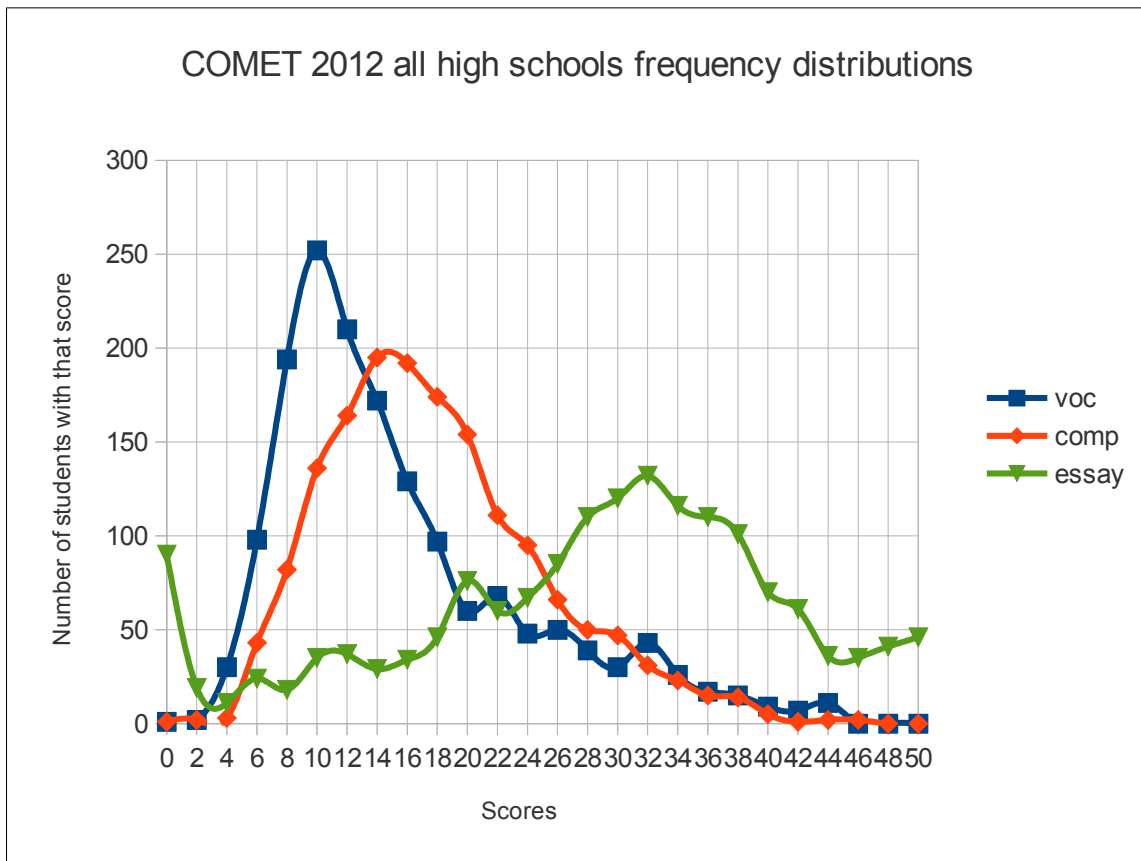


## COMET 2012 Statistical Exploration by High School strata

This report is an exploration of data from the College of Micronesia-FSM spring 2012 entrance test with a focus on individual high school and section results.

The overall distribution of the test scores on the English subsections has been very stable. In statistics the word "distribution" means the shape of the data plot when plotted as frequencies of occurrence. The following chart is the distribution of scores on the three English subsections for all 1609 students (or candidates) who sat the COMET test.



Note that the peak for the vocabulary section is lower than the peak for the comprehension section which in turn is lower than the peak for the essay. This order, vocabulary-comprehension-essay has been stable since these three subsections have been administered in their present form.

In part, differences in the total possible points and the scoring rubrics generate this very stable pattern. Another factor is that students working in a second language (L2) tend to do better at comprehension than vocabulary. This author is familiar with this effect. I often know what a sentence means in the Kosraean language without being able to decode and define every single word.

## Essay section exploration

With the exception of a high number of zeros from one state, the essay test tends to distribute symmetrically across the range of possible scores. The shape of the distribution is roughly normal. Grading the essays leaves one with a real sense of the capabilities of the candidate. Years of working with the essay have left this author with the impression that the essay may be the single most valid measure of English skills in the COMET battery.

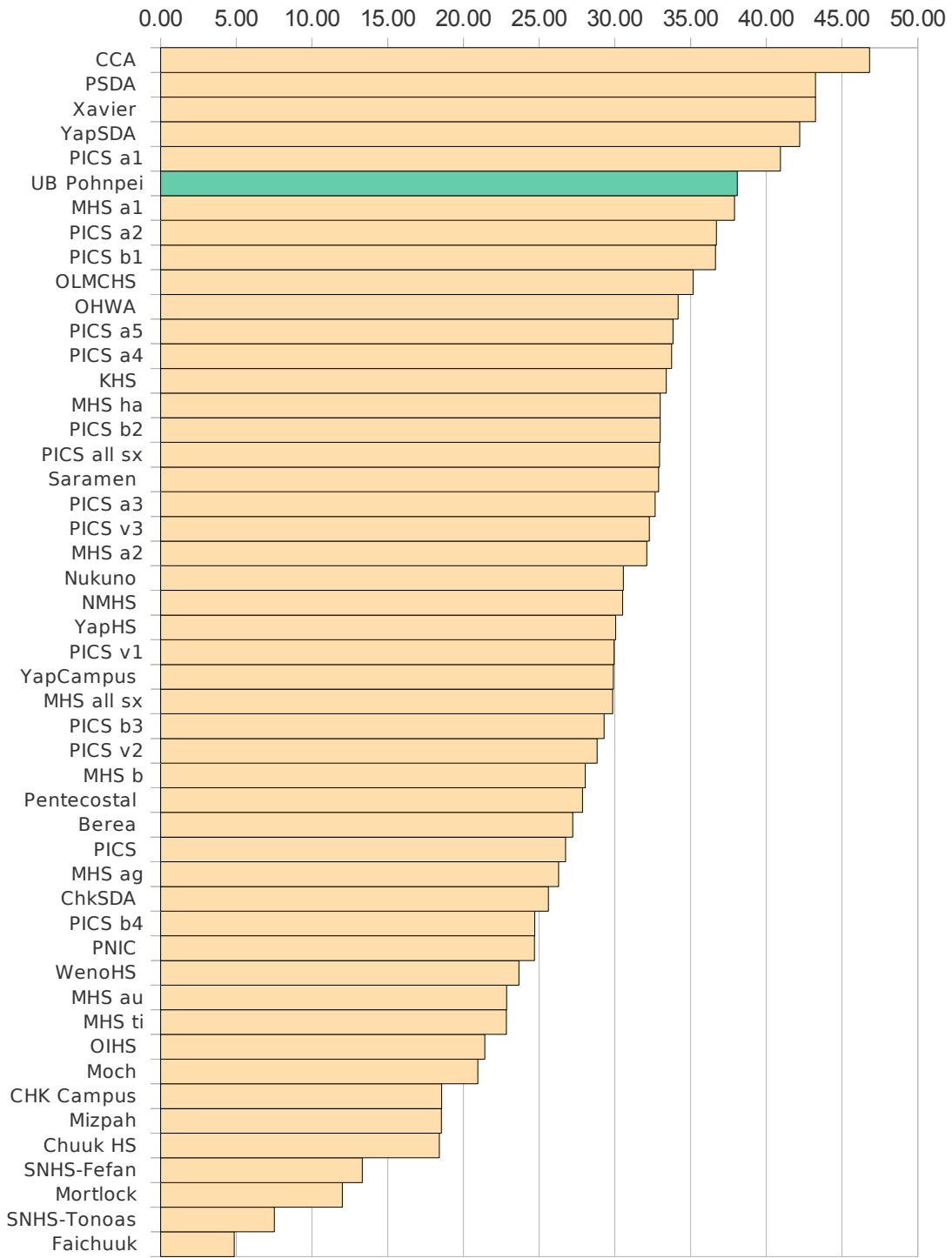
The essay test is marked by two graders. The rubric, included at the end of this report, produces a maximum of 25 points. The scores for the two grades are added, producing a score out of 50. Scores above a 40 are generally thought of as being sufficient for admission at the college, but do not guarantee placement in a college level writing course.

The next bar chart arranges the high schools, sections for PICS and MHS, and the Pohnpei UB student in descending order based on their average score on the essay subsection. While the top four high schools in rank order for the essay subsection are Calvary Christian Academy (CCA), Pohnpei SDA, Xavier, and Yap SDA, at number five in rank order is Pohnpei Islands Central School (PICS) class a1 with an average of 40.94. At number six is Madolehnihmw high school a1 with an average of 37.89.

