ELEVATING EVIDENCE

Evaluating Intervention Impact

Office of Continuous Improvement and Support

Last Updated: April 2019

Agenda

- Setting Up for Success
- Interpreting Student Data
- Determining Significance
- Making Educational Decisions

Objectives

- By the end of this training, participants will be able to:
  - establish systems for the monitoring and collection of student data,
  - Interpret student outcome data, and
  - make data informed decisions about the deployment of intervention strategies.

Setting Up for Success

Create an Implementation Plan

- Guides the implementation throughout the year.
- Created by a team of stakeholders.
- Can take many forms – Process Guide, 30-60-90 Day Plan, Plan-Do-Study-Act cycle.
- Should include:
  - Implementation protocols
  - Data collection instruments
  - Monitoring processes
  - Responsible parties

Create a Monitoring Plan

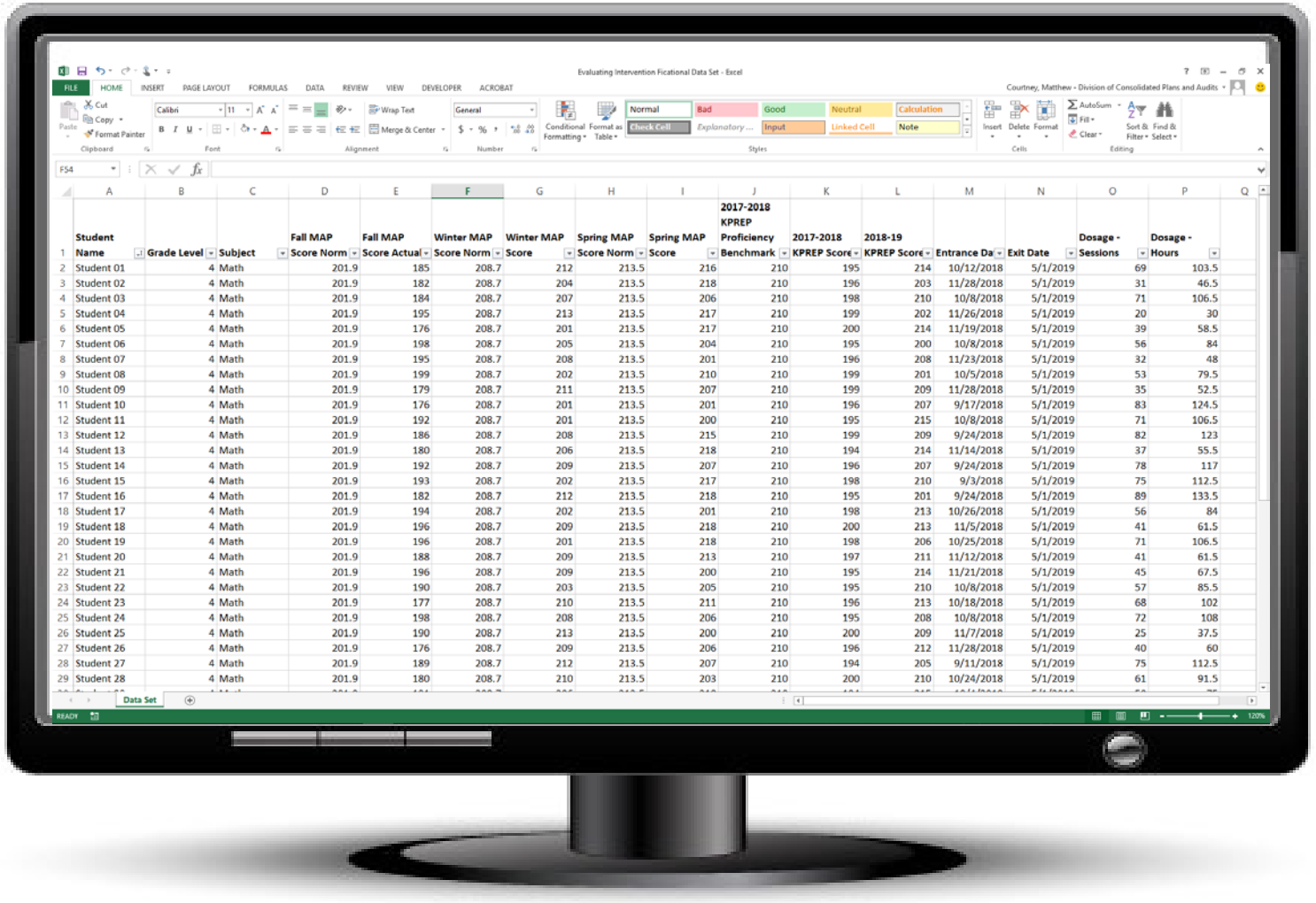
- Embedded within the Implementation Guide
- Should be continuous through the first year of implementation
- Should include:
  - Dates
  - Responsible parties
  - Monitoring protocols
  - Steps taken if fidelity is not met

