VIEW FROM THE TOP

Equity-Oriented SEM: Some Thoughts on the Role of SEM Analytics

By David H. Kalsbeek

An upheaval of converging events and issues has amplified, elevated, and intensified attention to the pervasive nature of racism and deep-seated social and economic inequities in this nation. The degree to which these inequities are systemically, structurally embedded in American society is an energized, emotionally-charged, and often divisive part of contemporary discourse—with divergent views among well-intentioned and intellectually-honest advocates of varying perspectives.

What is undebatable is that inequities underlie all of American social institutions—and American higher education is no exception. Inequities are evidenced in higher education in everything from disparities in access to and opportunity for postsecondary education to disparities in educational outcomes and achievement gaps and everything in between. As David Brooks noted nearly two decades ago in a 2005 editorial in *The New York Times*: "Let's say you work at a university or a college. You are a cog in the one of the great inequality-producing machines this country has known." He has recently reiterated these views (Brooks 2023) but is hardly alone in his judgements. Viewed in this way, all the many ways by which higher education institutions—in policy and practice—perpetuate social, economic, and racial stratification and inequity in America are in the crosshairs of policy discourse.

On the other hand, higher education is generally affirmed as a principal means for advancing greater social, economic, and racial equity, and the recent Supreme Court opinions on race-conscious admissions (Students for Fair Admissions v. Harvard and Students for Fair Admissions v. University of North Carolina) in effect affirm this. Many colleges and universities both aspire to and achieve goals that narrow equity gaps. Since higher education is demonstrably a means to lessening disparities in opportunity and outcomes, the pursuit of greater racial, social, and economic equity in America depends in part upon the degree to which higher education institutions more intentionally accept the mantle of leadership in that endeavor. Arguably, there is no single domain among the many clusters of higher education administrative professions and functions more central to this task than enrollment management.

Enrollment Management in the Spotlight

Apart from the focus on affirmative action in admissions, criticism of higher education institutions has long centered on how particular strategic enrollment management (SEM) practices contribute to or perpetuate these inequities. There was a time in the early- to mid-2000s when some advocacy groups and critics

on the national stage erupted in targeting enrollment management as a threat to social justice, as if it was some singular, monolithic activity with common purpose and practice across all institutions (for example, see Haycock 2006; Quirk 2005; Hossler 2004). Elements of SEM attracting such criticism included: how marketing and recruitment targets are set, the use of standardized testing in admissions decisions, the relative mix of need-based versus merit-based financial aid, methods for optimizing net tuition revenue, and the pursuit of institutional prestige by letting *U.S. News* rankings shape institutional priorities.

Over the subsequent fifteen years, much of this broad criticism of SEM per se has seemingly evaporated. Various developments surely have elevated awareness of the dangers of taking enrollment outcomes for granted and the need for enrollment to be more intentionally "managed." These include the financial crises of 2008, the growing awareness of the demographic projections for declining college-age youth, ratings agencies' downgrades of universities facing flat or declining net revenue, and the growing specter of college closings. They also include increasing competitiveness, growing commoditization, and the declining public confidence in the value of college. Now, under the intensifying attention to social, economic, and racial/ethnic disparities and inequities, it seems enrollment management is increasingly embraced as a strategically necessary and legitimate institutional practice—and in fact more a solution than a problem.

What every SEM leader has long known—and what is now more widely acknowledged—is that the goal of promoting diversity and equity sits alongside many other goals and objectives that colleges and universities pursue, each holding varying levels of priority, aspiration, and investment at institutions all across the American higher education landscape. Equally undeniable now is the fact that institutional goals are not only numerous and varied, but also are in conflict one with another, tugging simultaneously in very different and often opposite directions.

It is now more widely affirmed that just as SEM practices *can* promote inequities, they can and often *do* lessen them as well. The practices that characterize SEM *by definition* neither promote nor lessen inequities but in effect can and do one or the other. It can be argued that the practices and processes that define enrollment management are perhaps the best ways to bring these disparities and the practices that create them into sharp relief. SEM does so, in part, by empirically demonstrating the inherent and inevitable tradeoffs encountered when pursuing institutional goals that are fundamentally in opposition with one another.