The bar chart shows the average for each high school on the essay section. For PICS and MHS, class averages are also provided. I was unable to obtain class lists for Nanpei Memorial HS. At PICS the "a" sections are academic, the "b" sections are business, and the "v" sections are vocational. At MHS the A and B sections (labeled a1 and a2 in the chart) are academic. MHS C (labeled b in the chart) is their business section. MHS also has sections for trades and industry (ti), auto mechanics (au), agriculture (ag), and home/art [sic] (ha).

Following the chart is a table showing the average essay score for the high schools from 2007 to 2012. Data for 2011 is missing, a year during which this author was not involved in the COMET analysis. For schools such as PICS, MHS, NMHS, KHS, and others, the averages are gradually improving. Year-to-year the averages are not far apart, over the five year span essays have improved at a number of high schools in the nation.

### Mean essay score by high school and section COMET Spring 2012



Mean essay score

Spring 2007		Spring 2008		Spring 2009		Spring 2010		Spring 2012	
HS essay	mean	HS essay	mean	HS essay	mean	HS essay	Mean	HS essay	Mean
Berea	15.7	BEREA	26.73	Berea	23.33	BEREA	34	Berea	27.21
CCA	42	CCA PNI	39.25	CCA	45.3	CCA	40.31	CCA	46.82
CHS	9.97	CHS	17.04	CHS	15.32	CHS	13.61	Chuuk HS	18.41
								CHS a1	36.82
CSDA	20.8	CSDA	28.38	CSDA	32.19	CSDA	30.6	ChkSDA	25.62
Faichuk	4.95	FHS	6.18	Faichuk	5.57	Faichuuk	2.35	Faichuuk	4.87
KHS	26.91	KHS	25.99			KHS	28.72	KHS	33.39
				KHS non-a	25.24				
KHS adv	37.27	KHS a1	40.71	KHS advanced	32.71	KHS A	40.05		
KHS a2	38.31	KHS a2	29.23	KHS a2	26.76	KHS B	34.45		
Mizpah	21.05	MCHS	20.1	Mizpah	22.91	MCHS	6.5	Mizpah	18.56
Mado HS	26.36	MHS	24.59	MHS	20.62	MHS	26.4	MHS	29.86
								MHS a1 (A)	37.89
								MHS a2 (B)	32.11
Mortlocks			9.77			Mortlock	9.38	Mortlock	12.00
								Moch	20.95
NICHS	19.58	NICHS	13.98						
NMS	27.75	NMHS	22.58	NMHS	25.07	NMHS	25.15	NMHS	30.51
NMS a	36.74	NMHS a1	30.95					NMHS a1	36.22
		NMHS a2	22.43					NMHS a2	32.48
NMS b	23.74	NMHS b	20.2			NMHS B	26.8	NMHS b	29.18
NMS v1	19	NMHS h	18.85						
NMS v2	20.91	NMHS v	18.81						
Nukuno	12.91					Nukuno	11.89	Nukuno	30.56
Ohwa	23.33	OCHS	16.17	Ohwa	26	OHWA	30.54	OHWA	34.17
OIHS	21.3	OIHS	18.87	OIHS	18.15	OIHS	20.09	OIHS	21.41
		OLMVTs	33.56	OLMS	27.33	OLMCHS	38.43	OLMCHS	35.17
PICS	25.16	PICS	28.73	PICS	27.44	PICS	28.02	PICS	32.95
PICS a1	34.48					PICS a1	36.72	PICS a1	40.94
						PICS a2	34.69	PICS a2	36.71
PLHA	14.69	PLHA	18.67	PLHA	17.42	PLHA	24.17	Pentecostal	27.86
PSDA	37.22	SDA PNI	41	PSDA	38.63	PSDA	35.66	PSDA	43.24
Saramen	28.69	SARAM	37	Saramen	22.7	SCA	36	Saramen	32.89
SNHS	14.05	SNHS	8.02						
				SNHST	10.18			SNHS-Tonoas	7.52
		SNHS-F	9.18	SNHSF	8.61	SNHSF	9.83	SNHS-Fefan	13.32
Weipat			5.59						
Weno	14.81	WHS	17.65	Weno	14.57	WHS	20.87	WenoHS	23.67
Xavier	40.27	XHS	43.63	Xavier	44.65	XAVIER	44.66	Xavier	43.24
YSDA	40.44	SDA (YAP)	30	YSDA	28.2	YSDA	24.2	YapHS	30.06
YHS	23.86	YHS	28.99	YHS	29.33	YHS	26.86	YapSDA	42.20
Overall	22.03	Overall	24.35	Overall	23.21	Overall	24.16	Overall	27.54

There has been a tendency by some over the past couple of years to engage in disparaging remarks about the school systems here in the FSM. The COMET test is not a standardized test and the only purpose for the test is to assist the college in making admissions decisions. That said, the improvements seen in the essay scores for some schools reflect improvement in the capabilities of the candidates sitting the COMET test.

Averages such as the essay averages above are sensitive to extreme values. A box plot was used to explore the actual distribution of scores for the top 12 classes on the preceding chart. As a box plot may be new to some, an explanation of a box plot follows. This section can be skipped if one already knows how to read a box plot.

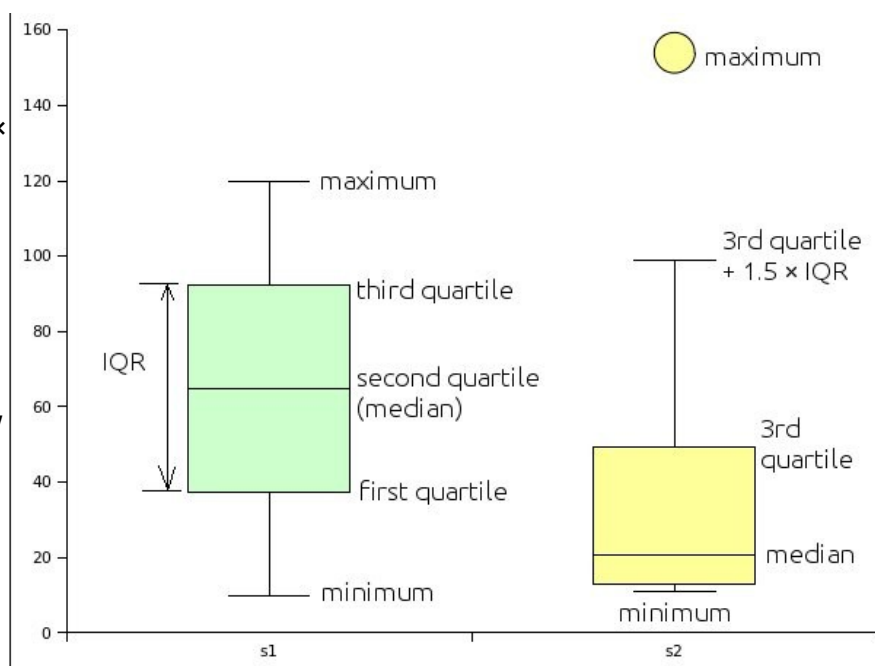
A box plot is built around a box that runs from the value at the 25th percentile (first quartile) to the value at the 75th percentile (third quartile). The length of the box spans the distance from the value at the first quartile to the third quartile, this is called the Inter-Quartile Range (IQR). A line is drawn inside the box at the location of the 50th percentile. The 50th percentile is also known as the second quartile and is the median for the data. Half the scores are above the median, half are below the median. Note that the 50th percentile is the median, not the mean.

The basic box plot described above has lines that extend from the first quartile down to the minimum value and from the third quartile to the maximum value. These lines are called "whiskers" and end with a cross-line called a "fence". If, however, the minimum is more than  $1.5 \times \text{IQR}$  below the first quartile, then the lower fence is put at  $1.5 \times \text{IQR}$  and the values below the fence are marked with a round circle. These values are referred to as potential outliers – data is unusually far from the median in relation to the other data in the set.

Likewise, if the maximum is more than  $1.5 \times \text{IQR}$  beyond the third quartile, then the upper fence is located at  $1.5 \times \text{IQR}$  above the 3rd quartile.

