

The Iron Law of the Normal Curve

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I dare say that the normal curve is as familiar to teachers and researchers at institutions of higher learning as alluring femme fatales are to generations of avid Hollywood movie fans. But, I am truly an academic nerd, for I contend that the curves which so amply illustrate the distribution of a population along a line extending gracefully downward from a bulging middle to ever more increasing degrees of deviance on either side of an arithmetically derived mean is more seductive – and eminently more practical.

Here is what I mean. Whenever I teach an introductory sociology course (specifically, Introduction to Rural Sociology) with 150-plus students, there are inevitably five or so who “just don’t get it.” If I announce in several classes in a row (and compose powerpoint slides with the same message to be projected prominently on the screen) that the final is “in the same classroom as the course was taught all quarter,” I will soon receive an e-mail query from these “don’t get its” asking me where the final exam will be held. And, yes – they were there: they were not absent.

New Standards of Deviation: Two Case Studies

Two recent examples illustrate the extent to which the rare student can toboggan down the steep slope of a normal curve, creating new standards for deviation. Pseudonyms are used in both short stories, which are reconstructed in a way so as to do no harm to either student in the re-telling of their circumstances.

Matthew showed up for the final exam, gingerly descending the steps of the theatre-styled classroom on crutches. Even though there were 200 other students in the class, a student on crutches stands out, so I approached him and asked how he was doing. He replied simply: “I broke my left ankle.” Looking down, I could see that there was no cast, and he was wearing a type of casual, warm weather shoe known by the commercial name as “crocs.” He noticed my quick visual study of his left ankle and before I could ask for clarification, he provided it by explaining that

the ankle had been broken in the week before the quarter began, and was now nearly healed.

I could not recall at any time a student hobbling into and out of the classroom throughout the previous ten weeks. Hmm. Was this a student at the top of the normal curve, ready for quick ride down the hill, accelerating to new values of variance through prevarication and subterfuge? Or, should I take him at his word?

Matthew narrowed the options through a short soliloquy that ended with a rather curious query: “Professor, I’m so sorry, but I was unable to be here for your quizzes because I had to leave early to get to a required class in my major on the other side of campus, and your quizzes are so close to the end of a class session I did not have time to stay. My father is a professor, like you, and he knows the President, who has given him special permission to hand me my diploma at graduation this coming Sunday. All of my extended family members are driving in from places very distant. I know I haven’t been here for the quizzes, but could you give me at least a B+ so that I can graduate and get in the Graduate program in my major here at OSU?”

Hmmm – it appears his toboggan is gathering speed, accelerating past standard deviations faster than a well-conditioned Winter Olympics bobsledder screaming through curves on a Gold Medal run.

I finally got in a word, actually, a simple question: “What is your GPA?” His answer: “2.4.” Hmmm.

My reaction to this was interrogative in tone, posing a simple problem that combines both mathematics and psychology: “This class meets for 1 hour and 48 minutes twice a week, and there are 7 quizzes, each given during the first 30 minutes of a class session. Even on crutches, your ambulatory velocity would be sufficient to cross large swaths of this campus in about an hour, would it not? Furthermore, I am assuming from your plea that you must have a severe case of bustrophobia.”

“What’s that?”

“Fear of busses. Certainly your psychiatrist informed you?”

“Sir, I’m sorry, but I’ve learned a lot in my major about fixing things.

The sky's the limit. Anything you want."

Hmmm. It's time for this one to mount the podium and stand reverently during the playing of our national anthem, victory laurel on head, and a shiny gold medal proudly dangling from his shoulders.

"Young man – did you attend class even once?"

"I was here the first day."

"Is this how your father assigns grades in his class – based on suggestions of bribes and displays of crutches and crocs? Shall I ask him? I'm sure if he really is a professor here, that I can find his e-mail address on the OSU web page, or you can simply tell me now." Smash...boom... bang. A runner broke, the toboggan crashed, and the race was over! The final outcome – the student caved in, admitted it was a badly planned scam, did not graduate, re-enrolled in a section of RS 105 the next quarter, attended religiously, and earned a respectable grade. Redemption is indeed a good thing!