SEM Analytics and the Equity Agenda

As Kendi (2019) noted, antiracism "requires persistent self-awareness, constant self-criticism, and regular self-examination" (23). Such is the nature of SEM's emphasis on using research and analysis to guide institutional strategy and practice. Of course, SEM's tactical playbook of marketing, recruitment, admissions, financial aid, and retention activities is central to actually advancing an institution's equity and diversity outcomes. But underlying these activities are the wide array of research and analytic efforts that inform institutional priorities and practices and improve institutional performance. It is through the analytic perspectives that characterize SEM that college leaders are forced to reconcile themselves with how certain institutional practices and goals in fact may contribute to the inequitable outcomes that they so often decry.

SEM analytics are, therefore, pivotal in moving any diversity/equity agenda from rhetoric to measurable action. They provide focus, clarity, context, and traction to that agenda as well as the measures and metrics required to assess progress when and if there is any. For the equity-minded SEM leader, SEM analytics are the lifeblood of any diversity/equity effort that has student enrollment, access, and attainment at its core. Perhaps *the most critical contribution of SEM to advancing an institution's equity and diversity outcomes is through the research and data analyses that undergird and guide it*.

This piece briefly outlines some of the ways by which this can be done with an equity-minded approach to SEM analytics—which for brevity's sake will be referred to as equity-oriented SEM—or EO-SEM.

In Admissions

As demonstrated in the Supreme Court decisions noted earlier, the part of enrollment management that receives the greatest scrutiny in any discussion of factors affecting diversity/equity outcomes is the admissions process. This in large part stems from the disproportionate attention given to the relatively few institutions with greatest prestige and, in turn, the greatest demand and, thereby, the greatest selectivity. Any disruption of established practices in how colleges and universities manage the admissions process will mostly impact the highly selective—or more recently labeled by Akil Bello as "highly rejective"— institutions (Boeckenstedt 2021). But the effects are likely more far-reaching as scholarship practices, for example, are also called into question. The fact is that race-conscious admissions, need aware and need-blind admissions, and holistic admissions have all become a part of the SEM lexicon as well as the swirling legal and public policy discourse.

But let's bracket off admissions. The scope of issues related to the admissions process is well beyond this short commentary, and it is already an all-consuming focus of the admissions profession. The requisite analytic obligation for the SEM leader hasn't changed—it is to take the broadest and most robust approach possible to building the data-based profile of applicants for admission, guided particularly by analysis of the factors most closely related to student academic success at the institution.

Suffice it to say that EO-SEM should continue its long engagement in analyses that define and evaluate the widest array of criteria for admission and their impact on access, diversity, and attainment outcomes—and do so in ways that are blind to race/ethnicity. The focus has long been, and must still be, on developing alternative approaches for assessing student preparedness for college work and likelihood of success. For example, EO-SEM places a greater emphasis on high school grades over standardized test scores, since over-reliance on the latter can and does demonstrably contribute to income and racial inequities and disparities in college access. Innovations such as the use of so-called non-cognitive measures (see Sedlacek 2017) and test-optional admissions policies and practices as well as a general focus on socioeconomic status and parental educational attainment can all promote greater equity in access. They all require robust analysis to ensure that such practices are appropriately and objectively evaluated in the most rigorous and fair manner as possible. However it plays out, creating acceptable alternatives in determining admissibility in this new legal context will require even greater attention to data collection, analysis, and use that will likely tax the analytic capacities and systems of many SEM organizations.

In Market Analysis and Recruitment

A SEM effort committed to equity-related outcomes begins well before the admissions process, however.

- **Demographic and Regional Profile and Projections:** SEM analytics often start with market research focused on comparative profiles of demographic patterns and trends in the primary geographic markets a college serves. Rather than just showcasing the much overblown "demographic cliff," EO-SEM market analyses consider the powerful influence and intersectionality of parental educational attainment, race/ethnicity, and socioeconomic status on college-going rates and, therefore, offer a more usable planning tool than broad and undifferentiated trend lines on regional demographic changes. Since much of the debate on equity in access and opportunity focuses on juxtaposing an institution's enrollment outcomes with the realities of regional demographics, a basic contribution of EO-SEM market analysis is to provide the necessary evidence for assessing that congruence and meaningfully gauging enrollment goals and outcomes in a market context.
- **Comparative Peer and Competitor Analysis:** Using a broad scope of institutional metrics, SEM leaders place a college into a comparative context in order to benchmark its performance across highly inter-related and interdependent institutional attributes. As part of that, an institution's enrollment mix in racial/ethnic and socioeconomic diversity and disparities in retention and completion rates are potent benchmarks for equity efforts. These metrics should