An example with hypothetical data sets is given to illustrate box plots. The data consists of two samples. Sample one (s1) is a uniform distribution and sample two (s2) is a highly skewed distribution.

s1	s2
10	11
20	11
30	12

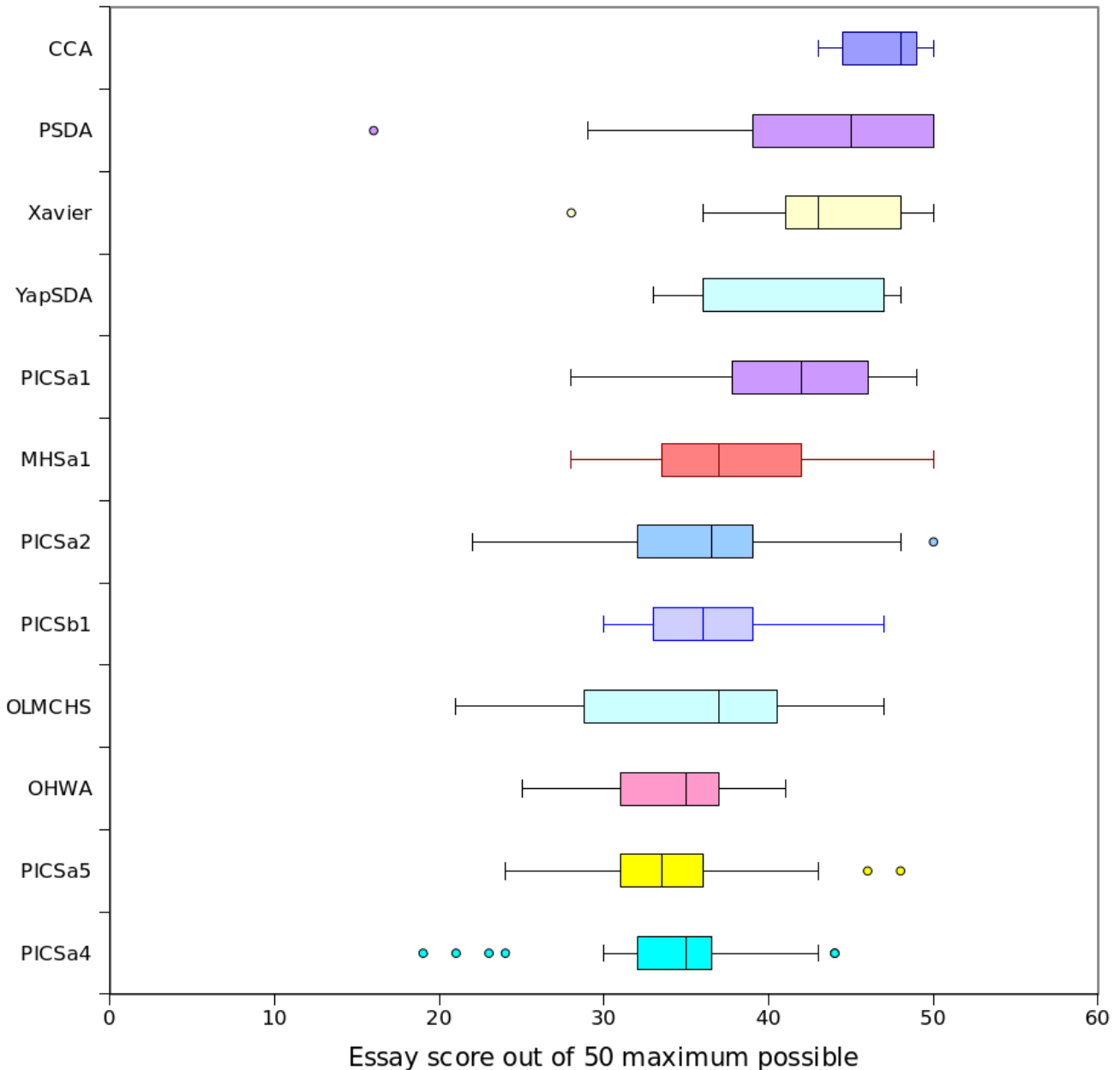


s1	s2
40	13
50	15
60	18
70	23
80	31
90	44
100	65
110	99
120	154

The use of 1.5 times the Inter-Quartile Range beyond the first or third quartiles to determine outliers goes back to the inventor of the box plot, John Tukey, who chose 1.5 times the IQR in 1977. For distributions that are not necessarily normal distributions and involve discrete data, 1.5 times the IQR has proven to work well for identifying outliers.

The essay scores box plot includes only the distribution of the essay scores for the top 12 classes on the COMET essay subsection. Note that the order is in descending order for the mean (average), but the line in the middle of the box plot is the median. Thus the chart is not in median descending order.

## COMET 2012 essay score distributions, top classes only



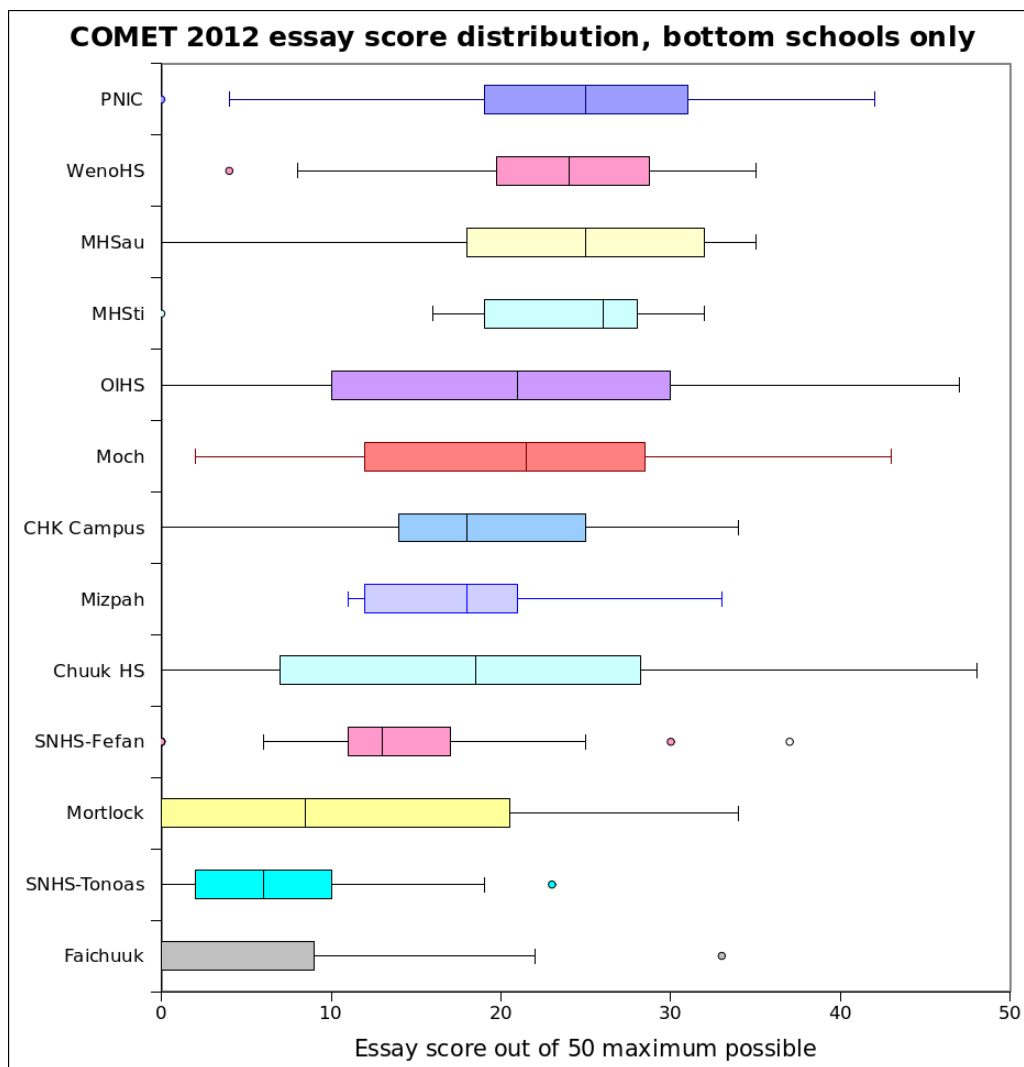
For example, Pohnpei Island Central School business class b1 has a lower median than Our Lady of Mercy Catholic High School, but is listed first as PICS b1 has a higher average.

The chart suggests that 50% of the students in a class score within two to five points of the median. Half of the students in a class are fairly closely clustered around the median. The whiskers extend another three to five points out to the fences. Classes are somewhat coherent in their performance on the essay. Pohnpei SDA and Xavier both had a single low outlier, while PICS a4 had four low outliers and one high suggesting higher variability in this section. Sixty-three percent of the PICS a1 students scored above Xavier high school's 25th

percentile. Given that Xavier pre-selects the top eighth grade students using a test, this performance is very strong.

The fairly symmetric distribution of the essay scores on either side of the median and the lack of large numbers of outliers suggest the students are an academic cohort with similar capabilities.

Although the box plot analysis was run for all schools and sections, the chart has too many box plots packed together. The following chart is a box plot for the bottom schools and includes tests taken at the two state campuses spring 2012.



OIHS is Outer Island High School in Ulithi and Mizpah is a private school in Chuuk.

The Pohnpei campus data (PNIC) and the MHS ti have outliers at a score of zero on the essay. The schools with whiskers that extend to zero indicate schools where students



scored a zero on the essay and that score is not more than 1.5 IQR below the 25th percentile.

