The Government of the
Federated States of Micronesia
Department of Education

# FSM EDUCATION INDICATORS

## 2016-2017

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Acknowledge the SDOE Data Management Departments who collect, enter, verify and chase down exceptions in the data and provide it to NDOE.

**Introduction:**

This report compiles the basic indicators as defined in the new indicator Framework recommended……

It aims to identify the key indicators that align with the existing Focused Strategic Plan, providing a minimal set of indicators and aiming to improve the quality and reliability of those indicators. It groups the indicators into six core themes: 1) How many children are at school? 2) How far do they get? 3) How long do they stay? 4) What do they learn? 5) Do we have enough teachers? 6) How much are we Spending?

**A Transitional Report.**

This report is prepared during a transitional phase at NDOE. NDOE is transitioning from its older data model to the newer FedEMIS model. This transition affects how data is *collected* and *stored* and how indicators are *produced.*

In the table below the reader can see the general characteristics of each data model (older and newer FedEMIS). The text in ***Blue*** shows which characteristics are present in this current transitional report.

| Data Model | Data Collection | Data storage | Production of indicators |
|---|---|---|---|
| **Older data model**<br><br>**2011/12 – 2016/17** | **Unstructured = reduced integrity and quality.** | **Multiple excel spreadsheets = weaker data governance and integrity.** | **Manual production** of a larger number of (20+) indicators **=** complexity and **consistency issues.** |
| **Newer, FedEMIS model (due 1/10/2017)**<br><br>**2017/18 – beyond** | Structured data, policy and processes = improved integrity and quality of the data collected. | FedEMIS database = stronger data governance and usability. | Automated production **of a simplified set of 'core' indicators**[1] via an internal indicator 'engine' = improved reliability, consistency and compliance with international standards. |

[1] This set of core indicators is nominated under a task to *Develop and implement an agreed reporting Framework of education indicators.*

The reader can see from the table above that *this report has largely been produced under the older data model, but with a simplified set of core indicators*. The next report (due when?) will be fully based on the newer FedEMIS model, and therefore will have all of the characteristics of the newer, FedEMIS model.

The new FedEMIS system being implemented contains an internal 'engine' that generates the key indicators based on a tested implementation of the Reconstructed Cohort Method. Therefore if the base data is good, the indicators will be good. The focus on maximising the quality of data from states is important, but this will only occur for the first time when data is collected under the new formats and checked, cleaned and loaded to FedEMIS in September/October 2017. Until then, there will always be questions about the results and methods, including those shown in this report.

Finally, Historic data is of limited use as it is very difficult to identify students and status and there is no unique key. This historic data would be very difficult to clean and use in FedEMIS.

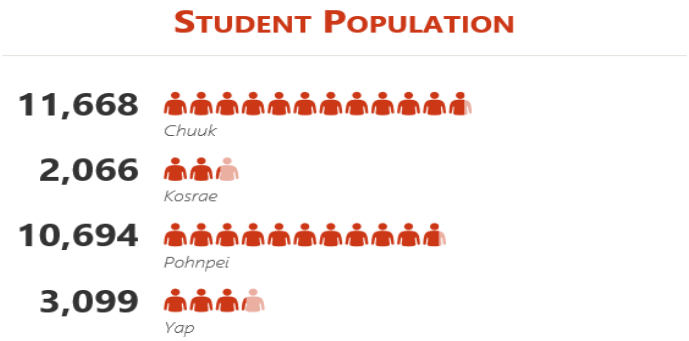
Under the reduced set of core indicators, the following indicators are nominated for promotion to the JEMCO report, including future generation directly from FedEMIS via an automated statistics digest:

| Classification | Indicator | FSP Indicator? | UIS Indicator? |
|---|---|---|---|
| **How many children at school?** | Gross and Net Enrolment Ratios (GER & NER) | Y | Y |
| **How far do they get in school?** | Transition Rate | Y | Y |
| | Repetition Rate | - | Y |
| | Completion Rate | Y | Y |
| **How long do they stay in school?** | Survival Rate | Y | Y |
| **What do they learn?** | Standard Based Assessment (NMCT). # of schools achieving each level. | Y | - |
| **Do We have enough Teachers?** | Pupil/Teacher Ratio | Y | Y |
| | Percent of Teachers by their Highest Qualifications | Y | - |
| | Teacher Certification Ratio | Y | Y |
| **How much do we spend?** | Education Budget Per Student | - | Y |
| **Other Indicators** | School Accreditation Ratios | Y | - |

