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DATA IN ACTION SERIES

Measuring Student Strengths: Using Noncognitive Data to Address Retention and Success Initiatives

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Executive Summary and Introduction

> The enrollment problems facing higher education today are real and immediate, but as with many challenges they are a powerful escalation of pre-pandemic problems.

Like many in higher education, the authors of this whitepaper began January 2020 optimistic about the semester ahead. This research project was initially borne of that optimism—an effort to identify recent historical trends in the dispositions, attitudes and beliefs of college students that might then be meaningfully utilized by institutions to respond to the phenomena of declining student enrollments. We believed that using data to inform proactive efforts in retention and persistence was a logical response. The sudden and unforeseen rise of the COVID-19 pandemic has not changed this logic—rather, it has further escalated the challenge institutions face to secure their enrollment needs.

More plainly, each student enrolled at a given college or university generates an immediate fiscal impact upon the fate of their campus. In our new paradigm, failures in retention and persistence do not produce blemishes for an institution; they produce wounds.

While this claim may seem hyperbolic, it is the sober reality in which higher education currently finds itself. With tuition dollars serving as an institution's primary revenue source in most states (Ellis, 2018), any dramatic shifts in enrollment will likely have substantial impact on the financial well-being of colleges and universities. In a letter to House Speaker Nancy Pelosi, American Council on Education President Ted Mitchell stated that his organization's members "estimate that enrollment for the next academic year will drop by 15 percent, including a projected decline of 25 percent for international students, resulting in a revenue loss for institutions of $23 billion" (Mitchell, 2020).

Mitchell's claim is bolstered by surveys conducted in early spring by SimpsonScarborough (2020), a higher education marketing, branding and research agency, of both college-bound high school seniors and students already enrolled in

higher education, with both populations reporting uncertainty of their future enrollment. In follow up research conducted in April 2020, SimpsonScarborough found that this uncertainty had deepened, and that the percentage of college students stating they were unlikely to return to their current institution in the fall—or that it was "too soon to tell" if they would return—increased from 14 percent to 26 percent (Jaschik, 2020a). Though, data reported in June 2020, paints a slightly more optimistic picture for public research universities where "the admissions picture is cautiously stable," even as the outlook for regional public universities and private colleges remains inconsistent—with some institutions exceeding their enrollment targets and others down by 20 percent (Jaschik, 2020b; 2020c).

The enrollment problems facing higher education today are real and immediate, but as with many challenges they are a powerful escalation of pre-pandemic problems. Data released in spring 2019 by the National Student Clearinghouse Research Center showed enrollment in higher education had decreased for its eighth consecutive year (Fain, 2019). In her reporting on these findings for NPR, Elissa Nadworny highlighted "enrollment nationwide has fallen about 11 percent. Every sector—public state schools, community colleges, for-profits and private liberal arts schools—has felt the decline, though it has been especially painful for small private colleges, where, in some cases, institutions have been forced to close" (Nadworny, 2019).

As noted, this research endeavor began as a response to this consistent challenge of enrollment. More specifically, the authors hoped to gain a better understanding of the students who were enrolling and to share this understanding so that it might inform the efforts institutions make to retain and support students in their persistence toward degree completion. These approaches ought to be guided by many streams of student-centered data, including measures of noncognitive factors.

Noncognitive factors are supplemental to students' content knowledge and consist of "behaviors, skills, attitudes and strategies that are crucial to students' academic performance and persistence in post-secondary education" (Nagaoka et al., 2013). These factors are often used as a barometer of college readiness, providing actionable intervention points for institutions to support, inform and guide students, especially those navigating higher education for the first time. Research into the legitimacy of noncognitive factors remains consistently favorable, with multiple studies and meta-analyses identifying positive relationships between noncognitive factors and a student's ability to thrive in higher education and beyond (Sommerfeld, 2011; Nagaoka et al., 2013; Gore et al., 2017).

This study reviewed trend data for six noncognitive factors, each of which was assessed utilizing an instrument called the Campus Labs Student Strengths Inventory (SSI). The SSI was developed over three phases by a team including four psychologists with expertise in psychometrics and test construction, as well as two doctoral students with "research interests in first-generation college student success and the role of cocurricular engagement in college student success" (Gore et. al., 2017). The six noncognitive factors assessed by the SSI are:

ACADEMIC SELF-EFFICACY

An individual's confidence in their ability to achieve academically and succeed in college.

EDUCATIONAL COMMITMENT

An individual's dedication to college and the value placed upon a college degree.

SOCIAL COMFORT

An individual's comfort in social situations and ability to communicate with others.

ACADEMIC ENGAGEMENT

The value an individual places on academics and attentiveness to school work.

CAMPUS ENGAGEMENT

An individual's desire to be involved in campus activities and their attachment to the college/university.

RESILIENCY

An individual's approach to challenging situations and stressful events.

Commonly administered during new student orientation programs or throughout first-year experience courses, the SSI affirms students' talents and strengths early in their college career and identifies starting points for future growth. This data then provides context for both the institution and the student to identify potential challenges that might be encountered in the future as well as approaches to successfully overcome those challenges should they arise. In ideal circumstances, the data is used to proactively minimize or prevent challenges altogether.

To situate this analysis within a similar window of time as the phenomena of declining enrollments, this study reviewed SSI results collected between 2013-2019 from more than 180,000 respondents at 74 institutions across the United States to examine these research questions:

1. What trends, or lack thereof, emerge from the aggregate SSI dataset for each noncognitive factor?
2. When each factor is viewed in aggregate, what is the distribution of students who scored in low/moderate/high ranges?
3. What trends, or lack thereof, are seen in the SSI dataset for each noncognitive factor when disaggregated by institution type (four-year private and four-year public)?
4. When the SSI dataset is disaggregated by institution type (four-year private and four-year public), what is the distribution of students who scored in low/moderate/high ranges for each factor?
5. What trends, or lack thereof, are seen in the SSI dataset for each noncognitive factor when disaggregated by institution size (full-time enrollments of less than 1,500; 1,501 to 3,000; 3,001 to 5,000; 5,001 to 8,000; and more than 8,000)?
6. When the SSI dataset is disaggregated by institution size (full-time enrollments of less than 1,500; 1,501 to 3,000; 3,001 to 5,000; 5,001 to 8,000; and more than 8,000), what is the distribution of students who scored in low/moderate/high ranges for each factor?

To answer these research questions, the Campus Labs Data Science team gathered the data of 180,306 SSI respondents collected at 74 colleges and universities across the United States. All institutions included in this analysis use the Campus Labs platform for student success management. Campus Labs routinely uses data collected from its partner institutions to provide landscape analyses and takes necessary steps to anonymize this data. Classification as a two-year or four-year institution (IPEDS ICLEVEL-Level of Institution) was determined using the Carnegie Classification dataset for 2018.

2013–2019
Years of Data

180,000+
Student Respondents

74
Institutions

In analyzing this large collection of responses in aggregate, three points initially stand out:

- **Academic engagement has increased over time.** The number of students who received a high score in this attribute has steadily grown over the years. Students enter college with a strong mindset around the types of skills needed to succeed academically.

- **Respondents scored the lowest in social comfort when compared to the other noncognitive attributes being measured.** Students have consistently scored the lowest in this area, with resiliency not far behind.