As for the graduate students who assisted me in this section of RS 105, their reaction to that incident was not unexpected, with expressions like: "I can't believe that students today try to cut corners and get away with everything!" And, "What nerve these students have nowadays." I shrugged my shoulders in acquiescence to their expressions of righteousness. I think I replied with a rather weak-kneed observation: "Yes, it sure doesn't seem the same." Nonetheless, I was bothered by our collective condemnation.

The next story really has no final act, for I have no idea where the student is today. In his case, he first came to my attention because he achieved the lowest quiz grade in a class of 125 students. In fact, the second lowest grade out of 10 possible points was a 5, and he managed to earn a 2. But, we know that every normal curve displays a full range of values, with a least one case at the highest end on the axis, and a matching value symmetrically located on the other end, forming a statistical pas de deux.

At the very next class session, I administered an attendance check, with students printing their names on a blank line below a simple, straightforward question about the content of the course. Behold! This eager, young mind filled out the attendance check twice. How could that have hap-

pened? Despite our attempts to hand only one attendance check sheet to each student, mistakes can be made in a large enrollment class.

An e-mail message to him sought clarification: “Greetings. I have a question for you. Did you accidentally fill out the attendance check twice; or, did you fill it out once but someone you know also filled one out for you not realizing that you were on the other side of the room; or, are you so abundantly fortunate as to have two acquaintances who failed to cross-reference their actions when they each filled one out for you even though you were not there?”

The e-mail answer was apologetic and was accompanied by an admission of guilt, but with the beginning of a trip down the same proverbial slippery slope of the normal curve. “Professor, I’m sorry, but I was not there. I am so busy trying to keep up with all my classes and still attend Spring practice.”

Clicking the reply button, I informed him that he would not receive the two points, which is what a properly completed attendance check earns.. However, I was sympathetic because nearly all student athletes work very hard. I advised him not to miss any more lectures, and I encouraged him to meet with one of the graduate teaching associates for tutoring and review of class lectures, handouts, and notes, especially because Spring practice is a time when football players are very busy.

He did attend the next several class sessions, and I was able to see from his physique that he qualified as a football player. As well, he spent several hours consulting with a TA. Eventually, he did not sustain the effort, reverting back to a no-show status in class and in the consultation sessions. I did not look forward to completing the student athlete progress report for him, as my report would not be positive. To my surprise, however, he was not on the list of students sent to me by the Athletic Department for whom I write these reports. Did he drop the course, or, did he drop out of the university?

I asked a student who had sat next to our double attendance checkee during the few times he was at a class session if he knew anything about his status. This individual replied: “Why, no, Mark told me he was switching to your other section of RS 105 because it was more convenient to his Spring practice and work outs. He told me he is in line to be a starting linebacker and does not want to mess up his academic eligibility. I

haven't seen him since."

Wow! Quite a mystery! I had not seen him in the other section, and the TAs confirmed there was no paper trail of attendance checks and quizzes with his name on them, and not a single grade entered for him on that section's web-based grade management page. I rushed to my office to check out the athletic department web page faster than a quirky lab technician from a TV crime scene investigation show. No Mark Maker (my pseudonym) on the football team roster!

Then, because of what the other student said, I googled his name to see if I could meet my Maker on-line. What came up was amazing! A web page festooned in glorious shades of scarlet and gray, and a proud proclamation to his countless fans that he is in Columbus, and that he is a Buckeye! Furthermore, his desire for Buckeye fame was so great that he had turned down generous offers to play in the NFL, sacrificing tens of thousands of dollars for a chance at glory and fame in Ohio Stadium! And, he will be available to sign autographs to his adoring followers after the Spring scrimmage. His closing comment was icing on the cake of his grand delusion: "luv all my fans!"

Additional inquiries by e-mail brought no replies from the faux footballer, and he never showed up in class again. Later, I re-confirmed he was never on the team, and it should be obvious what grade he received.

Postscript and Principles

Accompanying this episode were familiar sounding reactions from a different set of TAs for whom helping out in a large enrollment class was new to them that quarter. They were of the unanimous opinion that undergraduates had changed from their days as freshmen. When I asked one how change of that magnitude could have occurred in American society within the short span of five years (when they were freshmen), I received only dismissives, such as this one: "well, that never would have happened with students in any classes I took in college."

