The Student List Business

Ozan Jaquette Karina Salazar Patricia Martín

1 Executive Summary

The "enrollment funnel" conceptually visualizes stages in the process of recruiting students. The funnel begins with a large number of "prospects" – all prospective students – followed by successively smaller numbers of leads, inquiries, applicants, admits, and enrolled students. Colleges and universities identify leads by purchasing "student lists" from College Board, ACT, and other vendors. Student lists contain the contact information of prospective students that meet the criteria (e.g., test score range, high school GPA, zip codes) specified in a student list purchase.

Over the past two decades, the student list business has grown in scale, sophistication, and in importance to university recruiting campaigns. Unfortunately, policymakers and researchers have ignored the market for student list data, which remains understood only by a small number of industry insiders. This report explains how the student list business works.

We have four key takeaways.

1. Research suggests that student lists have surprisingly large effects on the college access outcomes for millions of students each year. Howell, Hurwitz, Mabel, & Smith (2021) compared SAT test-takers who opted into the College Board Student Search Service – allowing accredited institutions to "licence" their contact information – and test-takers who opted out. For students with the same SAT score, parental education, race/ethnicity, sex, and high school, 41.1% of students who participated in Search attended a 4-year college compared to 32.8% of students who opted out, an 8.3 (`=41.1-32.8`) percentage point difference and a 25.3 (`=(41.1-32.8)/32.8`) percent change. Furthermore, this percent change was higher for students from populations that have historically been excluded from higher education.

2. College Board and ACT student list products systematically exclude underrepresented student populations in two ways: non-test-takers are excluded from the underlying student list databases; several "search filters," which enable universities to control which prospects they purchase disproportionately exclude students from communities of color, low-income communities, and rural communities, particularly when used in combination (e.g., PSAT score range and zip-code).

3. As more universities adopt test-optional or test-free admissions policies, fewer college-going high school students will take the SAT/ACT exam. In turn, the coverage of College Board and ACT student lists will erode, potentially creating a crisis in college access because postsecondary institutions are unable to identify and contact prospective students.

4. As advances in technology create new sources of student list data, a surge of investment and acquisitions in the educational technology (herein edtech) sector has transformed the student list business. PowerSchool – a software provider for K-12 schools – and EAB – an enrollment management consulting firm – have emerged as important players in the market for student list data.

The student list project. This report emerged from a research project that used public records requests to collect data about student list purchases from all public universities in four states. We began collecting data with the goal of understanding which universities did a "good" versus "bad" job of reaching out to their surrounding community in an equitable way. This was the wrong focus.

Over time, we realized that the student list products themselves are problematic. If the product is problematic, our focus should not be on customers (universities) that purchase the product. Rather, we should focus on the student list products and on key players in the market for student list data.

This report is the first in a series of three. The second report is an empirical analysis of student list purchases. The third report discusses policy solutions. Before we consider policy reforms, however, we must understand the student list business and how it is changing, the goals of this report.

The section Student List Basics explains how student lists work, focusing on the College Board and ACT student list products that have dominated the market until recently. We situate student lists within the broader process of recruiting students, describe how universities buy lists, what information lists contain, and how purchased lists are used. We also situate student lists vis-a-vis two broad approaches industries use to identify customers, *list-based lead generation* and *behavioral-based marketing* (e.g., Google Search, Instagram). Student lists are an example of list-based lead generation, which is based on the model of direct mail marketing. Whereas behavioral-based targeting is often the primary source of leads for community colleges, for-profit colleges, and online program managers (OPMs), student lists are the primary source of leads for college-going high school students.

In the 21st Century, student lists have been at the center of a surprisingly dynamic enrollment management ecosystem. The Theoretical Framework introduces concepts that help us analyze these changes. Resource dependence theory explains how organizations manage relationships with external actors they rely on for resources, including contractual relationships and vertical acquisitions of key resource providers. New Institutional theory offers a useful lens to analyze the causes of the test optional movement and its consequences for the student list business. Finally, critical geography and critical legal scholarship explain why student list products tend to privilege characteristics associated with whiteness.

Five market dynamics. The main section of the report, Student List Market Dynamics, applies these theoretical concepts to analyze five dynamics that shape the market for student list data in the 21st Century.

The first dynamic is the **centrality of enrollment management consulting firms** to the student list business. Although universities are the paying customers of student list products, many universities outsource student list purchases to enrollment management consulting firms. Furthermore, student lists are an essential input to the predictive models and recruiting interventions (e.g., emailing prospects) the consultancies provide.

Second, new technology led to **new sources of student list data and new vendors**. In the 2000s, start-up firms entered the student list market by creating college search engines, which asked students to submit information in order to receive recommendations about colleges and scholarships. Another new source of student list data comes from college planning software that is sold to high schools and used by high school students and guidance counselors.

The third dynamic is **acquisitions and concentration.** Following a period of market entry and growing competition in the broader edtech sector, acquisitions increased dramatically over the past five years. In the enrollment management industry, acquisitions have increased concentration and transformed the student list business. This phenomenon is exemplified by EAB. EAB is an enrollment management consulting firm and a subsidiary of Vista Equity Partners. Over the past three years, EAB has engaged in acquisitions (e.g., Cappex) and partnerships (e.g., becoming the exclusive reseller of Intersect recruiting platform) that make EAB an important supplier of names to its university clients.

Fourth, **College Board and ACT attempted to retain their competitive advantage by creating new products and features**. Both organizations developed new search filters based on statistical models, which enable universities to make "efficient" name buys that target "right-fit" students. For example, ACT allows universities to filter prospects based on their predicted probability of enrolling. College Board moved more aggressively by creating "geodemographic" search filters that target prospects based on the characteristics/behavior of their high school and their neighborhood (measured at the Census level). Drawing from critical legal scholarship and critical geography, we argue that geodemographic filters are efficient tools of exclusion that can – knowingly or unknowingly – result in racial redlining.

While EAB has become a supplier of names, both College Board and ACT leveraged their oligopoly position in the student list business to sell enrollment management consulting, offering clients information about prospects that is not included in purchased lists. The line between student list vendor and enrollment management consultant has blurred.

The fifth dynamic is **the test-optional movement.** Drawing on new institutional theory, we argue that the test-optional movement – catalyzed by the Covid Pandemic – will destroy the college entrance exam. Future prospects for College Board and ACT student list products are bleak. Their competitive advantage substantially depends on unparalleled coverage of college-going high school students. The test-optional movement will lead to fewer test-takers, eroding the coverage of College Board and ACT student lists.

Several for-profit firms are positioned to acquire market share ceded by College Board and

ACT. Historically, College Board and ACT sold names at a per-prospect price to any accredited institution. By contrast, firms like PowerSchool and EAB have learned to maximize profit by controlling a unique database of prospects and then restricting access to institutions that pay for subscription and/or consulting services.

Recommendations for practitioners The report concludes with recommendations for university leaders and for admissions and enrollment professionals. University leaders – presidents and trustees – are responsible for big-picture decisions that drive downstream decisions about name buys. Leaders should reflect on whether their recruiting practices (e.g., who is targeted and who is not) are consistent with the university mission. We also recommend that university leaders develop the in-house capacity of the enrollment office and be thoughtful about which recruiting processes are outsourced to consultancies. Outsourcing does not absolve universities from being accountable to their stakeholders.

We recommend that admissions and enrollment professionals develop internal capacity to execute student list purchases. Additionally, the enrollment office should compare the demographics of purchased names to relevant comparison groups and reassess the search filters they specify.

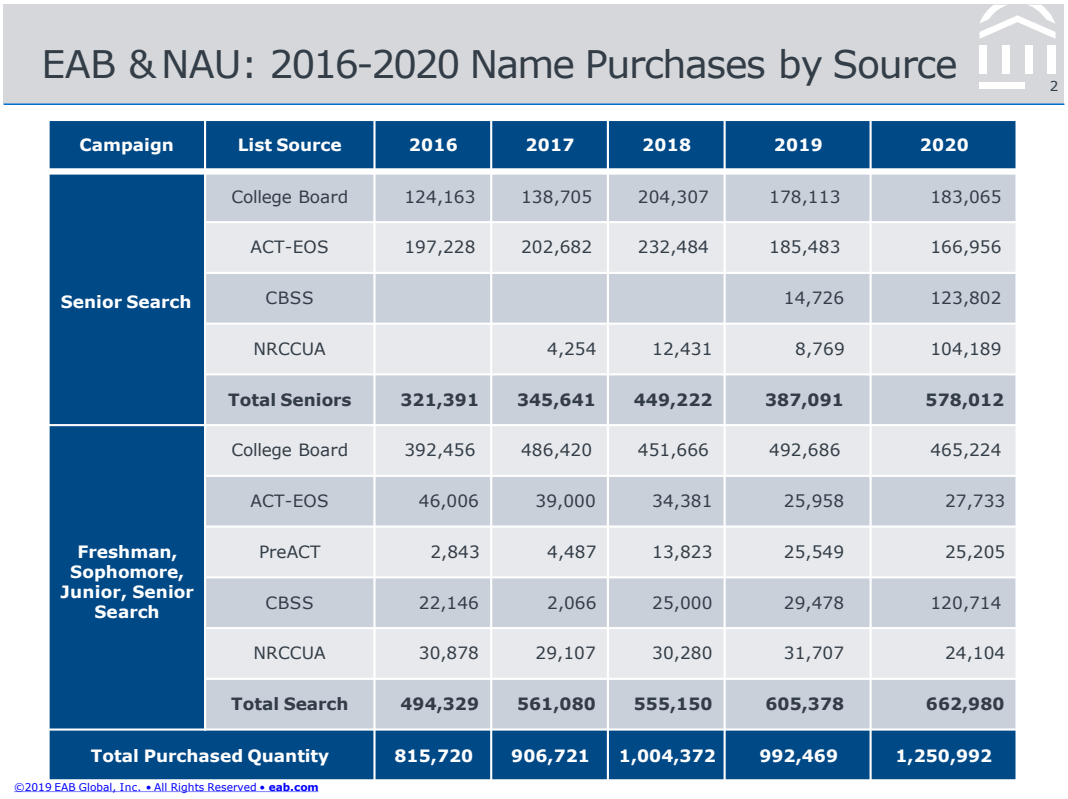
2 Introduction

On February 21, 2020, represented by counsel, we issued a public records request to a public research university (herein "Stonewall University") seeking information about "student list" purchases. Student lists contain the contact information of prospective students that meet the criteria (e.g., test score range, zip codes) specified in an order. Sometimes referred to as "names," student lists are the fundamental input for recruiting campaigns, which target individual prospects by mail, email, and on social media.

Our request to Stonewall University was part of a larger project – funded by the Joyce Foundation and the Kresge Foundation and in partnership with the Lawyers' Committee for Civil Rights and the pro bono offices of four law firms – that issued public records requests to 93 universities in five states in order to collect quantifiable data about student list purchases. For each list purchased by Stonewall University over the prior four years, we requested two pieces of information: the de-identified student list data; and the "order summary" that shows the search criteria specified to determine which prospects are included in the list. Our requests focused on lists purchased from College Board, ACT, and National Research Center for College and University Admissions (NRCCUA), the three largest student list vendors at the time.

On April 27, 2020, Stonewall University responded to our request, "The university has a substantial and proprietary interest in maintaining the confidentiality of the documents you have requested. Accordingly, with the exception of the attached slide, the records requested will not be produced." This slide, titled "2016-2020 Name Purchases by Source," is presented in Figure 1. It indicates that Stonewall purchased about 816,000 names in 2016, including about 517,000 from College Board and 246,000 from ACT. In 2020, Stonewall purchased about 1,251,000 names, including about 648,000 from College Board and 220,000 from ACT.

Figure 1: Stonewall University: 2016-2020 name purchases by source



EAB & NAU: 2016-2020 Name Purchases by Source

2

Campaign	List Source	2016	2017	2018	2019	2020
Senior Search	College Board	124,163	138,705	204,307	178,113	183,065
	ACT-EOS	197,228	202,682	232,484	185,483	166,956
	CBSS				14,726	123,802
	NRCCUA		4,254	12,431	8,769	104,189
	Total Seniors	**321,391**	**345,641**	**449,222**	**387,091**	**578,012**
Freshman, Sophomore, Junior, Senior Search	College Board	392,456	486,420	451,666	492,686	465,224
	ACT-EOS	46,006	39,000	34,381	25,958	27,733
	PreACT	2,843	4,487	13,823	25,549	25,205
	CBSS	22,146	2,066	25,000	29,478	120,714
	NRCCUA	30,878	29,107	30,280	31,707	24,104
	Total Search	**494,329**	**561,080**	**555,150**	**605,378**	**662,980**
Total Purchased Quantity		**815,720**	**906,721**	**1,004,372**	**992,469**	**1,250,992**

Curiously, the footer of the slide reads "©2019 EAB Global, Inc." EAB is an enrollment management consulting firm. We learned that EAB purchases student lists on behalf of Stonewall University.