- **Respondents show moderate levels of educational commitment, despite high scores in academic engagement and academic self-efficacy.** Students score particularly high in the types of behaviors and attitudes that lend themselves well to being academically successful, yet those attitudes don't translate to the same level of educational commitment.

When the responses are disaggregated by institution type and size, additional items of interest arise—fluctuations in the institutions administering the SSI each year introduces variation into the dataset of respondents completing the SSI; for transparency, mean summary tables and counts of respondents can be found in the appendix of this document.

- **Private four-year institutions have seen a decline in levels of campus engagement.** There is a common assumption that one draw of enrolling in a private four-year institution is the campus size and the opportunity to engage with its niche culture, activities and opportunities—yet, findings potentially challenge this notion.

- **Public four-year institutions have seen a decline in levels of resiliency.** Common perceptions assume that students are more likely to get "lost in the crowd" at larger schools. If true, this finding suggests it may be more difficult for students to navigate potential adversity.

- **Small campuses overall face a surprising challenge: campus engagement.** Of all six noncognitive factors, campus engagement was lowest for campuses with a full-time enrollment of less than 1,500.

- **Mid-sized campuses share the same three lowest responses in noncognitive factors: social comfort, resiliency and educational commitment**. These three factors are especially critical as higher education continues in the paradigm brought on by current events.

- **Large campuses (full-time enrollments of more than 8,000) saw a rise in respondents with low resiliency.** Over time, student populations at these institutions demonstrated traits suggesting challenging situations and stressful events would be difficult to manage and overcome.

These trends are not just items of niche interest—they represent the lived experience of students so desperately needed by institutions in order to continue operation. Prior to pandemic-related events, Moody's projected that "the pace of [college and university] closings will soon reach 15 per year" (Marcus, 2019). If even a fraction of the projections from the American Council of Education and SimpsonScarborough prove true, then the number of institutions that will potentially shut their doors is likely to be much higher than that of Moody's estimation. Utilizing noncognitive data as part of broader institutional efforts is a pragmatic approach to inform campus initiatives and to keep students enrolled through the entirety of their degree-seeking experience—this paper will conclude with three case studies of institutions who have effectively leveraged noncognitive data to positively impact their student success efforts.

Literature Review

The genesis of this research project was to formulate a response to the phenomena of declining college enrollments—however, it's critical to note that the study of noncognitive factors is more commonly considered a response to understanding the challenges students experience in completing a college degree. The most recent data on degree completion available as of this writing was captured by the National Student Clearinghouse Research Center in May 2020. Their findings show that through the past five cohort years (2009-2013), "the college completion rate has steadily increased among students who first enrolled on a full-time basis" (Causey et al., 2020). While this is encouraging, it is worth contextualizing a bit further. Less than half of students who enrolled full time in fall 2013 finished their degree within four years. And in six years, more than a quarter of this cohort was no longer enrolled and had not finished their degree. Recent completion rates may show increases, yet finishing a degree within four years remains elusive for the majority of students.

The notion of "college readiness" has been a response to this perpetual challenge of student degree completion, resulting in educational policies and curriculum targeted toward producing high school graduates who would arrive at colleges and universities well-prepared for the academic rigors ahead (U.S. Department of Education, 2010; Conley, 2007; Conley, 2014). The narrative of what it means to be "college ready" would be incomplete if it did not include the psycho-social skills and learning tactics one needs to develop to thrive in a higher education environment. As Nagaoka et al. (2013), state, "being ready for college means not only building students' content knowledge and academic skills, but also fostering a host of noncognitive factors—sets of behaviors, skills, attitudes and strategies that are crucial to students' academic performance and persistence in post-secondary education."

Interest in noncognitive factors is not historically new, as one could argue it began with William Sedlacek's noncognitive questionnaire in 1976 (Sommerfeld, 2011), and was later popularized by Nobel Prize-winning economist James Heckman (Nagaoka et al., 2013). What specifically qualifies as a noncognitive factor is a matter of some debate.

Sommerfeld (2011) notes that they are often defined by "who conducts the research and whether they're basing their work on an established theory or exploring a new variable of interest." This existence of established theory and research provides for the credibility of noncognitive factors in the contexts of higher education and beyond. "Dozens of studies across multiple populations" have demonstrated their predictive capacity for college success (Sommerfeld, 2011), while "a range of studies have found that noncognitive factors have a direct positive relationship to students' school performance as well as their future outcomes" (Nagaoka et al., 2013).

As detailed earlier, this research project specifically analyzed six noncognitive factors, each of which is measured in a single assessment known as the Campus Labs Student Strengths Inventory (SSI). These factors were chosen to comprise the instrument because pre-existing research (Robbins et al., 2004) found them to be predictive for academic performance and persistence toward degree completion. For institution and student alike, each factor carries implications in identifying how to capitalize on strengths and nurture growth areas.

Campuses have personnel and resources dedicated to this growth in many aspects, and noncognitive data is utilized best when it is in service of aligning personnel and resources with the students who will benefit the most.

Using noncognitive data as a starting point for advisement and intervention is a consistent best practice in the field of student success. Framing noncognitive results as "individual predispositions that can be developed as opposed to innate characteristics that students possess" (Drake et al., 2013) further promotes the narrative that higher education is intended to be a transformational experience of growth for students. Campuses have personnel and resources dedicated to this growth in many aspects, and noncognitive data is utilized best when it is in service of aligning personnel and resources with the students who will benefit the most.

In times of jeopardized enrollment such as the present, it is this alignment of student need and institutional response where we see the greatest potential for noncognitive factor data to be utilized in efforts to retain students and establish policies, processes and practices for enhancing persistence toward graduation. The sections that follow will contain case studies highlighting campuses that have successfully used the Campus Labs platform for student success management to administer the SSI and use the resulting data to:

- Pair students with mentors
- Provide proactive and targeted support to individual students
- Develop curriculum that increased the retention rate of their conditionally admitted students by 20 percent

Additionally, we will explore a dataset from more than 180,000 SSI respondents captured between 2013–2019, so that we might review aggregate trends and consider implications for institutions based upon type (four-year private and four-year public) and size (full-time enrollments of less than 1,500; 1,501 to 3,000; 3,001 to 5,000; 5,001 to 8,000; and more than 8,000).

Methodology

Noncognitive factors are supplemental to students' academic content knowledge and consist of "behaviors, skills, attitudes, and strategies that are crucial to students' academic performance and persistence in post-secondary education" (Nagaoka et al., 2013).

This research project reviewed data for six noncognitive factors collected using the Campus Labs Student Strengths Inventory (SSI) instrument. These factors, paired with a brief description and an example measure, are provided in the table below:

Factor	Description	Example Measure
ACADEMIC SELF-EFFICACY (ASE)	An individual's confidence in their ability to achieve academically and succeed in college.	I am confident that I will excel in college.
EDUCATIONAL COMMITMENT (EC)	An individual's dedication to college and the value placed upon a college degree.	Getting good grades is important to me.
SOCIAL COMFORT (SC)	An individual's comfort in social situations and ability to communicate with others.	I find it easy to talk to strangers.
ACADEMIC ENGAGEMENT (AE)	The value an individual places on academics and attentiveness to school work.	I often go to class without being fully prepared.
CAMPUS ENGAGEMENT (CE)	An individual's desire to be involved in campus activities and their attachment to the college/university.	Being active in extra-curricular activities in college is important to me.
RESILIENCY (RES)	An individual's approach to challenging situations and stressful events.	I manage stress well.