Troubled by our reactions, it occurred to me that TAs are like rookie professors, filled with optimism and a bright future, but with the likelihood of experiencing their own Matthews and Marks that could transform their views of students and human nature in general into one large, cynical smirk, suspecting all and trusting none.

I vowed to find a way to put these especially memorable cases in per-

spective, and came up with the concept of the “iron law of the normal curve.” Those six words can be divided into two distinctive but related thoughts. **First**, an “iron law” means that it applies to many situations without modification. In this particular case, it is the false stereotype that the present generation of students is different from my generation, and of course, not as good. Did not Socrates say the same thing several thousand years ago?

The iron law part of the phrase should remind us that today’s students are much the same as any previous generation in their desire for an education that in turn will advance their job prospects, careers, and living a good life. Most are serious and dedicated.

This part of the phrase also helps me to recall that during my college days there were the same proportion of students who could be classified as members of the “don’t get its.” And, a select few gold medalists as well!

Too much drinking, too much looking for love in all the wrong places (my apologies to the Country-Western song of the same title), and too much having no idea why they ever enrolled in college level courses – these were the students from my generation who dropped out or flunked out somewhere between their freshmen and senior years. They were the ones soon forgotten about as I increasingly associated with a smaller cadre of sociology majors who worried about GPAs, GRE scores, and graduate program applications. My reference point changed. As I reduced my drinking and wrong place love-looking and figured out why I was in college, I became more exclusive and more selective of the students with whom I associated, and perhaps more snotty and arrogant as well.

What has changed between my generation and the present generation of students are the circumstances of their higher education. Students today are more likely to hold down a job while they attend classes, even those with partial or full scholarship support. A great many students are accumulating large debts through student loans. And, students of this new century grew up with technology that my baby-boomer generation had to learn in the middle of our careers – from the first versions of word processing to e-mail and other communication systems that were once the stuff of science fiction movies. For my generation, learning to multi-task continues to be a form of job re-training. For their generation, it is as natural as growing out of diapers, and it is woven into their daily lives.

For my generation, celebrity status was reserved for newspapers, magazines, and three television channels. For their generation, celebrities are made overnight on facebook, twitter, and blogs. Constructing a false or overblown persona is much easier today than during my college days, but this represents merely a change in opportunities available to be dishonest, and not a fundamental transformation of human nature.

I contend that the present generation of students feels more pressure to be efficient with their time – in attempts to balance their college life with their jobs, and yes, with their drinking, love-looking and other activities that can potentially reduce GPAs and GRE scores. I see a generation of students that is like mine, but I see they are making decisions in a context which is different because of the new economics of college life and rapidly changing technologies that transform the ways people relate and communicate with each other.

Hence, human nature has not changed, only the circumstances. This is the point of the **second** major thought behind the “iron law of the normal curve.” In any large group of things or people, there will always be the “don’t get its,” the “mister crutches,” and the “faux footballers.” The extreme cases should not be used to condemn a whole generation of students.

More importantly, the extreme cases must not send those of us who have the privilege to be teachers at colleges and universities across the country on a journey down the path of cynicism. The normal curve reminds us that the vast majority of students in every generation want to learn, and that they work hard at it. They may not be “straight A” by virtue of their natural intelligence, their high school preparation, and their present circumstances. Nevertheless, they should be treated with great respect and given our attention, even as a couple of their counterparts attempt to scam us.

We should not generalize to the mean based on the extremes. If we remind ourselves to avoid the generational stereotype every time we walk to and from the classroom, we will sustain an optimism that is essential to quality pedagogy, and we will maintain high standards of scholarship in the courses we teach. We will look upon these standards as a form of respect we give to those students who occupy the middle of the curve. We will seek ways to handle the deviants without diminishing the quality of what we do for students who want something out of the time and

money they invest in earning a university degree.

Finally, we should remember that the extreme cases provide us with an opportunity to mentor the next generation of professors, namely, our graduate teaching assistants, that optimism, not cynicism, defines the best instructors.