The relationship between Stonewall University and EAB became a barrier to our records request. On 12/7/2020, Stonewall General Counsel stated that "while [Stonewall University] indeed purchases student lists, the University does not actually have physical possession of such lists" and, on 1/27/2021, stated that "this is because [Stonewall University] does not receive anything directly from College Board or from ACT or other list sources. Rather, EAB, on [Stonewall's] behalf, places the order, receives the data, and then [Stonewall University] is billed directly for it."

We asked Stonewall to ask EAB for these records but we were told on 8/13/2021 that "EAB also doesn't have or keep these materials." In March 2022 – following two years of emails, phone calls, and officious letters on firm letterhead – Stonewall provided order summaries, but only for a subset of lists purchased from College Board in 2020.[1]

We experienced similar data collection challenges at other universities. We were surprised by the number of public universities that outsourced student list purchases to a consulting firm, often to EAB. In these cases, we were usually unable to obtain the requested records. Furthermore, university public records officers often could not identify university employees

[1]However, we were not given the zip code lists these orders used to target particular localities and not the de-identified student lists associated with these orders.

knowledgeable about student list purchases because of high employee turnover.

When we began collecting data from Stonewall University and other universities, our goal was to understand whether the recruiting efforts of universities were representative of their surrounding community. Thus, we initially assumed that the set of prospects included versus excluded from student list purchases was a function of individual university enrollment preferences. Over time, we realized that the most problematic aspects of student lists – particularly, which prospects are excluded from student list purchases – are functions of student list products and the broader market for student list data, which includes student list sellers, aggregators, and enrollment management consulting firms. Therefore, instead of focusing on the behavior of customers (universities) that purchase student lists, we should investigate organizational dynamics in the market for student list data and the student list products created by this market.

Although the testing agencies have dominated the student list business since 1972, when College Board created the Student Search Service (Belkin, 2019), the market for student list data has become increasingly dynamic over the last twenty years. Advances in technology yielded new sources of student list data (e.g., college search engines, software used by high schools), creating opportunities for new vendors.

A prolonged uptick has followed this era of market entry and competition in acquisitions, which have increased concentration in the enrollment management industry and transformed the market for student list data. For example, the K-12 software provider PowerSchool and the consulting firm EAB have emerged as important suppliers of names, but only to universities that pay for subscription and/or consulting services. Reflecting on these trends, we believe that sociological theories of organizational behavior can provide valuable insights into how these dynamics are connected and how they compare to dynamics in other industries.

Recent research suggests that College Board and ACT student lists products are surprisingly crucial for college access outcomes (Howell, Hurwitz, Mabel, & Smith, 2021; Moore, 2017); however, these products face problems that require intervention by policymakers. First, search filters that allow universities to purchase some prospects but not others yield racial, socioeconomic, and geographic inequality in which students are recruited. Additionally, College Board and ACT student list products systematically exclude underserved student populations because the underlying databases exclude non-test-takers. Recognizing emerging trends, the test-optional movement will likely reduce the number of test-takers and erode the coverage of College Board and ACT student lists. This may result in a college access crisis because universities cannot obtain the contact information of prospective students.

Policymakers cannot develop solutions to these challenges until they develop understanding. Therefore, this report aims to use organizational theory to understand where the student list business has been, where it is, and where it is going.

The first substantive section, Student List Basics, provides essential background information about how the student list business has worked until recently, focusing on long-standing products offered by College Board and ACT. The Theoretical Framework section introduces concepts of organizational theory and critical legal studies that are useful for analyzing current market dynamics. In Student List Market Dynamics, we apply these concepts to discuss

five key dynamics that shape the market for student list data in the 21st Century. Finally, Recommendations for Practitioners develops practical recommendations for university leaders and admissions/enrollment professionals.

3 Student List Basics

This section describes how the student list business works, focusing on the College Board and ACT student list products that have dominated the market for decades. First, we situate student lists within the broader process of recruiting students. Second, we describe how universities buy lists, what information lists contain, and how purchased lists are used. Third, we summarize research about student lists, including usage and efficacy from the perspective of universities and their effects on college access from the perspective of students.

3.1 Situating Student Lists within the Recruiting Process

The student list business is a match-making intermediary connecting universities to prospective students. Universities require students to survive. Beyond survival, universities pursue some combination of broad enrollment goals (e.g., tuition revenue, academic profile, racial diversity), while also meeting the needs of various campus constituencies (e.g., College of Engineering needs majors, athletic teams need players) (Stevens, 2007). Universities cannot realize these goals solely from prospects who find the university on their own; they must discover desirable prospects who can be convinced to enroll. However, universities do not know who these prospects are, where they are, or how to contact them. Student lists overcome this problem faced by universities, providing the contact information of prospects who satisfy criteria specified by the university. From the perspective of students looking for a university, students are unaware of all college options, and they do not know which universities are interested in them. Student lists can help overcome this problem by enabling interested universities to contact prospective students. In practice, however, the student list business is responsive to the issues faced by universities because universities purchase student lists.

In order to situate student lists within recruiting, Figure 2 depicts the "enrollment funnel," a conceptual model used by enrollment management industry to visualize stages in the recruiting of students (e.g., prospects, leads, inquiries, applicants, admits, and enrolled students). "Prospects" are "all the potential students you would want to attract to your institution" (Campbell, 2017). We define "leads" as prospects whose contact information has been purchased. "Inquiries" are prospects that contact your institution and consist of two types: first, inquiries who respond to an initial solicitation (e.g., email) from the university; and second, "student as first contact" inquiries who reach out to the university on their own, for example, by sending ACT scores or by taking a "virtual tours" that records IP address. Applicants consist of inquiries who apply plus "stealth applicants" who do not contact the university before applying.

The enrollment funnel is based on the "marketing funnel," in which "marketers cast a broad net to capture as many leads as possible, and then slowly nurture prospective customers

Figure 2: The enrollment funnel

through the purchasing decision, narrowing down these candidates in each stage of the funnel (Skyword, 2021)." The funnel shape assumes "melt" at each stage. For example, only a subset of inquiries will apply, a subset of applicants will be accepted, and a subset of admits will enroll. Thus, if a university wants first-year students enrollment – the final stage of the funnel – to be 5,000 students, the university must first identify and target a much larger number of prospective students.

At the top of the enrollment funnel, universities identify "leads" by purchasing student lists from College Board, ACT, and other vendors. The sum of purchased leads plus student-as-first-contact inquiries (e.g., filled out an online admissions inquiry form) constitutes the set of all prospects for whom the university has contact information, and who are eligible to receive targeted recruiting interventions from the university.

3.2 Buying and Using Student Lists

The largest student list vendors are College Board and ACT, which create student list products based on their database of test-takers. College Board encourages test takers – including AP test takers – to opt into the "Student Search Service," which enables "accredited colleges, universities, nonprofit scholarship programs, and nonprofit educational organizations" (College Board, 2022a) to "license" their contact information. Similarly, ACT encourages students registering for the PreACT and ACT to opt into the "Educational Opportunity Service" (ACT, Inc., 2022), which "provides accredited colleges and scholarship agencies with the names and contact information of students who opt-in" (Moore, 2017, p. 1).

In 2019, both College Board and ACT charged $0.47 per name (Belkin, 2019). In fall 2021, College Board charged charged $0.50 per name (College Board, 2021b), while ACT had

moved to a subscription pricing model following the acquisition of the National Research Center for College and University (NRCCUA) and the launch of the Encoura product (Encoura, n.d.). College Board announced that it will move to a subscription pricing model in September 2022 (College Board, 2022b).

How do universities purchase student lists from College Board Student Search Service and ACT's Encoura platform? Each purchased list is a subset of prospects drawn from the population of test-takers by specifying multiple search filters. Schmidt (2019) states that commonly specified search filters for ACT include high school graduation year, high school GPA, test score range (ACT or PreACT), gender, ethnicity, intended major, and geography (e.g., state, county, zip code) (Schmidt, 2019). As a hypothetical example, a university could purchase a student list from ACT that consisted of all prospects who scored between 30 and 34 on the ACT, have a GPA higher than 3.5, live in one of the top 10 metropolitan areas, and are in the high school senior class of 2023. As we discuss below, College Board and ACT recently began offering filters that enable universities to target prospects based on statistical models of the past behavior of similar or nearby prospects. [ADD LINKS/APPENDIX FIGURES SHOWING AVAILABLE SEARCH FILTERS FOR CB/ACT?]

What data do purchased student lists contain? Each purchased student list is essentially a spreadsheet that contains one row for each prospect that meets all criteria specified in the purchase. The columns of the student list include detailed contact information (name, address, email, cell phone) and detailed student characteristics derived from the pre-test questionnaire (e.g., graduation year, high school code, gender, ethnicity, race, first-generation status, intended major). The data template for an ACT student list can be found here and the template for a College Board student list can be found here. These fields represent a small subset of the information the testing agencies know about prospective students and contain little data about performance on assessments (e.g., SAT score). As we discuss below, College Board and ACT provide more detailed information to universities that pay for their enrollment management consulting services.

How are lists utilized? Purchased lists are the basic building block for data-informed "recruiting campaigns" that seek to realize university enrollment goals. University enrollment management offices – and the consulting firms they hire – use algorithms to inform recruiting interventions. However, both the algorithms and the interventions must be fed data about prospects (e.g., cannot send an email without an email address). Decisions about which names to purchase are also informed by algorithms (Fire Engine RED, 2022a). Once purchased, student lists are layered with additional data sources, such as consumer data about prospects from credit companies, records of interactions with prospects (e.g., visiting virtual tour), historical application/enrollment data about students who attended the same high school, etc. These layered data are the input to predictive models that inform decisions about which recruiting interventions to send to which prospects (e.g., who gets a $0.50 postcard and who gets a $7 brochure).

3.3 Research on Student Lists

Usage and Efficacy for Universities. Knowledge about the use and efficacy of student lists is largely based on market research by consultancies. Ruffalo Noel Levitz publishes regular reports about recruiting practices based on survey responses from their clients, which tend to be public and private non-profit universities of mid-level size and mid-level selectivity. With respect to the number of names purchased annually, Ruffalo Noel Levitz (2020) reported that 34% of private universities purchased less than 50,000 names, 24% purchased 50,000-100,000 names, 23% purchased 100,000-150,000 names, and 19% purchased more than 150,000 names. For public universities, 28% purchased less than 50,000 names, 44% purchased 50,000-100,000 names, 13% purchased 100,000-150,000 names, and 15% purchased more than 150,000 names. These responses, based on Ruffalo Noel Levitz clients, may not be representative of the number of names purchased by public research universities and selective private universities. For example, one California public research university in our sample purchased 147,801 names from the College Board in 2020.

Ruffalo Noel-Levitz (2020) reports the percentage of undergraduate recruiting budget allocated to different marketing/recruiting activities. The median private university spent 14% of its recruiting budget on student lists, which was ranked second after off-campus recruiting visits (17%). The median public university spent 12% of its budget on student lists, which was ranked fifth after "prospective student communications" (17%), off-campus visits (16%), "recruitment publications" (15%), and "web services and digital advertising" (13%). To make things more concrete, we provide a back-of-the-envelope calculation, albeit one that is not representative of the population of public universities. Stonewall University reported purchasing 1,251,000 names in 2020, including about 648,000 from College Board and about 220,000 from ACT. In 2020, both the College Board Student Search Service and the ACT Encoura product charged \$0.47 per name. Thus, we calculate that Stonewall University spent $\$304,560$ on names from College Board (648,000 names multiplied by \$0.47) and $\$103,400$ on names from ACT (220,000 names multiplied by \$0.47\$).