In creating the SSI, measures for each factor were developed over three phases, initially generating 220 items and then utilizing research, factor analysis and internal consistency reliability analysis to arrive at approximately 48 items within the final instrument (Gore et al., 2017).

Noncognitive factors are often used in understanding the readiness of students to engage in the academic and social challenges of higher education. These challenges pose risk to institutions in retaining enrolled students, a circumstance which becomes all the more problematic given the declining trend of enrollments throughout the 2010s. This study sought to better understand the students who had enrolled during this

window of time, so that institutions may use the findings in order to establish policies, processes and practices for enhancing persistence toward graduation.

This study reviewed SSI results from more than 180,000 respondents collected between 2013–2019 to examine the following research questions:

1. What trends, or lack thereof, emerge from the aggregate SSI dataset for each noncognitive factor?
2. When each factor is viewed in aggregate, what is the distribution of students who scored in low/moderate/high ranges?
3. What trends, or lack thereof, are seen in the SSI dataset for each noncognitive factor when disaggregated by institution type (four-year private and four-year public)?
4. When the SSI dataset is disaggregated by institution type (four-year private and four-year public), what is the distribution of students who scored in low/moderate/high ranges for each factor?
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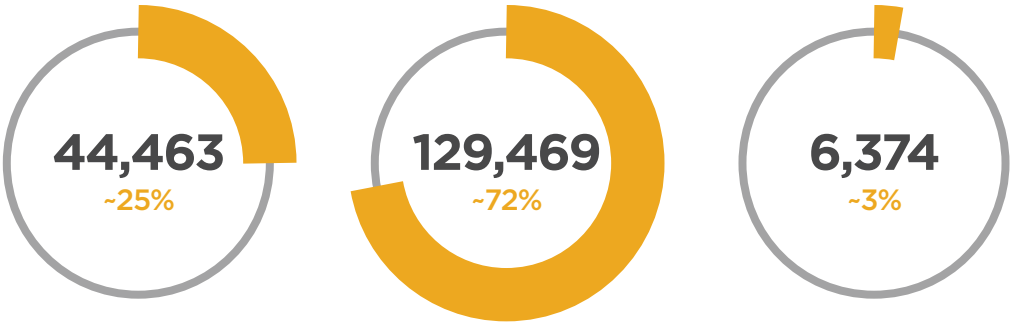
6. When the SSI dataset is disaggregated by institution size (full-time enrollments of less than 1,500; 1,501 to 3,000; 3,001 to 5,000; 5,001 to 8,000; and more than 8,000), what is the distribution of students who scored in low/moderate/high ranges for each factor?

180,306
Total Respondents



Private four-year respondents

Public four-year respondents

Public two-year respondents

The sample of colleges and universities analyzed in this study is limited to those who utilized the Campus Labs platform to administer the SSI. Consequently, when reviewing findings the authors have provided tables indicating the number of respondents, so as to contextualize the findings and allow for further consideration on behalf of the reader. It should also be noted that the authors have not included comparison analyses or interpretations of the two-year institution sample due to its small size and because some years in the observed time frame did not include any two-year institutions implementing the SSI—which disallowed a year-over-year comparison similar to the four-year sample.

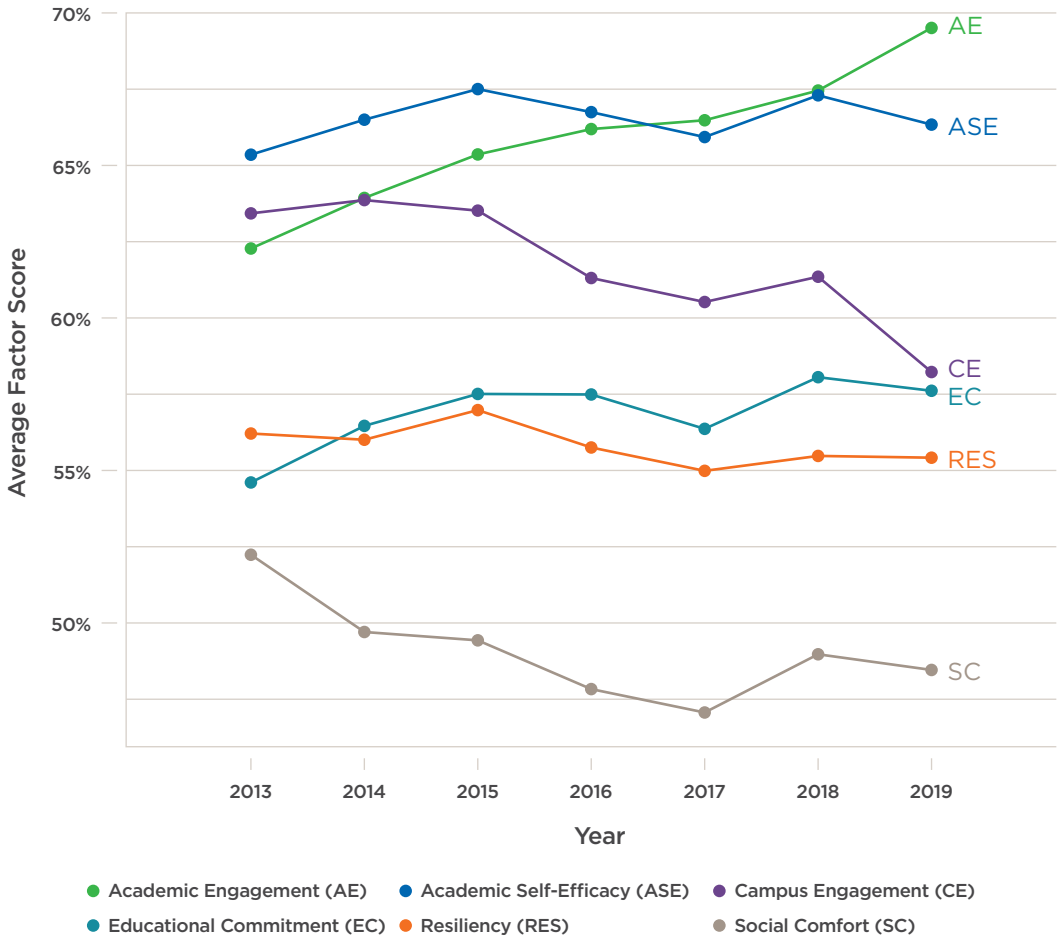
Also, although the term "trend" is used in this document, no statistical tests were conducted to test hypotheses about linearity. For research questions two, four and six, respondents with scores of 0-24 are considered "low;" 25–75 are considered "moderate;" and 76–100 are considered "high."

Findings and Analysis

Research Question One

What trends, or lack thereof, emerge from the aggregate SSI dataset for each noncognitive factor?

FIGURE 1: AGGREGATE TRENDS IN THE SSI DATASET*



**A document with corresponding data can be found in the Appendix*

In 2019, respondents scored the highest in academic engagement when compared to the other noncognitive attributes being measured. From 2013-2019, academic engagement displays what appears to be an ascending linear trend with student scores going from a low of around the 63rd percentile in 2013 to a high of the 70th in 2019. Over time, this data indicates students enrolled in colleges and universities have been increasingly likely to believe in the value of academics.

