

Tracy Yarchi Reflection/ see data: [Assessment Data.xlsx](#)

Course Name: 20US-Full Independent Study IDT (001)

Number of Students: 10

### Description

The data measures are based upon the course gradebook of 10 students that was shared with me since I do not currently teach. With permission from the instructor, I was able to randomly add data results to the assessments that did not have data scores to make the analysis more meaningful. Based on the five assignments in the gradebook, the two assignments/assignments, Module 1 and the Module 4 Position Statement yielded 100% score for each learner. Therefore, I chose not to include the statistical data for those assignments on the Exel spreadsheet and in the following reflection. However, I did include data analysis for three assessments/assignments (Video Quiz, Data Analysis, Learning Analytics Knowledge Check) and the mid-term current score analysis. Though I will discuss the central tendency, what I find most interesting is the range and standard deviation of the three assessments/assignments as well as the current score.

### Gaps and Measurement Analysis

The gaps in the ranges and therefore the standard deviation suggest that some students are meeting the outcomes, while others are not. For example, the video quiz reflects one student with 15/30 while several others have a Mode score of 30/30. The higher scores bring up the mean. Though the range with the Data Analysis assignment is 33% with the STDEV 0.145933, the fact that 3 among the 10 students only achieved 67% suggests that a little less than a third of the students succeeded with meeting the outcome for this assignment. And with the Learning Analytics Knowledge Check, the range is much more alarming at 100%. With this assessment, the mode is 0%. These gaps are troubling to see 40% of the students are not learning.

### Something is not Working

At midterm it appears all students are achieving successfully as we look at the statistical measurement:

Midterm Current Score	
Mean	88%
Median	87%
Mode	87%, 96%
Range	22%
Standard Deviation	0.0681419
6	

However, when the data from the three assessments/assignments is considered, students are not performing as well. So, what is going on? My first question is why was the video quiz worth 30 points? Is it more important than the Learning Analytics Knowledge Check (LAKC)? Was the LAKC a formative assessment to check for understanding? If so, then that makes sense and now the instructor can assess what might need to happen with 40% of the class receiving 0%. Do they not understand? Are the low points not concerning them, so they did not study or review their notes? Nevertheless, since it is early in the semester, the video quiz also appears to be a formative assessment and should be proportional in points to the LAKC. Why are the questions worth 30 points while the LAKC is only 4 points?

Video Quiz (16796080)	Data Analysis (16796078)	Learning Analytics Knowledge Check (16892630)
15	20	2
20	25	3
25	20	4
30	20	0
20	30	0
25	25	1
25	30	1
30	25	4
30	30	0
30	30	0
30 Total possible	30 Total possible	4 Total possible

Video Quiz (16796080)	Data Analysis (16796078)	Learning Analytics Knowledge Check (16892630)
Mean 83%	Mean 85%	Mean 38%
Median 83%	Median 83%	Median 25%
Mode 100%	Mode 100%	Mode 0%
Range 50%	Range 33%	Range 100%
STDEV 0.175682092	STDEV 0.145933	STDEV 0.412479

The Data Analysis assessment/assignment (DAA) is also worth 30 points. The DAA might be the best measurement of how students are learning so far in the course. Again, we do not know if it is a formative or summative assessment or an assignment, but it is given a high value with the total score being 30 points. The range and standard deviation suggest scores are closer together without extremely large gaps. However, as previously stated, 3 learners fall under the mean by 18% points. My initial question was did this contribute to the failure of LAKC? However, when I check, there is not a correlation between low scores on each assessment/assignment. At this point, I think the best step would be to complete an item analysis for each to see where learners fell short of understanding. Unfortunately, that data for item analysis is not available.

## Recommendations

- What changes to the curriculum or course might the assessment evidence suggest?

First, it might be important to reconsider the point values of all the assessments/assignments. Formative assessments could be free of points to vary minimal points. I would also suggest if the video quiz is aligned with the standards/outcome, then consider allowing for re-quizzing until the learner reaches 100%. A quiz AKA formative assessment should be helping the learner discover what they do not know as well as showing the instructor what the student knows. LMS data analytics will show the attempts made by students and their answer results with each attempt. If this is not an option, then perhaps the instructor could build in an extra-credit reflection as a response to the quiz score. The learner could discuss problem areas of confusion.

- Does the measurement evidence highlight the need to revise the assessment strategy, or objectives for future assessment practice? If so, what is the evidence and why did you identify a need to revise the assessment strategy for your identified course?
- What decisions did you make based on the analysis of the assessment data? Be specific and explain in detail the revised or modified assessments

Secondly, the measurement evidence does highlight the need for assessment revision as previously noted. With a class size of 10 students, it is feasible to build in conference time to the course. Since this is an Independent Study course, students should meet with the professor at least once during the first mid-term and then again toward the end of the course to discuss issues, and to receive clarification and guidance. Even if the course was not initially designed with this conference time, after seeing the LAKC data, the instructor may want to call conference meeting times. With those students who achieved a 100% on the check, the instructor could help them to grow further. For the single student who reached 75%, the instructor and the student could discuss how to push beyond an average score. Finally, for those students who received 0,1, and 2 out of 4, the instructor would want to discuss learning gaps, provide clarification, and offer further guidance. Regardless of where a student ranges, the instructor should give a set of questions to students before the conference and ask them to consider the questions before the meeting.

### **Final thoughts**

Researchers of teacher data-driven decision-making (DDDM) suggest that teachers typically rely on the mean and the mode, and they do not consider the significance of the range and standard deviation when making decisions (Hoover & Abrams, 2013 as cited in Reeves & Chiang, 2018, pg 258). When these measures of central tendency are the only measures analyzed, a false interpretation may occur. If the course is built on the foundational backward design of the alignment of standards, course objectives and assessments, then the data from assessments should be at worst crowded around the mean with a slight standard deviation among scores. At best most students should meet if not exceed the outcome, and realistically no more than a couple should closely approach the standard. Large ranges and standard deviations should be rare. I know this is the ideal, but it could be the norm.

Reeves and Chiang (2018), discuss many reasons why teachers are not practicing DDDM, though they fail to mention time and teacher workload, especially in secondary education. I would propose that teachers not only work in professional learning communities to analyze the significance of data and to discuss

changes, but that they also lean into the challenging assessment data and go beyond focusing on the average. Instead of thinking on average, my students meet the standards, it would be a better practice to look at the assessments in small chunks and narrow in on the range of scores in each assessment as well as the standard deviation. It may be discouraging to see that student scores are scattered across the spectrum, but it will help all students to grow and learn if educators strive to help students meet and exceed the outcomes. Moreover, this is a tough place to start, but also the best place to begin to bring about a shift in how we view assessment and learning.

#### Resources:

Canvas Course. 20US-Full Independent Study IDT (001) retrieved on July 31, 2022.

Reeves, Todd D & Jui-ling Chiang (2018). Online Intervention to Promote Teacher Data-Driven Decision Making: Optimizing Design to Maximize Impact. *Studies in Educational Evaluation* 59 (256-269).