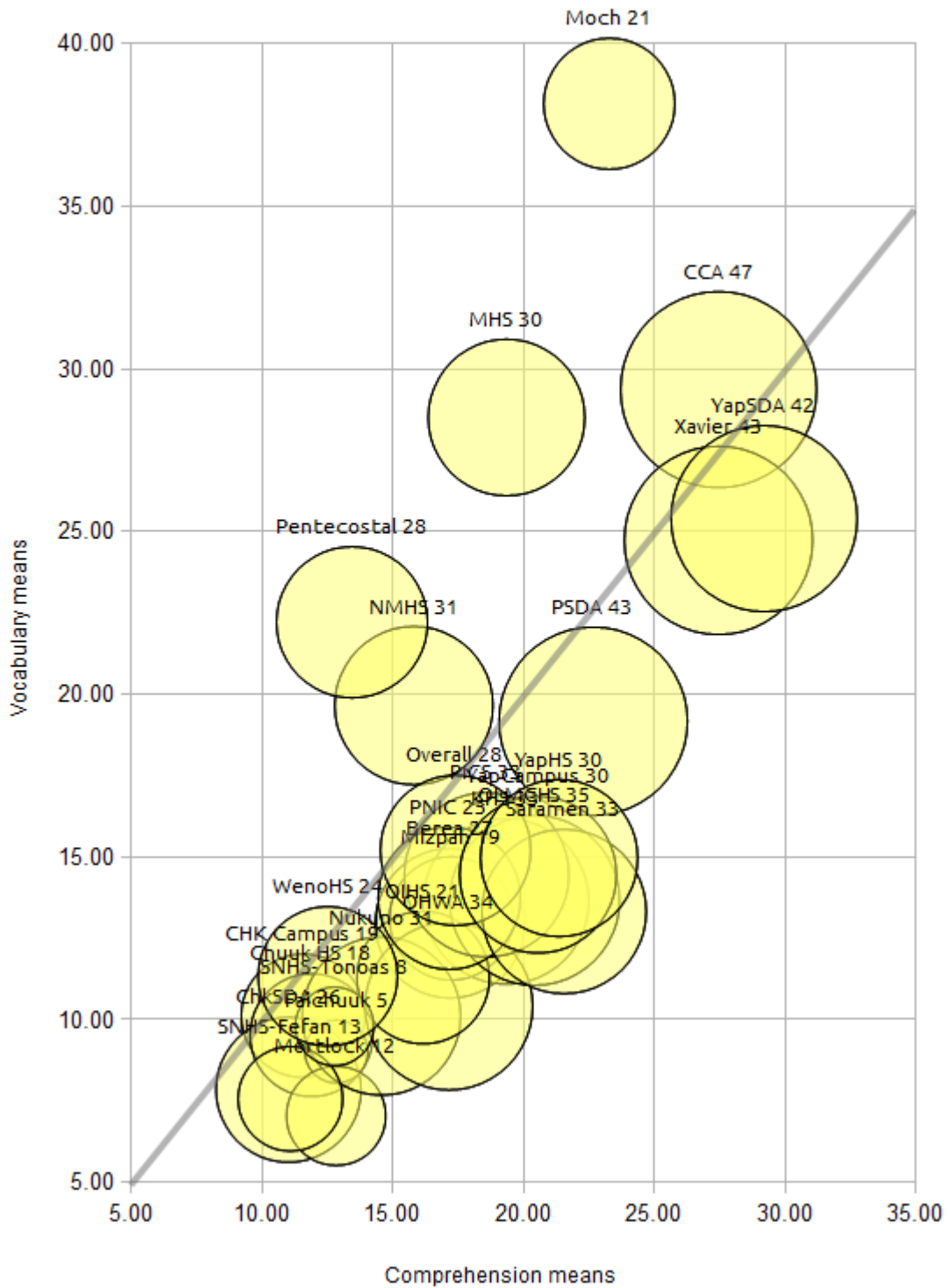
Mortlock high schools 25th percentile is zero. More than 25% of the students scored a zero on essay. This could mean the essay was off-topic, which is believed by some essay graders to reflect an inability to read the essay question. Zeros also result from completely incoherent essays.

Faichuuk high school has a median of zero – over fifty percent of the students scored a zero. Reported later in this same report, Faichuuk High School has a math score that is close to random. That is, randomly marking answers by tossing coins or rolling dice would produce the same result. After twelve years of formal education, the students have few to no skills in math or English. School has been a waste of 12 years of their precious lives. Faichuuk high school has been the weakest high school in the nation on the COMET every year except for the one year in which Weipat high school in the western islands of Chuuk state sat the test. Set the children free, close Faichuuk high school. Find another way to provide educational opportunity to these young people.

### **Essay scores in relation to comprehension and vocabulary scores**

The following bubble chart plots the high school average comprehension score on the x-axis, the average vocabulary score on the y-axis. The bubble radius is proportional to the essay average for the high school. The essay average is quoted above the bubble.

Comprehension versus vocabulary, essay average above bubble

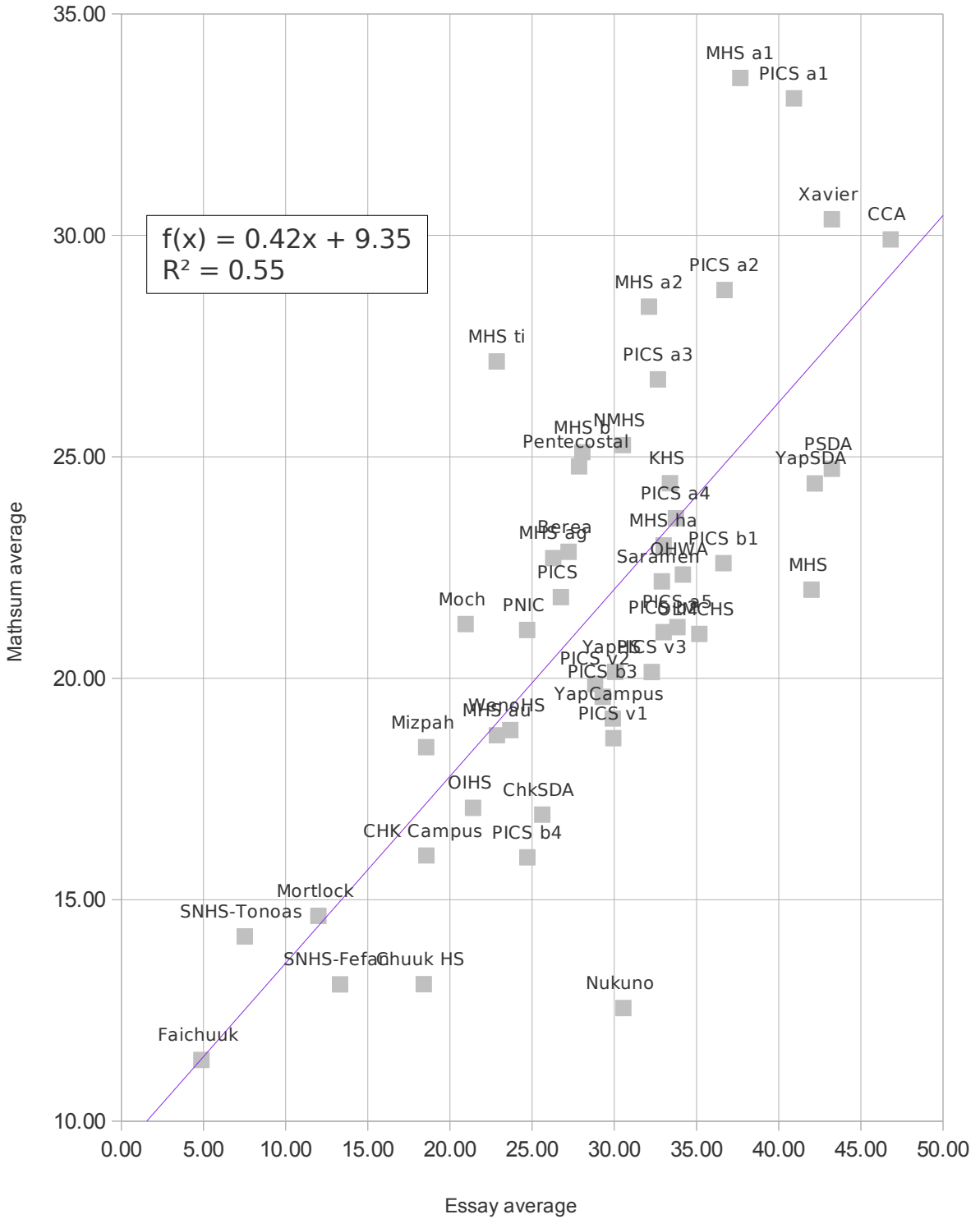


## **Essay scores versus mathematics average sum by high school**

In the past there has been a moderate correlation between scores on the English subsections and the mathematics average sum. Not a strong enough one to use the English score to place students in mathematics courses, but strong enough to detect anomalous behavior, if any exists.

There is a moderate to strong correlation between the essay average and the average of the sum of the math subsection scores with a correlation coefficient  $r$  of 0.74 for the spring 2012 data. Again, the strength of the performance of the a1 classes can be seen in the upper right hand corner of the following chart.

