

## COMET Spring 2020 Statistical Exploration by High School

This document is an exploration of data from the College of Micronesia-FSM spring 2020 entrance COMET with a focus on individual high school statistics. In this document the word "sections" refers to high school sections. The word subsection will be used to refer to the different sections of the COMET entrance instrument. This document should be construed as an occasional informal paper by a member of faculty. Any opinions expressed are solely those of the author and do not reflect an official position of the college.

This year's report is shorter and less detailed than those of prior years. The closure of many schools across the Federated States of Micronesia occurred prior to the time frame in which this data is sought by the author.

### Basic statistics for all candidates

The COMET consists of four subsections: a written essay, a vocabulary test, a comprehension test, and a mathematics placement test. Total possible for the essay is 50 points. The mathematics subsection has four sets of ten problems designed to help place students. The total possible for the sum of the mathematics scores is 40. The msum column tracks the sum of the four math subsection scores. There are also sections that test vocabulary and comprehension.

Statistics 2020	Essay	Voc	Comp	MS095	MS096	MS099	MS100	msum
n	1352	1352	1352	1352	1352	1352	1352	48
min	0	2	1	0	0	0	0	7
max	50	79	37	10	10	10	10	35
mode	36	20	18	9	10	2	3	25
median	34	30	19	8	8	4	3	23
mean	32.40	33.46	19.17	7.23	7.21	3.96	3.38	22.65
sx	10.49	15.67	7.04	2.48	2.31	2.43	2.06	5.56
cv	0.32	0.47	0.37	0.34	0.32	0.61	0.61	0.25

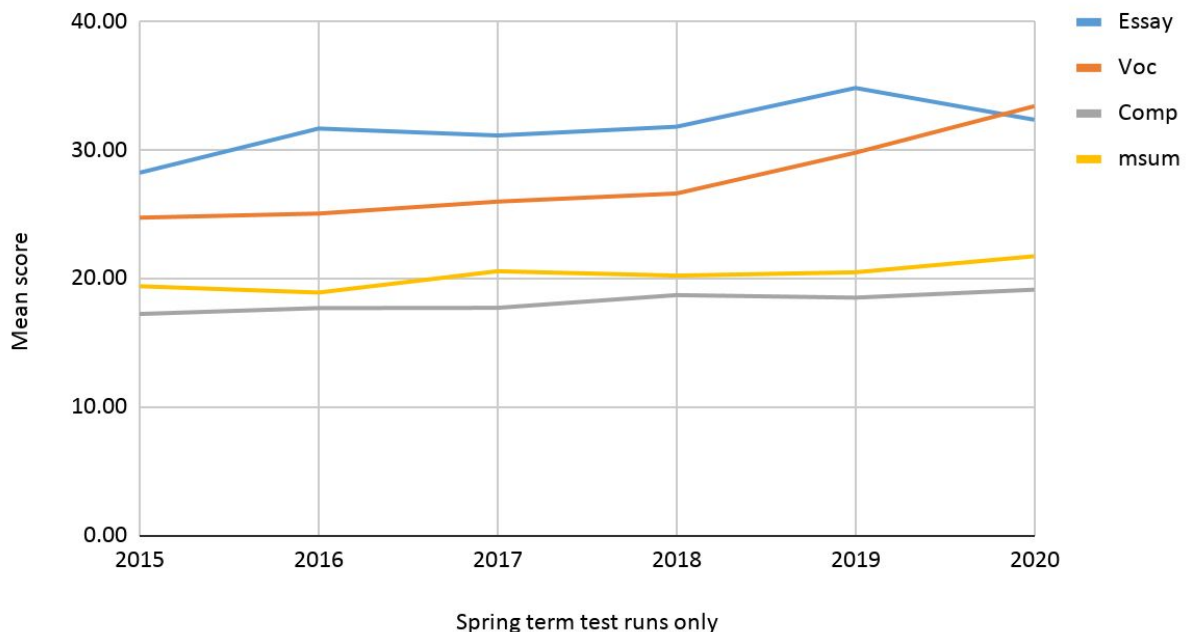
## Correlations internal to the data

Correlations	Essay	Voc	Comp	MS095	MS096	MS099	MS100	msum
Essay	1.00	0.38	0.63	0.47	0.48	0.33	0.22	-0.03
Vocab	0.38	1.00	0.44	0.26	0.30	0.28	0.28	0.26
Comp	0.63	0.44	1.00	0.48	0.53	0.47	0.33	0.30
Math sum	-0.03	0.26	0.30	0.73	0.67	0.79	0.61	1.00

Correlation of the language sections of the COMET to the mathematics sections are low, with especially poor correlations to skills in college algebra. There remains no way to infer mathematical capabilities from language skills. This suggests that the mathematics section continues to be necessary for placement purposes.

