollist.pdf.

CLA+ SCHOOLS

Augustana University
Aurora University
Bethel University
Bob Jones University
Bowie State University
Bowling Green State University
Bridgewater College
Brigham Young University-Idaho
California Polytechnic State University, San Luis Obispo
California State Polytechnic University, Pomona
California State University, Channel Islands
California State University, Monterey Bay, Computer Science and Information Technology
California State University, San Bernardino
California State University, Stanislaus
Carlow University
Christopher Newport University
Coastal Carolina University
Concordia University Texas
Culver-Stockton College
Embry-Riddle Aeronautical University, Prescott
Fayetteville State University
Fort Hays State University
Gardner-Webb University
Hardin-Simmons University
Hastings College
Illinois College
Indiana University of Pennsylvania
Kent State University
La Sierra University
LaGrange College
Lake Forest College
Loyola Marymount University, College of Business Administration
Lynchburg College
Malone University
Marian University
Marshall University
McMurry University
Miles College
Minerva Schools at KGI
Mississippi University for Women
Montclair State University
Morgan State University
North Park University
Northern Arizona University
Notre Dame of Maryland University
Nyack College
Ouachita Baptist University
Presbyterian College
Radford University
Saginaw Valley State University

Saint Mary's University of Minnesota
Schreiner University
Shawnee State University
Shippensburg University
Southern Connecticut State University
Southern New Hampshire University
Southwestern University
Stockton University
SUNY Oswego, School of Business
Texas Lutheran University
The Citadel
The New School, CoPA
The New School, Lang
The New School, Parsons BBA
The New School, Parsons BFA
The Sage Colleges
The University of Toledo
Trinity Christian College
Truman State University
University of Colorado, Boulder
University of Great Falls
University of Guam
University of Hartford
University of Hawaii at Hilo, College of Business and Economics
University of Houston
University of Missouri-St Louis
University of Pittsburgh
University of Saint Mary
University of Texas at Dallas
Ursuline College
Warner University
Weber State University
Western Governors University
WGU Indiana
WGU Texas
WGU Washington
Wichita State University
Wiley College
William Peace University
Winston-Salem State University
Wisconsin Lutheran College

APPENDIX B: CLA+ MASTERY LEVELS

SETTING STANDARDS FOR CLA+

Following the creation of CLA+, a standard-setting study was conducted to establish fair and defensible levels of mastery for the new and improved assessment. This formal study was held at CAE headquarters in New York City on December 12, 2013. A two-step follow-up study was conducted in November 2014 to establish the cut score for the Accomplished student, an additional level of mastery for CLA+. Twelve distinguished panelists, representing a variety of educational and commercial sectors, were invited to participate. The table below lists each panelist.

During the initial standard-setting study, panelists defined descriptions of four mastery levels: Below Basic, Basic, Proficient, and Advanced. Panelists returned in November 2014 to define a fifth level of mastery—Accomplished—using the same methods. Their discussions were based on the CLA+ scoring rubric as well as the knowledge, skills, and abilities required to perform well on CLA+. The purpose of this activity was to develop consensus among the judges regarding each mastery level and to create a narrative profile of the knowledge, skills, and abilities necessary for CLA+ students.

During subsequent rating activities, panelists relied on these consensus profiles to make item performance estimates. Judges broke into three groups of four and each group evaluated characteristics related to one mastery level. The groups then reconvened and reported their findings to the group at large so they could form final consensus on student performance at each of the mastery levels.

CLA+ Standard-Setting Study Participant List and Institutional Affiliation

PARTICIPANT	INSTITUTION
Aviva Altman	Johnson & Johnson
Jon Basden	Federal Reserve
Mark Battersby	Capilano University (Canada)
Paul Carney	Minnesota State Technical and Community College
Anne Dueweke	Kalamazoo College
Terry Grimes	Council of Independent Colleges
Sonia Gugga	Columbia University
Marsha Hirano-Nakanishi	California State University System
Rachel L. Kay	McKinsey & Company
Michael Poliakoff	American Council of Trustees and Alumni
Elizabeth Quinn	Fayetteville State University
Paul Thayer	Colorado State University

CLA+ MASTERY LEVELS

CAE uses outcomes from the 2013 and 2014 standard-setting studies to distinguish between CLA+ students with varying knowledge, skills, and abilities, as measured by the assessment. On individual reports, mastery levels are determined by students' Total CLA+ scores. On institutional reports, they are determined by each class level's mean Total CLA+ score.