With respect to efficacy, Ruffalo Noel Levitz (2018) asked universities to rate different "first contact" interventions (e.g., off-campus recruiting visit, website form) as sources of inquiries and enrolled students. For the median private non-profit university, student list purchases were the highest source of inquiries, accounting for 32% of inquiries and were tied with off-campus recruiting visits as the highest source of enrolled students, accounting for 18% of enrolled students. For the median public university, student list purchases were the highest source of inquiries, accounting for 26% of inquiries, and accounted for 14% of enrolled students, which ranked fourth after "application as first contact" (19%), campus visit (17%), and off-campus visit (16%).

A peer-reviewed journal article by Smith, Howell, & Hurwitz (2021) estimates the causal effect of licensing the contact information of a particular prospect on the probability the prospect will apply to and enroll at the university. The authors employ a clever natural experiment research design.[2]. Prospects that were licensed were 23% "more likely to apply

[2]The design strategy is based on the fact that when universities make a student list purchase, they can set an upper limit on the number of names they buy. When the number of prospects that satisfy the filter

to the licensing college than students with similar backgrounds who did not receive outreach" (Smith, Howell, & Hurwitz, 2021, p. X). However, the effect size was only 0.1% in percentage point change (e.g., the probability of applying to the university increases from 1.0% to 1.1%), perhaps because each student was licensed by 28.5 universities on average. The authors also found that licensed prospects were significantly more likely to enroll at the licensing university. For both the application and enrollment outcomes, the effect sizes were substantially larger for first-generation students, low-income students, and students who identify with a historically underserved racial/ethnic group.

Student lists and college access. Research suggests that student lists substantially affect college access – and in turn, degree completion – for millions of students each year. Howell, Hurwitz, Mabel, & Smith (2021) compared SAT test-takers who opted into the College Board Student Search Service and test-takers who opted out, after controlling for covariates. Figure 3 reproduces the main results. For students with the same values of SAT score, parental education, race/ethnicity, sex, high school graduation year, and who attended the same high school, 41.1% of students who participated in Search attended a 4-year college compared to 32.8% of students who opted out, representing an 8.3 (`=41.1-32.8`) percentage point difference and a 25.3 (`=(41.1-32.8)/32.8`) percent change in the relative probability of attending a 4-year college (A similar analysis by Moore (2017) also found positive enrollment effects for students who opted into ACT's Educational Opportunity Service (EOS), after controlling for covariates).

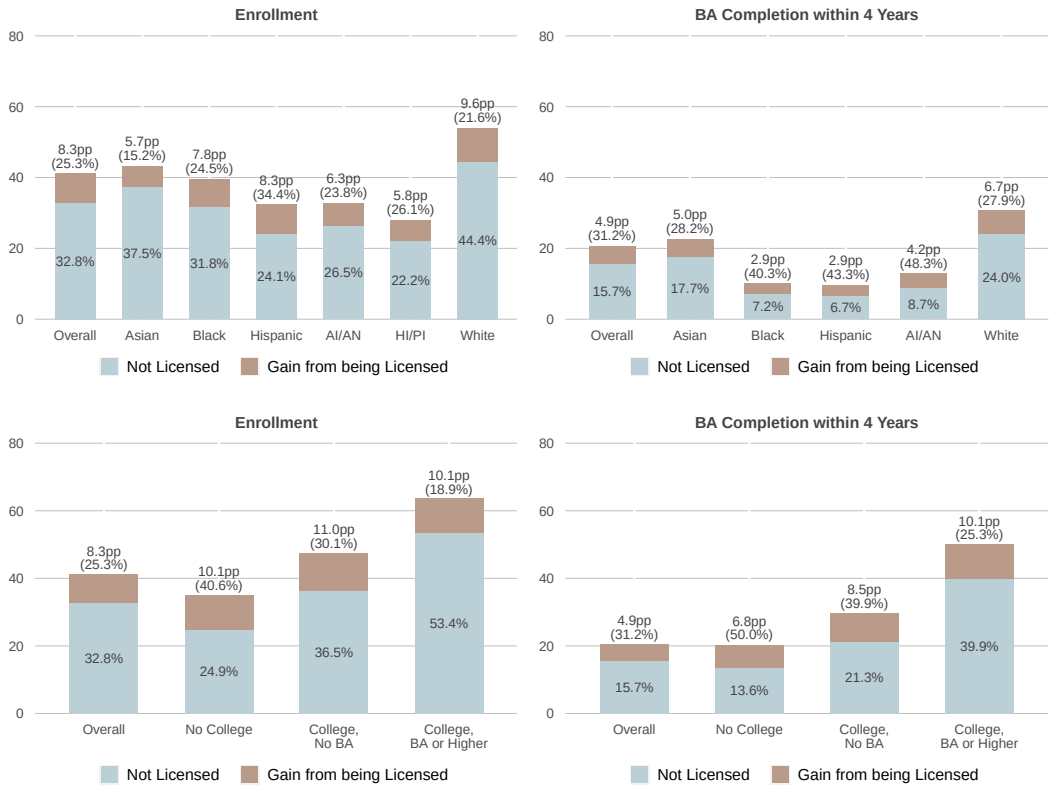
Figure 3 shows that participating in Search was associated with a larger percent change in the probability of attending a 4-year institution for students who identified as Black (24.5%=`(39.6-31.8)/31.8`), Latinx (34.4%), American Indian or Alaska Native (23.8%), and Native Hawaiian or Pacific Islander (26.1%) than it was for students who identified as White (21.6%) or Asian (15.2%). Similarly, the percent change in the probability of attending a four-year college was more significant for students whose parents did not attend college (40.6%) than it was for students whose parents had a BA (18.9%).

Howell, Hurwitz, Mabel, & Smith (2021) also analyzed SAT test-takers four-year BA degree completion rates from the 2015 and 2016 high school graduation cohorts. Figure 3 shows that 20.6% of students who participated in Search obtained a BA in four years compared to 15.7% of students who opted out, representing a 31.2% (`=(20.6-15.7)/15.7`) increase in the relative probability of graduation. Furthermore, the relative increase in the probability of obtaining a BA was higher for Black (40.3%), Hispanic (43.3%), and Native American/Alaska Native students (48.3%) than it was for White (27.9%) and Asian (28.2%) students. The relative increase was also higher for students whose parents did not attend college (50.0%) than it was for students whose parents had a BA (25.3%).

Notes: AI/AN = American Indian or Alaska Native. HI/PI = Hawaiian or Pacific Islander. Sample for enrollment outcomes is all SAT takers in the 2015–2018 high school graduation cohorts. Sample for completion outcomes is students in the 2015–2016 cohorts. Results are estimated from regressions that include student-level controls for: sex, race/ethnicity, SAT score, parental education level, last Student Search Service opt-in status, graduation cohort, and high school fixed effects. All differences

criteria – let's say 15,000 names – exceeds this upper limit – let's say 10,000 names, the university would receive a random subset of 10,000 names from the 15,000 names that satisfied the filter criteria. These conditions create a natural experiment.

Figure 3: Student Search Service and four-year college enrollment/completion



between licensed versus non-licensed students are statistically significant at the 1% level.

Although the findings from these studies on College Board (Howell, Hurwitz, Mabel, & Smith, 2021) and ACT (Moore, 2017) cannot be considered causal, the magnitude of the findings is quite significant from a policy perspective, especially when considering the number of SAT and ACT test-takers. 2.22 million students from the high school class of 2019 took the SAT (College Board, 2019), and 1.78 million students took the ACT (ACT, Inc., 2019). However, the number of test-takers declined during the Covid Pandemic and is likely to decline in the future because of the test-optional movement. Suppose student lists are essential for college access. In that case, the decline in test-takers may negatively affect college access because universities cannot obtain the contact information of prospective students.

3.4 How Industries Find Customers: List-based and Behavioral-based leads

[THIS SUB-SECTION SHOULD BE AN "INSERT" OR "PULLOUT" RATHER THAN MAIN TEXT]

List-based leads. "Lead generation" is the process of connecting "leads" – consumers interested in products – to merchants who sell those products (Federal Trade Commission, 2016). Student lists are an example of "list-based" lead generation, which is based on the direct mail business model (Singer, 1988). Therefore, when considering why certain prospective students receive certain marketing material from certain universities, it is helpful to ask: why did I receive a student loan refinancing offer from SoFi or a catalog from a particular clothing retailer?

Federal Trade Commission (2016) describes the flow of the online lead generation process, which is similar to the direct mail business ecosystem described by Singer (1988). "Publishers" are consumer-facing entities (e.g., a free college search engine website) that "encourage consumers to submit additional information about themselves" (Federal Trade Commission, 2016, p. 3). Next, publishers sell the data entered by consumers to "aggregators." Aggregators are intermediaries that buy "leads collected by multiple website publishers and prepare them for sale to their clients" (Federal Trade Commission, 2016, p. 3) who may be merchants or other aggregators.

The market described by Federal Trade Commission (2016) is similar to the (now defunct) "Chegg Cloud" student list business, whereby Chegg "partnered with 18 of the top college search websites and mobile apps to aggregate student data and requests for information" (Chegg Inc., 2015, p. 5). In this model, college search engines (publishers) like Scholarships.com collect data voluntarily entered by prospective students. Chegg plays the role of an aggregator – buying names from multiple publishers – and sells the resulting lists to universities looking for customers. By contrast, the business model of College Board and ACT uses fewer intermediaries. The testing agencies are lead publishers – producing student list data as a byproduct of their assessment products – and sell these leads directly to universities looking for customers.

Behavioral-based leads. Advances in digital technology yielded behavioral-based targeting, including most advertising on websites and social media. Whereas list-based marketing proceeds in two steps – first obtain customer contact information and then serve marketing material via contact information – behavioral-based targeting identifies targets based on their user profile and simultaneously serves advertisements to users while they are on the platform. For example, a Google Search elicits paid Google Ads, alongside "organic" search results. Users of a platform may also be served advertisements when they visit a website that partners with the platform. Google users are served display ads when they visit websites that are part of the Google Display Network. Additionally, behavioral-based targeting can target users based on geographic location and audience segments. Google Ads defines segments as "groups of people with specific interests, intents, and demographic information, as estimated by Google" and "Google Ads will show ads to people who are likely in the selected categories ("About audience targeting," n.d., para. 9).

The article "Making Your Digital Ads Count" by EAB (2018) provides insight into the extent to which higher education depends on list-based versus behavioral-based identification of leads (p.9):

> For industries outside of higher education and for non-freshman recruitment, a primary aim of digital marketing is often that of identifying a pool of potentially interested customers ... [By contrast] Where the recruitment of college-bound high school students is concerned, digital channels are less important from a lead-generation perspective, because the vast majority of likely candidates are already readily identifiable via testing and survey services (ACT, College Board, etc.). Digital marketing is, instead, of greatest value in further stages of the recruitment funnel, including inquiry generation and application generation.

In other words, product markets that do not have customer lists are forced to rely on behavioral-based targeting to identify leads. Behavioral-based targeting is often the primary source of leads for higher education programs that target students working adults who are not recent College Board/ACT test-takers, for example, vocational programs offered by community colleges and for-profit colleges, or recruiting efforts by third-party online program managers (OPMs) (Carey, 2019).

By contrast, public and private non-profit universities can purchase customer lists of college-bound high school students from College Board and ACT. Thus, for "freshman recruitment" – EAB (2018) argues it is more efficient to identify leads by purchasing student lists.[3] Based on conversations with enrollment management consultants, universities that are large and well-resourced often deploy a dual approach for freshmen recruitment; the enrollment management office uses list-based recruitment and the marketing department uses behavioral-based marketing designed to promote the brand. By contrast, smaller institutions often rely solely on list-based advertising because they lack in-house marketing operations.

[3]Subsequently, purchased names are served digital ads using both "direct targeting" (e.g., Facebook allows advertisers to serve ads directly to purchased names) and "retargeting" (e.g., serving Google Display ads to "inquiries" via their IP address) approaches.

4 Theoretical Framework

While the market for student list data has been primarily controlled and shaped by College Board and ACT for decades, it has become surprisingly dynamic. For example, technological advances in the 21st Century have yielded new sources of student list data – leading to entry by new firms — and have been incorporated into existing student list products in troubling ways. Within the past five years, there has been a surge in acquisitions, a blurring of distinctions between student list vendors and enrollment management consultants, and the test-optional movement threatens the College Board and ACT oligopoly. This section introduces concepts from theories of organizational behavior and critical legal scholarship that enable us to analyze these dynamics in the next section.