Correlation between essay and math score COMET spring 2012



Where data is not correlated, the data produces more information about a student than correlated data. Perfect correlation means that one could have wholly inferred the one variable from the other, and thus the second measurement is not an effective use of time and resources. The vocabulary, comprehension, and essay sections all tend to produce correlated data. As seen above, even the mathematics section correlates well with the essay section. There might not be a need to run three COMET English sections. The essay section places students in writing classes, the comprehension could place students into reading classes.

Another statistical idea to grasp is that symmetric, heap-like distributions produce more information about a student than highly skewed distributions. Think of it this way. If every student passes a test with 100%, then one knows nothing about differences in the capabilities of the students. Slightly more subtle, if every student scores 0% one again knows nothing about the differential capabilities of the students. The most information about differential student abilities is gained from distributions that are not highly skewed, from information that is relatively independent of each other.

Internal to the COMET adding sections that test natural and social sciences while possibly deleting the highly skewed vocabulary sections (see the first chart) might add information to the COMET results and should provide a more complete academic picture of a student. The addition of an essay section to the COMET led to an improvement in writing skills among the high school students. The COMET is a curriculum driver. Sections in social science and natural science should produce a better overall academic picture of the candidate and help ensure that these subjects are also focused upon by the high schools.

External to the COMET, the college should also evaluate transcripts courses successfully completed, obtain GPAs, and class information for use in admissions decisions.

### **Performance on the mathematics sections of the COMET spring 2012**

The mathematics section of the COMET consists for forty questions. The forty questions are grouped into sets of ten questions. The four groups sequentially represent higher skill levels in mathematics. Success on a set of ten questions and on the preceding groups of questions is used to place students in mathematics courses at the college.

The first ten questions cover basic arithmetic. Scoring five or less on the first ten problems places a student in MS 095 Prealgebra. This course is only offered at the sites offering certificate programs. Scoring a six or better on these ten questions places a student in MS 096 Elementary Algebra. Six is used as a cut-off because the use of seven as a cut-off under-placed students. The current criteria for success is obtaining six of the ten problems in a column correct, provided no prior column has less than five of ten correct.

The second set of ten problems focuses on pre-collegiate algebra skills. These skills are can be thought of as being roughly comparable to high school algebra one. Success on the first and second set of ten problems places a student in MS 099 Transition to Algebra.

The third set of ten problems is roughly comparable to high school algebra two. Continued success on the third column places a student in MS 100 College Algebra.

The fourth column includes problems typically encountered in college algebra. Success on all four columns places a student in their choice of 100 level math courses – MS 100, MS 101 Algebra and Trigonometry, or MS 150 Statistics.

The overall score on the mathematics section is not used for placement purposes. The overall score, however, reflects in part the overall mathematical capability of the candidate. The following table reports the average overall score on the COMET mathematics section by high school in order from highest to lowest score. The total possible is 40 points. The test is multiple choice, a random score is around  $8 \pm 2$ . Scores below 12 are essentially little better than random.

To avoid confusion with the COMET test sections, this document will refer to the sections at the high schools as classes. For Madolehnihmw High School and PICS high school, the table includes class level performance. Note that MHS refers to their academic classes as A and B, in the following table these classes are relabeled a1 and a2.

<b>High School</b>	<b>mathsum avg</b>
NMHS a1	34.34
PICS a1	33.09
MHS a1	32.95
Xavier	30.36
CCA	29.91
NMHS a2	29.43
PICS a2	28.76
MHS a2	28.39
MHS tech industry	27.15
MHS all	27.09
PICS a3	26.75
NMHS	25.26
MHS business	25.11
Pentecostal	24.79
PSDA	24.73
KHS	24.40
YapSDA	24.40
PICS a4	23.61
PICS all	23.28
MHS home arts	23.00
Berea	22.86
MHS agriculture	22.71

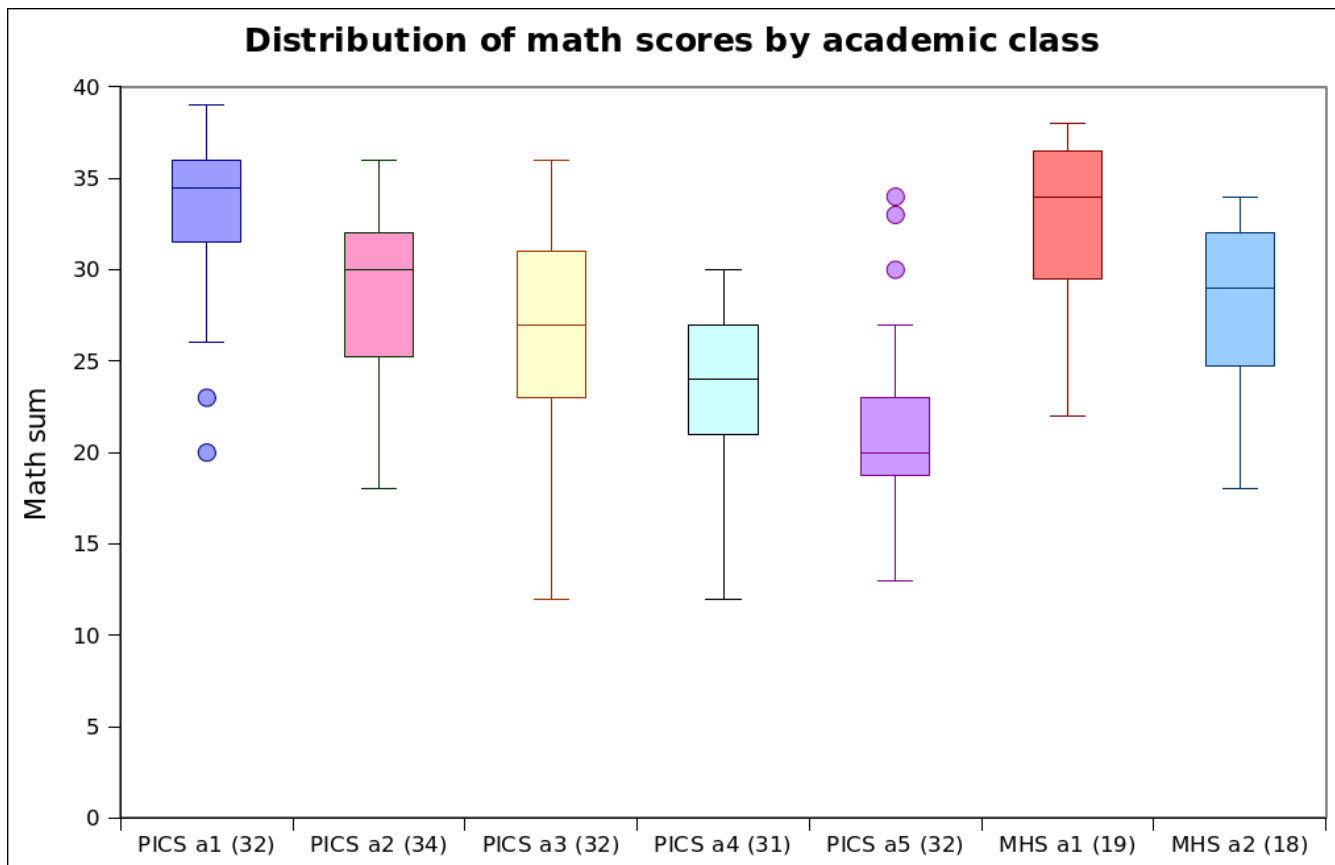
<b>High School</b>	<b>mathsum avg</b>
PICS b1	22.60
OHWA	22.34
Saramen	22.19
Moch	21.23
PICS a5	21.16
Pohnpei campus	21.09
PICS b2	21.04
OLMCHS	21.00
YapHS	20.15
PICS v3	20.14
PICS v2	19.88
PICS b3	19.58
Yap Campus	19.09
NMHS business one	18.89
WenoHS	18.83
MHS automotive	18.71
PICS v1	18.65
Mizpah	18.44
OIHS	17.07
ChkSDA	16.92
CHK Campus	16.00
PICS b4	15.96
Mortlock	14.64
SNHS-Tonoas	14.17
Chuuk HS	13.10
SNHS-Fefan	13.09
Nukuno	12.56
Faichuuk	11.38

For PICS and MHS, "all" refers to the overall high school average.

Not only were PICS a1 and MHS a1 classes the top two sections by rank order, but MHS high school overall was number three in the nation and NMHS was the number four ranked school in the nation. PICS overall was ninth ranked of the 28 high schools.

### **Distribution of scores in the top academic classes**

An analysis of the distribution of scores in the academic classes at PICS and MHS was used to produce the following box plot.



The number in parentheses is the sample size n. The two high schools have a statistical difference in the class sizes.