Not far behind academic engagement in 2019 was academic self-efficacy, which in the present dataset, are moderately correlated (.49). The findings suggest that along with a belief in the value of academics comes the confidence in one's ability to succeed in the higher education environment.

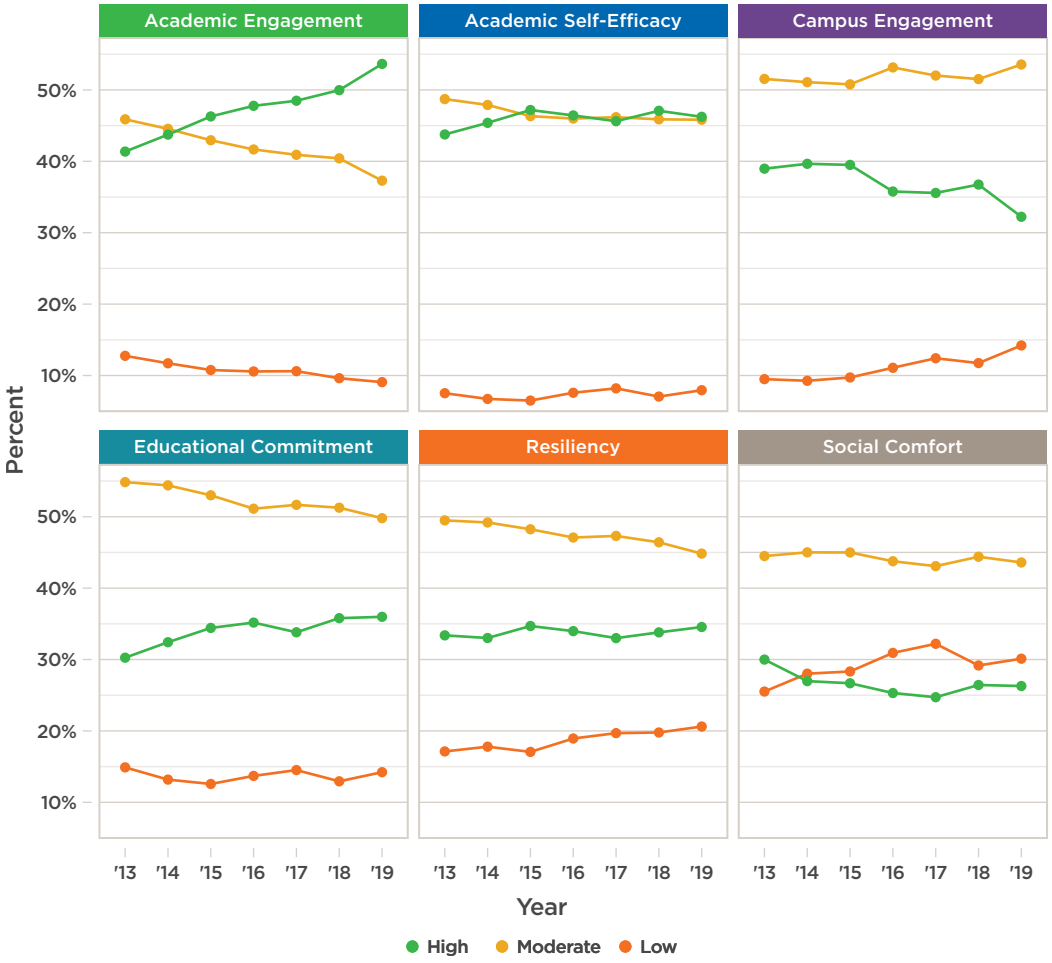
The strongest correlation exists between academic self-efficacy and educational commitment (.55). While the change over time for academic self-efficacy and educational commitment is minimal, alignment can be inferred between respondents' commitment to completing a degree, confidence in their ability to make good on that commitment, and their belief in the value of a degree.

Time is somewhat less kind to campus engagement, social comfort and resiliency. Between 2013-2019, both campus engagement and social comfort trend downward, while resiliency plateaus—and a moderate correlation (.41) exists between campus engagement and social comfort. Respondents scored the lowest in social comfort when compared to the other noncognitive attributes being measured, with resiliency not far behind. This suggests that, when viewed in aggregate over time, respondents expressed increasingly less desire to be involved in campus activities, less attachment to the institution and less comfort in social situations—while simultaneously remaining ambivalent about their approaches to challenging situations and stressful events.

Research Question Two

When each factor is viewed in aggregate, what is the distribution of students who scored in low/moderate/high ranges?

FIGURE 2: DISTRIBUTION OF STUDENTS ACROSS LOW/MODERATE/HIGH RANGES*



A document with corresponding data can be found in the Appendix

When each factor is viewed in aggregate, two areas of note immediately arise—academic engagement and campus engagement. The percentage of students who received a high score in academic engagement has steadily grown over the years. Students enter college with a strong mindset around the types of skills needed to succeed academically. Those receiving a high score in campus engagement, however, declined from about 41 percent in 2014 to 33 percent in 2019. A positive, low correlation exists between these factors (.23), resulting in a certain irony for colleges and

universities in that respondents might be dedicated to academics, though less dedicated to the institution from which they learn.

This irony is furthered when viewing the nature of educational commitment. The other academically focused noncognitive factors—academic engagement and academic self-efficacy—both saw respondents score in the high range with greater frequency than educational commitment. Despite educational commitment's correlation to academic self-efficacy, students more commonly scored in the moderate range. The data suggests that while respondents possess the types of behaviors and attitudes that lend themselves well to being successful academically, a commitment to finishing their degree at the institution that administered the SSI was lacking.

Research Questions Three and Four

What trends, or lack thereof, are seen in the SSI dataset for each noncognitive factor when disaggregated by institution type?

When the SSI dataset is disaggregated by institution type, what is the distribution of students who scored in low/moderate/high ranges for each factor?