Institutions should not use mastery levels for purposes other than the interpretation of test results. If an institution wishes to use the attainment of CLA+ Mastery Levels as part of a graduation requirement or the basis for an employment decision, the institution should conduct a separate standard-setting study with this specific purpose in mind.

The following table summarizes each level of mastery and provides a description of students below the basic level of mastery.

Student Levels of Mastery Profiles

LEVEL OF MASTERY	PROFILE
BELOW BASIC	Students who are below basic do not meet the minimum requirements to merit a basic level of mastery.
BASIC	Students at the basic level should be able to demonstrate that they at least read the documents, made a reasonable attempt at an analysis of the details, and are able to communicate in a manner that is understandable to the reader. Students should also show some judgment about the quality of the evidence. Students at the basic level should also know the difference between correlation and causality. They should be able to read and interpret a bar graph, but not necessarily a scatter plot or comprehend a regression analysis. Tables may be out of reach for basic students as well.
PROFICIENT	Students at the proficient level should be able to extract the major relevant pieces of evidence provided in the documents and provide a cohesive argument and analysis of the task. Proficient students should be able to distinguish the quality of the evidence in these documents and express the appropriate level of conviction in their conclusion given the provided evidence. Additionally, students should be able to suggest additional research and/or consider the counterarguments. Proficient students have the ability to correctly identify logical fallacies, accurately interpret quantitative evidence, and distinguish the validity of evidence and its purpose. They should have the ability to determine the truth and validity of an argument. Finally, students should know when a graph or table is applicable to an argument.
ACCOMPLISHED	Students at the accomplished level of mastery should be able to analyze the information provided in the documents, extract relevant pieces of evidence, and make correct inferences about this information. Accomplished students should be able to identify bias, evaluate the credibility of the sources, and craft an original and independent argument. When appropriate, students will identify the need for additional research or further investigation. They will refute some but not all of the counterarguments within the documents and use this information to advance their argument. Accomplished students also have the ability to correctly identify logical fallacies, accurately interpret and analyze qualitative and quantitative evidence (e.g., graphs and charts), and incorporate this information into their argument. Students will be able to correctly identify false claims and other sources of invalid information and integrate this information in their responses. Student responses are presented in a cohesive and organized fashion. There may be infrequent or minor errors in writing fluency and mechanics, but they will not detract from the reader's comprehension of the text.
ADVANCED	Students at the advanced level demonstrate consistency, completeness, and show a command of the English language in their response. They have a level of sophistication that is not seen in the proficient or basic levels. Advanced students create and synthesize the provided evidence, are comfortable with ambiguity, are able to structure their thoughts, understand causality, add new ideas, and introduce new concepts in order to create or seek new evidence. They think about conditions and nuances and express finer points and caveats by proposing a conditional conclusion. The students at this level display creativity and synthesis, while understanding the finer points in the documents. For example, advanced students will be able to synthesize the information across multiple documents and address the ambiguities in the data that are presented, such as outliers and knowing how sample size affects outcomes. Advanced students will also be able to identify and highlight gaps in logic and reasoning.

