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Beginning to Quantify the Pool of Engineering-Eligible Prospective Students through a Survey of Access Practices

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Evidence-Based Practice:
Beginning to Quantify the Pool of Engineering-Eligible Prospective Students through a Survey of Access Practices

Motivation

To educate the number of engineers necessary to meet demand and propel our nation's competitiveness, as well as to continuously populate an engineering workforce reflective of the rich diversity of our nation, we must engage people from backgrounds historically underrepresented in engineering—especially women and minorities. Compelling drivers for increasing the number and diversity of engineers have been promoted by the National Academy of Engineering (NAE)[1], the National Science Foundation (NSF) and the current U.S. president [2-3]; however, the representation of women and people from racial minorities typically underrepresented in engineering has not increased significantly in the last decade. Former NAE President Bill Wulf noted that "...for the United States to remain competitive in a global technological society, the country as a whole must take serious steps to ensure that we have a diverse, well trained, multicultural workforce."[1]

Even during weaker economic times, high demand for U.S. engineers continues; and, the number of U.S. engineering jobs are projected to increase in all engineering diciplines during the next decade. Most engineering disciplines are projected to grow faster than most other labor sectors.[4]

The number of undergraduate engineering degrees awarded in the U.S. fell dramatically from 77,572 in 1985 to a low of 59,214 in 2001, but has been on the rise since.[5-7] Yet, only 4.5% of all U.S. undergraduate degrees awarded across all diciplines in 2011 were in engineering—and outrageously, only 1.5% of all women graduating in the nation are doing so in engineering disciplines. As a comparison, 31% of all degrees awarded in China, 17% across Asia and 12% across Europe in 2010 were in engineering.[6] To better compete globally, the U.S. must expand the number and types of its citizens educated as engineers, which requires broadening participation far beyond the typical majority male engineering student. Progress towards this goal has been sluggish; during the last 10 years, 81% of all undergraduate engineering degrees were awarded to men, and 80% to Caucasian and Asian Americans while, according to the U.S. Census, they only represent 51% and 62% of the total college-aged population in 2010.[7-8]

To create a more competitive and creative engineering workforce, we need breakthroughs in how we attract and educate more diverse engineers. This is especially crucial given the changing demographics in our nation: between 2000 and 2010, the U.S. Hispanic/Latino population grew by 43%, versus a 5% increase in people who are not Hispanic/Latino; and the Hispanic population is projected to keep growing.[8] Despite a programmatic focus on increasing the representation of women and minorities in engineering during the last few decades, no "silver bullet" solution has been identified and is probably not realistic. But a systems approach, including changes in policy and practice, should be possible. Thus, a thorough understanding the current climate of engineering admissions policy and practice is a necessity.

It is generally believed that the existing pool of underrepresented students prepared to be successful in engineering college is large enough to supply our nation's demand for engineers—

if only we could attract them to study engineering. Our preliminary research of *current admissions criteria* at the nation's leading research institutions suggests this is not the case.

We hypothesize that, using current engineering metrics and admission strategies/practices, there are not enough *engineering college-prepared* underrepresented students to meet our profession's objectives of broadening participation. This paper discusses the first-step in a multi-step research plan to quantify the minority student population that meets generally applied admissions criteria at top engineering research universities, and examines whether current and generally practiced institutional strategies create admissions barriers that unduly limit access to engineering futures—unwittingly counteracting the national imperative to broaden participation in the engineering profession. This examination has the potential to identify more equitable admissions policies and practices, as well as a broader range of access pathways into engineering education.

Historically, undergraduate engineering admission has been primarily driven by high school performance and cognitive abilities as assessed by standardized tests. Even though these commonly used merit metrics may not accurately predict students' long-term potential to succeed in the study of college-level engineering, they are widely used in admission practices, essentially serving as the "gatekeepers" for access to the engineering profession.

Background

The desire to broaden diversity in engineering has permeated STEM discourse and engineering education for decades. National leaders and funding agencies have given attention, priority and inducements to increase diversity in engineering. Yet, even with pervasive college-based initiatives aimed at broadening participation, national results remain stagnant. In the College of Engineering and Applied Science at the University of Colorado Boulder, an NSF-sponsored research project is creating a system-based model with *elements* and *practices* that could be applied to begin to alleviate the shortfall of diverse students in U.S. engineering schools.