include student diversity, faculty diversity, retention and degree completion rates by race/ethnicity, net cost for low-income students, debt levels, and so on. Having comparable market and institutional metrics is critical to assessing and quantifying the magnitude of the very disparities and inequities that institutional leaders seek to remedy and to measuring any progress in doing so. The real strategic value lies in ensuring that all performance indicators are considered simultaneously, given the demonstrable correlations and interdependencies of measures of institutional scale, wealth, expenditures, price, and market position with diversity and equity metrics.

The analytic agenda for SEM also includes competitor analysis, typically making use of data from the National Student Clearinghouse (NSC) to define with great precision a schools' competition in terms of student enrollment choices. EO-SEM not only identifies a school's overall group of primary competitors but also how its competitive posture varies across racial/ethnic and socioeconomic segments of its enrollment mix (*i.e.* how do the two-year and four-year destinations for Hispanic students differ from Black students? Does that vary by levels of financial need or academic profile?). Pursuing goals of equity in access and opportunity requires a more segmented view of a college's competitive posture than is often considered by colleges and universities, despite readily available NSC data.

For traditional undergraduate enrollment, market analysis also focuses on the high schools in a college's primary regions, identifying those that account for the largest share of an institution's enrollment. For most colleges, the 80/20 *pareto* principle applies—*i.e.* over time, 20 percent of all high schools that have been the source of applicants for most colleges account for 80 percent or more of their applicants/enrollees. Best practices in recruitment rank schools for targeted market development and market cultivation strategies; that targeting is critical in getting the best return on investment in marketing/recruitment activities. But EO-SEM requires recruitment guided not only by optimal ROI or by traditional measures of high schools' academic profiles and outcomes. Market analysis can profile high schools not only on their academic profile but also on socioeconomic and racial/ethnic profile, providing evidence on how well an institution's outreach strategy aligns with its espoused goals for equity, diversity, access, and opportunity. Such analytic practice for guiding recruitment efforts becomes all the more important in a "post-affirmative action" context.

In Financial Aid and Yield Prediction

Given the economic disparities by race/ethnicity in America, the *assessment* of how colleges respond to varying student financial circumstances via financial aid policies and practices and the *resulting outcomes* in affordability and debt are critical means of addressing inequities in access and opportunity. A common response to how colleges should shift away from race-focused efforts is to focus with greater intent on income disparities. To that end, EO-SEM should begin with a descriptive analysis of an institution's allocation of student aid in order to describe equitability in its distribution while considering simultaneously students' financial need, comparative academic profile, parent educational attainment, race/ethnicity, and all other factors related to how aid is awarded. To the degree that an institution's distribution of aid reflects its values and priorities, such analyses provide clarity about the institution's relative commitment to racial, economic, and social equity when all other priorities are also considered.

A defining component of SEM is analytic rigor in the assessment of student financial need, the impact of aid packaging on access and affordability, net price sensitivity in enrollment yield, and the long-term consequences of price and aid in student retention and in student and family debt. Despite constraints on explicitly using race-based preferences in financial aid and scholarship processes, EO-SEM's use of econometric models in aid policy analysis is an essential foundation for advancing diversity and access goals within a college's overall pricing and aid strategy. Such analyses actually put a price tag on a college's commitment to improving affordability, access, and attainment for dis-

advantaged groups, moving from rhetoric to empirical measurement of the impact of aid and differential net pricing in meeting student financial need within the context of an institution's fiscal realities.

