



# The ESP Journal

Extraordinary insight into today's education information topics

## **WSJ's College Rankings: Propagating Error** Ranking Schools of Fish

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The Wall Street Journal's (WSJ) ranking of colleges was published in their September 18, 2020 edition. I'm still looking for a description of the confidence range around each college's rank. The 500 colleges listed in the WSJ only ranged by about 48 scale points top to bottom. Even a small SEM/SD would invite caution for each college's ranking.

The difference between college number 192 and 193 is 0.1 scale point. What if there's some error in those composite scores? Maybe about as much as what we're told is in a presidential poll. So, if we go up and down from these two colleges' rankings say 3 points, we pass about 80 other colleges. Might these two colleges really deserve to be higher or lower in rank within this theoretical confidence interval?

Look at college #300. Going + or -3 scale points moves this college up to #240 or down to #400. Statisticians understand that the real confidence range varies depending upon where you are within the distribution.

WSJ took the bottom 401-500 and just alphabetized them—maybe a veiled concession to the imprecision in their methodology. In fact, the alphabetized ones at the bottom all look to be within that margin of error of the luckier one ranked all the way up at 240. If I'm alphabetized, I'm thinking, "Could I really be #240?" (Don't get too excited. All the measurement errors would have to break in your favor for that to be reality.)

On top of all this, a college's final rank is determined by adding together 15 weighted metric rankings. Each of those metrics has an error range too. So imagine the propagation of error within the final ranking.

3+3+3+3+3+3+3+3+3+3+3+3+3+3+3 Some metrics' standard error may be more, some may be less—we're not told—really, we're not told. (Hey, alphabetized college, this is looking brighter.) Not to nitpick, but the Environment subscale (peer), only has a range of 8 points within which to rank 500 colleges. I wonder how reliable the rankings are within that 8-point range.

Then, we glance at the methodology report and see that two of those metrics (graduate salary and loan default rate) are the difference between actual and "predicted" values based upon student demographics. Oh, my, that's exactly what got the College Board's SAT Adversity Scores abandoned just recently, isn't it! The ultimate irony here is that WSJ imputed (aka, filled in an estimated score) the SAT and ACT scores for their predictions if students didn't have actual scores. So, WSJ created a predicted value from an estimated missing score and didn't think it was important to report a confidence interval around the result for us to judge their ranking.

I found no mention of error ranges or confidence intervals for the rankings in the methodology report in which PricewaterhouseCoopers attested to the "calculation, scoring and ranking." PricewaterhouseCoopers may have applied GAAP to what is clearly a probability and statistics methodology. The available report is far from detailed enough to determine if WSJ met the assumptions for normalization and standardization into Z scores across their metrics. Most of their metrics are nonparametric—no random assignments or normal distributions. Arbitrary normalization for convenient

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standardization may not have been the best statistical approach with these education data sets. Besides, WSJ, this is ranking. Ranking is fundamentally a parametric function.

By the way, at this time, I'm not questioning WSJ's final scores as much as I'm challenging their reporting. Even opinion polls tell us the confidence we should place in them now. I've formed my opinion of the confidence I place in their reporting.

In conclusion, this is why the Academy Awards has so many categories instead of one ranking. Get it, WSJ? Why didn't you just go with the "pillar," as you call your four subscales, that seems to represent what society is all about today: Engagement? Who could have argued with the #1 highest ranked college in the United States of America in "Does the college engage its students?"

Congratulations: Dordt College\*

...or any one of the 50 others that are within a reasonable margin of error for being #1 on Engagement.

*\*Dordt is my favorite alphabetized college. Dordt scored the #1 ranking on Engagement while its overall ranking was 401-500. Compare Dordt to the California Institute of Technology. They are #7 overall, despite being alphabetized on Engagement with a ranking of 401-500.*

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### About ESP Solutions Group

ESP Solutions Group provides its clients with *Extraordinary Insight™* into P20W education data systems and analytics. Our team is comprised of industry experts who pioneered the concept of “data-driven decision making” and now help optimize the management of our clients’ state and local education agencies’ information systems.

ESP personnel have advised school districts, all state education agencies, and the U.S. Department of Education on the practice of P20W data management. We are regarded as leading experts in understanding the data and technology implications of ESSA, SIF, Ed-Fi, *EDFacts*, CEDS, state reporting, metadata standards, data governance, data visualizations, and emerging issues.

Dozens of education agencies have hired ESP to design and build their longitudinal data systems, state and federal reporting systems, metadata dictionaries, evaluation/assessment programs, and data management/analysis and visualization systems.

To learn how ESP can give your agency *Extraordinary Insight™* into your P20W education data, contact us at (512) 879-5300 or [info@espsg.com](mailto:info@espsg.com).

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