"Inclusive excellence" refers to creating pathways to and through engineering that promote success for a highly diverse student body through learning communities, engaging academics and innovative policies. The *Inclusive Excellence Research Project* aims to investigate and define a system of varied pathways *to and through engineering* composed of three integrated sub-models: *Access*, *Performance* and *Retention*. The *Access* sub-model investigates how to broaden the pathways into engineering college for students from underrepresented backgrounds and for the *next-tier*[1] of potential students, subsequently expanding the diversity of the engineering student population.

Literature Review

The engineering admissions process is sometimes conducted exclusively by offices of admissions, with little or no direct input from their engineering colleges. Many admission processes are considered "holistic," taking into account myriad performance variables. While

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[1] Next-tier students are those just below "making the cut" for acceptance to a given engineering college based on its admission requirements. These students are deemed to have high potential and probability for success in engineering if a pathway for such can be identified.

this gives admission representatives flexibility in making decisions, it also makes the process less transparent.[9]

Purdue University found that its admissions process was often a barrier for women to study engineering because of gender schemas and institutional bias[10], with significant gender differences in the metrics used for admission. Its researchers concluded that the reasons might be 1) that only the highest ability women are encouraged and/or self-select to apply to engineering, while men across a wider range of ability apply; 2) women are held to a higher standard; and/or 3) the admissions counselors at the institution weight standardized test scores more heavily than high school performance, where females outperform their male counterparts.[9] When its bias was realized and processes put in place to mitigate bias, the number of women admitted to and enrolled in Purdue engineering markedly increased.

The stated intention of standardized tests such as the SAT and ACT is to predict students' potential for college academic success. More specifically, the tests are not intended to measure current knowledge or academic achievement, but to predict first-year college grades. However, research published by the College Board, who administers the SAT, shows that students' high school grades and class ranks are better predictors of first-year college grades than students' SAT scores.[11-12] More recently, secondary and post-secondary educators question whether standardized test scores predict grades beyond the first year through to obtaining college degrees.[13-14] Thirty-seven different studies have shown consistent gender bias in standardized tests, with a typical finding that women's college grades are under-predicted by the SAT standardized test.[15] In particular, Wainer and Steinberg found that males score 35 points higher on SAT Math than females *who earn the same grades in the same college math courses.*[16] Also, various studies have found no common pattern to the results for validity and prediction of SAT for different racial/ethnic minority groups.[15]

Method

In August 2013, an online survey was sent to 190 decision-makers at the 98 U.S. public and private "high research-active" universities with engineering programs, in an effort to reach the people most able to answer questions about their engineering admission policies *and practices*, including directors of admissions and engineering deans. While the 98 schools represent less than one-third of all U.S. engineering programs, they award more than 57% of the nation's engineering bachelor's degrees.[17]

Administered via Qualtrics® Research Suite online survey software[18], the institution survey contained 16 questions about specific engineering admission practices and policies. The questions solicited information about both rating and ranking variables used in engineering admission decisions, descriptions of creative strategies employed, minimum and median metrics for the most-recently admitted cohort, whether the engineering college uses guaranteed admission criteria, and whether the guaranteed and minimum criteria are published and available publicly. Respondents were also asked about their roles and responsibilities in the admission process to ensure responses were from decision-makers in the engineering admission process.

Sixty-five surveys were started and 36 were completed—representing 32 institutions from 21 states and the District of Columbia. While 49 individuals completed the first question (and all 49 responses are included in the tables in this paper, representing 42 institutions, 25 states plus DC), the number of responses declined to 36 after the first question, with all 36 completing the survey. Survey participants were offered an incentive of entry into an iPad raffle and access to the research's summary results.

Results and Discussion

Survey results showed that a variety of factors are used to determine engineering admission eligibility. The first survey question asked respondents to rate the importance of a number of variables in the decision for admission to their engineering degree programs, rated on a five-point Likert scale of not at all important, unimportant, neither important nor unimportant, important, and extremely important. Results for the top 22 variables, for which more than half of the respondents indicated the variable was important or extremely important in their engineering degree programs' admissions decisions, are included in Table 1, and are condensed into three rating categories. Unsurprisingly, the ubiquitous key factors for at least 74% of the respondents were high school grade point average; math and comprehensive standardized test scores; physics, calculus and chemistry high school track record; and the quality of the high school course load.

Table 1. Rating responses to survey question 1: Rate the importance of the following variables in the decision for admission to your engineering degree program(s).
Data from 49 respondents representing 42 U.S. institutions in 25 states plus DC.