Throughout this report, each indicator will be briefly described, including its calculation, current known limitations of that indicator (based on data limitations) and how it will be improved under the FedEMIS model. More detail on each indicator is available at the documentation Wiki: http://pacific-emis-docs.nuzusys.com/doku.php?id=user_manual

## Report on six core themes

# 1. How Many Children Are At School?

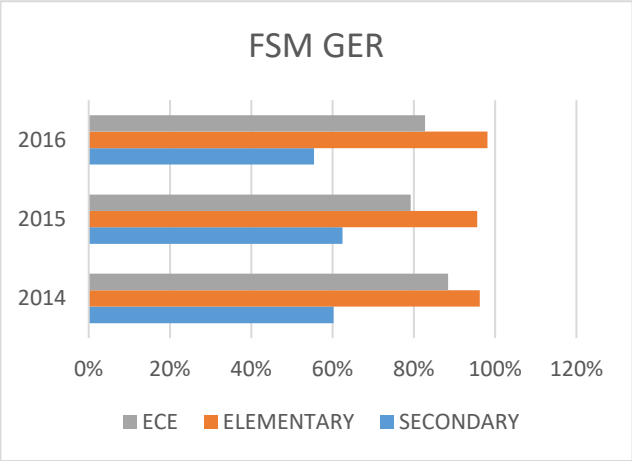


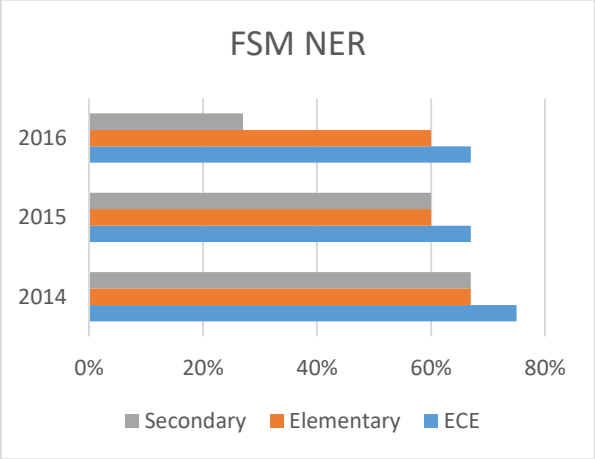

## 1-a. Gross Enrollment Rate-GER

*Number of pupils enrolled in a given level of education, regardless of age, expressed as a percentage of the population in the official age group for the same level of education.*

## 1-b. Net Enrollment Rate-NER

*Number of pupils enrolled in a given level of education that are within officially defined age range for that level of education, expressed as a percentage of the population in the official age group for the same level of education.*