4.1 Resource Dependence Theory

Our analysis of the market for student list data draws from resource dependence theory (Pfeffer & Salancik, 1978), one of several theories of organizational behavior that provides insight into "make or buy" decisions by firms, which we refer to as "in-house" (make) or "contract-out" (buy) decisions. Resource dependence theory begins with the assumption that organizations require resources from the external environment in order to survive. The central concept of resource dependence theory is dependence, as defined by Emerson (1962). Actor A depends on actor B to the extent that B controls goals important to A – values that A cannot obtain outside the A-B relationship. Resource dependence theory states that an external resource provider has power over an organization to the extent that (a) the resource is essential for organizational operations, (b) few alternative sources of the resource exist, and (c) the external organization has discretion over how the resource is allocated.

As one example of dependence, universities depend on the stable flow of prospect contact information to achieve enrollment goals. The dependence of a university on a particular student list vendor is more significant when there are few suppliers for some pool of names. This action characterizes the oligopoly market structure of the student list business, where College Board and ACT capitalize on their market power by forcing customers (universities) to pay higher prices (e.g., \$0.50 per name) than they would pay in a competitive market. While College Board and ACT each own a unique set of names, every Title IV institution has the right to buy these names at a set price. By contrast, dependence on the supplier of a unique set of names increases if the supplier has discretion over which universities have access to names, as in the example of EAB restricting access to a pool of prospects to those universities that have signed consulting/subscription contracts with EAB.

Pfeffer & Salancik (1978) describes strategies organizations may deploy in response to the problem of dependence on a particular resource exchange (e.g., compliance, resource diversification, cooptation, professional associations, acquisitions). While the choice of strategy is contextual, resource dependence theory recommends choosing "the least-constraining device [action] to govern relations with your exchange partners that will allow you to minimize uncertainty and dependence and maximize your autonomy" (Davis & Cobb, 2010, p. 6). For example, one strategy is finding an alternative supplier of the same resource (e.g., a different

names vendor) in order to reduce reliance on a particular provider. *Resource diversification* is the strategy of reducing reliance on a resource by finding substitute resources. For example, a university may reduce dependence on names by using behavioral-based marketing to identify/target leads and by using brand marketing to grow inquiries. *Cooptation* is the strategy of socializing external resource providers to the goals of the organization through shared participation in organizational activities. For example, enrollment management consulting firms depend principally on universities. If a firm places a consultant in a Vice President of Enrollment Management position, it becomes more likely that the university will retain the consulting firm.

Acquisitions, the "most resource-intensive means" (Scott & Davis, 2007, p. 237) of exerting control over the external environment, have received little attention from higher education scholars; however, they are quite common in the market for student list data. "Vertical integration" refers to whether two distinct activities in the input/output "value chain" of an organization are done by two organizations (contract-out approach) or done by one organization (in-house approach). A "vertical acquisition" occurs when an organization acquires an organization "at adjacent stages in the value chain for example, furniture manufacturers may merge (backward) with lumber companies or (forward) with furniture distributors or showrooms" (Scott & Davis, 2007, p. 237). In the market for student list data, consider college search websites, which generate student list data by asking prospective students to enter information about their background and college preferences. For simplicity, assume this market consists of two activities: building websites and selling data to universities looking for names. A firm that specializes in building college search websites may acquire a firm with the capacity to sell names to universities in order to complete both activities in-house.

Somewhere between contracting-out and vertical acquisitions is the strategy of forming *alliances*, which are "agreements between two or more organizations to pursue joint objectives through a coordination of activities" (Scott & Davis, 2007, pp. 236–237). Alliances are less costly than acquisitions and can be mutually beneficial when each organization performs an activity that is an essential input for the other organization.

A "horizontal acquisition" occurs when two firms that perform similar activities merge. For example, an enrollment management consulting firm may acquire one of its competitors. Horizontal mergers increase market share and reduce competition, potentially enabling acquiring the firm to charge higher prices. More generally, larger firms can exert influence on their external environment, including the ability to control suppliers, buyers, and regulators (Pfeffer & Salancik, 1978).

4.2 New Institutional Theory

Whereas resource dependence theory provides insight into the decisions of firms within an industry, a new institutional theory provides insight into macro-structural forces that shape organizational behavior. The seminal work by Meyer & Rowan (1977) argues that organizations survive not by superior performance (efficiency) but by appearing "legitimate" to external stakeholders. Legitimacy is defined as conforming to recognized, accepted standards. An organization has legitimacy if external actors view it as an accepted member

of a particular type of organization. In turn, gaining/maintaining legitimacy depends on adopting practices deemed appropriate for a particular type of organization. Thus, Meyer & Rowan (1977) define "institutions" as taken-for-granted ideas about appropriate practices. Institutionalization is the process by which ideas about appropriate practices "come to take on a rule-like status in social thought and action" (Meyer & Rowan, 1977, p. 341).

Because all organizations within a population (e.g., research universities) are beholden to the same expectations from the external environment, the institutionalization of a practice results in "isomorphism," defined as the process by which organizations within a population adopt the same processes, policies, and structures (DiMaggio & Powell, 1983). Whereas early adoption of an innovation is motivated by substantive rationale, later adoption is motivated by legitimacy considerations (e.g., Tolbert & Zucker, 1983). The diffusion of the SAT/ACT exams is a textbook example of isomorphism. Once the leading public and private universities adopted the SAT or ACT as an admissions requirement, other universities followed suit because (paraphrasing) "this is what legitimate universities do." In turn, the institutionalization of the college entrance exam compelled college-going high school students to take either the SAT or the ACT.

A subsequent wave of empirical scholarship from new institutional theory examined "de-institutionalization" – the conditions and processes by which institutions die. Examples include the conglomerate firm as an organizational form (Davis, Diekmann, & Tinsley, 1994), lifetime employment in Japan (Ahmadjian & Robinson, 2001), and the liberal arts curricula of liberal arts colleges (Kraatz & Zajac, 1996). Deinstitutionalization is caused by macro forces in the external environment, including technological change (Chandler, 1977; Schumpeter, 1942) and social movements/political mobilization (Karen, 1991; McAdam, Tarrow, & Tilly, 2001). With respect to technology, Davis (2005) p. 495 states that "underlying the shifts in forms of finance and production were advances in information and communication technologies that substantially expanded the range of possible organizational structures and repertoires." Karen (1991) describes political mobilization as "involving a collective effort on the part of individuals who are excluded from some critical resource (e.g., access to higher education) to change existing patterns of institutionalized behavior." (p. 224).

4.3 Place-based Whiteness as Property

Institutional theory does not substantially consider race, nor theories that centralize race (Ray, 2019). As a result, applications of institutional theory tend to understate the extent to which the existing institutions privilege white people and also the extent to which these institutions are built upon macro-institutions (e.g., property rights) that were designed to benefit white men. We incorporate the "place-based whiteness as property" framework developed by Karina G. Salazar (2022), which is based on the concepts of "space" versus "place" (Agnew, 2011) from critical geography and "whiteness as property" from (Harris, 1993).

Critical geography describes the concept of "space" as a decontextualized physical location. For example, geospatial research views space "as a location on a surface where things 'just happen' " (Agnew, 2011) and analyses describe locations in terms of quantifiable spatial

features (e.g., distance, demographics, population density, etc.). By contrast, the concept "place" encompasses a holistic, critical view of geography that incorporates a location's "history, peoples, and purposes within the political, social, and economic landscape" (Bell, 2007, p. 378). Student list products take the perspective of location as space rather than place; customers can filter prospective students based on their home zip-code or based on the college-going behaviors of students from their school or neighborhood, without consideration of the history of systematic residential discrimination that creates the segregation observed in these localities.

Harris (1993) argued that the law legitimizes tangible, economic benefits that accrue to people because they are white via four "property functions of whiteness" (rights of disposition, right to use and enjoyment; right to reputation and status; right to exclude). Using the example of residential segregation, Karina G. Salazar (2022) p. XX argues that "each property function of whiteness can be linked to understanding how geographic places encompass racialized meanings and processes." For example, the rights of disposition and use are exemplified by racial home ownership disparities caused by laws in which "Home ownership is passed down generationally for White families both in the form of actual property (i.e., rights of disposition) as well as in the form of home buying processes that favor White families (i.e., right to use and enjoyment)" (Karina G. Salazar, 2022, p. X). Whiteness and non-whiteness also define the "reputation and status" ascribed to localities, whereby " 'the inner city,' 'the ghetto,' and 'urban' are linked to communities of color" (Karina G. Salazar, 2022, p. X). Fourth, the "absolute right to exclude is exemplified in exclusionary zoning ordinances (e.g., density controls, prohibiting multi-family units) historically used to discourage Black residents from living in predominantly White areas" (Karina G. Salazar, 2022, p. X).

We apply this framework to analyze student list products, particularly College Board products that develop "geodemographic" search filters. Geodemography – now often referred to as "spatial big data" – is a branch of market research that estimates the behavior of consumers based on where they live. College Board (2011) explains the creation of geodemographic search filters, which enable universities to filter prospects based on historical college-going data about students who attended their high school or lived in their neighborhood. College Board (2011) states that:

> The basic tenet of geodemography is that people with similar cultural backgrounds, means, and perspectives naturally gravitate toward one another or form relatively homogeneous communities; in other words, birds of a feather flock together. When they are living in a community, people... share similar patterns of consumer behavior toward products, services, media, and promotions. The primary appeal of geodemography from the marketer's perspective is that, with just an address, s/he can begin to craft an image about a particular set of individuals based on the values, tastes, expectations, and behaviors associated with their geographic community (p. 1).

This quote illustrates that geodemography is based on problematic assumptions. People with similar cultural backgrounds do not "naturally gravitate toward one another" (College

Board, 2011, p. 1). Rather, U.S. neighborhoods and schools are racially segregated because of systematic discrimination embedded in policy and law (Harris, 1993; Rothstein, 2017).

5 Student List Market Dynamics

This section draws from theoretical concepts to discuss five key dynamics that shape the market for student list data in the 21st Century. First, enrollment management consulting firms play a central role in student list purchases by universities. Second, advances in technology have yielded new sources of student list data and new student list vendors. Third, a surge in acquisitions has increased concentration in the broader enrollment management industry and simultaneously transformed the market for student list data. This dynamic is exemplified by the rise of EAB. Fourth, the incumbents College Board and ACT attempt to retain their competitive advantage in the student list business by developing/acquiring new products. However, new search filters raise concerns about racial and socioeconomic inequality. Fifth, the test-optional movement will destroy the competitive advantage the testing organizations enjoy, and several for-profit entities are positioned to acquire market share ceded by College Board and ACT.

5.1 Universities and Consulting Firms

The primary customers of student list data are universities looking for students. Postsecondary institutions serve several different student markets (e.g., graduate education, vocational training). In the market for college-going high school students, university enrollment goals depend on the stable flow of prospect contact information. Universities are more dependent on student list vendors that own large, unique sets of names and less dependent on a particular vendor to the extent that other vendors also sell the set of names they sell. Student-as-first-contact inquiries are a university-specific substitute for purchased names. Universities that receive many student-as-first-contact inquiries because of strong brand recognition (e.g., Stanford, UCLA) are less reliant on purchasing names.

Although universities are the primary customers of student list products, we cannot understand the student list business without understanding the role of enrollment management consulting firms. Enrollment management consulting firms depend on universities as their primary source of revenue. Universities hire enrollment management consulting firms for advice and implementation in the broad areas of marketing and recruiting, pricing and financial aid, and student success. Hiring a consultancy is a "make or buy" decision, whereby the university decides which enrollment management processes to outsource (buy) to an external vendor. As recruiting has become more sophisticated and competitive over the past twenty years, a growing number of universities hired consultancies to develop and/or implement recruiting campaigns. Contributing to this trend, university leaders are often quick to fire senior enrollment and admissions professionals when enrollment does not meet targets. In turn, employee turnover reduces in-house capacity, making universities more dependent on external consultants.

Although universities are the primary customers of enrollment management consulting firms, these firms depend on student list vendors for two reasons. First, a core service offered by most firms is making recommendations about student list purchases and executing these purchases (e.g., Ruffalo Noel Levitz, Fire Engine Red). Second, student lists are an essential input to the predictive models and the recruiting interventions (e.g., email, mail, social media) that the consultancies provide.