Top 22 Admission Criteria	Important and Extremely Important		Neither Important nor Unimportant		Not at all Important and Unimportant	
	n	%	n	%	n	%
High school grade point average (GPA)	41	**91%**	3	7%	1	2%
ACT or SAT Math	41	**89%**	2	4%	3	7%
ACT Composite/SAT total	40	**87%**	4	9%	2	4%
Physics track record	36	**78%**	7	15%	3	7%
Calculus track record	36	**77%**	6	13%	5	11%
Quality of high school course load	36	**75%**	5	10%	7	15%
Chemistry track record	35	**74%**	9	19%	3	6%
ACT Reading/SAT Critical Reading	31	69%	8	18%	6	13%
Subjects of AP/IB courses taken	32	67%	8	17%	8	17%
# STEM honors or advanced courses taken	31	65%	11	23%	6	13%
Motivation to complete college	30	64%	10	21%	7	15%
Class rank	28	62%	11	24%	6	13%
SAT Writing	28	62%	7	16%	10	22%
Quality of high school	26	60%	10	23%	7	16%
Motivation to study engineering	28	60%	11	23%	8	17%
ACT English	26	58%	11	24%	8	18%
ACT Science	25	56%	11	24%	9	20%
Leadership experiences	26	55%	13	28%	8	17%
# AP/IB courses taken	26	53%	13	27%	10	20%
Leadership skills	24	52%	14	30%	8	17%
# non-STEM honors or advanced courses taken	24	50%	17	35%	7	15%
AP/IB exam scores	25	51%	12	24%	12	24%

Other variables that were rated, but not as important or extremely important by more than half of the respondents, were: recommendation letters, ethnicity, first-generation status, gender, extracurricular engineering activities, biology track record, transfer credits, pre-engineering courses taken in high school, residency status, summer STEM program participation, partner school attendance, athletics participation, and paid job experiences.

Question 2 asked respondents to further differentiate amongst their top variables. If respondents rated more than one variable as “extremely important,” they were asked to rank in order of importance (with 1 being most important and 7 being least important) up to their top seven variables. Results for the top-ranked variables are shown in Table 2. The four variables ranked highest most frequently by those respondents who had indicated multiple “extremely important” variables were: high school grade point average, math standardized test score, comprehensive standardized test score, and the quality of the high school course load. Notably, students’ track records in calculus, physics and chemistry were ranked a bit lower than the overall quality of the high school course load—boding better for females and underrepresented students, as discussed below.

Table 2. Ranking responses to survey question 2: Rank the order of importance in your admission decision-making of those variables you previously rated as "extremely important." Data from 18 respondents representing 18 U.S. institutions in 13 states.

Admission Criteria	Ranking of "Extremely Important" Criteria							Total Responses
	1	2	3	4	5	6	7	
High school grade point average (GPA)	**4**	4	1	0	0	0	0	9
ACT or SAT Math	**3**	3	2	2	1	0	0	11
ACT Composite/SAT total	**3**	2	0	1	2	0	0	8
Quality of high school course load	**3**	1	2	0	1	0	0	7
Calculus track record	1	2	3	1	1	0	0	8
Class rank	1	0	3	0	0	0	0	4
AP/IB exam scores	1	1	0	0	0	0	0	2
Gender	1	0	0	1	0	0	0	2
Other (GPA of CC PreReq courses taken)	1	0	0	0	0	0	0	1
Physics track record	0	0	1	1	1	2	2	7
ACT Science	0	0	0	3	1	0	1	5
# AP/IB courses taken	0	1	0	0	0	2	1	4
Motivation to complete college	0	0	0	0	1	1	2	4
Recommendation letters	0	1	0	2	0	0	0	3
Subjects of AP/IB courses taken	0	1	0	0	0	1	1	3
Motivation to study engineering	0	0	1	1	1	0	0	3
ACT Reading/SAT Critical Reading	0	0	1	0	1	1	0	3
SAT Writing	0	0	0	0	1	1	1	3

Other variables that were rated as "extremely important," and thus were subsequently ranked by a small number of respondents were: ethnicity, number of STEM honors or advanced courses taken, leadership skills, leadership experiences, residency status, chemistry track record, quality of high school, extracurricular engineering activities, transfer credits, ACT English score, and the number of non-STEM honors or advanced courses taken.

