

Determinants for Student Success on the Associate Constructor Exam

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The University of Central Missouri Department Of Construction Management administers the American Institute of Constructors (AIC) Associate Constructor Exam to all graduating seniors as a requirement of the Capstone course. The AIC exam serves as one of the exit assessments used in the department's Quality Assurance Plan. From the perspective of the faculty, it has become increasingly difficult to predict the students who will pass. A prior analysis identified subgroups of the test that were predictive of overall success on the entire test. This discriminate analysis found useful individual student characteristics of aggregate undergraduate grade point average, ACT sub scores in Math, English and Reading were determinants to membership of the group of students who pass the Associate Constructor Exam.

Key Words: Capstone, Associate Constructor Exam, Exit Examination, Construction Education

Introduction

The construction industry is one of the largest industries in the United States and has contributed significantly to the national economy, accounting for an estimated 10 percent of the gross national product (Bentil, 1989). The cyclic nature of business causes fluctuations of labor. In 1964, 70 million hours were worked but during the peak years of 2006 and 2007, 15.5 billion hours worked by 7.7 million workers (Teicholz, 2004). Stanford University released data comparing Construction and Non-Farm Labor Productivity from 1964 through 2003 (Teicholz, 2004) showing the construction sector in a dramatic decline of productivity as compared to other industries. It has been concluded that the Construction Industry desperately needs skilled technical managers with the knowledge to reverse the latest trends.

The American Institute of Constructors (AIC) was formed in 1971. As the caretakers of the Constructor Certification Commission they certify by examination construction as Professionals Constructors. There are two levels of certification the Level 1 Associate Constructor, intended for new constructors, concentrates on basic construction knowledge, and the Level 2 Certified Professional Constructor, for professionals who have served in the industry for several years (American Institute of Constructors, 2011). Schools of construction are relatively young when compared to many traditional curriculums in higher education. The Associated Schools of Construction (ASC) recently celebrated their 54th Annual International Conference. Member schools are examining their programs in light of the recommendations of AIC and incorporating new measures into their departmental Quality Control Plans. Fifty

The University of Central Missouri (UCM) is a NCAA Division II school located in Warrensburg, Missouri. The average student population is 12,000 majoring in 150 different majors. The Department of Construction Management resides in the College of Technology. The average number of Construction Management majors is 140 with approximately 20 Bachelor of Science graduates annually.

All students are required to take a major capstone course, Construction Operations, prior to graduation. In this course, students consolidate the information from previous classes and participate in the design, estimation and construction of an actual project for the community. Starting in 2000, students were required to sit for the American Institute of Constructors (AIC) Associate Constructor Exam. The AIC exam is used by similar university Construction Programs in the United States to assess the quality of their programs via a standardized test of knowledge (American Institute of Constructors, 2011). While it is not necessary for students to pass the exam to graduate with a Bachelor's of Science degree in Construction Management, it is a desirable accomplishment and

serves as a reference point for Construction Management Departments Quality Assurance Plan as well as validation for accrediting bodies.

The Associate Constructor (AC) exam is a three hundred-point paper and pencil exam. The three hundred questions are objective multiple choice. The eight-hour exam is given twice yearly in the spring and fall with approximately two thousand participants nationwide per year. The AC exam is limited to those individuals who have or will graduate with a degree in Construction Management or individuals that have four years of qualifying experience. A seventy percent or a score of two hundred and ten (210) points or higher are required to pass. The exam is broken into ten content weighted areas (American Institute of Constructors, 2011).

Review of Literature

According to AIC there are fifty construction programs that utilize the AC exam to assess student outcomes for their respective programs (AIC, 2019). Most departments will make adjustments to curriculum based on results of student scores, areas of weakness, and pass rates. Challenges have arose between different perceived value of the AC exam score by educators and test takers. The desire to understand determinates for success has been investigated recently in an attempt to understand performance of test takers on the exam. Research has been focused in several areas, student preparation, and historical performance on standardized exams or grade point average and correlation to exam results.

In the fall of 2016, an eight question survey was included in the AC exam packet for test takers. The survey captured exam participant's perception of importance of the exam personally, within the industry, and their program faculty. This study's large national sample is unique when compared to university sponsored studies with limited sample size. Several of the questions addressed self-reported time and effort test takers used in preparing for the exam which were linked individual exam outcomes, pass/no pass. The results pointed to an increased success rate of 6 percent by spending five or more hours in preparation. The perceived value of the exam to the test taker versus the value to the faculty showed a difference (Burgett J. M., 2018). A second survey was sent to twenty-six Construction department heads found motivation for student success was key yet challenging (Burgett J. M., 2018).