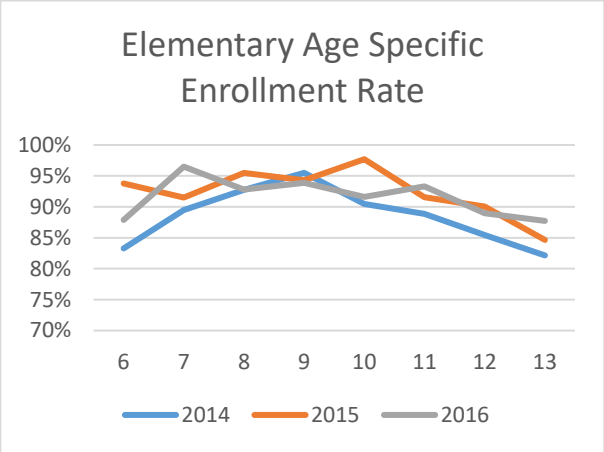


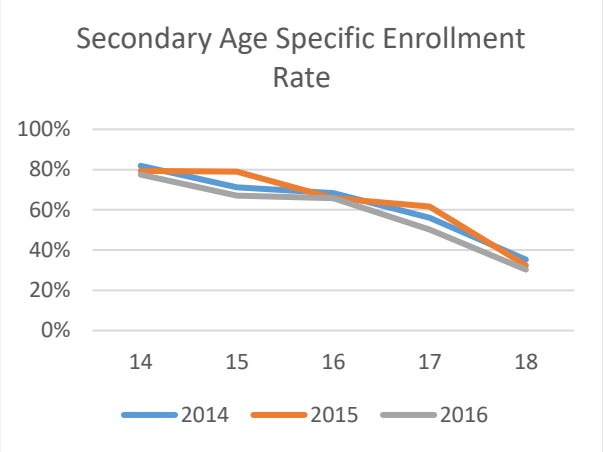




Interpretation: High GER also indicates high in-efficiency in the system. GER tends to increase when the number of repeaters increase and/or when students enter the school at their late age. NER on the other hand is an efficiency indicator that suggests participation of right age children in their right level of education including their perfromance in each level of education.
The two graphs presented above suggests a high GER in Elementary level compared to the othe two levels. While the GER is almost 100% in elementary level, the NER is below 70% for the same level. Hence, there's a high wastage in elementary level which may hve been caused by high repetition rates.

## *1-c. Age Specific Enrollment Rate (ASER)*

ASER shows the percentage of children of that age who are enrolled in school at any grade or level. We can calculate age participation rates for single years of age, and for ranges of ages. Commonly, we may want to calculate age participation rates for age brackets corresponding to the official enrolment age for each Education Level. The ASER differs from the NER in that it includes children of school-age enrolled in any education Levels. (These may include a small number of late or early entries into Primary or Secondary level education, or primary age children enrolled in ECE programs).




**Interpretation:** The age specific enrollment provides an estimate of population that are mostly in-school and the vice versa. Thus, the poulation that are mostly at risk of being out-of-school can be determined. In the tables above, age specific enrollment are grouped by level of education such as Elementary and Secondary age group. These two tables provide very important insights about student enrollment in FSM. Age six is officially accpeted as the entry age in grade 1 in FSM. In 2014, only 83% of the population at age six, who were supposed to be in the school at their first grade, were enrolled. In other words, at least 17% of children at age 6 did not enroll in school in 2014. There was significant increase in enrollment in 2015 with 93% of population at age six enrolled in school, but it declined again in 2016 down to 88%. What this data trend reveals is that, in an average, about 15% of children do not enroll in schools at the age of six.

Looking at the enrollment trend, at the elementary age, there is an steady increase in enrollment up to age 9 and then the enrollment start declining almost at the same rates as it has increased. The low intake at age six and then increasing enrollment up to age nine suggests that there are late-age enrollment in schools or there's high repetition rates that cause higher age student remain in elementary schools. Comparison of GER (98%) and NER (60%) data also suggest high repetition in the system.

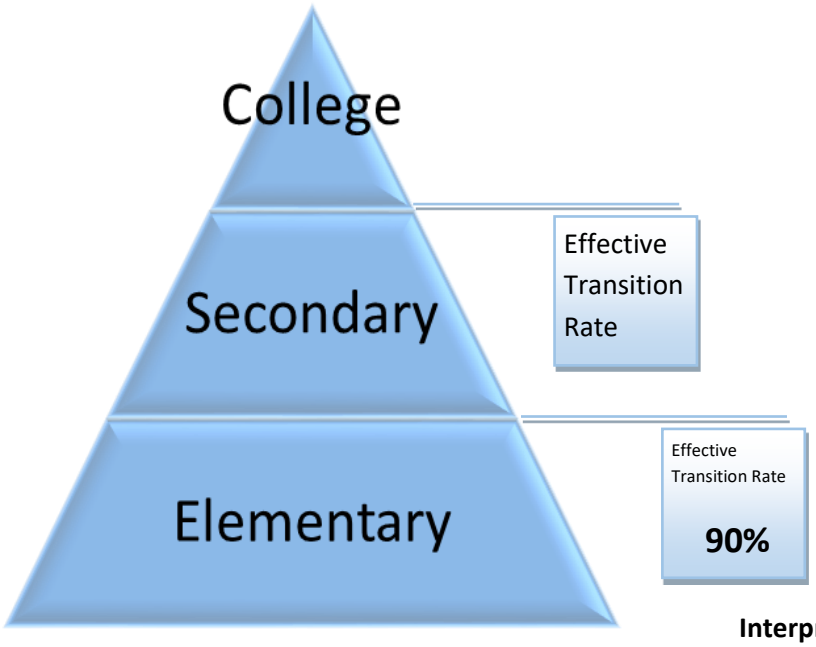
From age nine onwards, there's a steady decline in the percent of enrollment. Which suggests school dropout as a concern, especially in the uppper elementary and in secondary grades. At age six, at least 80% of the population enroll, but by age 13, which is the upper age for elementary level, and by age 18 which is the upper age for high school, the percent of enrollment dropped down to about 85% and 30% respectively. At least in the elementary level percent of student enrolled have remained to the level of enrollment in grade 1. But, in the secondary level, there's a sharp decline in student population, from about 80% to 30%, by the time they reach grade 12.