They Mean What They Said. While engineering colleges consider many, many factors to be important to the admission decision, only a handful of variables were consistently found to be the top drivers for admissions. When forced to declare a priority, the *order of importance* among admissions variables that institutions rated as extremely important reinforced the overall survey findings as to what is ultimately important to admission to engineering college: high school grade point average, math standardized test score, comprehensive standardized test score, and the quality of the high school course load. Two of these four factors represent high-stakes exam performance, instances in which research indicates that stereotype threat may impact outcomes, while the other two factors more broadly represent students' academic choices and performance during the four-year high school period. Notably missing among the most important admissions variables are proxies for the communication skills we claim are so important in engineering education.[19] And, strong high school students who have not yet taken calculus or physics but are amply prepared to do so are disadvantaged in current engineering admissions processes—not for poor performance in those subjects, but for not having yet studied those topics by the same point-in-time as most others—representing an opportunity for changes in practices and policies.

Math and Physics High School Participation Rates by Gender and Ethnicity. According to the U.S. Department of Education, 16% of high school students completed high school calculus in 2009.[21] To begin to quantify the pool of students that we hope to attract to engineering in the future, we peered deeper into the quality of the high school math and physics course loads. While girls represented 54% of U.S. AP *exam takers* across all subjects in 2013, they accounted for 48% of Calculus AB and only 40% of Calculus BC exam takers[20] —an indication that talented female students may differentially be choosing to *not yet* take the AP calculus courses or exams that serve as gatekeepers to engineering college admission.

Gender differences in high school physics are real. In 2009, the American Institute of Physics found that a near-parity 47% of those taking high school physics were girls (a consistent rate over the preceding 12 years); however, girls were less likely to take higher-level AP physics classes and, when they did, were 30% less likely than boys to sit for the culminating AP Physics B exam.[22] The implications of the lower representation are clear, if engineering admissions decisions rely upon taking advanced physics as a proxy for the quality of the high school course load, fewer females would be considered strong applicants. The U.S. Department of Education found that 39% of all high school boys had completed a physics class in 2009, versus 33% of girls.[21] The participation difference by gender was striking among AP Physics exam takers in 2013: females represented only 35% of Physics B, 23% of Physics C: Electricity and Magnetism and 26% of Physics C: Mechanics exam takers.[20] So, if taking AP Physics is a gatekeeper, as reported by admissions decision makers in our survey, it is concerning that only one-quarter to one-third of high school students taking the AP Physics exams are female. And, this is in contrast to the reality that female students are graduating from high school as the top students and at a higher rate than their male counterparts.[23-24] Thus, not taking advanced physics in high school could represent a significant barrier to gender equity in admission to engineering colleges; the good news is that this can readily be addressed in the first-year engineering curriculum.

Similar differences are found in who takes advanced mathematics in high school. The U.S. Department of Education found that much lower percentages of Black (6%) and Hispanic (9%) high school students completed calculus compared to White (18%) and Asian students (42%) in 2009.[21] And, while the American Institutes of Physics found that about 25% of Black and Hispanic high school students took at least one physics course prior to graduation in 2009, this is in contrast to 41% of White students and 52% of Asian students.[25]

When we examine AP participation results by ethnicity, we find that students from ethnic and racial backgrounds typically underrepresented in engineering are less likely to take the AP calculus and physics exams. While Black, Hispanic/Latino and Native American students took 24% of all AP exams across all subjects in 2013, only 19% of Calculus AB exam takers and 11% of Calculus BC takers were from these underrepresented populations—challenging engineering's desire to broaden participation and the belief that a large enough pool of appropriately prepared minority students currently exists to populate the nation's engineering colleges, if only we could interest them in engineering. Clearly, interest in engineering plays a role, but the guidance and academic preparation of minority students is also critical for reaching parity in access to an engineering education.

Examining the participation gaps in physics, only 18% of Physics B, 9% of Physics C: Electricity and Magnetism and 11% of Physics C: Mechanics exam takers were Black, Hispanic/Latino or Native American students[20] in 2013, begging the equity question: what might engineering colleges do at the collegiate level to address the outcomes of these pre-college math and physics gaps? Understanding such programmatic opportunities may provide fruitful pathways to broadening participation.