At many if not most institutions, so-called financial aid optimization is a core element of SEM practice, wherein financial aid packaging regimen are modeled in terms of their impact on enrollment yield and enrollment mix. This is an inherently analytic exercise—and the key question in any such optimization modeling is this: what is it that is considered *optimal*? In EO-SEM, goals of access and diversity are explicitly and deliberately incorporated, and analytic models evaluate the extent of the tradeoffs between equity-oriented goals and those of net revenue, selectivity, retention, and so on. EO-SEM analytics weigh the consequences of alternative policy choices in reducing the present or future inequities and disparities in income, race/ethnicity, and/or parental educational attainment that stem from alternative financial aid regimen. Empirically measuring those tradeoffs is vital to any informed institutional strategy for improving access and diversity goals at the institutional level. An EO-SEM approach to such analysis enlightens the disparities and their causes and then enables their remedies—but perhaps most importantly it puts an actual price-tag on those remedies and clarifies the costs that accompany an institution's aspirations and the price of its principles.

Also at the core of SEM practice is the prediction of enrollment yield in ways *beyond* financial aid optimization. In predicting yield, EO-SEM seeks to supplement traditional data on student attributes, aid, and recruitment activities with survey research with admitted students that explores the many factors affecting student college choice, how students perceive the value of a college, their sense of fit, and how the college compares to other schools considered. Segmentation of survey data by race/ethnicity, socioeconomic levels, and parental educational attainment provides an invaluable profile of differences in students' college choice behaviors that shape enrollment yield rates. These data in turn provide context and insight that are not evident in many predictive algorithms regarding factors that account for differing yield rates by student attributes and financial aid alone.

In Retention

Another defining characteristic of SEM is that it elevates retention and degree completion goals as part of enrollment development strategy. Obviously, EO-SEM analysis seeks to help institutions better understand disparities in student performance and attainment outcomes, understand the factors contributing to those disparities, and identify effective practices and policies to address them.

Many if not most institutions see significant differences in the rates by which students persist and progress toward completing their degrees when looking at descriptive statistics across racial/ethnic groups, socioeconomic status, parental educational attainment, levels of academic preparation, and so on. But EO-SEM recognizes that such univariate descriptive statistics are inadequate and even misleading in accounting for variance in student outcomes when considered independently. EO-SEM, therefore, deliberately employs more complex and rigorous multivariate analyses of how the interrelated, interdependent nature of these factors can be fully appreciated in their complex relationship to student retention and success. Without considering all student attributes simultaneously, an equity-oriented retention strategy is blind to both the root causes and the potential points of leverage for improvement.

Perhaps most importantly, EO-SEM challenges simplistic assumptions in defining and quantifying the "equitable outcomes" that are articulated as institutional goals and thereby seeks to ensure they balance being both aspirational and attainable. There may be no greater contribution of EO-SEM analytics than helping institutional leaders answer: "What will count as success, and how will we know it if we have it?" EO-SEM's approach to retention deliberately frames what constitutes equity of outcomes in student attainment and what the goals for improvement should be. All too often, equity goals are ill-defined or expressed as unmeasurable aspirations—and if nothing else, EO-SEM brings empirical, analytic traction to the institutional agenda.

Despite the complex array of factors leading to disparities, institutional retention/completion outcomes are often quite predictable. Therefore, measures of equity can be meaningfully framed either in terms of comparable actual-vs-predicted outcomes or by comparison to appropriately "contextuated" outcomes for a particular institution. Equitable outcomes cannot be simply assumed to mean parity when there are such wide disparities in the factors that demonstrably shape those outcomes. Such insight is a quintessential outcome of an EO-SEM perspective and its associated analyses.

Going further, EO-SEM broadens success outcomes to include not only degree completion but, for example, the debt burden students and families incur pursuing that degree—thereby identifying areas of inequity not typically addressed in retention research. It also includes employment outcomes and the degree to which that debt burden is manageable in light of after-college earnings.

EO-SEM also affirms that student success is tied as directly to a students' particular experiences once enrolled as it is to students' pre-enrollment attributes—and those experiences can vary widely across different segments of the student population. EO-SEM builds robust longitudinal models that not only focus on student attributes but on factors like high-risk courses and differences in student engagement that are the antecedents and predictors of disparities in student outcomes. EO-SEM's retention analysis moves beyond models to predict students who are "at risk" of greater attrition due to students' attributes and focuses even more intently on the courses students take, the activities and services they participate in, and their experiences and perceptions of the value of those experiences. These experiential data address factors that often create disparities in retention outcomes—but also, of course, identify the potential levers by which these outcomes can be improved.