| GER, NER and ASER Calculation | |
|---|---|
| GER: Divide the number of pupils (or students) enrolled in a given level of education regardless of age by the population of the age group which officially corresponds to the given level of education, and multiply the result by 100.<br><br>NER: Divide the number of pupils (or students) enrolled who are of the official age group for a given level of education by the population for the same age group and multiply the result by 100.<br><br>ASER: Divide the number of pupils (or students) of a specific age enrolled in educational institutions at all levels of education by the population of the same age and multiply the result by 100 | |
| **Limitations in this report** | **FedEMIS Improvement** |
| SDOE supplied data (old model) contains data conflicts around student status which can have an impact on the enrolment count. | New data collection templates under FedEMIS are more explicit about student status. Enrolment counts will be more reliable. |
| An inherent limitation of these indicators is that they rely heavily on population data for age groups.<br><br>The population data used in this report was collected in the 2010 population census and projected out to meet the current requirement (2017). It becomes less reliable for each year it is projected out.<br><br>Population data is only disaggregated to State level, therefore. | FedEMIS cannot improve on projections generated by the National Statistics Department. |

# 2. How Far Do They Get

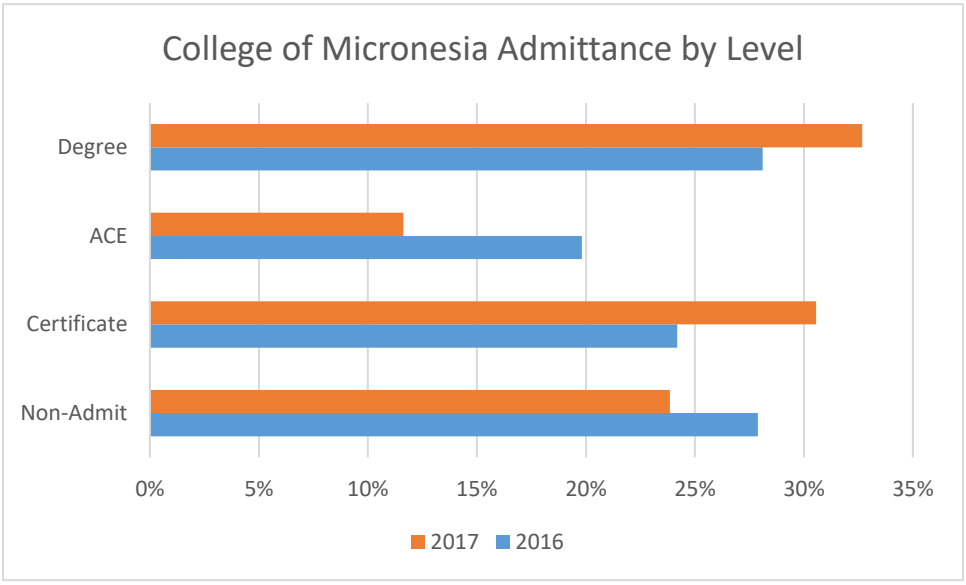
## 2-a. Effective Transition Rate

*Number of new entrants to the first grade of the higher level of education in the following year expressed as a percentage of the students enrolled in the last grade of the given level of education in the given year who do not repeat that grade the following year.*
*Transition Rates measure the percentage of children who proceed (or transition) to the next level of education (junior secondary, senior secondary, Tertiary). A high Transition rate also reflects the intake capacity of the next level of education.*




**Interpretation:**

As expressed in its definition, transition rates are simply the percent of student enrolled from one level of education to another. For example, enrollment from elementary to secondary and from secondary to the tertiary education. The graph above suggests 90 % of grade 8 graduates enrolled in secondary education. Similarly, 78% of secondary graduate enrolled in college education. International literature suggest high dropout rate during transition from one level to another, mostly in developing countries. In the FSM, there is about 10% drop out during transition from elementary to secondary.