## Means by COMET subsection versus the year

Mean by COMET subsection versus year

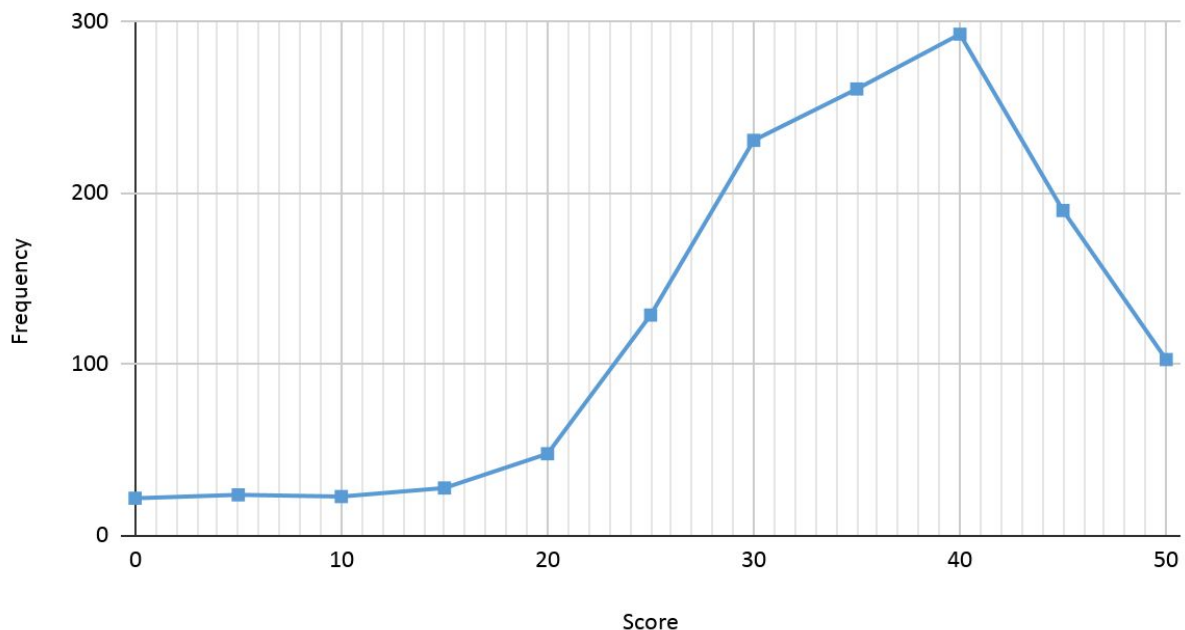


The essay average dropped year-on-year, while vocabulary average continued a two year improvement. The average on the math and comprehension subsections have remained generally stable over the past six administrations of the COMET.

## Essay score distribution

At one time the distribution of essay scores had a large number of essays marked as a zero - essays that were off topic or written in a language other than English. The original essay marking rubric had only a four point scale. A fifth point was added to each metric (syntax, vocabulary, organization, cohesion, content) when the number of papers maxing out on the rubric also strongly skewed the distribution. The number of zeroes was also reduced by instructing scorers to be more judicious in their marking a paper with zeroes across all metrics. If there are words in English on the paper, then if nothing else that is worthy of a point for vocabulary.

### Essay score distribution spring 2020



The essay score distribution is roughly normal with a left tail. This suggests that the essay subsection remains at an appropriate level for the candidates.