FIGURE 3: TRENDS BY INSTITUTION TYPE*

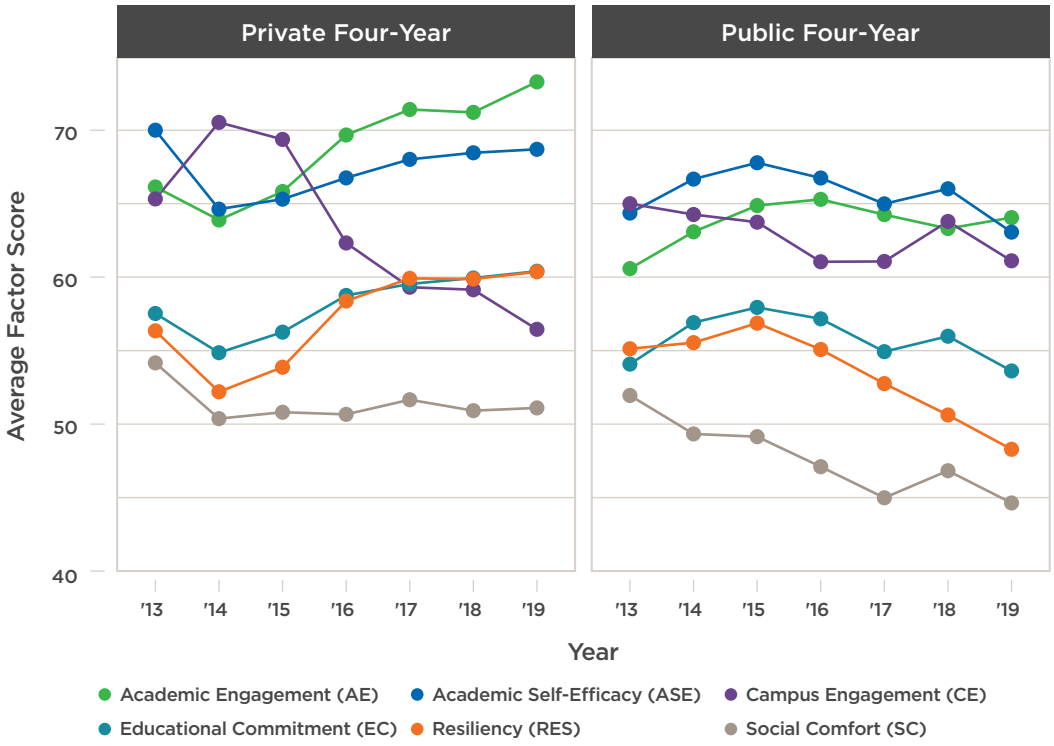
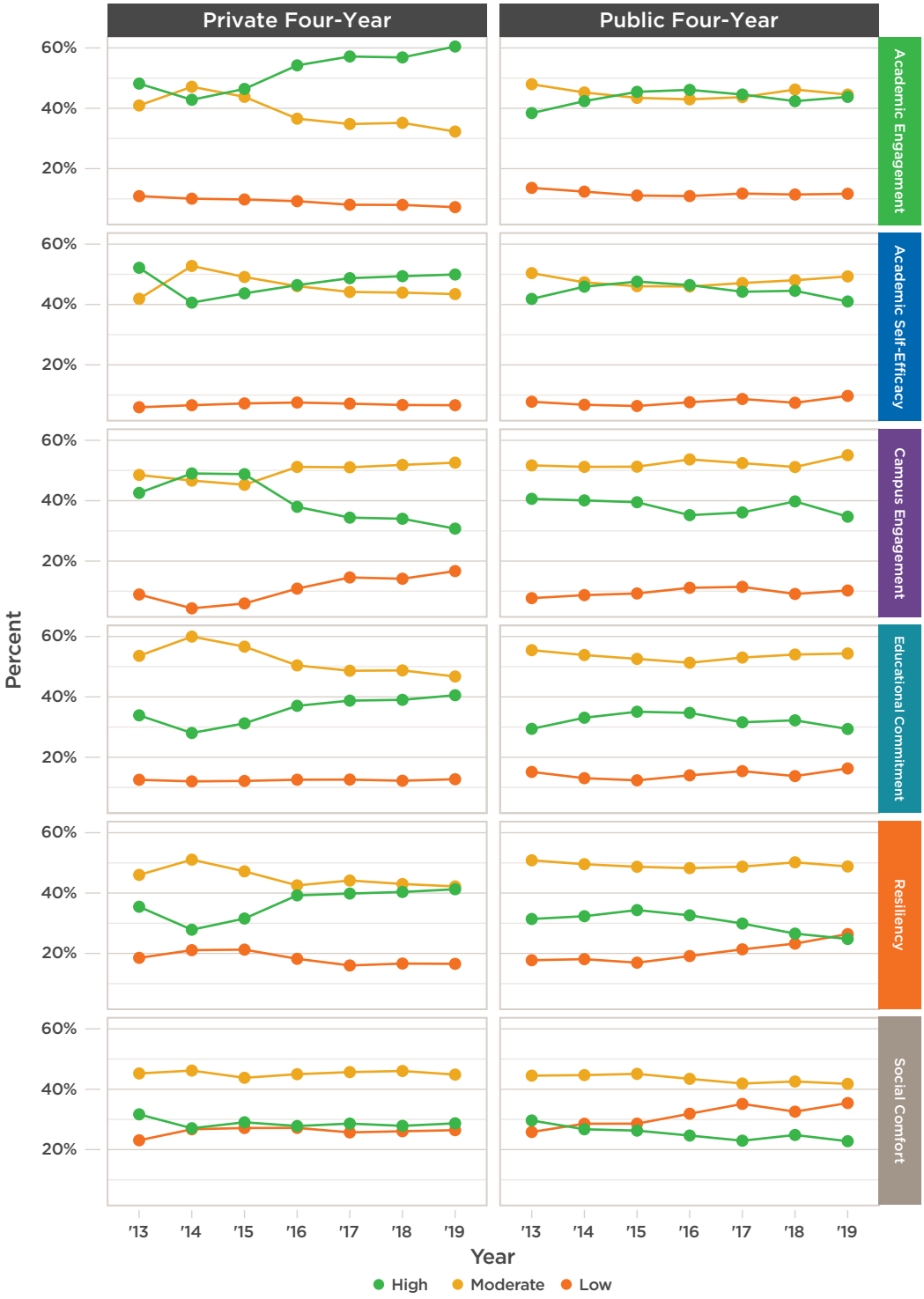


FIGURE 4: DISTRIBUTION OF RESPONDENTS IN LOW/MODERATE/HIGH RANGES BY INSTITUTION TYPE*



*A document with corresponding data can be found in the Appendix

The authors had initially hoped to draw comparisons between respondents who were enrolled in private four-year and public four-year institutions. The nature of the dataset precludes this, as respondents from private four-year institutions account for 25 percent, while respondents from public four-year institutions account for 72 percent of the data. The remaining 3 percent of responses come from public two-year institutions and, as noted in the Methodology section, were omitted from analysis. What follows is an exploratory discussion, rather than comparative analysis.

Surprisingly, private four-year institutions have seen a decline in levels of campus engagement. It is a common assumption that one draw to enrolling in a private four-year institution is the size of the campus and its niche culture, activities and opportunities. The percentage in the high group decreased for campus engagement from approximately 50 percent in 2014 to 30 percent in 2019. While campus engagement declined, academic engagement actually increased, showing a fairly strong ascending linear trend from a low of about 64 percent in 2014 to nearly 75 percent in 2019 (Figure 4). The percentage in the high group increased for academic engagement from a low of about 42 percent in 2014 to 60 percent in 2019.

For public four-year institutions, the noncognitive factor of concern is resiliency. Here, the factor score declined from a high of around 57 percent in 2015 to 48 percent in 2019, and the percentage of students who scored low in resiliency increased nearly 10 percent.

Research Questions Five and Six

What trends, or lack thereof, are seen in the SSI dataset for each noncognitive factor when disaggregated by institution size?

When the SSI dataset is disaggregated by institution size, what is the distribution of students who scored in low/moderate/high ranges for each factor?