| Spring 2017 | Non-Admit | | Certificate | | ACE | | Degree | | Total n |
|---|---|---|---|---|---|---|---|---|---|
| **Chuuk** | 240 | 51% | 109 | 23% | 29 | 6% | 90 | 19% | 468 |
| **Kosrae** | 16 | 13% | 33 | 27% | 28 | 23% | 47 | 38% | 124 |
| **Pohnpei** | 70 | 13% | 196 | 37% | 69 | 13% | 193 | 37% | 528 |
| **Yap** | 37 | 18% | 79 | 39% | 15 | 7% | 74 | 36% | 205 |
| **Total** | **316** | **24%** | **405** | **31%** | **154** | **12%** | **433** | **33%** | **1,325** |

*Note: Table above only represent 12th graders who took the COMET during SY2016-2017*

Interpretation:
The graph and table above indicates 24% of 12th graders did not enroll in college education in 2017. Chuuk, scored the highest with 51% percent of 12th graders being non-admitted in college education.

| **Transition rate Calculation** | |
|---|---|
| To Calculate: Divide the number of new entrants in the first grade of the specified higher cycle or level of education by the number of pupils who were enrolled in the final grade of the preceding cycle or level of education in the previous school year, and multiply by 100. | |
| **Limitations in this report** | **FedEMIS Improvement** |
| As with NER, GER and ASER the data around enrolments may have some small errors due to data conflicts around student status.<br><br>It is assumed that CoM enrolment data is accurate. | New data collection templates under FedEMIS are more explicit about student status. Enrolment counts will be more reliable. |

## 2-b. Repetition Rate-RR

*The number of pupils enrolled in a given grade of education, who repeat that same grade the following year. High or rising Repetition Rates can indicate problems in the internal efficiency of the education system and possible poor quality instruction. The aim is to have a low and reducing repetition rate.*

| State | Grade ECE | Grade 1 | Grade 2 | Grade 3 | Grade 4 | Grade 5 | Grade 6 | Grade 7 | Grade 8 | Grade 9 | Grade 10 | Grade 11 | Grade 12 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chuuk | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 0% | 0% | 0% | 0% | 1% |
| Kosrae | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 2% | 2% | 1% | 0% | 0% |
| Pohnpei | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 1% | 0% | 0% | 0% | 0% |
| Yap | 9% | 2% | 1% | 1% | 1% | 2% | 1% | 1% | 1% | 3% | 2% | 2% | 1% | 3% |
| **National** | **2%** | **1%** | **1%** | **0%** | **1%** | **1%** | **0%** | **1%** | **0%** | **1%** | **0%** | **0%** | **0%** | **1%** |

Interpretation:

| Repetition Rate Calculation | |
|---|---|
| To Calculate: Divide the number of repeaters in a given grade in school year t+1 by the number of pupils from the same cohort enrolled in the same grade in the previous school year t. | |
| **Limitations in this report** | **FedEMIS Improvement** |
| Current data holds a specific repetition flag on each student record, although this flag is in potential conflict with other data for the same student (drop out, transfer etc). | New data collection templates under FedEMIS enforce strict logic and definitions around a student's outcome for the year and their enrolment for the following year, including their repetition status. The data will hold less internal conflicts. |

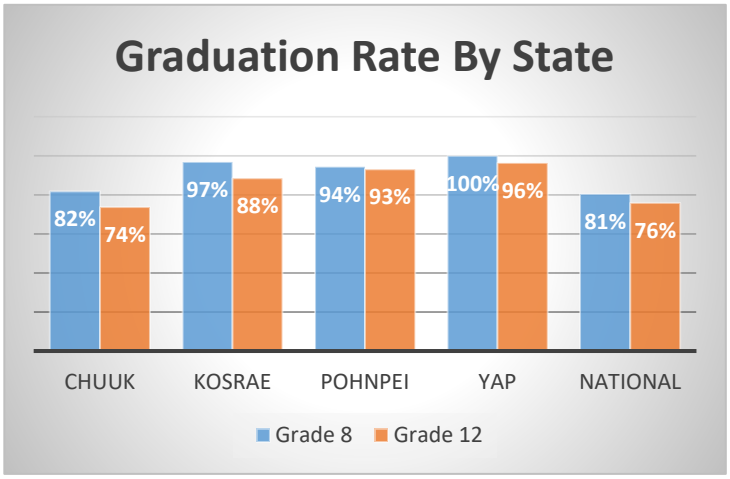
## 2-c. Completion and Graduation Rate

### Completion Rate

Completion rate (for example in Grade 8) is the percentage of a cohort that enrolled in Grade 1 in year (t) who completed Grade 8 in year y+8. Note that completion (completed Grade 8) differs from Survival in that those that survive to Grade 8 may not complete Grade 8.