## High school abbreviations

Sch	School	State
Berea	Berea Christian High School	Chuuk
CCA	Calvary Christian Academy	Pohnpei
CHS	Chuuk High School	Chuuk
CSC	COM-FSM Chuuk Campus	Chuuk

CTEC	Career and Technical Education Center	Pohnpei
Faichuuk	Faichuk High School	Chuuk
Faith CA	Faith Christian Academy	Yap
KHS	Kosrae High School	Kosrae
KSC	COMFSM Kosrae Campus	Kosrae
MHS	Madolenihmw High School	Pohnpei
Moch	Moch	Chuuk
Mortlock	Mortlock	Chuuk
NICHS	Neighboring Island Community HS	Yap
NMHS	Nanpei Memorial High School	Pohnpei
Nukuno	Nukuno High School	Chuuk
Ohwa	Ohwa International Christian Academy	Pohnpei
OIHS	Outer Island High School	Yap
OLMCHS	Our Lady of Mercy Catholic High School	Pohnpei
PCS	Pohnpei Catholic School	Pohnpei
PICS	Pohnpei Island Central School	Pohnpei
PSDA	Pohnpei Seventh Day Adventist School	Pohnpei
SCA	Saramen Chuuk Academy	Chuuk
SNHSF	Southern Namoneas High School-Fefan	Chuuk
SNHST	Southern Namoneas High School-Tonoas	Chuuk
XHS	Xavier High School	Chuuk
YCHS	Yap Catholic High School	Yap
YHS	Yap High School	Yap
YICS	Yap International Christian School	Yap
YSC	COM-FSM Yap Campus	Yap
YSDA	Yap Seventh Day Adventist School	Yap

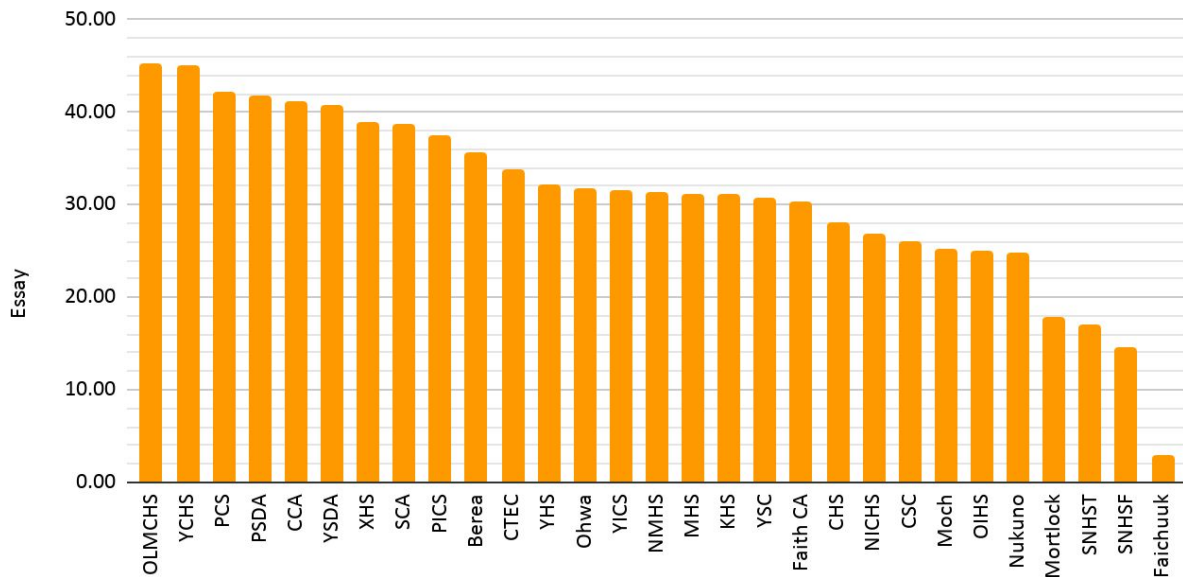
## Overall average performance on subsection by high schools

In the table the n is the sample size, vocab refers to the vocabulary subsection, and comp refers to the comprehension subsection. The math column is based on the sum of the four subsections of the math component of the COMET. All values are the overall average for that school on the given subsection. Small differences in the average scores are not significant. Note that for each subsection the schools are sorted into rank order.

