

Demystifying Measurement, Valuing Narrative

It takes more than numbers to improve student learning

Miami University

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*Assessment can create disputes about
which disciplines have the authority to
give the best account of liberal learning*

*“The way” of social scientists sometimes
prompts or magnifies this dispute*

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We use terms like “effect size” and “standardized beta coefficients” and “multivariate regression” or “error” in a way that makes our knowledge seem much more firm and closed than it really is.

Significance testing has been disputed since its inception

“does not tell us what we want to know, and we so much want to know what we want to know that, out of desperation, we nevertheless believe that it does!”

Jacob Cohen

“a potent but sterile intellectual rake who leaves in his merry path a long train of ravished maidens but no viable scientific offspring”

Paul Meehl

Don't be intimidated by "look, it's a significant effect!"

- **Significance testing**
 - Offspring of logical positivists who wanted to create objective procedures (*uncorrupted by human judgment*) for uncovering truth in messy data
- **Highly ritualized, practiced with strongly professed certainty, but often poorly understood**
 - Research on misconceptions about significance testing
 - Many statistical denominations
- **I think of it as an attempt to discern meaning in a chaotic world**

How do we interpret asterisks?

It might be fruitful to take a closer look

In the next slides we will review an example with real data from an institution. The point of the example is to scan data tables to see where it “might be fruitful to take a closer look.”

Institutional Narrative

Small, highly selective, institution that combines the teaching and learning environment of a liberal arts college with the intellectual community of a research university

Good Practice Subscales	Averages and Frequencies			[Redacted]	
	[Redacted]	Other 30 Small Institutions	Other 46 Institutions	Institution Avg. Minus Other Small Institutions Avg.	Institution Avg. Minus Other Institutions Avg.
	Avg/SD n	Avg/SD n	Avg/SD n		
Faculty interest in teaching and student development <i>Experiences Survey: Section II, Question 5, Parts A through E</i>	75.9 / 17.2 135	79.4 / 15.8 4,268	75.1 / 17.0 8,010	-3.5 *	0.8
Prompt feedback <i>Experiences Survey: Section II, Question 6, Parts A and B NSSE: Question 1, Part q</i>	56.2 / 21.0 135	61.2 / 19.1 4,266	57.1 / 19.7 8,004	-5.0 *	-1.0
Quality of nonclassroom interactions with faculty <i>Experiences Survey: Section II, Question 4, Parts A through E</i>	59.1 / 20.2 135	67.3 / 19.2 4,272	63.2 / 20.2 8,029	-8.3 ***	-4.1 *
Teaching clarity and organization <i>Experiences Survey: Section II, Question 8, Parts A through J</i>	75.9 / 12.1 133	76.0 / 13.5 4,268	73.3 / 14.3 8,006	-0.1	2.7 *
Academic challenge and effort <i>NSSE: Question 1, Parts a, b, c, f (reverse-coded), and r; Question 3, Parts a and d; Question 4, Part a; Question 5; Question 9, Part a; Question 10, Part a</i>	56.6 / 11.0 135	59.2 / 11.9 4,332	57.7 / 11.9 8,164	-2.5 *	-1.0
Frequency of higher-order exams and assignments <i>Experiences Survey: Section II, Question 10, Parts A, C, D, E, and F</i>	67.2 / 17.3 133	69.1 / 17.7 4,262	64.9 / 18.9 8,002	-1.9	2.3

What pattern do we see here? Which items are significantly lower? Caution – an easy interpretation would be that faculty are too interested in research but and therefore not spending time with students. But, while that evidence fits the data, there are many other explanations that could also account for these data.

<i>Quality of nonclassroom interactions with faculty</i>
My non-classroom interactions with faculty have had a positive influence on my intellectual growth and interest in ideas
My non-classroom interactions with faculty have had a positive influence on my career goals and aspirations
My non-classroom interactions with faculty have had a positive influence on my personal growth, values, and attitudes
Since coming to this institution, I have developed a close, personal relationship with at least one faculty member
I am satisfied with the opportunities to meet and interact informally with faculty members

These are the specific questions from the data point on the previous slide where the difference between our case study institution and other institutions was largest

Good Practice Subscales	Averages and Frequencies				
		Other 30 Small Institutions	Other 46 Institutions	Institution Avg. Minus Other Small Institutions Avg.	Institution Avg. Minus Other Institutions Avg.
	Avg/SD n	Avg/SD n	Avg/SD n		
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Now we're digging deeper into this one set of question on the quality of nonclassroom interactions. Note the number 59.1. It's lower, but what does it mean?

To what extent have your non-classroom interactions with faculty had a positive influence on your intellectual growth and interest in ideas?

1. Strongly Disagree
2. Disagree
3. Neutral ← 50
4. Agree ← 75
5. Strongly Agree

It means that when given five alternative responses for each question, students were close to being neutral (their averaged 59) about concerning positive statements about the quality of nonclassroom interactions with faculty. If they'd scored around 75, they would have been agreeing with these positive statements

To what extent have your non-classroom interactions with faculty had a positive influence on your intellectual growth and interest in ideas?

1. Strongly Disagree

2. Disagree

3. Neutral ← 50

Case Study School (59.1)

Small Colleges (67.3)

4. Agree ← 75

5. Strongly Agree

This depicts the difference in how students at the case study school responded to positive questions about the quality of nonclassroom interactions.

<i>Proportion of students who answered "strongly agree"</i>	<i>Case Study School</i>	<i>Small Schools</i>
My non-classroom interactions with faculty have had a positive influence on my intellectual growth and interest in ideas	16%	21%
My non-classroom interactions with faculty have had a positive influence on my career goals and aspirations	11%	19%
My non-classroom interactions with faculty have had a positive influence on my personal growth, values, and attitudes	11%	20%
Since coming to this institution, I have developed a close, personal relationship with at least one faculty member	9%	19%
I am satisfied with the opportunities to meet and interact informally with faculty members	9%	27%

Here's another way of looking at students' responses to the same questions. In this case, we look at how many students responded "strongly agree" to these positive statements about the quality of nonclassroom interactions with faculty. Sometimes it's revealing to look at students who respond at very high or very low levels to questions on surveys.

What next?
Talk with students

It looks like students are not as happy with their nonclassroom interactions with faculty. There's probably more that we could do to analyze their survey responses, but I would urge people to shift quickly from looking at survey data to engaging in conversations with students about the issues raised by the survey data. The survey data can tell you that it might be fruitful to look further, but looking further means reaching outside of the survey data and gathering information through another form of inquiry.

Steps

- **Create a “spiral” conversation**
 - Talk with students and develop some ideas
 - Talk with colleagues and start creating a narrative
 - Talk with faculty and staff about the narrative
 - Talk with students and test the narrative
 - Repeat
- **Exit meeting**
 - Juxtapose the institutional narrative with the narrative we developed as we looked at survey data and spoke with students, faculty, and staff

When we have conversations with students, we try and use surveys to start those conversations, and then engage in a cycle in which we talk with students, talk with faculty and staff about what students are saying, talk further with students, and develop a narrative that knits together the quantitative survey data with what we heard in student faculty conversations. In this case, we learned that faculty were not turning away students to spend time on research. Rather, students were afraid to seek out and speak with their institution’s highly regarded faculty because they didn’t want to appear ignorant.

More information

- About the Wabash Study
 - <http://www.centerofinquiry.org>
- About the Teagle Assessment Scholar Program
 - <http://www.centerofinquiry.org/assessment-scholars/>
- About the Higher Education Data Sharing Consortium
 - www.hedsconsortium.org