The higher of the two low outliers for PICS class A1 is a student with a math sum of 23 which was the result of scores of 0, 10, 8, and 5 on the four subsections respectively. To have scored a zero on the first column, the easiest problems, and then to have scored a 10 and an 8 on the next two seems unlikely. The zero suggests the student somehow mis-marked that subsection. That said, the student's scores on vocabulary (6), comprehension (15), and essay (28) are well below the averages for a PICS a1 student (21.5, 23.4, and 40.9 respectively). Whether the student was simply not well on the day of the test, unmotivated to do well for other reasons, or other factors cannot be known from the data.

The other low outlier for PICS class A1 is a student with a math sum of 20 which was the result of scores of 8, 4, 3, and 5. These scores are not statistically inconsistent. This student also scored below average on vocabulary (12), comprehension (21), and the essay (35).

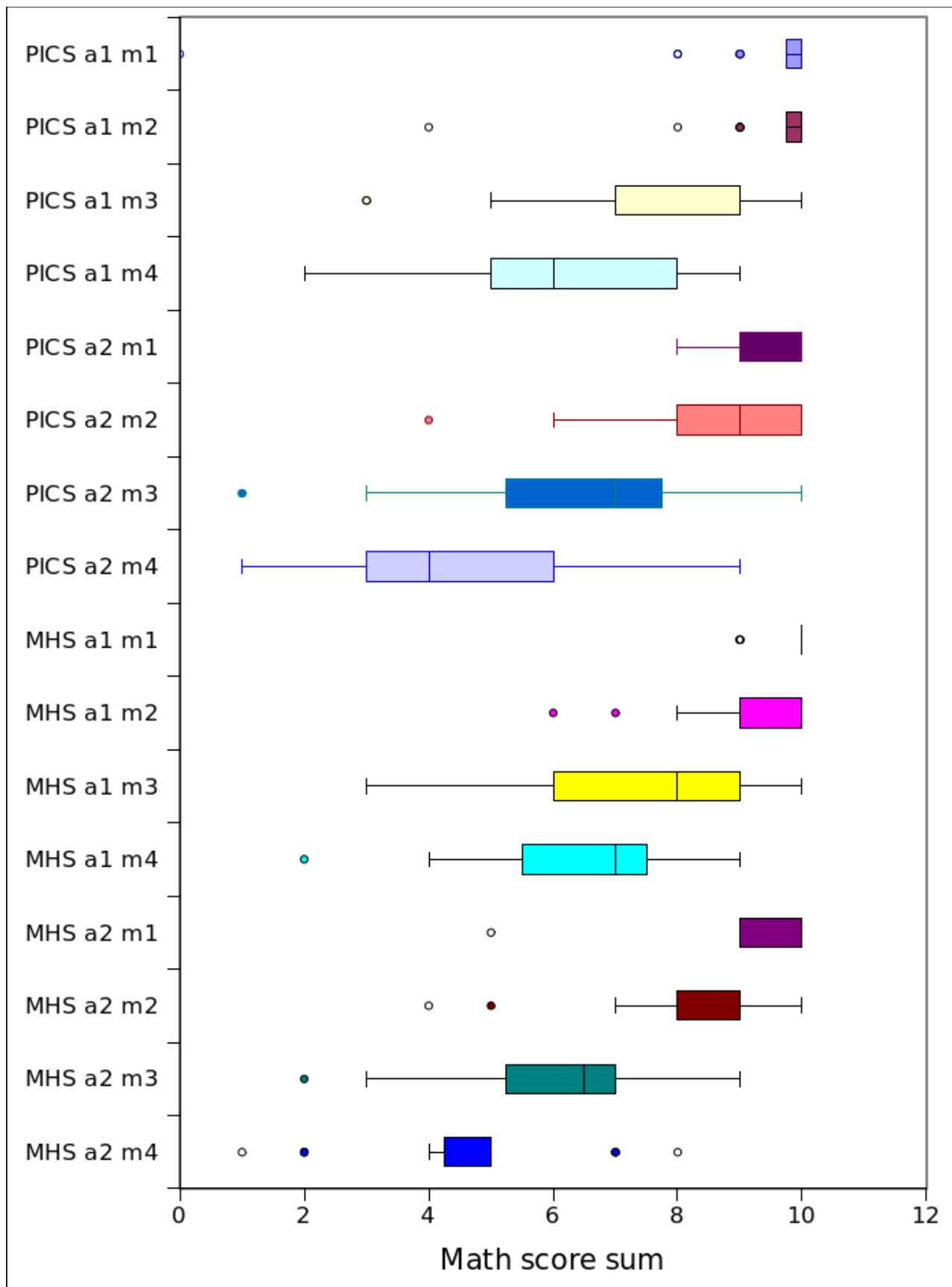
The three high outliers in PICS class A5 placed into MS 101 (two students) and MS 100 (one student). Due to performance on the vocabulary, comprehension, and essay sections one student was admitted to associate degree programs, one to certificate programs, and one student did not gain admission. The latter most student scored a 10, 9, 9, 6 on the COMET



math subsections, but a 15, 5, and 28 on the vocabulary, comprehension, and essay sections. A student might excel in mathematics, but struggle in the second language that is English.

Overall performance tends to drop as the class number increases. Both the median and the distribution of the students is lower with increasing class number at both high schools. This relationship between the high school classes and the COMET math performance argues that class information is informative in regards to mathematics ability. Given that class information provides real information on overall student ability, student grades within a class should provide an even clearer picture of a student's mathematical capability.

Placement is based on the performance of students on the four subsections of the COMET math test. In the following chart the scores for the four subsections are displayed using a box plot. The subsections are labeled m1, m2, m3, and m4. The chart includes four classes, PICS a1, PICS a2, MHS A and MHS B classes. The MHS A and B classes are again labeled a1 and a2. One of the intentions of this data exploration is related to the plan at MHS to offer algebra and trigonometry to their academic class seniors this fall. Would the median score for MHS academic classes place their students into algebra and trigonometry?



As would be expected if the placement test is performing properly, the median and distribution both decrease with increasing COMET math subsections. As noted before, the a1 classes performed better on each subsection than the a2 classes at each school

All four high school classes performed strongly on the first two COMET math subsections. For MHS a1 on subsection m1 – the first ten problems – all but four students scored a perfect 10. This made the 25th, 50th (median), and 75th percentile all equal to 10 and the inter-quartile range equal to zero. The outlier at 9 is the four students who did not score a perfect 10, they scored 9 of 10 correct.

In subsection m4 the median for PICS a1 and a2 was 6 and 4 respectively, MHS a1 and a2 was 7 and 5 respectively. By median the MHS a1 class would place into MS 101 Algebra and Trigonometry, the a2 class median is one point below placing into MS 101 Algebra and Trigonometry.

A single point below the cut-off for MS 101 is not statistically significant in a sample of this size. The MHS a1 (A) class is ready for algebra and trigonometry and the a2 class is in a position to tackle algebra and trigonometry with support from their instructor and an awareness that the material will be more challenging for this class.

For the purposes of admissions, recruitment, and retention, at the college, knowledge of the class (high school section) coupled with the COMET performance is likely to be a better predictor of college success than consideration of the COMET scores alone. The class placement of students has academic meaning. The a1 class students outperformed even their private school counterparts.

This author has said, "Put any PICS a1, a2, or MHS a1, a2 student who has passed their Algebra II course into MS 100 and I believe they have the skill set necessary to succeed in the course." Past work suggests that Kosrae High School advanced class students also have the necessary math skills to succeed in college level math, but class lists were not available for KHS this year.

Even those students in the top academic classes who did not score well on the COMET math subsections are likely to have the study skills needed to succeed. Pre-tests in college courses have shown that students who have passed MS 100 test poorly on even the most basic of algebraic skills (<http://danaleeling.blogspot.com/2012/06/numeric-information-in-graphic-forms.html>). These students, who have passed MS 100, would not be able to place into MS 100 if tested! Knowing the academic background may provide more information than a single event, high stakes test.

### **Supplementary report on Pohnpei UB performance**

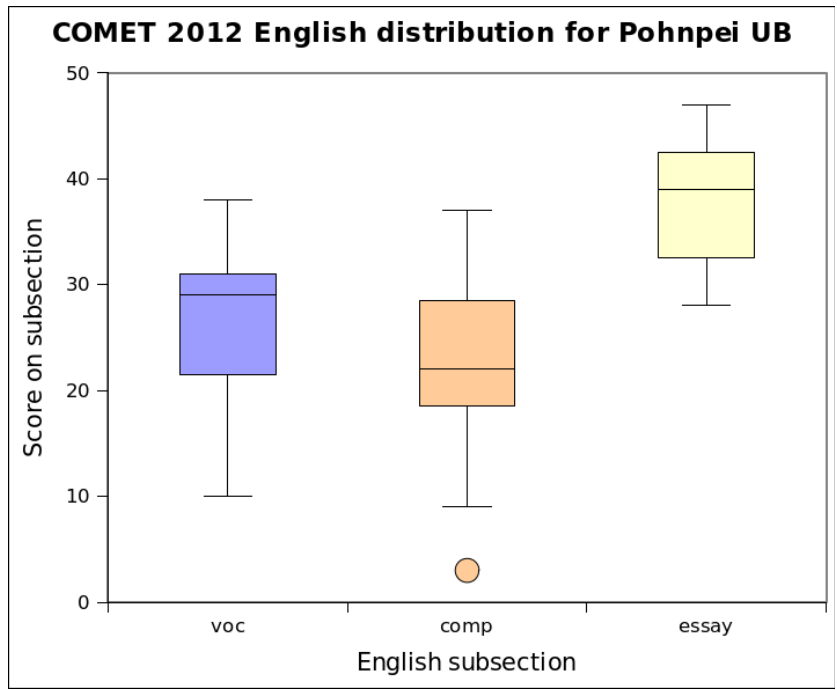
Class lists for Pohnpei Upward Bound were received after the above report was completed. The following tables and charts examine the performance of the Pohnpei UB students. The UB students attend PICS (n = 8), NMHS (n = 9), and MHS (n = 6)/

The following table reports the essay average for Pohnpei Upward Bound along with other groups for comparison purposes.