Weighting of Standardized Test Scores. Survey respondents consistently reported that standardized math and composite test scores are weighted very heavily in institutions' admissions decisions. As shown in Table 3, gender differences persist in the math test scores even though no differences are found in the composite scores. Interestingly, according to our survey results, the English and reading scores—tests for which females score higher—are not heavily weighted for engineering admission. Considering the SAT conclusions that a 35-point gender difference is found among men and women performing at the same level in college mathematics[16], a question arises: is the math standardized test score such an important predictor of engineering success, or do we use it because we always have? Do we know? In the team-based, communications-intensive world of engineering practice, might the proxies of English and reading test scores be equally valuable to predict collegiate engineering success?

Table 3. National 2013 ACT test score data, by gender and ethnicity.[26]

2013 ACT Test	Male	Female	Majority	URM
English	19.8	20.6	21.8	16.8
Mathematics	21.4	20.5	22.1	18.3
Reading	20.9	21.4	22.6	18.0
Science	21.2	20.4	22.1	17.9
Composite	20.9	20.9	22.3	17.9

Note: The majority column includes the ACT race/ethnicity categories of White and Asian. The URM (underrepresented minority) column includes the ACT race/ethnicity categories of Black/African American, American Indian/Alaska Native, Hispanic/Latino, and Native Hawaiian/Other Pacific Islander.

The heavy weighting of standardized test scores for engineering admission is particularly onerous for underrepresented minority students who score lower than majority students in all subject areas. What non-cognitive, more holistic variables might predict engineering success while providing equity in access to an engineering education and creating an engineering workforce of the future that reflects the broad diversity of our nation?

Is the Engineering Admission Arms Race Necessary? Our research has prompted overarching questions that challenge our nation's existing approach to engineering admissions criteria. Is it ordained that engineering must be ultra-exclusive, eliminating all but the very brightest 18-year olds from admission to engineering college? Might strong high school students in the top quartile among standardized test takers be well-enough educated to comprise an excellent engineering workforce? Must the admissions sieve *really* have such small pores?

One survey question inquired about median admission criteria; the results from this question will ultimately be compared to published criteria for each institution to see if discrepancies are common between what we do and what we say we do. Early analysis shows an ACT median math range of 23-34 among responding institutions, with an average of 29.5—a level only achieved by 6% of all U.S. ACT test takers in 2013![26] Likewise, the SAT math score of 689 indicated as the average median score among survey respondents was achieved by only 8% of all SAT test takers in 2013.[27] These results suggest the math standardized test score is a significant gatekeeper for access to an engineering education. Thus, we must better understand their relevance as a predictor for success, how reliance upon them may be at odds with our national goal of broadening participation, and what other variables might predict success for a broader spectrum of the population.

Transparency: Women Need Not Apply? Survey results revealed that more often than not, minimum engineering admission requirements are not "published and available to the public." We asked this question after finding that within our own institution (which publishes the 25^{th}–75^{th} percentile range for the incoming class), very few women applied if they fell below the 25^{th} percentile for the standardized math test score. This was in sharp contrast to their male counterparts. Thus, publishing the mid-50^{th} percentile as a guideline for new applicants may discourage women from applying, even though they are well above an institution's *unpublished* minimum qualifications. Another engineering institution also found a lack of transparency in its admission decisions (see description in Literature Review section above, from Purdue University).[9] Thus, achieving more transparency—in other words, obtaining an understanding of our real admission practices and communicating clearly what is entirely acceptable for admissions consideration—could represent an opportunity for broadening participation in engineering education.

Who is in Charge? One interesting indirect survey finding is that many engineering colleges do not control their admissions processes; instead, they heavily rely upon central admissions to admit their incoming classes. This may represent another opportunity for engineering colleges to broaden participation. In our own institution, we nearly doubled URM enrollment—and significantly increased the enrollment of women over a four-year period—when we became actively (and intimately) engaged in the admission process and practices. Our experience underscored that engineering colleges can better apply the NAE *Changing the Conversation*[28] messages in context, and that prospective students appreciate receiving programmatic materials directly from engineering—personalized whenever possible. In the end, engineering colleges and centralized admissions, while key partners, have different lenses through which they see the world, and different metrics for success. If engineering wants different outcomes in who comes to engineering, taking more ownership of the recruiting and admissions processes may offer a pathway to success.

Next Steps

The quantitative and qualitative admissions survey findings reported in this paper will be collated with each engineering college's published first-year class metrics—such as 25^{th} and 75^{th} percentile class rank and standardized test scores—to better understand how well students who decision makers *say* they admit align to which engineering students actually matriculate. Further mapping to high school performance results—including standardized test scores, self-reported grade point averages and other admissions survey variables—will move us closer to being able to quantify today's pool of students from backgrounds underrepresented in engineering who are prepared to pursue engineering education at research-intensive institutions.