The market for enrollment management consulting includes large firms providing the full range of enrollment services and smaller firms providing particular services. Anecdotally, from 2000 to 2010, advances in digital technology and data science encouraged market entry by small and medium-sized firms. Since 2010, horizontal acquisitions have caused the market for enrollment management consulting to become more concentrated (Rogers, 2014). For example, RuffaloCODY acquired Noel-Levitz in 2014 (Ruffalo Noel Levitz, 2014) and EAB acquired the enrollment management business of Hobsons in 2021 (EAB, 2021a). By 2022, the enrollment management consulting market consisted of two large firms – Ruffalo Noel Levitz, which claims to serve "1,900 campuses and nonprofits" each year (Ruffalo Noel Levitz, n.d.), and EAB, which claimed to serve "more than 1,100 higher education institutions" in 2021 (EAB, n.d.-a) – and a shrinking number of small and mid-sized operations (e.g., Fire Engine Red, Capture Higher Ed). Increasing market concentration makes universities that lack in-house capabilities more dependent on the remaining set of enrollment management consulting firms.

5.2 New Data Sources and New Vendors

Student list data are created by several data generating processes. Prior to the 21st century, student list data on college-going high school students were derived from two primary sources. First, data were generated by students completing standardized assessments (e.g., SAT, ACT, AP, TOEFL) developed by testing companies College Board, ACT, and ETS. Second, organizations like the National Research Center for College and University (NRCCUA) and College Bound Selection Service (CBSS) asked high school students to complete a survey during school hours.

Advances in technology yielded new sources from student list data; and also new vendors that developed and/or acquired student list products based on these new data sources. A data source that emerged in the 2000s consists of survey data students voluntarily submit to college search engine websites, which have the explicit goal of helping students find "match" universities and scholarships (e.g., scholarships.com, Niche, parchment, Cappex, and Going Merry). With the exception of the legally required privacy page, these sites often avoid clear language about whether/how student data are shared.[4] A related source of student list data consists of social network platforms that focus on college search (e.g., Zinch, Cirkled In). These platforms often have the explicit goal of sharing profiles created by students

[4]For example, Cappex – recently acquired by EAB – helps students "find colleges and scholarships that are right for you." The privacy policy statement reads, "services require us to collect detailed personal information from you and in many cases to share your personal information with colleges, universities, counselors, scholarship administrators, EAB, employers, marketing partners and advertisers."

with the universities the students express interest in attending. For example, Cirkled In's website reads "Go beyond test scores and connect directly to colleges. Cirkled In's portfolio platform showcases students' entire educational story" (Cirkled In, n.d.). Initially, vendors in the college search engine/social network space consisted largely of start-up educational technology (herein edtech) firms. Later, vendors of legacy paper-based surveys completed in high school transitioned to the search engine space (e.g., NRCCUA developed the myOptions college and career planning website).

Another source of student list data comes from software used by high schools and high school students. Naviance enables students to plan for college and enables guidance counselors to help students with the college search process. In turn, Naviance user data provides the basis for Intersect, a software product that enables universities to send advertising messages to high school students using Naviance based on filters chosen by the university. As an alternative, Scoir developed a less expensive platform – free for Title I eligible high schools – that enables high school students and counselors plan and apply to college (Scoir, n.d.-b). Universities can pay a flat fee to list themselves on the Scoir platform, enabling universities to send messages to students based on interests, academic focus, and graduation year (Scoir, n.d.-a). Compared to Intersect, Scoir offers universities fewer filters and is not designed as an inquiry engine.

5.2.1 Failed Market Entry by Chegg

The case study of Chegg and Zinch is illustrative of the failure of a larger number of edtech firms that entered the college search engine space with the promise of transforming the student list business. Zinch, created by Princeton University students in 2006, was a company that matched students to colleges and to scholarships. Zinch users created a profile "similar to a college application, which could be browsed by colleges in which they were interested, providing a forum for a connection between college and Zinch user" ("Zinch," 2021, para. 1).

Chegg, a company known for online textbook rentals, purchased Zinch in 2011 for $27.2 million (Chegg, Inc., 2013). The press release headline reads, "Chegg plans to expand into $7 Billion college recruiting market and increase student base by over 3.5 Million" (Swisher, 2011). Following the acquisition of Zinch, Chegg began offering College Admissions and Scholarship Services to students, which generated names for enrollment marketing services to universities. In 2013, Chegg became a publicly-traded company and the IPO prospectus provides insight into Chegg's strategy:[5]

> Using the information from the more than one million college-bound high school students who fill out a profile using our College Admissions and Scholarship Services, we provide colleges with qualified leads to potential candidates... The leads can be based either on students' expressed preference for a particular college or matching students' general preferences with college profiles... Colleges pay for

[5]Chegg stated its enrollment marketing services delivered "approximately 2.6 million paid leads for interested students" to 750 colleges in 2012 (Chegg, Inc., 2013, p. 97).

> these services on a per-lead basis or on a subscription fee basis... Rather than spending hundreds or thousands of dollars per enrollment, colleges that use our enrollment marketing services can realize recruiting costs of generally less than $100 per student enrolled (Chegg, Inc., 2013, p. 97).

One cost of Chegg's student list business was "leads purchased from third-party suppliers to fulfill leads that we are unable to fulfill through our internal database" (Chegg, Inc., 2013, p. 60). Chegg's long-term strategy was to increase the number of users by creating the Chegg Student Hub. In turn, more users would enable Chegg to "increase monetization of marketing services":

> We intend to leverage our enrollment marketing platform to increase monetization of potential leads by demonstrating our value proposition to more colleges, which will increase the number of paying colleges as the number of students and leads per student increases (Chegg, Inc., 2013, p. 95).

However, by 2014, Chegg began promoting the "Chegg Cloud" as a broker/reseller which claimed to reach "8 out of 10 students actively researching schools online" by partnering with "18 of the top college search websites and mobile apps to aggregate student data and requests for information" (Chegg Inc., 2015, p. 5). In 2017, Chegg effectively shuttled its enrollment marketing service when it entered a partnership whereby "NRCCUA will assume responsibility for managing, renewing, and maintaining our existing university contracts and become the exclusive reseller of our digital Enrollment Marketing services for colleges and universities" (Chegg Inc., 2017, p. 87).

To this day, Chegg remains a successful company – recording revenue of $644 million in 2020 (Chegg Inc., 2020) – raising the question, why did Chegg's foray into the student list business fail? Enrollment management consultants we spoke with had little respect for names provided by Chegg and similar providers. A principal concern was coverage; universities often target particular subsets of prospective students but the names contained in these lists were a sparse, scattered subset of all prospects. Second, consultants criticized the low quality of these data (e.g., many missing fields), a function of names being generated from voluntary online survey responses. Another concern was timeliness. College Board and ACT generate student list data early in the college search process (e.g., PSAT, PreACT). By contrast, names cannot be derived from college search websites until students start searching for a college. Finally, it may be difficult to create a foothold in the student list business based on user data from college search engines, a competitive market with few barriers to entry.

5.3 Acquisitions and Concentration: The EAB Story

Whereas market entry in the 2000s promised greater competition in the markets for student list data and enrollment management consulting, a striking dynamic over the last decade has been acquisitions and growing concentration, both in the broader edtech sector and in the enrollment management industry (Bradley, 2021; Rogers, 2014).

Another striking dynamic has been the emergence of and transformation of the consulting firm EAB, formerly Royall & Company. EAB does not sell student lists in the sense of a spreadsheet with columns of contact information. Nevertheless, by 2021 EAB arguably became one of the most important players in the student list business. Whereas College Board and ACT historically sold names at a per-prospect price to any accredited university, EAB requires universities to pay for subscription and/or consulting services in exchange for access to its proprietary databases of prospective students. How did the EAB emergence and transformation come to be? From our perspective as outsiders – relying on the financial news, press releases, and background conversations with enrollment management professionals – the EAB story is substantially a story about acquisitions.

The origins of EAB trace to 1983 when Bill Royall founded Royall & Company to provide direct marketing and fundraising for Republican political campaigns (Jump, 2020). Royall & Company did not sign its first university client for several years, but by 1995 universities became the primary focus. In 2015, Royall & Company was acquired for $850 million by the Advisory Board Company (NASDAQ:ABCO), a technology and consulting firm operating in the health sector, which purchased Royall as the centerpiece for its entrance into the higher education consulting market (StreetInsider.com, 2014). StreetInsider.com (2014) reported that "central to the Advisory Board's higher education growth strategy is developing service offerings to aid members across the entire student life cycle" (para.2). StreetInsider.com (2014) described Royall as

> the higher education industry leader in strategic, data-driven student engagement and enrollment management solutions, financial aid optimization, and alumni fundraising. Royall's solutions help non-profit colleges and universities achieve such critical institutional goals as strengthening national reputations, broadening student enrollment, improving overall academic profiles, and enhancing revenue" (para.3).

Given that Royall had about 350 clients at the time, the price tag of $850 million speaks to the value the investment community placed on the business model and proprietary platform developed by Royall. Robert Musslewhite, CEO of the Advisory Board, said that the acquisition:

> creates a one-of-a-kind resource to enable higher education executives to apply data and analytics to both engage and enroll the right students and help those students graduate on time. Royall's leadership position in higher education, its track record of delivering measurable ROI, its exceptional and experienced staff, and its analytics-driven, scalable business model – which translates into highly recurring revenues and strong bottom line performance – make it a compelling strategic and financial fit... Over time, we also expect to realize additional value by expanding member relationships across the portfolio and developing new programs and technologies based on the joint assets (StreetInsider.com, 2014).

This last sentence contains two nuggets – "expanding member relationships across the [Advisory Board] portfolio" and "developing new programs . . . based on joint assets" – that remain prophetic although the Advisory Board Company no longer exists.

In 2017, the Advisory Board sold its healthcare business to a subsidiary of UnitedHealth Group for $1.3 billion and its education business to Vista Equity Partners for $1.5 billion (Hansen, 2017). The Royall & Company division was renamed EAB and operates as a standalone business.

Under Vista, the largest private equity firm globally, EAB pursued acquisitions that increased the value of existing activities and leveraged relationships with other subsidiaries of Vista, particularly PowerSchool. EAB acquisitions include YouVisit (2019), Cappex (2020), Hobsons/Starfish (2021), Wisr (2021), Seramount (2021), and Rapid Insight (2021). We discuss acquisitions and partnerships connected to the student list business.

YouVisit and Cappex acquisitions. In 2019, EAB acquired YouVisit, which (EAB, 2019) described as "the leading provider of virtual tour and interactive web content for higher education," stating that the acquisition "further enhances EAB's ability to help colleges and universities find, engage, and enroll new students" (para.1). EAB CEO David Felsenthal said that " 'Integrating EAB's enrollment platform with YouVisit's market-leading student-centric content will help to drive even greater success for our partners' " (EAB, 2019, para. 5).

In September 2020 EAB announced the acquisition of Cappex, a college/scholarship search website reportedly used by 1.5 million students each year (EAB, 2020). The press release highlighted market research indicating more prospects are using college search sites and Chris Marett, President of EAB Enrollment Services, said the acquisition " 'will enable EAB partners to identify and engage prospective students who do not interact with schools through the traditional channels, such as campus visits or standardized tests. By expanding schools' inquiry pools, we can help institutions grow and diversify their student populations"'(EAB, 2020, para. 5). Prior to the acquisition, Cappex sold lists directly to universities. Cappex CEO Alex Stepien said, " 'Leveraging EAB's enrollment data and analytics expertise and experiential marketing services, such as YouVisit virtual tours, we can deliver more personalized and impactful student experiences' "(EAB, 2020, para. 6).

We analyze these deals using concepts from resource dependence theory. Cappex generates proprietary student list data. To the extent that Cappex users do not take College Board or ACT assessments, Cappex provides names that cannot be purchased from College Board or ACT. Let us conceive of EAB as simultaneously a student list data supplier and an enrollment management consulting firm. Focusing on EAB as a supplier of names, the Cappex deal is a vertical acquisition because EAB is acquiring a firm that provides a key input. As a consulting firm, only EAB provides the names of Cappex users to EAB clients, rather than selling names to any university the way College Board and ACT do. Access to Cappex names makes EAB clients and prospective clients more dependent on EAB. Although EAB price schedules are not publicly available, the price universities pay for access to Cappex names may be built into the contract they sign with EAB.