FIGURE 5: TRENDS BY INSTITUTION SIZE: FULL-TIME ENROLLMENTS (FTES)*

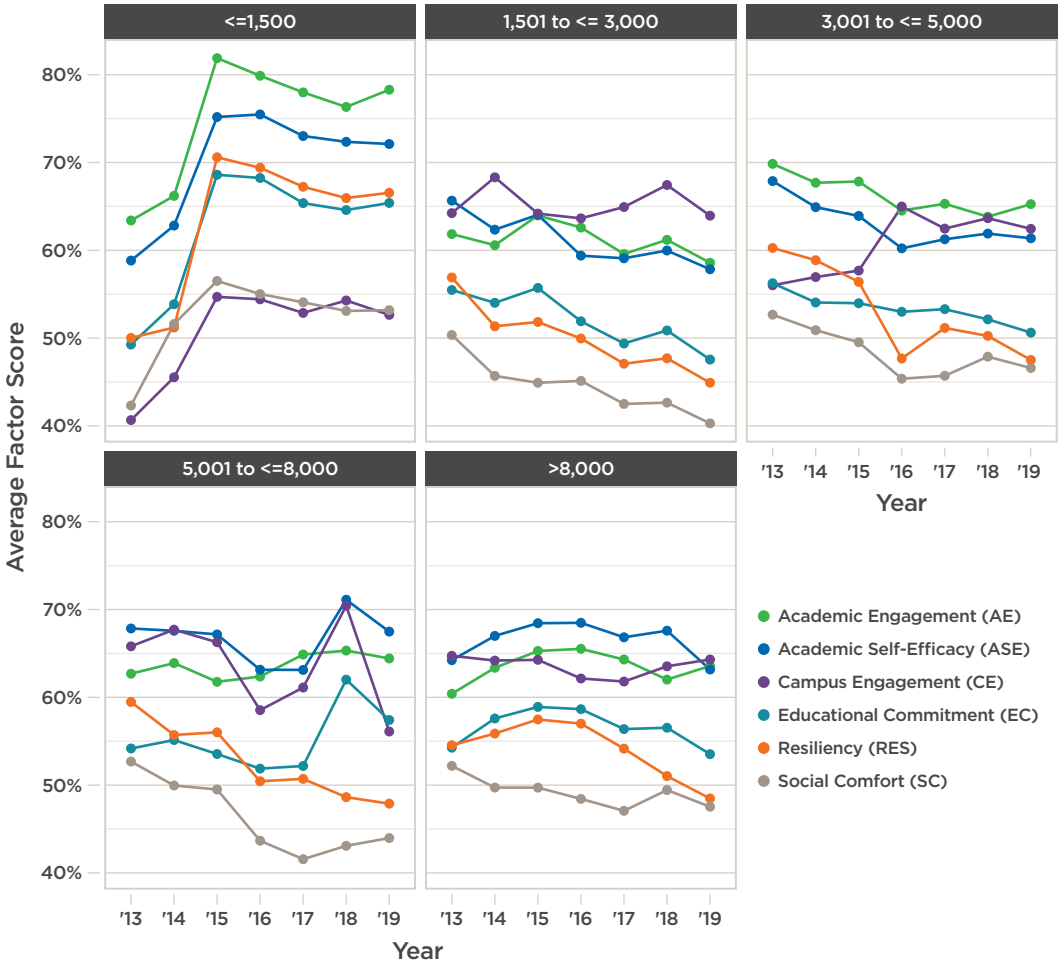


FIGURE 6: DISTRIBUTION OF RESPONDENTS IN LOW/MODERATE/HIGH RANGES BY INSTITUTION SIZE, FULL-TIME ENROLLMENTS (FTES)

A document with corresponding data can be found in the Appendix

As with our analysis of institution type, the nature of the dataset prohibits the authors from drawing comparisons between findings based upon an institution's FTE, though descriptive observations remain appropriate.

When looking at the smallest campuses in the dataset (FTE <= 1,500), it's critical to note that the N of respondents grows steadily over time. These respondents account for 12 percent of the dataset overall. The dataset for this population is most robust between 2016 to 2019, and in that window, we see very slight descending trends in all six noncognitive factors. However, the changes are not meaningful. This group reports high academic engagement and moderate to relatively high academic self-efficacy, resiliency and commitment to earning a degree. In contrast, interest in and comfort with social involvement and a desire to be actively involved in college hover around the 55th percentile rank. Of all six noncognitive factors, campus engagement was lowest for campuses with an FTE of 1,500 or less.

The mid-sized campuses—FTEs of 1,501 to 3,000; 3,001 to 5,000; and 5,001 to 8,000—account for approximately 36 percent of the dataset. It is worth observing that these groups share the same three lowest responses in noncognitive factors: social comfort, educational commitment and resiliency. We see an interesting, problematic phenomena happen over time with respondents who had scored high in resiliency at these institutions:

- FTEs of 1,501–3,000 saw a decline in respondents with high resiliency, going from about 38 percent of respondents in 2013 to 20 percent in 2019.
- FTEs of 3,001–5,000 saw a similar decline in resiliency, going from a high point of 40 percent of respondents in 2013 to a low of about 23 percent in 2019.
- FTEs of 5,001–8,000 witnessed a decline in high resiliency, going from 40 percent in 2013 to 22 percent in 2019.

The largest campuses in the dataset (FTE > 8,000) faired similarly to their mid-sized counterparts—the three lowest noncognitive factors for large institutions were social comfort, resiliency and educational commitment. Resiliency, especially, shows a nearly 10 percent decline between 2014-2019. Critically, the percentage of students demonstrating low resiliency increased nearly 10 percent from 2013 to 2019. In other words, respondents from these institutions were less resilient over time overall, and the population for whom resiliency was a problematic challenge to begin with actually increased substantially.

Implications and Campus Case Studies

Since many students typically take the SSI during summer orientation or early in their first-year experience courses, perhaps it is not surprising that academic factors score the highest. This may be at the forefront of their minds given the timing of the administration. Regardless, this trend indicates that students enter college with a strong mindset around the types of skills needed to succeed academically. Similarly, respondents are often completing the assessment when they are entering a new environment and feeling socially vulnerable, which may impact their perceived strengths in these areas given the circumstances.

Given that students tend to score highest in academic areas and lowest in social and emotional skills that lend themselves well to supporting students in an academic journey, institutions may consider looking more closely at what types of programming and interventions are intended to help students grow in these interpersonal areas.

Given that students tend to score highest in academic areas and lowest in social and emotional skills that lend themselves well to supporting students in an academic journey, institutions may consider looking more closely at what types of programming and interventions are intended to help students grow in these interpersonal areas. This may include embedding the growth mindset into the first-year seminar curriculum, creating a peer mentorship program and/or offering one-on-one strengths-based advising. Institutions may consider doing proactive outreach to students with low and moderate levels of educational commitment, using targeted communications and one-on-one advising methods. This research illuminates some of the differences by institution type as a starting point—and it's important for campuses to watch the trends of their own data in order to be responsive, proactive and to allocate resources appropriately.

The final section of this paper includes case studies where institutions utilized SSI findings to take these steps and implement meaningful interventions based upon their SSI findings. Noncognitive data can provide campuses with incredibly rich information about their students. Once collected, it can be used to design and inform various student interventions, such as:

- Targeted outreach and communication plans
- Coaching and mentoring
- Curriculum design

Let's take a closer look at how noncognitive datasets can inform each of these different types of interventions.

Targeted Outreach and Communication Plans

After collecting noncognitive data about students, that data can then be used to inform student communication plans that provide targeted and relevant resources based on identified needs. Ideally, a student would receive a series of targeted outreaches over the course of the first year, not just one touchpoint in the first few weeks based on a singular data point.