### Graduation Rate

Graduation rate, on the other hand, is simply the percent of students graduate at the end of certain level of education. Graduation rate is measured as percent of student out of the total enrolled in the last grade of that level.




| Completion Rate Calculation |
|---|
| To Calculate: Divide the number of pupils completing Year t+8 (non-Repeaters) by the number of students who enrolled in Year t+0. |

| Limitations in this report | FedEMIS Improvement |
|---|---|
| There is no capacity in the data to track a cohort from the beginning to the end of a Level. | New data collection templates under FedEMIS enforce Student ID and clearer student progress through the years.<br><br>The FedEMIS calculates these indicators with an implementation of the Reconstructed Cohort method. |

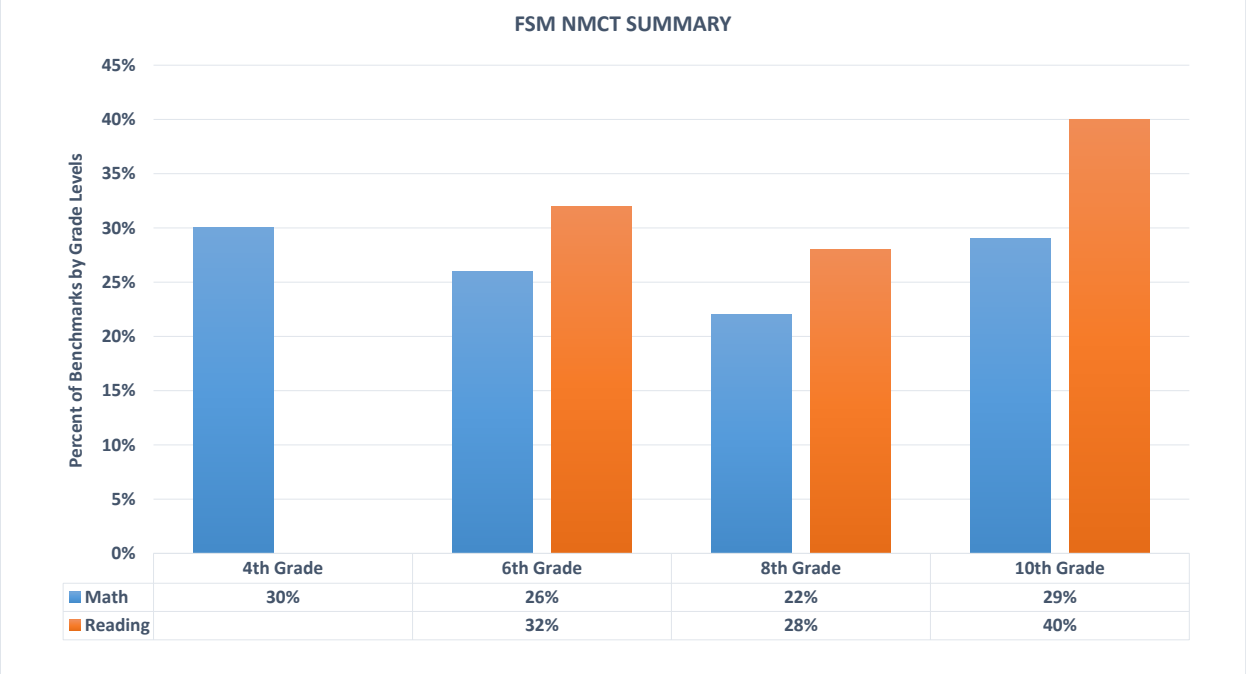
# 3. How Long Do They Stay?