EAB virtual tours are an inquiry engine because they record IP addresses, behavior on the

platform, and submitted contact information, helping university clients know "who your visitors are and where their interests lie so that you can effectively recruit them" (EAB, n.d.-b). If we conceptualize inquiries as university-specific lists, then EAB virtual tours are a product that produces university-specific student lists. The Cappex and YouVisit acquisitions – now fully integrated within the EAB platform – are synergistic in that prospects searching for colleges on Cappex are served the virtual tours of EAB clients. Therefore, purchasing Cappex increases the value of the YouVisit virtual tour asset in that Cappex users are fed YouVisit virtual tours, which yields inquiries for clients that pay EAB for virtual tours.

Intersect exclusive reseller. Perhaps EAB's most profound foray into the student list market occurred when EAB became the exclusive reseller of the Intersect recruiting platform.

Hobsons was an edtech company that provided consulting services to schools and universities and operated three software-as-service products: *Naviance*, college search/planning/application software sold to high schools; *Intersect*, a recruitment platform that connects universities to Naviance users; and, *Starfish*, a student success platform for colleges and universities.

Investigative reporting by Feathers (2022) explained how Naviance and Intersect work in concert. Naviance is reportedly used by more than 10 million k-12 students and by 40% of US high schools (PowerSchool, 2021b). High school students use Naviance to research colleges, request recommendations, submit transcripts, and submit applications. Intersect enables postsecondary institutions to connect with Naviance users. Intersect customers (universities) do not receive the contact information of Naviance users. Rather, Intersect enables "universities to target students [Naviance users] with paid advertisements encouraging them to enroll" (Feathers, 2022). Like College Board/ACT products, Intersect customers control which Naviance users will receive recruiting messages by filtering on criteria such as geographic location, "academic ability," intended majors, and whether the student used Naviance to "research competitor institutions" (Feathers, 2022). As fewer high school students take SAT/ACT exams, universities face pressure to pay for Intersect or else they cannot recruit Naviance users. For example, a University of Utah procurement justification for Intersect states that "there is a unique group of prospective students who are only in the PowerSchool Naviance platform" (Sole Source, 2022).

In 2021, Hobsons was acquired and split between EAB and PowerSchool (Wan, 2021). PowerSchool, also a subsidiary of Vista Equity Partners at the time, is one of the largest providers of K-12 education software in North America. PowerSchool acquired Naviance and Intersect from Hobsons for $320 million, while EAB acquired Starfish for $90 million.[6]

Following the acquisition of Naviance and Intersect by PowerSchool, EAB "announced an agreement with PowerSchool that makes EAB the exclusive provider of the Intersect student recruitment platform . . . , allow[ing] EAB to connect its higher education partners to millions more high school students" (EAB, 2021a, para. 2). In July, 2021 PowerSchool became a publicly-traded company (NYSE: PWSC) and the IPO prospectus describes the terms of the partnership with EAB:

[6]Given that EAB already had a strong student success platform, we read the Starfish acquisition as the horizontal acquisition of a competitor. Additionally, universities that contracted with Hobsons for enrollment services became EAB clients, increasing EAB's market share in the enrollment management consulting industry.

> We entered into a reseller agreement with EAB Global, Inc. ("EAB"), a portfolio company of Vista, for them to serve as, among other terms, the exclusive reseller of the Intersect student recruitment platform in the United States and Canada. [The agreement] has a ten-year term ... The commitment amount for the first 12-month period was $32.4 million (PowerSchool, 2021a, p. 193).

Additionally, the PowerSchool 2021 4th quarter earnings report states that:

> Under the terms of the Agreement, the Company pays a fee to EAB for selling products to third party customers on the Company's behalf. The Company recognized $8.0 million in selling, general, and administrative expense ... for fees owed to EAB under the Agreement for the year ended December 31, 2021 [CITE, p. 121].

Thus in 2021, PowerSchool paid EAB $8.0 million to sell Intersect subscriptions to universities on PowerSchool's behalf while EAB paid PowerSchool $32.4 million to become the exclusive reseller of Intersect. How should we interpret the exclusive reseller agreement from the perspectives of PowerSchool and EAB?

PowerSchool paid $8 million to EAB for a la carte sales of Intersect because "we rely on channel partners for the sale and distribution of some of our products... and we expect our channel partners to become an increasingly important aspect of our business" [CITE, p. 33]. However, EAB does not derive strategic value from re-selling Intersect subscriptions on behalf of PowerSchool, which is why EAB is paid for this service.

Then why does EAB pay PowerSchool $32 million annually to be the exclusive reseller of Intersect? To the best of our knowledge, EAB is paying for the right to re-bundle Intersect – alongside other EAB assets – into software-as-service products. These products connect university clients to unique, proprietary databases of prospects that cannot be obtained from other enrollment management consulting firms or other student list vendors. In particular, *Enroll 360* is a product of the synergy between EAB acquisitions, partnerships, and core capabilities:

> We spent the last couple of years creating **a connected recruitment ecosystem** that allows enrollment leaders to keep pace with students as they pursue these increasingly digital journeys to college. **This work led us to join forces with several leading companies: Cappex, Intersect, Wisr, and YouVisit**.... Individually, each solution can solve important challenges at various stages of the enrollment funnel.... By bringing these capabilities together, our vision is to reinvent how enrollment leaders reach their goals. Which is why we are thrilled to re-introduce our work to you: **meet** Enroll360. [bold in original] (Koppenheffer, 2021)

EAB introduces *Enroll360* with a vignette that conveys both the unique database of prospects controlled by EAB and the ability to target these prospects over time and across multiple platforms (Koppenheffer, 2021):

> Imagine a high school student today. Let's call her 'Emma.' ... Fast forward to Emma's junior year. She has begun to think more seriously about college and like many of her peers, she turns to Google to explore options. Emma quickly comes across Cappex, where she's prompted to fill out her ideal college location – close to her hometown in Rhode Island – and her intended major – computer engineering.
>
> ... After connecting with her counselor during her senior year, Emma has narrowed down her list of schools to five and enters her shortlist in Naviance. From there, she explores your university's website, she comes across a link to your virtual tour... After the tour, she starts to see Instagram ads for your school depicting students in that same lab. And after receiving an email from your school with an invite to apply via a personalized application, she applies.
>
> Emma is admitted to four of her five top schools, including yours. But to help her decide where to enroll, she wants to hear what student life is actually like. Through Wisr, Emma connects one-on-one with Kayleigh, a current junior and student ambassador at your institution studying computer engineering.

Analysis of EAB moves. Reflecting on moves by EAB since being acquired by Vista Equity Partners, we conceive of EAB as a firm that provides enrollment management consulting services and supplies leads to clients. In the past, the majority of college-going high school prospects could be purchased from College Board and ACT student list products. Test-optional makes the student list business more fragmented. From a resource dependence theory perspective, EAB acquisitions and partnerships can be seen as a vertical integration by which EAB obtains proprietary control over a key input – names. Other enrollment management consulting firms can buy names from College Board, ACT, and other vendors on behalf of clients, but they do not have access to EAB's proprietary database. By contrast, EAB can buy names from student list vendors and integrate these names with EAB proprietary names.

Whereas College Board and ACT use their oligopoly position in the supply of names to charge oligopoly prices, we expect that EAB will utilize their market power in the supply of names – and the software-of-service products built on top of these names – to attract new clients and to extract more revenue from each client.

Furthermore, we expect that EAB will funnel prospective students to universities that pay for these products. For example, EAB promotional material states that "Intersect is the preeminent provider of high-intent student inquiries and candidates for colleges" and that "80% of high school students who connect with a college through Intersect apply to that institution" (EAB, 2021b, para. 3). Other material states that "students [who are] included in EAB Search campaigns and take a virtual tour are 3.5x as likely to apply and 10x more likely to deposit. And when Cappex is combined with Intersect's High Intent Inquiries, schools see a 16% increase in enrollments" (Koppenheffer, 2021). This funneling of students to university clients raises questions for policymakers. Should access to a substantial share

of college-going high school students be restricted to clients of a private firm? Are we concerned that these students are being funneled towards private firm clients and away from other universities?

EAB business model. Analyzing the EAB business model is challenging because privately-owned companies have neither the requirement nor the incentive to disclose information.

We may gain insight about EAB by understanding Vista Equity Partners, its owner. In 2021, Vista published a "white paper" entitled "*The Next Frontier of Software Investment and the Private Markets: How Private Equity is Uniquely Positioned to Enable the Future of Software*" (Vista Equity Partners, 2021). The paper discusses why "enterprise software" – software used by large organizations – has strong revenue growth and investment returns:

> As a predictable and highly resilient business model, the software presents an evergreen opportunity for investors. Software fundamentals also provide a compelling value proposition, including:
>
> - **Mission criticality**: Customers rely on enterprise software to run their businesses.
> - **Recurring revenue**: Sales are generated from licenses, maintenance and subscriptions, with long-term contracts.
> - **Customer stickiness**: Enterprise software solutions are deeply integrated into customers' operations and are difficult to remove once implemented [bold in original].

From this perspective, rather than simply selling consulting services, EAB develops software as service (SAS) platforms that generate recurring revenues through long-term subscription contracts.

The IPO prospectus of PowerSchool, formerly a Vista subsidiary, provides additional insight about EAB by discussing how they "cross-sell to our existing customers" (PowerSchool, 2021a):

> Many of our customers begin their journey with us by using only two of our 15 products on average ... As customers begin to appreciate the benefits of an integrated software platform across student data, classroom learning, office functions and talent management, they increase the number of solutions they buy from us over time, with over 1,000 customers owning 5+ products and over 3,000 customers owning 3+ products ... Our future revenue growth is dependent upon our ability to expand our customers' use of our platform, and our go-to-market efforts are designed to drive cross-sell growth (p.43).

The PowerSchool quote is consistent with the assessment – made by enrollment management vice presidents and consultants speaking on background – that EAB encourages existing clients to add new products to their consulting agreement.

Both PowerSchool and EAB generate revenues from outsourcing. To the extent that universities pay EAB with revenue derived from taxpayers (e.g., state appropriations, federal financial aid), EAB derives profit from public subsidies. We believe that the surge of investment in edtech over the past two years (Bradley, 2021; e.g., Vista Equity Partners, 2021) is based on the belief that edtech firms can generate strong revenues by convincing schools and universities to expend public subsidies on outsourcing core processes. Based on our calculations from the procurement website www.procure.stateuniv.state.il.us/search.cfm, eight Illinois public universities awarded contracts to EAB totaling approximately $17.2 million (2021 CPI) since 2018. We recommend that policymakers and university leaders check their contract databases to monitor the size of the tab. Although vendors provide valuable services, these funds could be full-time employees that build internal capacity.

Because acquisitions are financed by debt, we suspect that EAB has become highly leveraged as the result of its aggressive acquisition strategy. In May 2021, BC Partners – a British private equity firm with over $40 billion under management – announced an investment in EAB (BC Partners, 2021). In June 2021, Moody's Investor Service "assigned B2 ratings" – a speculative, not of investment grade rating – to EAB debt "consisting of a $745 million term loan and a $125 million revolver," but stated that upon completion of the investment by BC Partners, "Moody's expects EAB's existing debt to be repaid and ratings on these instruments to be withdrawn" (Moody's, 2021, para. 1). However, in December 2021 Moody's assigned EAB an even lower "B3 corporate family rating," stating:

> [EAB] is principally constrained by the company's elevated debt leverage, limited financial flexibility, and EAB's business concentration in the U.S. higher education market. Additionally, EAB's private equity ownership by Vista Equity Partners and BC Partners Advisors LP presents corporate governance and financial strategy concerns. However, EAB's credit rating is supported by the company's strong position within its target market niche and relative operational predictability provided by the company's subscription-based business model [CITE; LINK IN COMMENTS BELOW]

Our interpretation is that EAB must grow revenue in order to pay off creditors and keep investors happy. Otherwise, EAB may be sold for parts. Although EAB claims to realize synergies from acquisitions, time will tell whether they flew too close to the sun.

5.4 Incumbents Seek Competitive Advantage

Another critical dynamic over the past decade is that College Board and ACT – the incumbent oligopoly – have sought to maintain their competitive advantage in the student list market by developing and/or acquiring new products and features. The student list business of College Board and ACT are largely byproducts of their core assessment businesses. Data about the annual revenue College Board and ACT generate from selling names is not publicly available. However, College Board recorded $130 million in revenue from "College Opportunities & Enrollment" in 2018 (ACT, Inc., 2017) – the business that includes selling names

– compared to $100 million in 2017 (ACT, Inc., 2017) and $63 million in 2010 (Belkin, 2019). This section describes the sources of competitive advantage of College Board and ACT student lists, and then analyzes moves over the last decade to maintain and leverage this competitive advantage.