APPENDIX C: CLA+ PERFORMANCE TASK RUBRIC

SCALE	DESCRIPTION	1	2
ANALYSIS AND PROBLEM SOLVING	Making a logical decision or conclusion (or taking a position) and supporting it by utilizing appropriate information (facts, ideas, computed values, or salient features) from the Document Library	▪ May state or imply a decision/conclusion/position ▪ Provides minimal analysis as support (e.g., briefly addresses only one idea from one document) or analysis is entirely inaccurate, illogical, unreliable, or unconnected to the decision/conclusion/position	▪ States or implies a decision/conclusion/position ▪ Provides analysis that addresses a few ideas as support, some of which are inaccurate, illogical, unreliable, or unconnected to the decision/conclusion/position
WRITING EFFECTIVENESS	Constructing organized and logically cohesive arguments. Strengthening the writer's position by providing elaboration on facts or ideas (e.g., explaining how evidence bears on the problem, providing examples, and emphasizing especially convincing evidence)	▪ Does not develop convincing arguments; writing may be disorganized and confusing ▪ Does not provide elaboration on facts or ideas	▪ Provides limited, invalid, over-stated, or very unclear arguments; may present information in a disorganized fashion or undermine own points ▪ Any elaboration on facts or ideas tends to be vague, irrelevant, inaccurate, or unreliable (e.g., based entirely on writer's opinion); sources of information are often unclear
WRITING MECHANICS	Demonstrating facility with the conventions of standard written English (agreement, tense, capitalization, punctuation, and spelling) and control of the English language, including syntax (sentence structure) and diction (word choice and usage)	▪ Demonstrates minimal control of grammatical conventions with many errors that make the response difficult to read or provides insufficient evidence to judge ▪ Writes sentences that are repetitive or incomplete, and some are difficult to understand ▪ Uses simple vocabulary, and some vocabulary is used inaccurately or in a way that makes meaning unclear	▪ Demonstrates poor control of grammatical conventions with frequent minor errors and some severe errors ▪ Consistently writes sentences with similar structure and length, and some may be difficult to understand ▪ Uses simple vocabulary, and some vocabulary may be used inaccurately or in a way that makes meaning unclear

3	4	5	6
▪ States or implies a decision/conclusion/position ▪ Provides some valid support, but omits or misrepresents critical information, suggesting only superficial analysis and partial comprehension of the documents ▪ May not account for contradictory information (if applicable)	▪ States an explicit decision/conclusion/position ▪ Provides valid support that addresses multiple pieces of relevant and credible information in a manner that demonstrates adequate analysis and comprehension of the documents; some information is omitted ▪ May attempt to address contradictory information or alternative decisions/conclusions/positions (if applicable)	▪ States an explicit decision/conclusion/position ▪ Provides strong support that addresses much of the relevant and credible information, in a manner that demonstrates very good analysis and comprehension of the documents ▪ Refutes contradictory information or alternative decisions/conclusions/positions (if applicable)	▪ States an explicit decision/conclusion/position ▪ Provides comprehensive support, including nearly all the relevant and credible information, in a manner that demonstrates outstanding analysis and comprehension of the documents ▪ Thoroughly refutes contradictory evidence or alternative decisions/conclusions/positions (if applicable)
▪ Provides limited or somewhat unclear arguments. Presents relevant information in each response, but that information is not woven into arguments ▪ Provides elaboration on facts or ideas a few times, some of which is valid; sources of information are sometimes unclear	▪ Organizes response in a way that makes the writer's arguments and logic of those arguments apparent but not obvious ▪ Provides valid elaboration on facts or ideas several times and cites sources of information	▪ Organizes response in a logically cohesive way that makes it fairly easy to follow the writer's arguments ▪ Provides valid elaboration on facts or ideas related to each argument and cites sources of information	▪ Organizes response in a logically cohesive way that makes it very easy to follow the writer's arguments ▪ Provides valid and comprehensive elaboration on facts or ideas related to each argument and clearly cites sources of information
▪ Demonstrates fair control of grammatical conventions with frequent minor errors ▪ Writes sentences that read naturally but tend to have similar structure and length ▪ Uses vocabulary that communicates ideas adequately but lacks variety	▪ Demonstrates good control of grammatical conventions with few errors ▪ Writes well-constructed sentences with some varied structure and length ▪ Uses vocabulary that clearly communicates ideas but lacks variety	▪ Demonstrates very good control of grammatical conventions ▪ Consistently writes well-constructed sentences with varied structure and length ▪ Uses varied and sometimes advanced vocabulary that effectively communicates ideas	▪ Demonstrates outstanding control of grammatical conventions ▪ Consistently writes well-constructed complex sentences with varied structure and length ▪ Displays adept use of vocabulary that is precise, advanced, and varied