School	n	School	Essay	School	Vocab	School	Comp	School	Math
Berea	13	OLMCHS	45.25	MHS	54.14	CCA	30.59	YCHS	34.20
CCA	22	YCHS	45.05	CCA	50.14	YCHS	29.55	XHS	30.67
CHS	171	PCS	42.31	YCHS	49.65	XHS	28.57	NMHS	29.80
CSC	46	PSDA	41.90	OLMCHS	49.38	OLMCHS	28.16	OLMCHS	29.16
CTEC	39	CCA	41.23	CHS	45.68	YSDA	26.80	MHS	28.75
Faichuuk	19	YSDA	40.70	PSDA	41.74	PSDA	26.39	CCA	27.68
Faith CA	22	XHS	39.03	YSDA	40.60	PCS	22.42	PSDA	26.10
KHS	123	SCA	38.80	XHS	38.73	PICS	20.56	NICHS	25.72
MHS	63	PICS	37.47	Berea	38.38	YSC	20.33	YHS	23.38
Moch	16	Berea	35.77	NMHS	33.26	YHS	20.24	PCS	23.00
Mortlock	17	CTEC	33.85	PICS	32.57	Berea	20.08	KHS	22.28
NICHS	32	YHS	32.26	YICS	29.50	KHS	20.07	YSDA	21.80
NMHS	125	Ohwa	31.82	OIHS	29.48	SCA	19.92	PICS	21.77
Nukuno	9	YICS	31.50	CTEC	28.33	Faith CA	19.91	YSC	21.00
Ohwa	11	NMHS	31.30	YHS	27.65	NMHS	19.30	CTEC	20.46
OIHS	23	MHS	31.21	PCS	27.46	YICS	19.25	Faith CA	19.55
OLMCHS	32	KHS	31.20	Faith CA	26.36	MHS	17.59	OIHS	19.04
PCS	26	YSC	30.83	SCA	26.20	NICHS	16.91	Berea	18.38
PICS	298	Faith CA	30.45	KHS	25.90	CTEC	16.82	YICS	17.75
PSDA	31	CHS	28.09	YSC	23.33	OIHS	16.52	SCA	17.56
SCA	25	NICHS	26.91	CSC	23.09	Ohwa	15.64	Moch	16.06
SNHSF	24	CSC	26.00	Nukuno	22.22	CHS	14.95	SNHST	15.00
SNHST	15	Moch	25.19	NICHS	21.59	CSC	14.33	CHS	14.84
XHS	30	OIHS	25.04	Moch	19.50	Nukuno	13.11	Ohwa	14.82
YCHS	20	Nukuno	24.89	Ohwa	18.18	Moch	13.06	CSC	14.59
YHS	80	Mortlock	17.82	SNHST	17.87	SNHST	13.00	Mortlock	13.71
YICS	4	SNHST	17.07	SNHSF	17.13	Mortlock	11.24	Nukuno	12.44
YSC	6	SNHSF	14.71	Faichuuk	16.37	SNHSF	10.75	SNHSF	11.38
YSDA	10	Faichuuk	2.89	Mortlock	16.12	Faichuuk	8.84	Faichuuk	10.79
<b>Total</b>	<b>1352</b>	<b>Mean</b>	<b>32.40</b>	<b>Mean</b>	<b>33.46</b>	<b>Mean</b>	<b>19.17</b>	<b>Mean</b>	<b>21.78</b>