Competitive advantage. The College Board and ACT have maintained their competitive advantage in the student list industry in three important ways. First, the vast majority of college-going high school students take the SAT or ACT–although this is likely to change as the test-optional/test-free admissions movement dramatically threatens coverage. Adding to the coverage advantage of College Board's and ACT's student list databases, some states have also adopted the ACT or the SAT as a requirement for high school graduation (Kate, 2021). A second source of competitive advantage is data quality. Compared to student lists generated from college search engines, list data from College Board and ACT possess more-reliable indicators of academic achievement and less missing data with respect to contact information, student characteristics, and preferences. Higher data quality enables universities to filter more precisely when deciding which names to purchase and makes the lists universities receive more helpful for recruiting purposes.

A third competitive advantage is timeliness. Names generated from the PSAT and PreACT assessments enable universities to begin recruiting high school students early in their high school career, which enrollment management consultants told us is important for successful recruiting campaigns. By contrast, lists generated from college search engines can only target prospects who have already begun their college search process. In Fall 2021, College Board introduced the new "Prospect Notifications" feature, which improves on the timeliness competitive advantage by enabling universities to obtain the contact information of prospects who meet the criteria of recent student list purchases. They state, "Thousands of new students are joining the Search pool each week. Don't miss the chance to connect with students who joined Search after you've placed an order!" (College Board, 2021a).

Search Filters for Micro-Targeting. The search filters on College Board and ACT student list products enable universities to target particular segments of prospective students with great precision, particularly when used in combination (e.g., test score range and GPA range and specific zip codes). Over the past decade, College Board – and to a lesser extent ACT – has developed new search filters to facilitate enhanced micro-targeting of prospects.

The College Board Segment Analysis service allocates each high school (over 33,000 high schools) to one of 29 high school (HS) clusters and allocates each Census tract (about 44,000) to one of 33 educational neighborhood (EN) clusters based on the college-going behavior and the socioeconomic characteristics of the school or neighborhood. Customers of Segment Analysis Service could purchase a list that contains prospects who scored within a particular range on the SAT, who live in a particular set of metropolitan areas, and who are associated with particular combinations of neighborhood and high school cluster (e.g., live in neighborhood cluster "EN:61" and attend any high school OR live in neighborhood cluster "EN:73" and high school categories "HS:65" or "HS:70"). However, Segment neighborhood and high school clusters are highly correlated with both racial and income demographics. For example, in the College Board (2011) table of "Neighborhood cluster sample characteristics" (p. 5), neighborhood cluster "EN:61" is 30% nonwhite and has a median income of $123,858

while neighborhood cluster "EN71" is 97% nonwhite and has a median income of $42,661. Similarly, high school cluster "HS:70" is 33% nonwhite and has a median income of $105,721 while cluster "HS:71" is 98% nonwhite and has a median income of $43,391 (College Board, 2011, p. 6).

Drawing on the place-based whiteness as property framework by Karina G. Salazar (2022), we argue that student list products are designed in ways that benefit whiteness. First, Communities of Color who have been historically underrepresented in higher education are less likely to be in College Board/ACT student list databases because of lower test-taking rates, which are partly due to concerns about racial bias in standardized tests. Second, College Board student list filters encourage universities to target prospects based on AP scores; however, Black, Latinx, and Native students are less likely to attend high schools that offer substantial AP curricula. Third, due to centuries of laws and policies promoting residential segregation, small geographic areas are highly correlated with race. However, College Board and ACT student list products allow universities to target prospects within small geographic areas, including particular zip-codes [CHECK BOTH CB/ACT ALLOW 5-DIGIT ZIP], making it possible for public and private non-profit universities to purchase lists that avoid Communities of Color while predatory for-profit colleges target Communities of Color.

Fourth, "geodemographic" filters enable universities to target prospective students based on the historical college-going behaviors of students from the same high school and the same neighborhood. These school and neighborhood categories are highly correlated with race, resulting in filters that encourage universities to target prospects from schools and communities with college-going behaviors associated with whiteness. In Fall 2021, College Board doubled down on geodemographic filters by adding three "Environmental Attributes" search filters to the Student Search Service. The three new filters are: Travel Rates (out-of-state), Travel Rates (distance from home), and AP engagement rates. Using out-of-state travel as an example, each high school is categorized as "low," "medium," or "high" in terms of the percentage of college students who attend an out-of-state university. In turn, a Student Search Service customer could purchase prospects who live in a particular metro area, with PSAT scores within some interval, and attend a high school with a "high" out-of-state travel rate.

College Board and ACT student list products enable universities to target prospects who identify with particular ethnic and racial groups. In our data collection, these filters were often used to target students who identified as Black, Latinx, American Indian/Alaska Native, Native Hawaiian, and other Pacific Islanders. On the surface, filtering on race/ethnicity when purchasing student list may be a means of promoting racial diversity in college access, particularly given the trend away from race-conscious admissions policies.

Drawing from the theory of racial capitalism (Leong, 2013), we argue that race/ethnicity filters tend to privilege whiteness, even when used to target non-white prospects. Leong (2013) builds on Harris (1993). Whereas "nonwhiteness" was historically "used as a basis for withholding value by denying nonwhite people legal rights and privileges" (Leong, 2013, p. 2155), nonwhiteness now confers social and legal value as a function with society's preoccupation with diversity. The commodification of nonwhiteness – a "commodity to be pursued, cap-

tured, possessed, and used" (p. 2155) – encourages organizations to prioritize representational diversity, which Harris (1993) argues is exemplified by universities enrolling and marketing a diverse student body as a marker of status and prestige. However, selective universities pursue representational diversity while simultaneously privileging characteristics associated with whiteness (e.g., a "good high school," "interesting extracurricular activities," "good scores") (Jack, 2019; Stevens, 2007; Thornhill, 2019). By combining race/ethnicity filters with academic achievement (e.g., AP test score range), geographic, and/or geodemographic filters, universities can screen for Students of Color who have characteristics associated with whiteness, often as a function of attending a predominantly white high school.

Incorporating college search engines. Both College Board and ACT incorporated college search engines into their student list products. College Board developed the website "BigFuture." In 2021, College Board added the "Interest in My College" search filter to Student Search Service, whereby universities can filter for prospects who expressed interest in their university when searching for colleges on BigFuture. ACT achieved similar ends by acquiring NRCCUA in 2018. Years earlier, NRCCUA replaced the paper surveys students filled out during school with an online college search engine named myOptions. The ACT Encoura platform incorporates student list data derived from ACT assessments and data derived from the myOptions search engine.

Enrollment management consulting. Both College Board and ACT leveraged their position in the assessment and student list markets to enter the market for enrollment management consulting. From the organizational theory perspective of "make or buy," the two organizations took different routes, with ACT entering the enrollment management market through acquisitions and College Board entering the market through internal development.

Enrollment Planning Service, the third product within the College Board Search suite, leverages proprietary College Board data to provide enrollment management consulting services and software-as-service data analysis tools (College Board, 2022c). When universities buy student lists from College Board, they receive a subset of the information College Board knows about each prospect (e.g., academic achievement, where prospects send scores). Access to the complete data set would enable universities – and the enrollment management consulting firms they hire – to make more efficient and effective decisions about recruiting interventions. Universities that pay for Enrollment Planning Service receive enrollment management consulting services and obtain data about prospects not included in purchased lists. The value proposition the Enrollment Planning Service makes is this: Rather than buying lists from College Board and hiring an independent enrollment management consultancy, purchase names and consulting from College Board and get access to prospect data that cannot be obtained from student lists.

Following the acquisition of NRCCUA, ACT released the Encoura Data Lab in 2017, which integrates the ACT and NRCCUA student list businesses and gives users data analysis functionality to inform decisions about student list purchases and broader enrollment strategy. Accompanying the Encoura rollout, ACT's Eduventures and Omnichannel Enrollment Services provide consulting services that compete with enrollment management consulting firms. Eduventures, acquired by NRCCUA in 2016, was a market research and consulting firm "focused on innovations in higher education" ("NRCCUA acquires leading higher edu-

cation research firm eduventures," 2016, para. 2). Under ACT, Eduventures offers "primary research, analysis, and advisory services to support decision-making throughout the student life cycle" – from recruitment to student success. Eduventures also advises universities in areas such as curriculum, gifts, and investments in technology. Omnichannel Enrollment Services, tagline "send the right message at the right time via the right channel," provides consulting around recruiting campaigns, including delivering digital marketing interventions on behalf of universities.

Upon reflection, these recent moves by College Board, ACT, and EAB show that the line between student list vendor and enrollment management consultant has become blurry. On the one hand, EAB is an enrollment management consultancy that has become a supplier of proprietary leads wrapped in software-as-service products. On the other hand, the student list vendors College Board and ACT developed enrollment management consulting capabilities, including customer-facing software-as-service predictive analytics products.

5.5 The Test-Optional Movement

The test-optional movement is an existential threat to College Board and ACT student list products. According to FairTest.org, "immediately before the COVID-19 pandemic," 1,071 baccalaureate granting institutions had test-optional or test-free admissions policies (FairTest, 2021). As of December 2021, "more than 1,815 colleges and universities now practice test-optional or test-blind admissions" for the fall 2022 admissions cycle, and the "list includes nearly all of the nation's most selective colleges and universities" (FairTest, 2021). Furthermore, at least 1,400 institutions have extended test-optional and test-free policies through the fall 2023 admissions cycle (FairTest, 2021), which suggests that the adoption of these policies will persist beyond the Covid pandemic.

The number of SAT and ACT takers has also declined in recent years. The number of SAT test-takers was 2.14 million for the class of 2018 (College Board, 2018), 2.22 million for the class of 2019, 2.20 million for the class of 2020 (College Board, 2019), and 1.51 million for the class of 2021 (College Board, 2021c). The number of ACT test-takers changed from about 1.91 million in 2018, 1.78 million in 2019, 1.67 million in 2020, and 1.3 million in 2021 (ACT, Inc., 2018, 2019; Nietzel, 2021).

Although the pandemic complicates the interpretation of these trends, scholarship on organizational behavior suggests that test-optional the "new normal" (Jaschik, 2022). Empirical scholarship on institutional theory has analyzed the processes of institutionalization – how institutions emerge – and de-institutionalization – how they die – across many industries (Davis, 2005; Scott, 2008). In the latter stages of institutionalization, organizations adopt the practice for the sake of legitimacy (e.g., "because that's what legitimate organizations do"), often because this practice has become the norm for their more prestigious peers. The institutionalization of the SAT/ACT college entrance exam is a textbook example; once leading universities adopted the test as an admissions requirement, other universities followed suit.

Empirical scholarship on de-institutionalization consistently finds that even well-established institutions cannot persist in the face of prolonged adverse external conditions (Ahmadjian

& Robinson, 2001; e.g., Davis, 2005; Davis, Diekmann, & Tinsley, 1994; Kraatz & Zajac, 1996). The metaphor of a breaking dam illustrates a typical de-institutionalization process. De-institutionalization is caused by macro forces in the external environment that become hostile to the institution (Karen, 1991), creating cracks in the dam. Macro causes of de-institutionalization include market forces, technological change, social movements, and destabilizing events (e.g., 1973 oil crisis, 9/11 attacks, Covid pandemic).

Many forces have contributed to the de-institutionalization of the SAT/ACT exams. A robust empirical literature revealed racial and socioeconomic bias in standardized testing [CITE]. A second stream of research found that the SAT/ACT exams are not good predictors of student success, undermining their legitimacy as an admissions criterion [CITE]. A broad social movement of well-organized coalitions used these findings to attack the legitimacy and legality of the college entrance exam. Meanwhile, advances in data science make standardized tests less critical for evaluating applicants from different high schools. In other words, statistical models can incorporate other sources of information about applicants to predict student success, and without the concerns about racial and socioeconomic bias raised by using SAT/ACT exams.

"Early adopter" colleges and universities began adopting test-optional and test-free admissions policies in the 2000s. The flow of adopters increased in the 2010s. At the onset of Covid, students could not take the SAT/ACT exam and universities responded by mimicking earlier adopters, catalyzing the de-institutionalization process. In January 2022, ACT CEO Janet Godwin said, " 'I'm not surprised by the test-optional movement. It's the new normal. It's here to stay' " (Jaschik, 2022). De-institutionalization is complete.