Survival Rate

# 4. What Do They Learn?

## Standard based assessment: Percentage by Achievement Level

*There are four minimum competency levels which include competent,*
*Minimum competency, approaching minimum competency, and well-below minimum competency.*



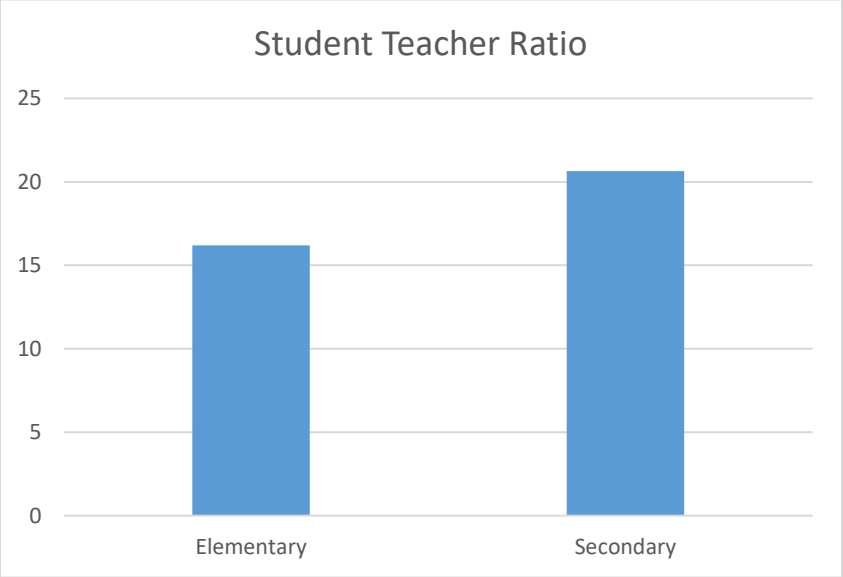

The graph shows the summary of Benchmarks learned or mastered by the targeted grade levels 4th, 6th, 8th, and 10th in Mathematics and 6th, 8th, and 10th in English Language Arts. The results indicate that students understand and can perform the skills stated in the benchmark better in English Language Arts than the Mathematics.

| Standards Based Assessment Calculation | |
|---|---|
| To Calculate: Divide the number of pupils completing Year t+8 (non-Repeaters) by the number of students who enrolled in Year t+0. | |
| **Limitations in this report** | **FedEMIS Improvement** |
| Require more information from NDOE staff to clarify limitations. However as they use the PREL (?) database to process results there may be no immediate issues. | Assessment results will be stored directly in FedEMIS. Awaiting input of Assessment specialist. |

# 5. Do We Have Enough Teachers?

## Pupil/Teacher Ratio

*Pupil Teacher Ratio (PTR) is the most important indicator of teacher numbers. PTR is simply the number of pupils divided by the number of teachers.*




**Interpretation:**

Note: 144 teachers is excluded from the computation of student teacher ratio as they are classified as multi-grade schools. New data collection template should be able to remedy this issue in the future

The STR in both elementary and secondary level is much lower compared to many developing countries. While having low STR is much better as it increases teacher's time per student, research has suggest a minimum student population is required to trigger peer to peer learning. Minimum student population is also required for its effective management.

| Student Teacher Ratio |
|---|
| To Calculate: *Divide the total number of pupils enrolled at the specified level of education by the number of teachers at the same level.* |

| Limitations in this report | FedEMIS Improvement |
|---|---|
| Student and teacher numbers are reasonably good but some internal data conflict and duplication (around dropouts, transfers etc) make the figures slightly less reliable. | Better/tighter student and teacher demographic data. |
| A inherent weakness in this ratio is the difficulty in obtaining accurate teacher workloads at the grade level. At best, the ratio is accurate only to the school level (or higher – region, island, state). | The first iteration of FedEMIS will gather teacher workload at each Grade level. A crude grade level ratio can be calculated. If there is the appetite for more detail/accuracy, it can be gathered but it would be best to wait till the teacher roster can be directly maintained online (i.e. Future State EMIS) |