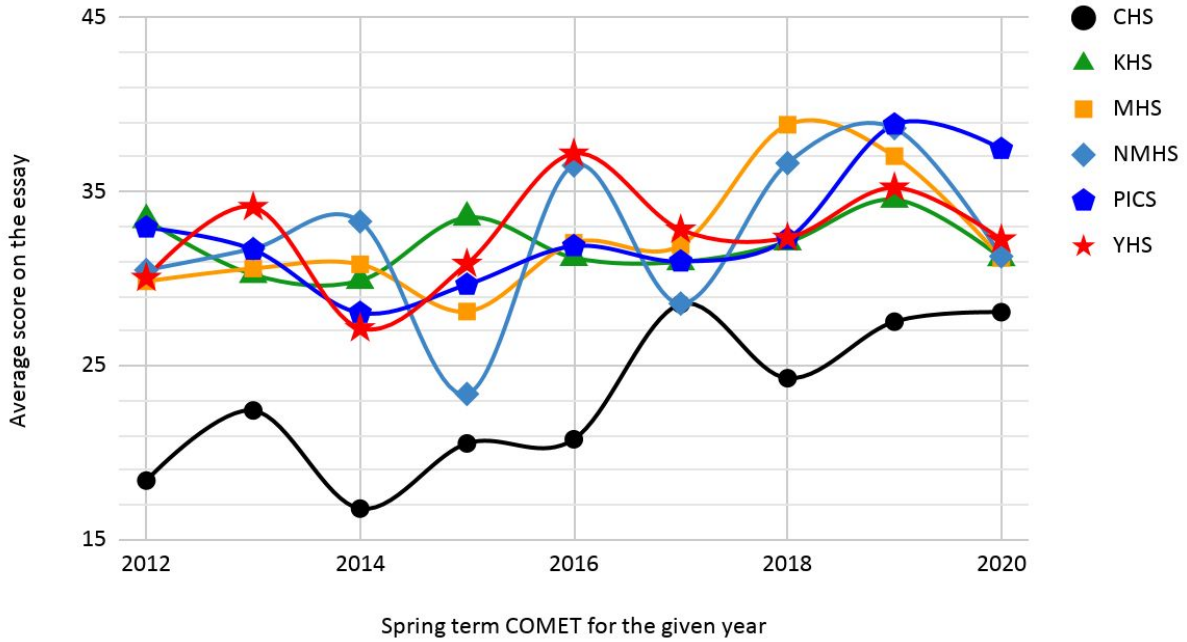
While placement does not depend on any single score, an essay score of 40 or higher usually results in placement in a college level writing course. An essay score of 34 to 39 is likely to result in placement in a one semester developmental writing course. Scores between 20 and 34 yield program admission decisions that depend in part on the other subsection scores.

Mean essay score vs. School spring 2020



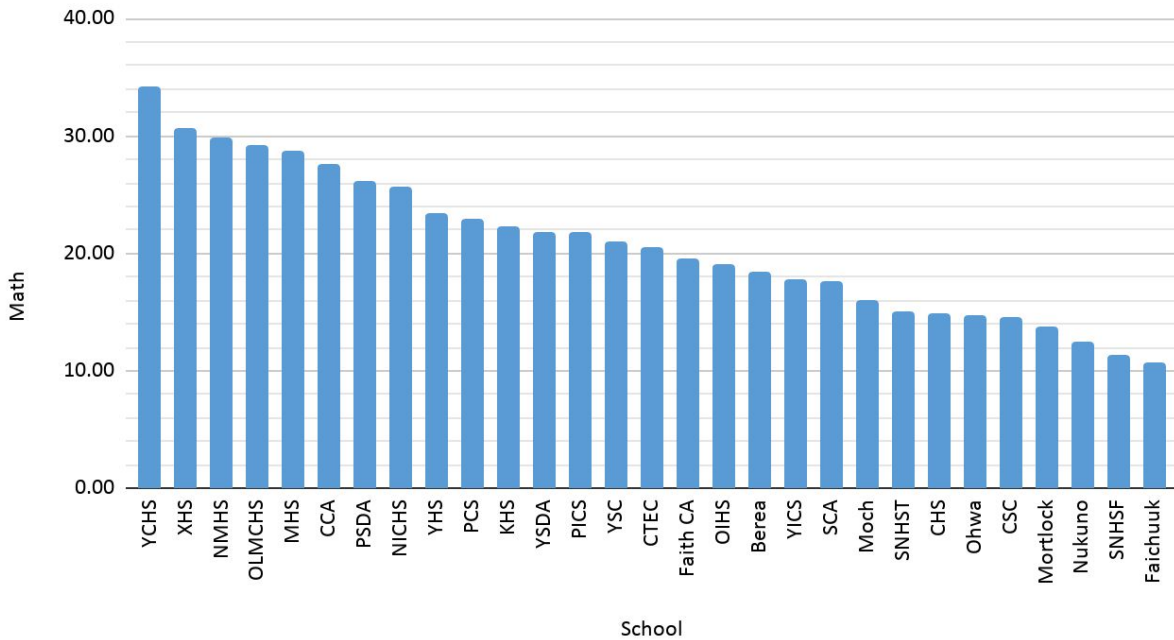
Essay scores below 20 are the result of errors of grammar or word order being frequent, limited vocabulary and frequent errors clearly hindering expression of ideas, an essay that evidences little or no attempt at connectivity - although the reader can deduce some attempt at organization, and the essay response is of limited relevance to the task set. Below 20 there may be major gaps in the treatment of topic and/or pointless repetition. As an anecdotal reference point, some years ago a fifth grade student with L1 skills in English wrote an essay that scored a 36. High school averages below 20 suggest a rather comprehensive systemic failure across multiple years of education.