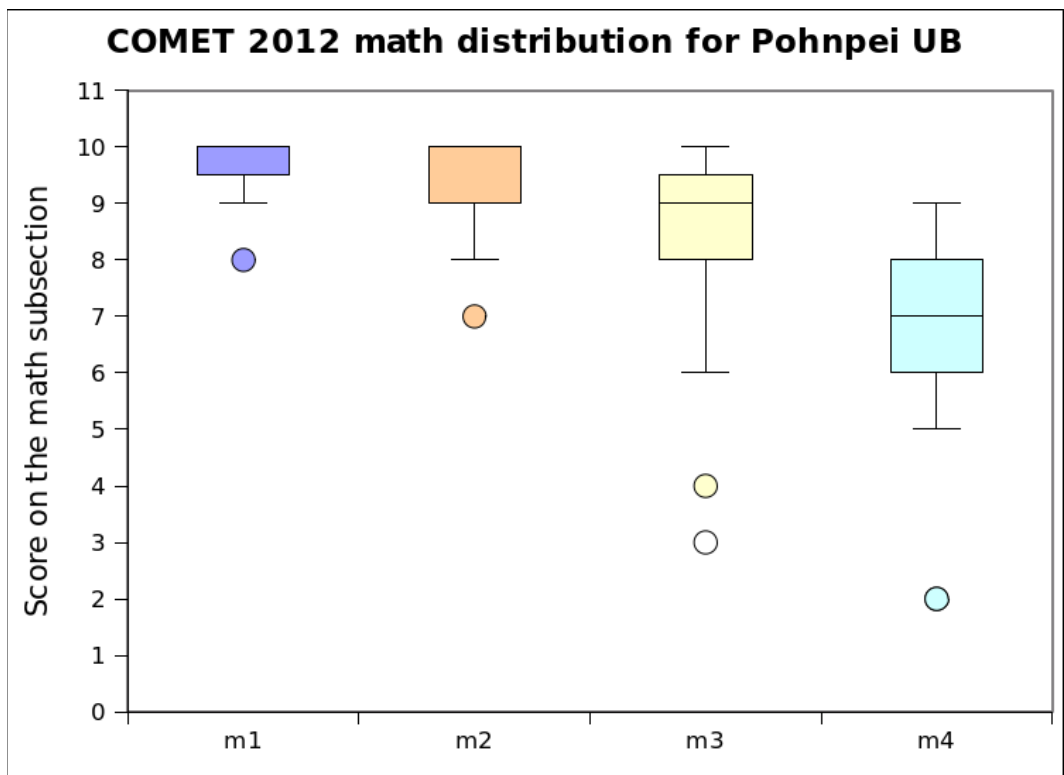
<b>Group</b>	<b>Average essay score</b>
PICS upward bound students	41.50
PICS a1 class students	40.94
Pohnpei Upward Bound	38.09
MHS a1 class students	37.89
MHS upward bound students	37.00
NMHS a1 class students	36.22
NMHS upward bound students	35.97
PICS overall	32.95
NMHS overall	30.51
MHS overall	29.85

While the PICS UB students outscored the PICS a1 section, the MHS upward bound students scored lower, on average, than the MHS a1 section in that school. Note that the samples are not independent, the UB students are more often found in the a1 section.

In general, the UB students are not strongly lifted above their academic cohort at their particular school. Of more concern is that an essay score of 40 is required for placement into college level writing classes. Only the PICS UB students exceeded an average of 40. The median for Pohnpei UB on the essay section was 39. The distribution on the three English sections is displayed in the following box plot.



The distribution of the Pohnpei Upward Bound students on the mathematics section is provided in the following box plot.

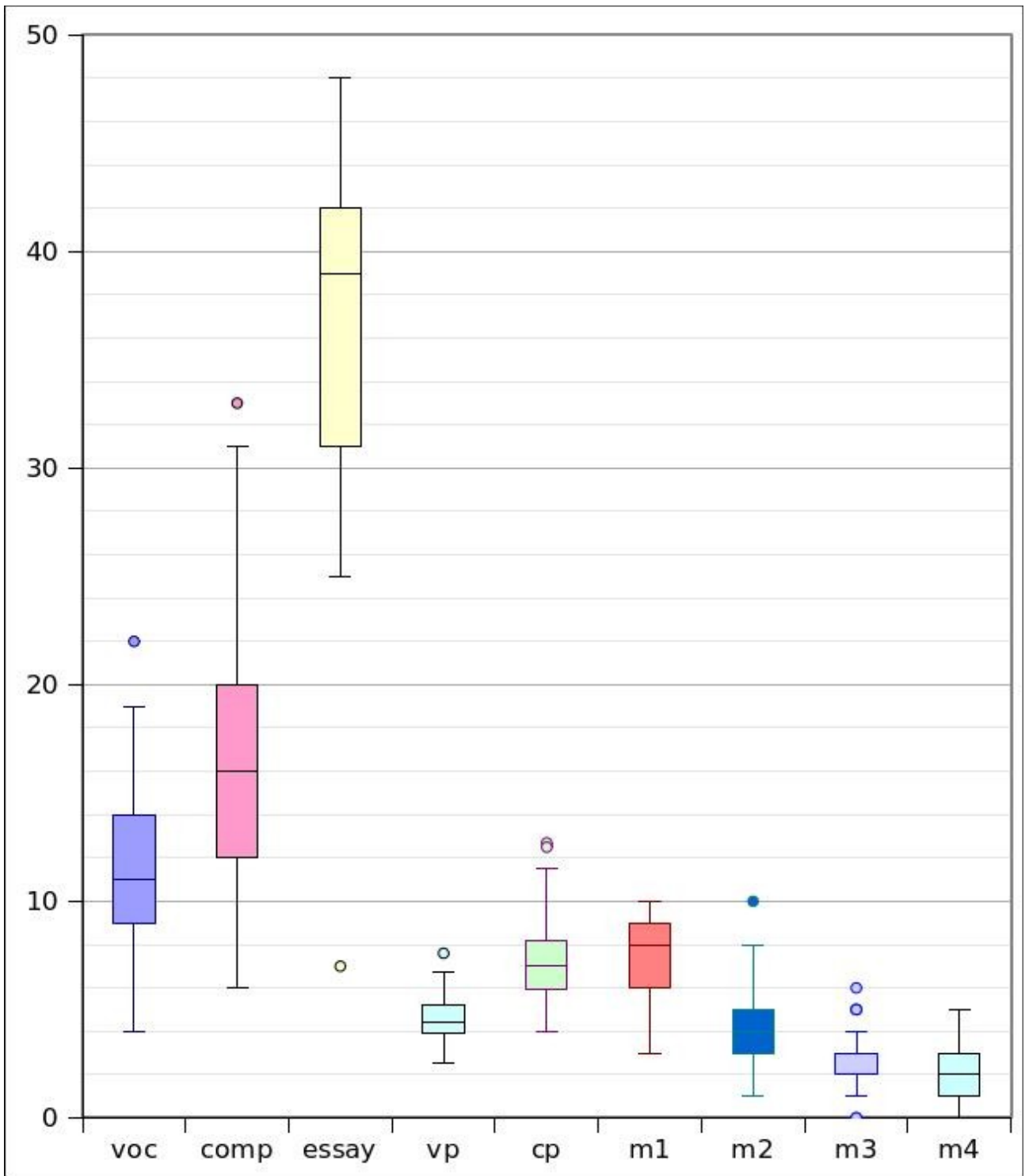


The median scores for all four sections exceed six, with a fourth subsection median of seven. For the third subsection, which places students into MS 100 College Algebra, a score of six is  $1.5 \times \text{IQR}$  below the 25th percentile. Only two of the 23 students were unable to place into college level mathematics. Four placed into MS 100 and the remaining 17 placed into courses beyond MS 100 College Algebra. The UB mathematics program saw more success than the writing program.