## Teaching Staff highest qualification

*% of teaching staff grouped by highest qualifications. What percentage of teachers have which qualifications.*

| | Unknown | | No Degree | | Associate | | 3RD Yr | | Bachelor | | Masters | | Phd | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| State | Male | Female | Male | Female | Male | Female | Male | Female | Male | Female | Male | Female | Male | Female | |
| Chuuk | 0 | 0 | 15 | 17 | 195 | 277 | 0 | 0 | 39 | 45 | 8 | 2 | 1 | 0 | 599 |
| Kosrae | 1 | 3 | 6 | 2 | 83 | 79 | 0 | 0 | 17 | 13 | 0 | 2 | 0 | 0 | 206 |
| Pohnpei | 4 | 3 | 2 | 8 | 173 | 226 | 2 | 0 | 39 | 45 | 5 | 3 | 0 | 0 | 510 |
| Yap | 1 | 0 | 36 | 54 | 103 | 113 | 0 | 0 | 22 | 38 | 6 | 2 | 0 | 0 | 375 |
| **National** | **6** | **6** | **59** | **81** | **554** | **695** | **2** | **0** | **117** | **141** | **19** | **9** | **1** | **0** | **1690** |
| **Percent** | **1%** | | **8%** | | **74%** | | **0%** | | **15%** | | **2%** | | **0%** | | **100%** |

Still, about 9% of the teachers have either no degree or there's no information about their academic qualification. Staggeringly high percentages of teachers (74%) have only an associate degree which is the lowest qualification required to become a teacher.

| Teaching Staff Highest Qualifications | |
|---|---|
| This is not really an indicator per-se. However it gives us an idea about teacher quality in general. | |
| **Limitations in this report** | **FedEMIS Improvement** |
| Student and teacher numbers are reasonably good but some internal data conflict and duplication (around dropouts, transfers etc) make the figures slightly less reliable. | Better/tighter student and teacher demographic data. |
| A inherent weakness in this ratio is the difficulty in obtaining accurate teacher workloads at the grade level. This data has not been consistently collected well to date. | The first iteration of FedEMIS will gather teacher workload at each Grade level. A crude grade level ratio can be calculated. If there is the appetite for more detail/accuracy, it can be gathered but it would be best to wait till the teacher roster can be directly maintained online (i.e. Future State EMIS) |

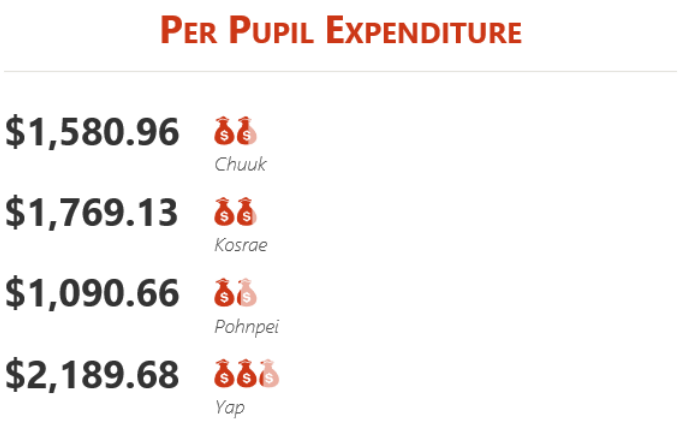
## Teaching Certification Ratio

Data is not in a suitable format to produce this indicator.

| Teacher Certification Ratio | |
|---|---|
| *Divide the number of teachers of the specified level of education who have received the minimum required teacher training by the total number of teachers at the same level of education, and multiply the result by 100.* | |
| **Limitations in this report** | **FedEMIS Improvement** |
| Teacher data is constrained by a missing unique ID which undermines linkage of NSTT results and history. | Under FedEMIS will support NSTT management and reporting by introducing:<br>• the exchange of NSTT data (based on policy) and storage of that data in FedEMIS<br>• a unique Teacher ID to link results<br>• codification of the TEACHER CERTIFICATION POLICY 2016<br>• collect of enough teacher qualifications data to support policy |

# 6. How Much DO We Spend?

## Education Budget per Student




***Note: PPE is only for public schools***

| Education Budget Per Student |
|---|
| To Calculate: Divide the number of pupils completing Year t+8 (non-Repeaters) by the number of students who enrolled in Year t+0. |

| Limitations in this report | FedEMIS Improvement |
| --- | --- |
| Student numbers are reasonably good but some internal data conflict and duplication (around dropouts, transfers etc) make the figures slightly less reliable.<br><br>The assumption is made that the Education Budget by State is accurate. | Better/tighter student and teacher demographic data will improve accuracy. |