The Construction Department at West Carolina University analyzed Scholastic Aptitude Test (SAT), scores as a determinant to predication of AC exam pass rate over a three year period. The limited study of 160 students did identify a correlation a SAT score of 1200 or higher score and an increase pass rate, of the thirteen individuals in this cohort nine scored at least a 210 on the exam. The study found a correlation between lower SAT scores exam pass rates were not significant (Ford, 2012).

A correlation study by Dr. Sylvester at Western Kentucky University, investigated student grade point average success in passing the AC exam over a five year span from 2004 to 2009. The study divided the 81 student cohort into four GPA range categories. Additionally, the study mapped GPA to the AC exam subcategories. The results showed the higher (3.5-3.9) GPA grouping led to a higher pass rate at 67 percent there two were not linearly related. Expected mean AC scores fell well below projection based on GPA (Sylvester, 2012).

University construction programs have recognized the importance to student success passing the AC exam. Most are tied to outcomes which are monitored internally and externally by accrediting bodies. The Colorado State University, Assessment Results and Action Plans from 2015, pointed out a decline in the AC passing numbers after a changes where made to the senior capstone course. The department opted to allow students to substitute the AC score for their course final exam score which negatively impacted the student pass rate. An informal discussion pointed to a change in motivation by the students to do well (Management, Colorado State University Department of Construction, 2015).

There is a departmental desire at UCM to examine the factors that may be predictive of success on the AIC exam and implement department wide changes, where possible, to appropriately address industry standards for entry-level Construction Managers. In addition, the factors predictive of success will empower students with important feedback and milestones to allow self-study and ownership of the test results throughout the educational experience. An example would be the relationship between success in individual classes and performance on domains of the test. Such information would allow students to focus on areas of weakness to maximize the chance of success.

An initial assessment of basic achievement scores of the students taking the AIC exam will determine the relationship of those variables to success on the AIC exam. This initial assessment will include the determination of the relationship of ACT English, Math and Reading scores, GPA and Year of examination on the successful completion of the AIC exam. ACT scores represent a surrogate for entry-level measures of achievement while GPA represents university performance. Year of examination accounts for any differences related to time differences with regard to curriculum or instructor changes within the department. A prior analysis identified subgroups of the test that were predictive of overall success on the entire test.

The null hypothesis is that the independent variables above will not contribute to the ability of a student to pass the AIC Associate Constructors Exam as a senior. This analysis is limited by the lack of information on students who transfer into the program from other 4-year colleges or community colleges. ACT scores are not available for transfer students. Therefore, those students cannot be included in this analysis.

Research Design and Methodology

For this initial assessment, Discriminate Analysis (DA) has been chosen to predict the group membership for the group of students who pass the AIC Associate Constructor's Exam. The variables chosen to predict the success on the exam are Total GPA, the ACT Math, English and Reading Domain Scores and the year of examination (ranging from 2009-2018).

These data were collected retrospectively from students in the University of Central Missouri Construction Management program graduating between spring 2009 and spring 2018. GPA and ACT scores were available to the department through the Registrar's Office while the results of the AIC exam were reported directly to the preceptor of the ICAP class after examination each semester and prior to graduation. ACT scores and GPA where placed in a Microsoft Excel spread sheet with the scores of the AIC exam. The results of the AIC exam are also communicated to each student simultaneous to the reporting of the overall class results to the preceptor. All student data was de-identified during data entry by a third party, (Appendix A), not involved in the analysis. The data was reconfigured and uploaded in to an IBM SPSS version 21.0 statistics data set.

Data is available for 252 students taking the exam between 2009 and 2018. All data is included for the analysis. The Type I error rate is accepted as .05. Type II error rate was set at .20.

Table 1. Variable Description

Variable Name	Type Variable	Type	Measure
AC Pass 1, F 0	DV	0 or 1	Nominal
ACT English	IV	Numeric	Scale
ACT Math	IV	Numeric	Scale
ACT Reading	IV	Numeric	Scale
Year of Graduation	IV	Numeric	Scale

For this analysis, the following assumptions regarding the data are: the predictor variables are randomly gathered, normal distribution of the data via the central limit theorem, equal variances and a linear relationship between the predictors. A standard discriminate analysis was run in SPSS version 21.0.