How will de-institutionalization of the SAT/ACT affect the student list business? As fewer universities consider the SAT/ACT for admissions, fewer high school students will take the test. In turn, College Board and ACT databases will contain a shrinking share of prospective college students, undermining their competitive advantage in the domain of coverage. College Board and ACT are attempting to convince states to adopt the SAT/ACT as a statewide high school graduation requirement (Kate, 2021), but this strategy is unlikely to offset the long-term decline in test-takers. College Board can sell the names of AP test-takers, but the availability of AP curricula faces obvious racial and socioeconomic inequality. As the coverage of standardized tests erodes, college search engines and software used by high schools will become more important sources of student list data and firms that control data derived from these sources will compete for market share ceded by College Board and ACT. Large suppliers (e.g., PowerSchool, EAB) will attempt to recreate oligopoly conditions. Whereas College Board and ACT sold names to any accredited institution at a fixed price per prospect, these large suppliers have learned to maximize profit by restricting access to universities that pay for expensive subscription or consulting services.

How will de-institutionalization of the SAT/ACT affect college access? On one hand, removing a racially and socioeconomically biased admissions criterion will increase equity in which applicants are admitted [CITE] and also encourages more underrepresented students to apply [CITE].

On the other hand, college access within the U.S. market for higher education depends substantially on postsecondary institutions finding prospective students and encouraging

them to enroll. For better or worse, SAT/ACT exams have been central to this process. A by-product of these exams, student lists are an essential mechanism that connects postsecondary institutions to prospective students. Without the emergence of viable alternatives, we are concerned that the test-optional movement will create a crisis in college access because postsecondary institutions will be unable to connect with prospective students. We are skeptical whether for-profit student list vendors – even in aggregate – will attain the coverage previously attained by College Board and ACT.

6 Recommendations for Practitioners

6.1 Concerns about the Student List Business

Why should we care about the student list business? Research suggests that participation in College Board and ACT student list products has significant, positive effects on the access and degree completion outcomes of millions of students each year (Howell, Hurwitz, Mabel, & Smith, 2021; Moore, 2017). Further, these effects appear to be relatively larger for first-generation students and students from underrepresented race/ethnicity groups (Howell, Hurwitz, Mabel, & Smith, 2021).

Unfortunately, College Board and ACT student list products make it likely that students from rural communities, low-income communities, and communities of color are systematically excluded from student list purchases. Because lists are paid for by universities, student list products are designed around university enrollment goals rather than equality of opportunity for students. Neither the standardized assessments nor the student list filters have ever been neutral. More recently, College Board and ACT have added elaborate filters that enable universities to micro-target prospects based on models of the past behavior of nearby peers. The rationale for new filters is to help universities make "efficient" name buys that target "right-fit" prospects. Many talented prospects are excluded in the name of efficiency; however, universities only care about efficient name buys because the price of names is so high.

Over the past 50 years, the U.S. college access process has depended substantially on the SAT/ACT exams being strong institutions that have taken-for-granted legitimacy amongst admissions offices and, in turn, college-going high school students. A long-standing source of exclusion is that students who do not take these assessments – due to mistrust or lack of opportunity – are excluded from the student list products. Today, the test-optional movement has de-institutionalized the college entrance exam. In turn, fewer college-going high school students will take the test, which may create a college access crisis caused by the eroding coverage of College Board and ACT student list products. Over the past twenty years, the free market produced many firms eager to acquire market share ceded by the testing agencies. The firms that remain have learned that the key to profit is to acquire proprietary control over a unique set of prospects that universities want to enroll. The profit-seeking behavior of these suppliers may not coincide with the goal of equality of opportunity for students.

6.2 University Leaders

Vice presidents of enrollment management serve at the pleasure of the president, who serves at the pleasure of the board, so big-picture decisions about enrollment are made at the top. University presidents and trustees need not become entangled in the details of student lists, but need to make thoughtful decisions on the central issues that drive student list purchases.

Efficiency or equality of opportunity. Leaders should consider whether the mission of the university is equality of opportunity or the efficient maximization of organization-level enrollment goals.

The enrollment management profession is built upon an intellectual foundation of micro-economics in which universities attempt to maximize some combination of enrollment goals – selectivity, academic profile, tuition revenue – given some set of constraints (e.g., budget, student demand) (Cheslock & Kroc, 2012; DesJardins & Bell, 2006). This model encourages universities to allocate resources efficiently to achieve organization-level enrollment goals.

Consider the enrollment management consultancy Fire Engine Red, which buys names on behalf of universities and claims expertise in utilizing the College Board Segment Analysis Service (Fire Engine RED, 2022a). Promotional material for their "Student Search" product claims that "nearly all of the prospects we generated for our clients were more affluent and diverse, and had higher GPAs and test scores than our client's own inquiries" (Fire Engine RED, 2022b). Student list products like Segment can easily produce lists of prospects that simultaneously contribute to multiple enrollment goals (e.g., academic profile, tuition revenue, racial diversity), but this approach is very from the notion that all students should have an equal opportunity to attend your university, regardless of where they live and where they go to school.

Equality of opportunity is unapologetically inefficient. That is, recruiting for the goal of equality of opportunity exceeds the amount of effort necessary to reach any organization-level enrollment target (e.g., number of Pell recipients). However, this excess expenditure is not wasteful. Rather, if equality of opportunity is part of the organizational mission, then recruiting expenditure oriented to equality of opportunity directly contributes to the organizational mission.

University leaders should discuss what the organization cares about and direct the enrollment management office accordingly.[7] While many struggling private non-profits may not have the luxury of this discussion, most public universities did not face imminent mortality and were founded to serve some vision of equality of opportunity.

Develop in-house enrollment management capacity. Boards do fire presidents when enrollment numbers do not meet targets. In turn, turnover in enrollment management is high because presidents are jumpy about issues they can get fired over. Every time an enrollment management vice president – and likely many of their staff – is let go, the organization

[7] Additionally, universities have adopted offices of equity, diversity, and inclusion (EDI), which are charged with improving the campus climate experienced by students. Campus climate is substantially a function of which prospects a university enrolls. Therefore, we recommend that EDI leaders be included in big-picture conversations about enrollment goals and who, the university will recruit.

loses in-house capacity. Given that recruiting is simultaneously important, competitive, and complicated, constant turnover in the enrollment office is a vicious cycle that undermines in-house capacity and compels universities to rely on consultancies to avert disaster in the coming recruiting cycle.

We recommend that university leaders commit to developing the long-term in-house capacity of their enrollment office. Develop a plan around which capacities the office should have in-house, and how to obtain those capacities through hiring and professional development. A long-term approach means not firing everyone when enrollment does not meet targets. This approach may require educating the board about what is possible.

Given the complexity and scope of undergraduate recruiting, universities need not perform all activities in-house and consultancies will continue to play an important role. However, we recommend hiring consultancies for advice and implementation around specific activities and as big-picture thought partners. At universities where equality of opportunity is central to the organizational mission, student list purchases should be made by a university employee who understands the organizational mission and who understands the internal and external constituents. The process of buying names is complicated by eroding coverage of College Board and ACT and the entrance of niche vendors. Unless the university possesses substantial in-house expertise, we recommend hiring a consultancy for advice about which lists to purchase from which vendors.

We recommend against wholesale outsourcing of the recruiting function. Universities considering this approach, likely, will have little in-house capacity and, thus, are in a poor position to evaluate the efficacy of services the consultancy is pitching. Many recruiting indicators can be easily gamed (e.g., number of applications, selectivity). Thus, wholesale outsourcing is a costly approach that may result in short-term gains to easily gamed indicators, especially when the enrollment office lacks expertise.

At minimum, the university should treat the enrollment office like a general counsel. The general counsel is a small cadre of highly skilled employees who are committed to the university's mission, and who have sufficient expertise to make good decisions about when to retain outside counsel. Similarly, the enrollment management office must have sufficient expertise to make good decisions about which activities should be outsourced to which consultancies.

6.3 Admissions and Enrollment Professionals

Admissions and enrollment professionals – even directors and vice presidents – often have little discretion about the enrollment goals they are tasked to achieve. As outsiders to the admissions profession, we have not purchased student lists ourselves, and we are aware that lists are one facet of the larger recruiting process. Thus, we cannot make specific recommendations for practitioners. Instead, we offer broad recommendations and raise questions for consideration.

Develop internal capacity. To the extent that university leadership provides the necessary resources, develop the internal capacity of the office. This method is done by developing the internal capacity of each admissions and enrollment professional. Learn as much as you

can and try to do things internally. A surprising realization from our data collection was that university personnel were often unfamiliar with student list purchases, either because of employee turnover or outsourcing to a consultant. Even when working with a consultant, a university employee should execute student list buys. Additionally, they should document what, how, and why as you perform each task so the office develops a written knowledge base that will ease onboarding following inevitable employee turnover.

If your office works with a consulting firm, this is a principal-agent relationship (Hansmann, 1980). As a university employee, you are the principal and the consultant is the agent responsible for achieving goals established by the agent. In our experience, consultants are knowledgeable and genuinely dedicated to helping universities achieve their enrollment goals. That said, consulting firms also have their own interests. In any principal-agent relationship, the principal should monitor the agent (Bartlett, Roberts, & Le Grand, 1998). The more you learn about the technologies and the methods your agent uses, the more you can hold them accountable and help them do a better job serving the university. Adopt a "trust but verify" approach instead of "I'll take your word for it." If something doesn't make sense to you, ask the consultant to explain it to you and share this explanation with someone you trust.

Reassess search criteria. Reassess the search criteria the university specifies when buying names. In our data collection, most purchases were filtered by test score (e.g., SAT, PSAT, ACT, PreACT); additionally, most of these purchases were made prior to Covid. If your university no longer requires the SAT/ACT for admissions, consider removing test score filters from your student list purchases. If you filter by AP score or by small geographic areas like zip code, think about who is being excluded.

Be wary of filters that target students based on their peers' behavior, including ACT's predicted probability of enrollment filter and College Board's geodemographic filters, including Segment Analysis Service and Environmental Attributes. Segment Analysis Service is particularly dangerous because it filters prospects at the census tract level and the high school level; unfortunately, it is not obvious which particular census tracts and schools are being excluded.

Although public research universities are usually thoughtful about equality of opportunity for in-state name buys, they often buy more out-of-state names than in-state names. These out-of-state buys often utilize filters that target students from affluent, predominantly white schools and communities. The admissions office should discuss these practices with the EDI office because the out-of-state students the university recruits affect the campus culture experienced by state residents.

Compare name buys to comparison groups. Alongside re-assessing search criteria, compare the demographics of your student list buys – individual lists and all lists across all vendors – to the demographics of relevant comparison groups. Relevant comparison groups are unique to each university, but we recommend that each university identify several. For example, the relevant comparison groups for a public regional university might be the high school graduates in the county, high school graduates in the metropolitan area, and the demographics of nearby community colleges. The focus of these comparisons should be on who is being included versus excluded by student list purchases.

The admissions office should discuss these comparisons with the president and encourage the president to include the EDI office. This discussion could address questions like, do we tend to privilege students from private schools? Do we include rural students? Do we include students of color from communities of color? These conversations should also address conventional topics, like who seems interested in enrolling.

Additional comparisons should examine who is receiving which recruiting intervention (e.g., email, postcard, brochure, targeted social media) and how the demographics of list buys compare to those of other recruiting interventions. For example, our previous analysis of off-campus recruiting events found that public research universities tended to visit affluent, predominantly white out-of-state high schools (Karina G. Salazar, 2022; Karina G. Salazar, Jaquette, & Han, 2021) and selective private institutions tended to focus on predominantly white private schools (Jaquette, Han, & Castaneda, forthcoming). Comparisons across multiple interventions can reveal whether some populations are targeted by many interventions and others by very few.

Finally, university "outreach" programs – including federally funded TRIO programs – focus on access and preparation for students from under-served populations. At Stonewall University and many others, outreach programs are not housed within the office of enrollment. This organizational structure contributes to a division whereby outreach offices are responsible for recruiting "disadvantaged" students and the enrollment office is responsible for recruiting main/primary students of interest. We recommend that all outreach programs be housed within the office of enrollment, enabling outreach efforts to be compared alongside name buys.

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