### Essay test averages for specific high schools



A look at the average essay score for the larger public high schools in the nation shows that Chuuk High School's overall average continues a generally improving trend. Pohnpei Islands Central School held the highest average on the essay subsection in 2020. As a statistical curiosity, Kosrae High School, Madolehnihmw High School, Nanpei Memorial High School, and Yap High School had averages that were a statistical tie near an average of 31.

## Mean math score vs. School spring 2020



The math score sum does not translate into placements per se as this subsection consists of four sets of ten problems each targeting a particular level in mathematics. These are multiple choice questions. Randomly selecting answers should generate a score of roughly eight. Averages near ten or less suggest near random answering of the questions. The first ten questions are usually at an arithmetic and pre-algebra level of mathematics. A sum of less than fourteen would suggest a fundamental failure to lift students above the most basic numeric skills. High schools with an average lower than this ought to be taking a critical look at their mathematics programs.

This year due to school closures section lists were not sought. The above numbers should therefore be viewed with the understanding that the larger schools incorporate a number of programs, not all of which are college preparatory programs. Overall averages hide the potentially stronger performance of some programs within a school, and the weaker performance of other programs in a school.



## Gender differentials

The number of females who sat for the COMET outnumbered the number of males, thus the number of females placing at a particular level should exceed the number of males.

Gender 2020	Degree	Ace	Certificate	Non-admits	Totals
Female	316	135	162	111	724
Male	234	140	138	116	628
Differential F - M	82	-5	24	-5	96

Gender differentials were explored for the essay average and math sum average by state. Given the large underlying n, differences may be significant from a frequentist statistical point of view, but the size of the effect is generally small.

Essay 2020	Chuuk	Kosrae	Pohnpei	Yap	Mean
Female	27.86	32.93	37.36	33.25	33.46
Male	24.54	29.66	35.07	30.69	31.18
State means	26.49	31.20	36.27	32.02	32.40

In all four states the female candidates outperformed the male candidates on average on the essay subsection of the COMET. Differences between states are confounded by the mix of public and private schools in each state. Due to the different underlying mixes of school systems for each state, comparisons between states are not necessarily meaningful.

Gender differences in the average performance on the math subsection were small and not statistically meaningful.

Math sum 2020	Chuuk	Kosrae	Pohnpei	Yap	Mean
Female	15.95	22.60	25.40	24.31	22.07
Male	15.76	22.00	23.77	22.95	21.44
State means	15.87	22.28	24.62	23.65	21.78

Gender differences are small, often insignificant, and where they are significant females have outperformed males.

## Diversity

The College of Micronesia-FSM was founded by an act of the FSM congress and is thus effectively the national college of the Federated States of Micronesia. The degree granting programs provide a path to positions of leadership in business, government, education, and

other fields. Differentials in admission to degree programs by state can have long term impacts on opportunities for residents of a particular state.