Data initially was screened for normal distribution and equal distribution to assure the data met the assumptions above. In SPSS version 21.0 the AC Pass 1 or No Pass 0 was set as the dependent variable. ACT English, Act Math, ACT Reading, and Year of Graduation were grouped as the independent variables. The dependent variable range was identified as minimum 0 and maximum 1 for the pass group. All independent variables were enter together as one group rather than a step wise configuration.

Discriminate Analysis Statistics descriptive of Means, Univariate, ANOVAs, and Box's M were selected in SPSS. Box's M were selected to assure normal variation within the groups. Fisher's exact test of independence was selected based on the study size, (N = 252), to show function coefficient that maximize discrimination in the Function Coefficient area. In the Discriminate Analysis Classification section and under Prior Probabilities, Compute from group sizes, was selected understanding the population was unlikely to have a 50 percent pass fail

rate. The Summary table and Leave-one out classifications were selected as outputs. The SPSS default was used, within-groups, under the Covariance Matrix due to only two outcomes, combined-groups was selected as the output plot. The predicted group membership and discriminate scores were selected in the Discriminate Analysis Save box of SPSS for future analysis.

Results

Table 2 shows the descriptive statistics for the group that did not pass the test (0), the group that passed the test (1) and the total group overall. The mean GPA for the students who passed the exam was 3.18 and that for the students who did not pass 2.78. The mean ACT sub-scores in English, Math and Reading were also lower for the group that did not pass the test. Interestingly, the group who did pass the test had a higher mean score in the Math portion of the ACT. It is not known if the differences in these means are statistically significant. Another interesting finding is the year of graduation for the group who passed the test was lower than those students who did not pass the test.

Table 2.Group Statistics

Variable	Pass Fail	Mean	Std. Deviation	N
ACT English	Fail < 210	18.59	3.180	46
	Pass =>210	21.63	4.352	123
	Total	20.80	4.278	169
Gross GPA	Fail < 210	2.7796	0.34982	46
	Pass =>210	3.1854	0.46394	123
	Total	3.0749	0.47107	169
ACT Math	Fail < 210	19.35	3.199	46
	Pass =>210	23.20	3.944	123
	Total	22.15	4.123	169
ACT Reading	Fail < 210	19.43	4.298	46
	Pass =>210	22.50	4.698	123
	Total	21.67	4.781	169

Table 3.Test of Equality of Group Means

	Statistic	df1	df2	Sig.
Total GPA 4.0	37.339	1	106.652	.000
ACT English	24.703	1	110.171	.000
ACT Math	42.602	1	98.927	.000
ACT Reading	16.213	1	87.738	.000
Year	0.314	1	82.489	.577

The test of equality of group means for the one-way ANOVA (table 3) indicates that for GPA, and the ACT sub-scores of English, Math and Reading, there are statistically significant differences between students who passed vs. students who did not pass the exam. This indicates that these factors are likely to contribute independently to the model. There is no significant difference in the two groups based on the year of graduation (p=.577) and it does not contribute to the model.

Table 4. Eigenvalues

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	.316[a]	100.0	100.0	.490

a. First 1 canonical discriminant functions were used in the analysis.

Table 5. Wilks' Lambda

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1	.760	44.943	5	.000

Table 6. Standardized Canonical Discriminant Function Coefficients

	Function

	1
Gross GPA	.564
ACT English	.051
ACT Math	.702
ACT Reading	.072
Year	-.041

The Eigenvalues Table 4 gives a Canonical correlation of 0.490. This indicates the proportion of the variability in the group membership model accounted for by the factors included. By squaring the Canonical correlation, an effect size (the proportion of the variance between groups) of 0.24 is obtained (Field, 2013, p. 657).
The significant Wilks' Lambda value above, indicates that the independent variables chosen for this analysis do not explain 76.0% of the variability between groups. Since Wilks' Lambda is statistically significant, it can be concluded that there is a relationship between passing the AIC test and the predictor variables (Field, 2013, p. 657).
The Standardized Canonical Coefficients (Table 6) assign weights to the original variables. ACT Math shows the highest weight at .702 indicating that 70.2% of the variance of the dependent variable is explained by ACT Math. The next highest coefficient is Gross GPA with a weight of .564 and predicts 56.4 of the variance. ACT Reading and English are less predictive of variance and Year of Graduation shows a negative correlation to variance.