It can be helpful to share noncognitive data with different offices on campus so that they might target students appropriately with different programming and resources offered throughout the year. Then, if an office knows which students scored low in a noncognitive area directly related to their work, that office can create a communication plan that spans the entire year. For example, if the career development office reaches out to students with low to moderate educational commitment at the start of the year, can those students be re-targeted to attend other programming from career development later in the semester? Or encouraged to come in for an appointment if they don't respond to the initial outreach at the start of the year?

Here are some suggested offices that can create targeted outreach plans for each noncognitive area:

ACADEMIC SELF-EFFICACY

Tutoring
Academic Resource Center
First Year Advising

EDUCATIONAL COMMITMENT

Career Development
First Year Advising

SOCIAL COMFORT

First Year Advising
Residence Life
Student Engagement/ Leadership/Activities

ACADEMIC ENGAGEMENT

Tutoring
Academic Resource Center
First Year Advising

CAMPUS ENGAGEMENT

First Year Advising
Student Engagement/ Leadership/Activities

RESILIENCY

First Year Advising/ Coaching

How St. Mary's College of Maryland Provided Proactive and Targeted Support to Individual Students

INSTITUTIONAL PROFILE

- Suburban public institution
- Honors College
- Title IV institution
- 1,600 undergrad students

CHALLENGE

A national public honors institution, St. Mary's College of Maryland is dedicated to student success, and they wanted to better understand the challenges students faced in persisting toward a degree.

SOLUTION

To better understand their students and the challenges they were potentially facing, the college began administering the SSI to incoming students over the course of the summer as a part of new student orientation.

Right away, St. Mary's saw that they had a considerable number of incoming students who scored low in the areas of social comfort and resiliency. This information was shared with various student affairs offices in order for more targeted programming to be developed. In addition to creating programs for groups of students, the college has been able to provide more acute support of individual students by monitoring the results of certain factors.

> "The SSI has helped to inform us about new students in ways so we can help them with their transition to college—we have increased our ability to connect with students early, if and when they are experiencing academic difficulties or financial stressors."
>
> *Joanne Goldwater*
> *Associate Dean of Students*

For example, when a student indicates that they lack confidence in their study skills, they will receive targeted outreach inviting them to participate in upcoming study skill workshops and one-on-one tutoring appointments. When students indicate they prefer to spend significant time alone, the residence life staff will check-in more often to monitor how the student is adjusting. And, when a student indicates they may have to postpone their education due to financial reasons, the Office of Student Financial Assistance follows up.

In addition to these targeted efforts, the college has trained all of its faculty advisors to use a student's individual SSI results to guide a strengths-based advising conversation. These conversations help students to create an academic success plan and consider how they might tap into their areas of strength to be successful at the institution, while also considering how they might grow in other noncognitive areas.

IMPACT

The data collected as a result of the SSI assessment has empowered administrators to better see the challenge areas students face and then equip those working individually with new students with meaningful information to guide their efforts. St. Mary's has been able to provide proactive support to students in a much more targeted, impactful way.

Coaching and Mentoring Programs

Noncognitive data can be used to inform strengths-based advising, coaching and mentoring relationships. This can be done in a variety of ways:

- Identify the students most at-need of a mentor or coach
- Pair students with appropriate mentors and coaches based on highest needs
- Inform mentoring, coaching and advising conversations for the most meaningful impact

First, using a tool such as the SSI, data can help campuses identify the students most at-need. With many campuses having limited resources, this data can help ensure the students with the highest needs have access to a mentor or coach. Second, the results can inform the matching of students with coaches and/or mentors. If a student has a low score in academic self-efficacy, they may be paired with a peer tutor or campus academic support specialist. But if a student has a low level of campus engagement, they may be paired with a student life staff member.

Finally, a student's academic advisor or first-year seminar instructor can use individual student results to have strengths-based advising conversations, either in a group setting or one-on-one. Advisors can use this information to build upon a student's strength areas and develop a plan for how the student will grow in other areas. Here are some examples of the types of questions a coach, mentor or advisor could ask and address for each noncognitive area measured in the SSI:

EDUCATIONAL COMMITMENT

- Why did you decide to attend ABC university?
- How did you choose your major?

SOCIAL COMFORT

- Have you connected with anyone so far?
- Do you prefer lots of friends? Or a small core group?

CAMPUS ENGAGEMENT

- What aspects of campus life are you excited about participating in?
- What do you want to get involved in on-campus? Off-campus? Why?

ACADEMIC ENGAGEMENT & SELF-EFFICACY

- What type of student were you in high school/your previous institution?
- What type of student do you expect to be at ABC University?

RESILIENCY

- What commitments do you have outside of ABC University?
- How do you tend to cope when school conflicts with commitments to your family/friends?

How Alfred University Used Noncognitive Data to Pair Students with Mentors

INSTITUTIONAL PROFILE

- Remote private institution
- Title IV institution
- 2,000 undergraduate students

CHALLENGE

With a population of around 2,000 students, Alfred University was looking to increase its holistic support of students, and in turn, increase retention rates.

SOLUTION

As part of their strategy, Alfred administered the SSI to identify success factors and retention probabilities for first-year students, ensuring awareness of students "who may not have been on the radar otherwise." The university then created a mentoring program that focused outreach to a targeted group of students in the middle category of risk for attrition, followed by pairing

staff from student affairs and other divisions with students reporting low noncognitive scores in areas the mentor was best equipped to address. For example, if students had a low score in educational commitment, they might be paired with someone from the career development office, whereas a student with low social comfort might be connected with a member of the student engagement team. Mentors would then leverage the individual student findings from the SSI to guide their conversations.

> "We used the results of the SSI to identify our students most at risk and then match them to mentors who could best help them grow in certain noncognitive areas in support of first-year success. [This provided] us a solid way to find students who might not have hit our radar otherwise."
>
> *Patricia Debertolis*
> *Assistant Dean for New Student Programs*

THE IMPACT

One hundred percent of the students who met with mentors persisted to the second year in good academic standing. Additionally, the program "expanded the number of staff who became aware of and were engaged in retention efforts, reducing the workload on the staff who would normally be the go-to people."

Curriculum Design

When campuses have a first-year seminar or orientation experience, some interventions can be curricular in nature and target large groups of first-year students, as considered in the following scenarios.

Low Social Comfort or Resiliency

Campuses may benefit from including a class session that attempts to normalize those feelings and experiences, and then provide tangible strategies for facing and overcoming

adversity. Perhaps the class session includes a panel of second-year students who share how they navigated these feelings just one year prior and then share resources available on campus that students can tap into when they hit common roadblocks, such as a poor exam score, loss of a friendship, or not making a team or being included in a campus group.

Low Educational Commitment

Campuses may benefit from including a class session that explores the value of a liberal arts degree so students have a better understanding of how any major prepares them to increase their abilities in the skills employers most seek from new graduates.

Low Academic Engagement or Academic Self-Efficacy

Campuses may benefit from including a class session that explores on-campus academic resources or discusses help-seeking strategies.

How Iowa Wesleyan Developed a New Curriculum that Increased the Retention Rate of their Conditionally Admitted Students by 20 Percent

INSTITUTIONAL PROFILE

- Rural private institution
- Diverse student body
- Member, Hispanic Association of Colleges and Universities (HACU)
- High Pell-eligible
- 600 undergrad students

CHALLENGE

As a small rural private institution, Iowa Wesleyan prides themselves on their one-on-one work with students. Yet in 2016, as retention rates dropped, they found students were falling through the cracks and that conditionally admitted students were twice as likely to be placed on probation. In an effort to identify the students who may be at risk of not retaining and to better understand the type of programming and support students would benefit from, the university implemented the SSI to better understand student strengths and areas of growth.