Looking ahead, our intent is to define the "next-tier" of students who would not likely be accepted with today's broadly applied admission practices—but who have high potential and probability for success in engineering if provided access pathways and targeted support to ameliorate preparation deficiencies, thereby adding to the pool of engineer candidates. Understanding the real landscape surrounding underrepresented student entry to engineering college is the first-step in identifying more equitable policies and practices, with the goal of populating a creative engineering workforce representative of our nation's diversity of ideas and perspectives.

Conclusions/Significance

Survey results indicate that institutions use a variety of factors to determine engineering admission eligibility. However, unsurprisingly, the ubiquitous key factors were high school grade point average; math and comprehensive standardized test scores; physics, calculus and chemistry high school track record; and the quality of the high school course load. The four variables ranked highest most frequently by those respondents who had indicated multiple "extremely important" variables were: high school grade point average, math standardized test score, comprehensive standardized test score, and the quality of the high school course load. Notably, students' track records in calculus, physics and chemistry were ranked a bit lower than the overall quality of the high school course load. These variables will be used in the next phase of our ongoing research to quantify the pool of engineering admissible students by demographic breakdown.

The math and physics high school participation rates by females and students from historically underrepresented ethic and racial minority groups represent a significant barrier to equity, challenging engineering's desire to broaden participation. And, the heavy weighting of math standardized test scores for admission to engineering is a barrier for females and particularly onerous for underrepresented minority students.

We argue that the intense admissions competition may not be necessary, that we need more transparency in the engineering admissions process and that a need exists to determine what non-cognitive, more holistic variables might predict engineering success while providing equity in access to an engineering education and creating an engineering workforce that reflects the broad diversity of our nation. We also suggest that engineering colleges become more involved in the details of their recruiting and admissions decision-making processes.

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Engaging in the practices of engineering likewise helps students understand the work of engineers, as well as the links between engineering and science. Participation in these practices also. April 2013. NGSS Release. Page 1 of 33. helps students form an understanding of the crosscutting concepts and disciplinary ideas of science and engineering; moreover, it makes studentsâ€™ knowledge more meaningful and embeds it more deeply into their worldview. The actual doing of science or engineering can also pique studentsâ€™ curiosity, capture their interest, and motivate their continued study; the insig Surveying is used in civil engineering for construction site investigation to check levels and distances. Principles and methods of surveying are discussed.Â Leveling is a branch of surveying the object of which is to find the elevations of points with respect to a given or assumed datum and to establish points at a given elevation or at different elevations with respect to a given or assumed datum. Survey is performed to prepare a map of relative positions on surface of the earth. It shows the natural feature of a country such as towns, villages, roads, railways, etc. They may also include details of different engineering works such as bridge, canal, dam etc. Before commencement of any major engineering project, survey is carried out to determine Generally speaking, a prospective student is a person who is eligible to study at a university and is in, or very soon to be in, the current pool of applicants that university may select from when making admissions decisions. It does not mean that student is admitted or even has a significant chance of being admitted, rather only that applicant has not been accepted or not accepted yet. For example, I am not a prospective student at Harvard College because I am an adult with a masterâ€™s degree with no pending application to Harvard, whereas if you happen to be a high school senior who has appli Request PDF | On Jun 1, 2014, Beth A Myers and others published Beginning to Quantify the Pool of Engineering-Eligible Prospective Students through a Survey of Access Practices | Find, read and cite all the research you need on ResearchGate.Â Beginning to Quantify the Pool of Engineering-Eligible Prospective Students through a Survey of Access Practices. June 2014. Conference: American Society for Engineering Education.Â Surveyed high school juniors and seniors about the type of information prospective college students would like to see on college Web sites. Gathered information on preferences as they relate to stage in the college selection process and on the importance of the supporting Web pages of various departments. (EV). Read more. Student assessment has changed in the new millennium. Though thereâ€™s something to be said for old-fashioned paper and pencil methods, new technologies are evolving daily to assist teachers with this task. In this article, weâ€™ll look at different ways to assess student learning using technology. Here are nine methods of online assessment that are sure to support training, engage your audience, and provide teachers with insight into their studentsâ€™ learning process. But first, letâ€™s understand the assessment process. What Is Assessment? Assessment is simply the process of gathering information o