Data Collection

- Embedded within the Implementation Guide
- Collect a wide variety of data using consistent measures
  - Intervention frequency data
  - “Entrance” and “Exit” dates
  - Benchmark assessments
  - Collect pre- and post- intervention data for each student

Interpreting Student Data

Fictional Data Set



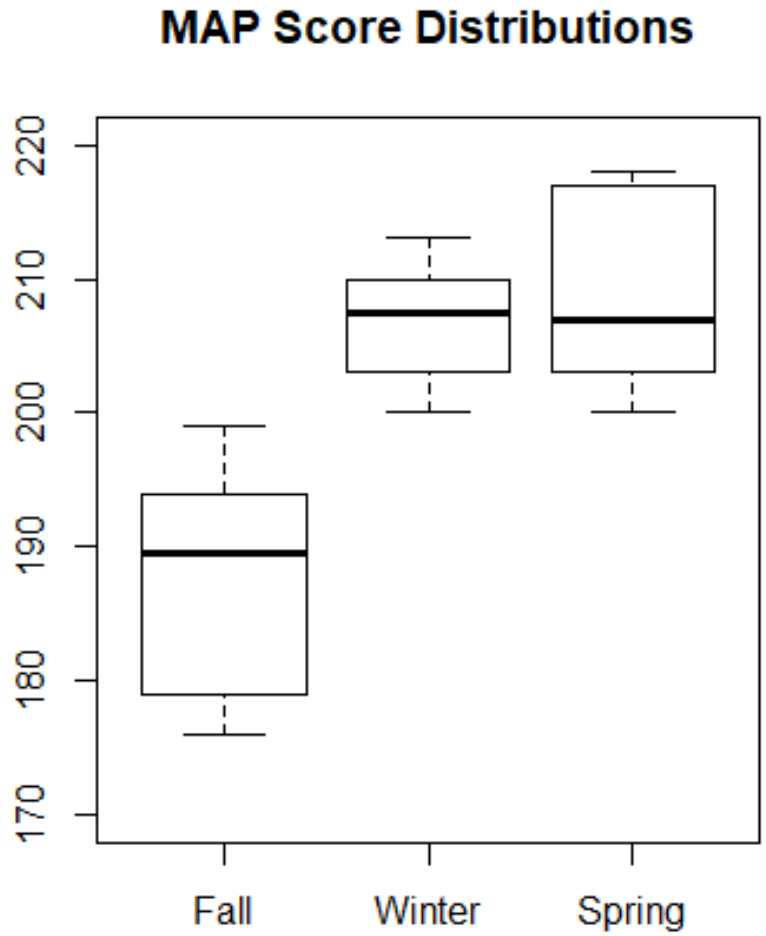
Student Name	Grade Level	Subject	Fall MAP Score Norm	Fall MAP Score Actual	Winter MAP Score Norm	Winter MAP Score	Spring MAP Score Norm	Spring MAP Score	2017-2018 KPREP Proficiency Benchmark	2017-2018 KPREP Score	2018-19 KPREP Score	Entrance Da	Exit Date	Dosage - Sessions	Dosage - Hours
Student 01	4	Math	201.9	185	208.7	212	213.5	216	210	195	214	10/12/2018	5/1/2019	69	103.5
Student 02	4	Math	201.9	182	208.7	204	213.5	218	210	196	203	11/28/2018	5/1/2019	31	46.5
Student 03	4	Math	201.9	184	208.7	207	213.5	206	210	198	210	10/8/2018	5/1/2019	71	106.5
Student 04	4	Math	201.9	195	208.7	213	213.5	217	210	199	202	11/26/2018	5/1/2019	20	30
Student 05	4	Math	201.9	176	208.7	201	213.5	217	210	200	214	11/19/2018	5/1/2019	39	58.5
Student 06	4	Math	201.9	198	208.7	205	213.5	204	210	195	200	10/8/2018	5/1/2019	56	84
Student 07	4	Math	201.9	195	208.7	208	213.5	201	210	196	208	11/23/2018	5/1/2019	32	48
Student 08	4	Math	201.9	199	208.7	202	213.5	210	210	199	201	10/5/2018	5/1/2019	53	79.5
Student 09	4	Math	201.9	179	208.7	211	213.5	207	210	199	209	11/28/2018	5/1/2019	35	52.5
Student 10	4	Math	201.9	176	208.7	201	213.5	201	210	196	207	9/17/2018	5/1/2019	83	124.5
Student 11	4	Math	201.9	192	208.7	201	213.5	200	210	195	215	10/8/2018	5/1/2019	71	106.5
Student 12	4	Math	201.9	186	208.7	208	213.5	215	210	199	209	9/24/2018	5/1/2019	82	123
Student 13	4	Math	201.9	180	208.7	206	213.5	218	210	194	214	11/14/2018	5/1/2019	37	55.5
Student 14	4	Math	201.9	192	208.7	209	213.5	207	210	196	207	9/24/2018	5/1/2019	78	117
Student 15	4	Math	201.9	193	208.7	202	213.5	217	210	198	210	9/3/2018	5/1/2019	75	112.5
Student 16	4	Math	201.9	182	208.7	212	213.5	218	210	195	201	9/24/2018	5/1/2019	89	133.5
Student 17	4	Math	201.9	194	208.7	202	213.5	201	210	198	213	10/26/2018	5/1/2019	56	84
Student 18	4	Math	201.9	196	208.7	209	213.5	218	210	200	213	11/5/2018	5/1/2019	41	61.5
Student 19	4	Math	201.9	196	208.7	201	213.5	218	210	198	206	10/25/2018	5/1/2019	71	106.5
Student 20	4	Math	201.9	188	208.7	209	213.5	213	210	197	211	11/12/2018	5/1/2019	41	61.5
Student 21	4	Math	201.9	196	208.7	209	213.5	200	210	195	214	11/21/2018	5/1/2019	45	67.5
Student 22	4	Math	201.9	190	208.7	203	213.5	205	210	195	210	10/8/2018	5/1/2019	57	85.5
Student 23	4	Math	201.9	177	208.7	210	213.5	211	210	196	213	10/18/2018	5/1/2019	68	102
Student 24	4	Math	201.9	198	208.7	208	213.5	206	210	195	208	10/8/2018	5/1/2019	72	108
Student 25	4	Math	201.9	190	208.7	213	213.5	200	210	200	209	11/7/2018	5/1/2019	25	37.5
Student 26	4	Math	201.9	176	208.7	209	213.5	206	210	196	212	11/28/2018	5/1/2019	40	60
Student 27	4	Math	201.9	189	208.7	212	213.5	207	210	194	205	9/11/2018	5/1/2019	75	112.5
Student 28	4	Math	201.9	180	208.7	210	213.5	203	210	200	210	10/24/2018	5/1/2019	61	91.5