Table 7. Structure Matrix

	Function
	1
ACT Math	.836
Gross GPA	.716
ACT English	.587
ACT Reading	.512
Year	-.064

Pooled within-groups correlations between discriminating variables and standardized canonical discriminant functions. Variables ordered by absolute size of correlation within function.

The Structure Matrix (above) allows the removal of Year of graduation from the model as it has a correlation of <0.30. Doing this, the equation becomes Di = .716(total GPA) +.836(ACT Math) +.512(ACT Reading) +.587(ACT English)

Table 8. Classification Results

		Pass Fail	Predicted Group Membership	
			Fail < 210	Pass =>210
Original	Count	Fail < 210	23	22
		Pass =>210	8	115
	%	Fail < 210	51.1	48.9
		Pass =>210	6.5	93.5
Cross-validated	Count	Fail < 210	20	25
		Pass =>210	8	115
	%	Fail < 210	44.4	55.6
		Pass =>210	6.5	93.5
Original	Count	Fail < 210	0	1
		Pass =>210	0	0
	%	Fail < 210	.0	100.0
		Pass =>210	.0	.0

Based on the classification results (Table 8), 82.1% of the original cases are correctly classified by discriminate analysis and 80.4% of the cross-validated cases are correctly classified. The sensitivity of this test is 93% and the specificity is 60%.

Discussion of Findings

The discriminate analysis for factors predicting success on the AIC exam allows the rejection of the null hypothesis that GPA, ACT sub-scores and year of graduation will not predict success on the exam. The variables GPA and all of the ACT sub-scores significantly discriminate membership between the 2 groups (pass and not pass) while year is not significant. The sensitivity of this test is 93% and the specificity is 60%.

Limitations of this study are that transfer students could not be included because of a lack of ACT information available. In addition, this test was based on total GPA and not GPA in classes within the major.

This analysis is an initial step in the process for identifying predictors of success in passing the AIC exam for seniors in the Construction Management Program at The University of Central Missouri. Over the last several years, the success rate for passing the exam has fluctuated widely and does not seem to correlate with success in the Capstone class that serves as a preparation for the exam. It is thought that this exam serves as a final surrogate measure of the ability for new graduates of the Construction Management program's successful transition to new managers in the construction industry.

Possible next steps include identifying the relationship between the actual achievement in individual course work representative of the sub-domains of the exam and domain scores. This information could be used to identify areas of focus for faculty. It would also be possible to examine the influence of faculty member teaching key classes to the success rate. Additional data also exists for exit surveys of students asking them to rate their comfort and preparedness on domains which correspond to domains of the AIC test. A follow-up survey of graduates after a year of employment would also serve to evaluate the real-world value of the AIC exam and identify any areas of improvement for preparing students for employment.

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Appendix A

Sample AIC - CQE Level 1 Score Roster

AIC - Constructor Certification Commission

Score Roster

CQE Level 1 - Construction Fundamentals - November 2012

University of Central Missouri MO001

Graduating Seniors Who Signed Score Release Consent

CANDIDATE NAME	ID#	Total Score: Raw Score	Total Score: PCTL	Area Scores: Communication Skills	Engineering Concepts	Management Concepts	Materials, Methods, and Project Modeling and Visualization	Bidding and Estimating	Budgeting, Costs, and Cost Control	Planning, Scheduling, and Schedule Control	Construction Safety	Construction Geomatics	Project Administration
	31012	249	94	23	11	29	25	35	29	41	18	7	31
	31684	248	93	17 **	11	30	29	39	28	40	17	6	31
	31685	243	89	22	10 **	31	24	34	27	42	18	6	29
	31686	212	49	21 **	8 **	29	15 **	28 **	27	37	18	4 **	25
	31688	221	59	17 **	7 **	31	24	31 **	24	37	16	6	28
	31689	204 *	39	18 **	7 **	27	24	27 **	21 **	32	18	5	25
	31691	220	57	24	8 **	25	24	29 **	24	34	20	5	27
	31692	229	72	23	9 **	31	25	30 **	27	34	14 **	5	31
	31693	246	91	21 **	12	27	25	37	32	40	19	5	28
	31694	187 *	21	17 **	12	21 **	19 **	23 **	18 **	35	17	4 **	21 **
	31695	219	56	21 **	10 **	26	22	32	24	37	16	5	26
	31696	239	85	23	10 **	28	24	34	29	40	17	6	28
	31697	189 *	23	19 **	5 **	20 **	19 **	31 **	19 **	34	18	3 **	21 **
	31698	237	82	23	10 **	29	25	36	25	39	17	6	27