An Aside on Predictive Analytics

The use of complex statistical algorithms and so-called machine learning techniques has attracted scrutiny insofar as they can potentially exacerbate inequities and bias in ways not fully transparent to, or understood by, those who produce and those who use such analyses and algorithmic tools to shape policy and practice. This has been documented in health care and in criminal justice fields—but is problematic in higher education as well.

There has been an explosion in the prevalence and prominence of predictive analytics as more and more colleges and universities employ data science methods and techniques to improve their enrollment management efforts and outcomes. Statistical and predictive models to guide institutional policy and practice with information about likely outcomes of institutional efforts have now become *de rigueur* in enrollment management practice. Predictive analytics are now so ubiquitous in enrollment management that they, in fact, define that practice in the eyes of many. And in many cases, colleges turn to consulting firms offering these services—firms that have mushroomed over the past decades.

In a recent report by the U.S. Government Accountability Office (GAO 2022), higher education was included as an industry where predictive analytic algorithms may be problematic. A primary concern of the report is that these statistical methods and scoring techniques can have differential and discriminatory effects on groups of consumers in ways not protected by current regulatory laws (in contrast to credit scores which are regulated by the Fair Credit Reporting Act). Not surprisingly, the GAO report singled out enrollment management practices in higher education.

Examples include the use of predictive algorithmic models to score prospects for marketing or to score applicants for admissions or aid/scholarship eligibility, models for predicting enrollment yield rates from alternative aid packaging regimen or student attributes, and models for predicting application rates from varying levels of student engagement in recruitment activities. They also include models for predicting academic performance and retention rates from levels of student academic preparation or course-taking patterns. All of these are fertile ground for the problematic effects and impacts cautioned by the GAO, as certain biases can enter into policy and practice in ways unbeknownst to either the analysts, the policymakers or students themselves.

The role of the equity-minded SEM leader is to be vigilant and savvy in the use of predictive analytics, to understand data sources and methodologies used in the analytic effort, and to judiciously evaluate their equity and diversity outcomes and impact. These are powerful tools that can and do shape institutional practice and outcomes in ways that can either help or hinder access, opportunity, and attainment for students. SEM leaders—and their consulting partners and data brokers—need to have a full appreciation of how future regulatory practices may increasingly call into question how the use of predictive analytics and algorithms deployed in SEM practice create risks of adverse effects primarily through bias and lack of transparency.

Closing

Bottom line: All enrollment strategies across the entire enrollment lifecycle necessarily are reflections of each institution's particular mission, strategic plans, academic priorities, fiscal realities, and market position. How central a social justice or equity agenda is in an institution's goals or values and the relative place of such goals among its multiple competing priorities naturally varies widely across institutions just as those institutions all vary in the market and financial realities they face. Therefore, the EO-SEM leader must work not only on clarifying the priority given to equity goals at every stage in the enrollment process but to define them, put them in appropriate context and juxtaposition with competing goals, and empirically demonstrate not only the tensions and tradeoffs, but the need to move from broad rhetorical aspirations to objective empirical metrics.

All of this needs to be clear and transparent—not only among institutional leaders but also for the various consulting partners engaged by the institution in support of SEM activities and analysis. A serious commitment to EO-SEM ensures that consulting partners also appreciate the need to:

- identify, assess, and elevate through any analytic engagements evidence of racial and socioeconomic inequities and disparities that may exist in institutional enrollment dynamics, profiles, and outcomes.
- identify policies and practices in an institutions' enrollment management efforts that produce or sustain racial and socioeconomic inequities.
- promote policies and practices that by intent and effect narrow racial and socioeconomic inequities and disparities.
- be proactively vigilant in reviewing how its own work and that of its analysts and consultants may reflect assumptions, orientations, and biases that may unintentionally or unconsciously fail to narrow the racial and socioeconomic inequities at its college and university partners.

Ensuring such shared accountability is increasingly the obligation of the equity-minded SEM leader.

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About the Author

David H. Kalsbeek

David H. Kalsbeek, Ph.D., is SEM Consultant at Human Capital Research Company and Senior Vice President for Enrollment Management & Marketing (emeritus) at DePaul University.