Describe the Data

- Calculate and review descriptive statistics.

Category	Mean	Median	Mode	Standard Deviation	Range
Fall MAP	187.34	189.5	177	7.77	23
Winter MAP	206.74	207.5	209	3.82	13
Spring MAP	209.1	207	218	6.68	18
2017-18 KPREP	196.76	197	195	1.94	6
2019-19 KPREP	208.96	210	214	4.71	15

View Distributions



- Growth from Fall to Winter
- Continued growth for some students in Spring, half do not move
- What happened?

Correlation

	Fall	Winter	Spring	Entrance Date	Dosage - Sessions	Dosage - Hours
Fall	1					
Winter	-0.18	1				
Spring	0.04	0.01	1			
Entrance Date	0.11	-0.19	-0.19	1		
Dosage - Sessions	-0.25	-0.05	-0.12	-0.12	1	
Dosage - Hours	-0.25	-0.05	-0.12	-0.12	1	1

Correlation cont.

- Correlation between Start Date and Fall, Winter, and Spring MAP scores; separated by start month.

Start Month	Fall MAP Score	Winter MAP Score	Spring MAP Score
September Start	-0.17	0.21	-0.15
October Start	-0.08	0.02	-0.10
November Start	-0.24	-0.07	-0.25

Significance

	17-18 KPREP	18-19 KPREP
Mean	196.76	208.96
Variance	3.78	22.16
Observations	50	50
Hypothesized Mean Difference	0	
df	65	
t Stat	-16.94	
P(T<=t) one-tail	7.89561E-26	
t Critical one-tail	1.67	
P(T<=t) two-tail	1.57712E-25	
t Critical two-tail	1.997	
Cohen's *d*	3.39	

Next Steps

- Compare the results of students who received the intervention to those who did not.
- Review intervention records and monitoring documents for issues in fidelity.
- Consider other interpretations.

Making Educational Decisions

Considerations

- Will we use the intervention again?
- What will we do differently?
  - Dosage
  - Student Assignment
  - Intervention Timeline
  - Assessment Mechanisms
  - Fidelity and Monitoring

This Intervention

- Will we use it again?
  - Yes! Statistically significant and positive growth
  - Large Effect Size
- Do we need to make changes?
  - Yes!

Data Driven Changes

- Student Assignment
  - No Changes
- Dosage/Timeline
  - Start earlier
  - Cohort students
  - Rotate students in and out
- Assessment Mechanism
  - No Changes
- Fidelity and Monitoring
  - More frequent monitoring during the Spring semester.

Wrap It Up

- Setting Up for Success
- Interpreting Student Data
- Determining Significance
- Making Educational Decisions

If you have questions regarding evidence-based practices or how to measure the impact of an intervention, please contact the District 180 branch in the Office of Continuous Improvement and Support at (502) 564-2116.