N = 14

PCTL = Percentile based on national data

	Total Score	Communication Skills	Engineering Concepts	Management Concepts	Materials, Methods, and Project Modeling and Visualization	Bidding and Estimating	Budgeting, Costs, and Cost Control	Planning, Scheduling, and Schedule Control	Construction Safety	Construction Geomatics	Project Administration
Maximum Possible Score:	300	31	15	36	31	45	33	45	21	7	36
Minimum Acceptable Score:		22	11	25	22	32	23	32	15	5	25
Passing Score:	210										

* = Failing Candidates
** = Area of Weakness

PTC

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Appendix B

Study Data Sample Set; Spring 2009 – Fall 2010

NAME BY SEMESTER	OVERALL GPA	MAJOR GPA	ACT ENGLISH	ACT MATH	ACT READING	ACT SCIENCE	ACT COMPOSITE SCORE	AC TEST SCORE	AC COMMUNICATION	AC ENGINEERING	AC MANAGEMENT	AC MATERIALS	AC ESTIMATING	AC BUDGETING	AC SCHEDULING	AC SAFETY	AC SURVEYING	AC PROJECT ADMIN
Spring '09																		
	2.14	1.99	20	23	28	26	24	238	11	23	10	27	39	24	36	20	6	42
	3.04		16	26	17	20	20	186	11	20	9	20	23	17	34	16	4	32
	3.11	3.11	19	23	23	21	22	257	16	24	12	26	40	24	43	20	5	47
	2.71	2.69						237	13	21	11	24	36	27	40	19	6	40
	3.58	3.43	20	19	19	23	20	236	13	20	9	23	37	23	40	18	6	47
	2.46	2.75	17	16	14	17	16	198	7	18	7	22	26	20	31	17	5	45
	3.06	3.11	19	21	22	21	21	253	12	22	9	26	42	27	40	20	6	49
	2.24	2.25						172	9	18	8	20	28	12	21	18	4	34
	3.14	3.31	21	23	25	27	24	237	12	21	10	26	41	22	36	19	5	45
	3.07	3.15						194	11	16	8	17	28	22	36	16	5	34
	3.53	3.64	25	29	27	25	26	256	15	23	12	25	39	27	42	20	5	48
	3.71	3.82	23	24	26	23	24	225	13	24	11	22	35	20	34	17	4	45
	3.58	3.8	28	31	23	28	27	260	13	21	13	25	44	31	42	20	6	45
	3.61	3.69	24	27	25	25	25	236	13	23	11	28	41	18	36	19	6	41
	3.39	3.42	25	28	26	25	25	254	13	20	11	25	42	29	42	19	5	48
	2.68	2.93						220	10	20	10	23	31	22	40	16	6	42
	2.7	2.81	20	17	18	23	20	188	13	18	5	23	26	17	33	13	5	35
	2.72	2.64	26	24	17	26	23	240	13	22	10	26	38	26	39	17	6	43
	2.73	2.80	23	22	24	22	23	213	8	21	8	19	33	26	34	16	4	44
	2.86	3.03						193	7	21	7	24	29	17	34	16	5	33
Fall '09	OVERALL GPA	MAJOR GPA	ACT ENGLISH	ACT MATH	ACT READING	ACT SCIENCE	ACT COMPOSITE SCORE	AC TEST SCORE	AC COMMUNICATION	AC ENGINEERING	AC MANAGEMENT	AC MATERIALS	AC ESTIMATING	AC BUDGETING	AC SCHEDULING	AC SAFETY	AC SURVEYING	AC PROJECT ADMIN
	2.68	3.07						239	10	23	10	26	42	22	39	14	6	47
	2.93	2.99						209	9	23	9	22	29	21	38	20	5	33
	3.33	3.33	17	21	24	24	22	246	13	22	11	24	40	29	40	20	6	41
	2.68	2.55	14	18	21	20	18	159	7	19	7	18	18	13	25	16	3	33