SOLUTION

In 2017, Iowa Wesleyan administered the SSI as part of their first-year seminar course within the first two weeks of the term. Initial results indicated that students self-reported medium to high levels across all six noncognitive factors. This information was then used by various offices to develop additional academic and social interventions to help address areas of low scores for current students, as well as the next cohort of incoming students. These activities included:

- Training first-year instructors on how to coach students using a strengths-based advising approach;
- The development of a leadership program for second-year students;
- The creation of the Tri-Alpha honor society for first-generation students;
- And, improved advising and student services programs to address the institution's diverse student population.

> "The SSI has helped us to get a full picture of the needs of our students."
>
> *Katie Aranda*
> *Assistant Dean of Student Success Initiatives*

To address the concerning number of conditionally admitted students, the university developed two supplemental courses—a resiliency course and a learning strategies course. They then re-administered the SSI at the end of the course to see if students' noncognitive scores had shifted. The results showed that students participating in the resiliency class reported significantly higher levels of educational commitment at the end of their first semester and students in the learning strategies course reported higher levels of resiliency. Iowa Wesleyan also found that students in the control group were less likely to be retained. Given this impact, these initiatives have become signature courses for all conditionally admitted students, with many non-conditionally admitted students also voluntarily registering for these courses.

IMPACT

As a result of all of these initiatives guided by noncognitive data, Iowa Wesleyan has seen significant gains in their retention rates of conditionally admitted students, increasing from 64 percent to 81 percent in just the first year. Iowa Wesleyan credits the use of noncognitive data for giving them a clearer picture of the full needs of their students. Each year, they continue to build upon their momentum as they learn more from the SSI trend data that campus leadership uses to plan new and meaningful initiatives.

Conclusion

The campus case studies provided in this whitepaper showcase how institutions have used noncognitive data effectively in helping their enrolled students thrive. These campus-specific responses contextualize the findings of this study and allow us to bridge the gap between data and action.

One limitation of this study is that the nature of our dataset prevents us from drawing overall conclusions between the respondents' noncognitive data and their tendencies toward being retained or persisting to degree completion. Likewise, the dataset did not include any demographic information about the respondents themselves. Future research would benefit from exploring if meaningful correlations exist between noncognitive factors, student demographics and retention/persistence rates.

Future research would benefit from exploring if meaningful correlations exist between noncognitive factors, student demographics and retention/persistence rates.

As we noted in the introduction, this research endeavor began prior to the COVID-19 pandemic. Given the new paradigm in which we find ourselves, these findings become all the more salient. Consider the following:

- Students enrolled at public four-year institutions are facing completely new challenges socially, emotionally, economically and technologically just as their resiliency is in decline.
- Private four-year institutions—long reliant on their niche campus characteristics to draw students willing to pay higher tuition rates—must now rethink these characteristics to include remote and virtual aspects while simultaneously seeing a decline in respondents' campus engagement.
- Institutions of all sizes are enrolling students for whom social comfort has historically been the largest noncognitive challenge—a trend that now must be addressed in a "new normal" that places higher awareness on contact and distance.

Though it has become cliché to state, the fact remains that higher education finds itself in unprecedented circumstances. Risks to enrollment are very real, and students that newly enroll do so navigating educational experiences that will look very different than those lived just months ago—and campuses are obligated to ensure their academic journey is supported from the beginning. In addition to this, tending to those students who are already enrolled is both a pragmatic and ethical obligation for institutions. The authors hope that this paper's findings help campuses consider how noncognitive data can be used to design and deliver policies and practices that allow them to make good on these obligations.

We wish to conclude this paper with a silver lining—when compared to other noncognitive factors being measured, respondents scored the highest in academic engagement and academic self-efficacy. And, the number of students who received a high score in academic engagement has grown steadily over the years.

This shows that the students our institutions serve value academics and are confident in their abilities to learn. Let our efforts be worthy of their ambition.

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Campus Labs Data Science

The Campus Labs Data Science Team has the privilege and a shared responsibility to empower institutions to make impactful changes through the strategic use of data—we accomplish this by understanding the interconnected interactions of students, families, faculty and staff within a learning community. This complex network of people, places and events generates rich stores of data that can be harnessed and modelled to understand and act in ways that bring success. As such, we are committed to protecting the quality of data, best in class data modeling and presentation of continually improving results.

The quality of analysis is first contingent upon the quality of data. We are advocates of careful, responsible collection of relevant variables that are used to enrich the lives of all our stakeholders. We partner with campuses to improve the accuracy and completeness of their data. Diligence in improving data quality provides our modeling techniques with greater signal while reducing noise.

Members of the Data Science Team are life-long learners and use current analysis methods to provide an actionable representation of the complexity of campus life. These techniques can be used to understand not only traditional, quantitative data, but also the rich, complementary qualitative data—providing realistic summarizations of data that are presented back to our stakeholders in actionable ways.

These summary models are continually updated to reflect new information that is collected. The results may show up in many different forms, all of which empower stakeholders to make informed decisions. This analysis results in new graphics, widgets, variables, reports and other features—but, the true impact our team has is in the way data, analysis, and results equip students, families, and faculty to make decisions that equal success.

Tyler Rinker, Ph.D.
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Campus Labs

About the Authors

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Matt Jackson, Ed.D., joined the Campus Labs team after a decade serving as an assistant professor with the Academic Writing and Learning Center at the University of Minnesota Duluth (UMD). Jackson completed his doctorate in teaching and learning at UMD researching the intersections of educational policies, emerging technologies and student success. His academic and professional experiences provide a unique expertise in understanding how data and language are used to navigate complex phenomena in higher education. Jackson's work has been featured in such notable spaces as Inside Higher Ed, Education Dive, Community College Daily, Diverse Issues in Higher Education and the Observatory of Educational Innovation.

Emily Siegel
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With more than a decade of higher education experience in the areas of admissions, advising and retention, Emily Siegel is passionate about partnering with campuses to evolve their impact on student success. Before joining Campus Labs in 2015, Siegel served as the director of student success at Chestnut Hill College where she led the institution's retention efforts, implemented an early-alert system and oversaw the advising program. Prior to that, she held roles in enrollment management at the University of Pennsylvania and Concordia University, St. Paul, where she developed various programs to support the student experience—including strategic communication plans, peer mentoring and parent programming. Siegel holds a bachelor's degree in liberal studies and master's degree in human services.

Appendix

To view full data tables for each of the figures in this whitepaper, please download the accompanying PDF document at www.campuslabs.com/data-in-action/measuring-student-strengths-noncognitive-data-appendix.

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About Us

Campus Labs was founded to empower educational institutions to evolve in a data-centric world. Uncover a platform of integrated tools that drive an institutional mindset for insightful data connections.

The holistic Campus Labs framework includes solutions for assessment, retention and success, teaching and learning, student engagement, skills and achievement, and institutional effectiveness. Proudly serving more than 1,400 member campuses, discover more at **www.campuslabs.com**.

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