As noted earlier in this report, there is a tendency by those outside of the department of education to paint the secondary school system with a broad brush of negative assessments. Such assessments ignore the very real differences that exist in the curricula for students in different tracks in the high schools. In the top academic classes, the students are being prepared for further education and success in college. Use of a combination of the COMET scores, high school class and high school GPA would behoove the College of Micronesia-FSM and benefit the students in the high schools.

### **Addendum: Chuuk High School Advanced section data**

After completing the above report the author received a class list from Chuuk High School. Chuuk High School Advanced obtained an 11.52 average on vocabulary, 17.0 average on the comprehension, 36.82 on the essay, and a 16.09 average on the sum of the mathematics subsections.



## Addendum: Nanpei Memorial High School data

On 30 October 2012 an analysis was run of the Nanpei Memorial High School sections academic one (a1), academic two (a2), and the business section. Some of the results have integrated into the tables earlier in this report. The mean essay scores in descending order by school including NHMS are presented in the following table.

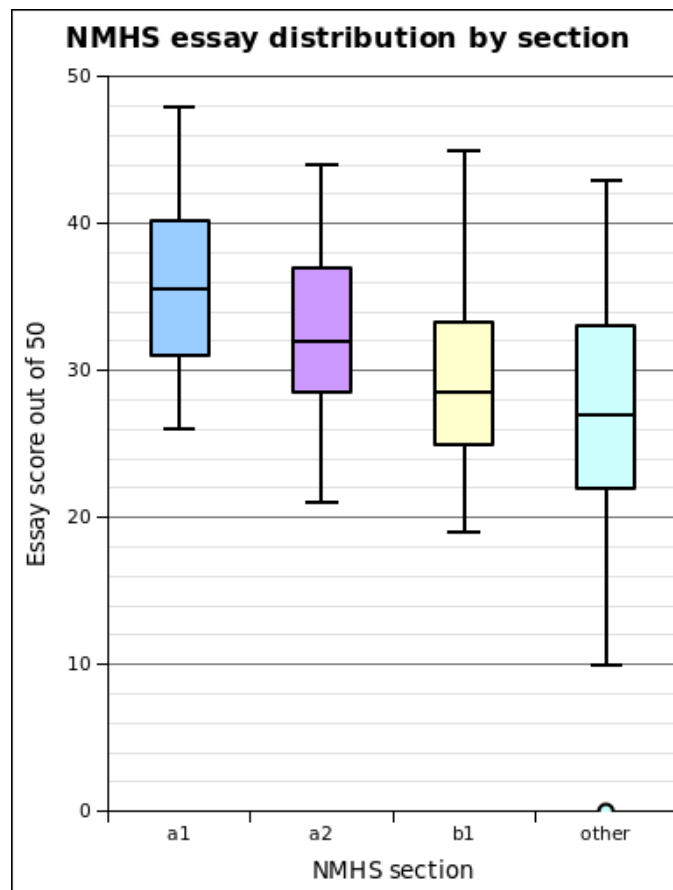
<b>HS essay</b>	<b>Mean</b>
CCA	46.82
PSDA	43.24
Xavier	43.24
YapSDA	42.20
PICS a1	40.94
MHS a1 (A)	37.89
CHS a1	36.82
PICS a2	36.71
NMHS a1	36.22
OLMCHS	35.17
OHWA	34.17
KHS	33.39
PICS	32.95
Saramen	32.89
NMHS a2	32.48
MHS a2 (B)	32.11
Nukuno	30.56
NMHS	30.51
YapHS	30.06
MHS	29.86
NMHS b	29.18
Pentecostal	27.86
Berea	27.21
ChkSDA	25.62
WenoHS	23.67
OIHS	21.41



HS essay	Mean
Moch	20.95
Mizpah	18.56
Chuuk HS	18.41
SNHS-Fefan	13.32
Mortlock	12.00
SNHS-Tonoas	7.52
Faichuuk	4.87

Nanpei A1 section ranks below the A1 sections at MHS and PICS, but the differences are small. The standard error for the NMHS mean is  $\pm 1.1$ , with the 95% confidence interval extending  $\pm 2.2$ . This suggests that any score within 2.2 points of the NMHS mean is not statistically significantly separated.

The distribution of essay scores by section can be glimpsed in the following box plot.



The sections show increased performance with section, A2 outperformed B1 and A1 outperformed A2. As in the other high schools, the sections have rank order meaning. There is useful admissions information embedded in knowledge of the student's section.

On the mathematics section, the NMHS A1 students were top ranked in the nation. The following reproduces the first few rows of a table presented earlier in this report.

<b>High School</b>	<b>mathsum avg</b>
NMHS a1	34.34
PICS a1	33.09
MHS a1	32.95
Xavier	30.36
CCA	29.91
NMHS a2	29.43
PICS a2	28.76
MHS a2	28.39
MHS tech industry	27.15
MHS all	27.09
PICS a3	26.75
NMHS	25.26

NMHS A1 outperformed both PICS A1 and MHS A1. All three sections outperformed the private schools in the nation. Mathematics education in the Pohnpei public high schools is a success story.

Use of the math component of the COMET test in admissions decisions has occurred for a decade. During this decade performance has improved among the Pohnpei public schools and the advanced sections at schools such as Kosrae High School. The COMET is driving curricular choices in the high schools.

## **Recommendations**

1. The Recruitment, Admissions, and Retention committee should consider altering admissions to take into account the candidate's high school, high school class, the GPA, courses successfully completed, in combination with the COMET scores. The college could accomplish this by requiring transcripts from each applicant.
2. The college should continue to work with the Pohnpei Department of Education, the leadership at the Pohnpei high schools, and the mathematics instructors at those high schools to better transition students from the high schools to the college. This effort should include the annual production analyses such as this one which looks at performance by high school class. In addition, this effort should be expanded to other states utilizing the presence of the college in each state to make contacts and hold information sharing meetings.
3. The COMET test should be retained but redesigned to add a section that would cover natural and social sciences. To prevent examination bloat, the vocabulary section

should be eliminated.

Author and contact information:

All errors are solely those of the author. Please contact Dana Lee Ling at [dleeling@comfsm.fm](mailto:dleeling@comfsm.fm) or 691-320-2480 extension 228 if you have questions, corrections, or unmet data needs in regards the COMET test. If there is break-out aggregate data you require such as class level data not broken out above, please send me a list of the names of the students/candidates and I can generate the aggregate statistics for those students/candidates.

Appendix A.

<b>COMET Sub-Test 3 (Writing) Analytic Scale [Essay rubric]</b>	
<b>Syntax</b>	
5	Grammar and word order nearly perfect.
4	Some errors of grammar or word order but communication not impaired.
3	Errors of grammar or word order fairly frequent; occasional re-reading necessary for full comprehension.
2	Errors of grammar or word order frequent; efforts of interpretation sometimes required on reader's part.
1	Errors of grammar or word order very frequent; reader often has to rely on own interpretation.
0	Errors of grammar or word order so severe as to make comprehension virtually impossible.
<b>Vocabulary</b>	
5	Wide and correctly used vocabulary.
4	Occasionally uses inappropriate terms or relies on circumlocution; expression of ideas not impaired.
3	Uses wrong or inappropriate words fairly frequently; expression of ideas may be limited because of inadequate vocabulary.
2	Limited vocabulary and frequent errors clearly hinder expression of ideas.
1	Vocabulary so limited and so frequently misused that reader must often rely on own interpretation.
0	Vocabulary limitations so extreme as to make comprehension virtually impossible.
<b>Organization</b>	
5	Extremely well organized.
4	Material fairly well organized; links could occasionally be clearer but communication not impaired.
3	Some lack of organization; re-reading required for clarification of ideas.
2	Little or no attempt at connectivity, though reader can deduce some organization.
1	Individual ideas may be clear, but very difficult to deduce connection between them.
0	Lack of organization so severe that communication is seriously impaired.
<b>Cohesion</b>	
5	Strong cohesion with smooth transitions both within and between paragraphs.
4	Occasional lack of consistency in choice of cohesive structures and vocabulary but overall ease of communication not impaired.
3	'Patchy', with some cohesive structures or vocabulary items noticeably inappropriate to general style.
2	Cohesive structures or vocabulary items sometimes not only inappropriate but also misused; little sense of ease of communication.
1	Communication often impaired by completely inappropriate or misused cohesive structures or vocabulary items.

0	A 'hotchpotch' of half-learned misused cohesive structures and vocabulary items rendering communication almost impossible.
	<b>Content</b>
5	Full and complete answer, inclusive of all parts of the task.
4	Relevant and adequate answer to the task set.
3	For the most part answers the task set, though there may be some gaps or redundant information.
2	Answer of limited relevance to the task set. Possibly major gaps in treatment of topic and/or pointless repetition.
1	Answer bears little relation to the task set.
0	No evidence of assigned task. (If it is obvious that the student wrote on an unrelated topic give a zero for the content but mark the essay for syntax, vocabulary, cohesion, and organization. If there is found to be evidence that the essay is a "canned" or "memorized" essay, then the essay receives a zero on all metrics.)