	3.50	3.51	23	22	22	23	22	223	13	17	9	20	34	21	39	21	6	43
	2.77	2.96						258	15	25	10	29	41	25	41	22	4	46
	2.38	2.50	18	26	19	21	20	212	12	21	9	22	33	24	38	15	5	33
	3.32	3.76	22	24	20	23	22	245	11	21	9	24	40	29	40	20	5	46
	3.33	3.33	19	21	24	20	21	225	13	19	10	24	32	26	35	17	5	44
	2.81	2.77	23	22	28	26	25	238	11	22	9	28	38	29	34	18	5	44
	3.22	3.41	19	19	16	22	19	221	13	21	8	23	36	24	36	19	5	36
	3.38	3.78						256	15	23	11	27	37	29	42	19	6	47
	2.79	2.98	19	24	23	21	22	212	10	20	9	22	30	25	35	18	6	37
	3.65	3.92	28	31	25	26	27	262	16	22	10	27	43	29	44	20	5	46
	2.70	2.95						205	10	22	10	20	26	19	37	15	3	43
Spring '10	OVERALL GPA	MAJOR GPA	ACT ENGLISH	ACT MATH	ACT READING	ACT SCIENCE	ACT COMPOSITE SCORE	AC TEST SCORE	AC COMMUNICATION	AC ENGINEERING	AC MANAGEMENT	AC MATERIALS	AC ESTIMATING	AC BUDGETING	AC SCHEDULING	AC SAFETY	AC SURVEYING	AC PROJECT ADMIN
	2.07	2.00						190	7	16	6	6	29	25	31	20	4	32
	2.82	2.70						237	11	17	10	10	45	24	41	19	5	43
	3.63	3.67	21	24	24	23	23	261	13	21	12	12	45	24	46	20	6	47
	2.67	2.76	30	26	32	34	31	258	16	24	11	11	41	27	43	18	5	46
	3.07	3.32						193	9	21	7	7	25	12	36	20	4	38
	3.47	3.75						247	10	22	12	12	46	25	41	19	6	39
	2.49	2.34						209	8	13	10	10	37	25	39	18	4	36
	2.32	2.06	18	17	17	24	19	199	9	23	7	7	24	20	34	18	5	34
	3.30	3.60	28	25	26	22	25	255	17	21	10	10	42	26	41	20	6	46
	3.75	3.80						230	12	16	11	11	40	23	42	18	6	39
	2.34	2.26	16	18	18	18	16	190	8	22	6	6	31	15	34	14	5	30
	3.37	3.44	25	29	28	29	28	253	15	22	9	9	45	24	41	20	6	43
	2.41	2.72						209	11	15	8	8	35	22	33	19	4	40
	2.50	2.47	20	21	30	26	24	207	11	18	9	9	31	19	31	17	5	42
	3.92	3.96	24	28	24	24	25	260	13	26	12	12	43	30	46	16	6	41
Fall '10	OVERALL GPA	MAJOR GPA	ACT ENGLISH	ACT MATH	ACT READING	ACT SCIENCE	ACT COMPOSITE SCORE	AC TEST SCORE	AC COMMUNICATION	AC ENGINEERING	AC MANAGEMENT	AC MATERIALS	AC ESTIMATING	AC BUDGETING	AC SCHEDULING	AC SAFETY	AC SURVEYING	AC PROJECT ADMIN
	2.29	2.35	16	22	20	21	20	224	10	21	7	24	37	25	41	17	6	36
	2.47	2.83	19	24	24	23	21	205	10	22	10	23	36	21	38	13	4	28
	2.13	2.30						224	9	21	13	24	38	22	38	19	6	34
	2.78	2.75	15	24	21	22	20	216	10	21	7	24	35	23	41	15	5	35
	2.78	2.88						219	7	21	9	26	37	23	41	16	5	34
	2.20	2.01	22	24	28	26	25	234	13	22	11	27	35	24	39	17	6	40
	3.56	3.72	24	21	15	22	21	265	14	23	11	29	45	26	41	20	6	50
	2.47	2.65						173	11	17	5	21	21	12	30	15	4	31
	2.79	2.94	18	19	18	21	19	201	11	16	10	24	34	19	27	17	6	37
	2.55	2.72	18	18	20	25	20	211	12	20	9	23	40	19	40	13	5	30
	3.42	3.5	20	26	17	21	21	247	11	24	11	27	44	26	38	20	6	40