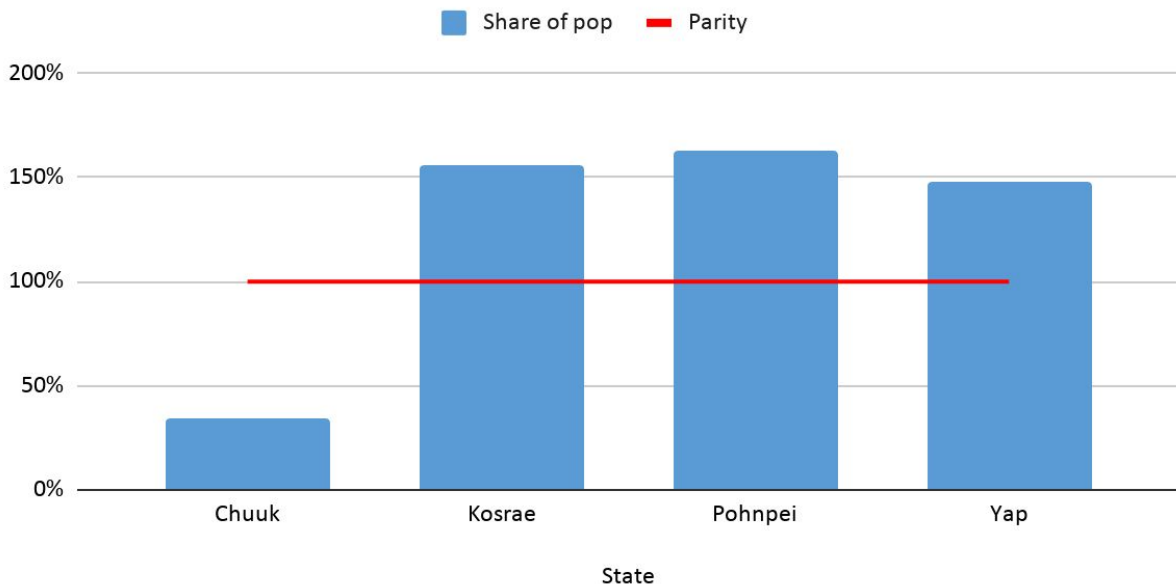
State	Population	Pop %	Degree admits	Deg %	Share of pop	Parity
Chuuk	48654	47%	90	16%	35%	100%
Kosrae	6616	6%	55	10%	155%	100%
Pohnpei	36196	35%	315	57%	163%	100%
Yap	11377	11%	90	16%	148%	100%
<b>Sums:</b>	<b>102843</b>		<b>550</b>			

The population data is from the 2010 census and is no longer accurate. Anecdotal reports are that the national population is now under 100,000. Kosrae is estimated to be as low as 5200 as of late 2017.

The number of admissions by state to degree granting programs is based on the state in which the high school is located. Xavier High School, located and counted in Chuuk, actually draws students from across the nation and thus has the effect of inflating the number of degree admissions apparently from Chuuk.

## Relative share of seats versus population

Degree admission only



While Chuuk state residents are underrepresented in degree admissions at the college, the other three states are each over-represented as a share of the national population. Note that the above numbers are invitations to the degree program at the college and do not represent the

number who accept those invitations and attend the college. The values seen in spring 2020 are essentially identical to those seen in the spring 2019 data.

There are complex contributing factors that lead to the differential increases seen. The national campus is located on Pohnpei, a Pohnpeian student can remain at home and attend the national campus. Students from other states have to leave home to attend the national campus. Once a decision is made to leave one's home island, then there are other options. Guam Community College is a single hop by air from Chuuk for a Chuukese student. For Kosraean students, there are more Kosraeans living abroad than on the home island. They have the option to continue on in schools stateside while staying with relatives there. And Yapese students can remain closer to their home island by attending Palau Community College.

## Acknowledgements

The author thanks the College of Micronesia-FSM for their providing the data that forms the basis of this report. The author is also in debt to the departments of education and principals who have shared the section lists that make this report possible.

## Author and contact information

All errors are solely those of the author. This document should be construed as an occasional informal paper by a member of faculty. Any opinions expressed are solely those of the author and do not reflect an official position of the college. Please contact Dana Lee Ling at [dleeling@comfsm.fm](mailto:dleeling@comfsm.fm) or 691-320-2480 extension 161 if you have questions, corrections, or unmet data needs in regard to this report. If there is break-out aggregate data you require such as class level data not broken out above, please send the author a list of the names of the students/candidates and the author can generate the aggregate statistics for those students/candidates.

First draft produced 27 May 2020.

# Appendix A

COMET Sub-Test 3 (Writing) Analytic Scale [Essay rubric]

## Syntax

- 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.

## Vocabulary

- 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.

## Organization

- 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.

## Cohesion

- 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.

## Content

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.