WESTERN INTERSTATE COMMISSION FOR HIGHER EDUCATION

Thinking Anew About Institutional Taxonomies

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One of the great strengths of American higher education, a quality that has helped make it the envy of the rest of the world, is the diversity of its institutions. . Americans *expect* our colleges and universities to fill a variety of critical societal roles, from equipping the next (or even the current) generation with the skills and abilities necessary for work and citizenship to pushing the limits of human understanding. What's more, our highly decentralized system allows many different kinds of institutions to flourish. In such an environment, institutions settle into roles based on the curriculum they offer, the characteristics of the students they serve, the degree to which they focus on research or teaching, their sources of funding, and so on. The thinking goes that this variation has made for a fertile ground that has brought out the best in institutions, allowed for specialization among them, and ultimately has society effectively.[1]

Researching and analyzing higher education, however, is complicated by all this institutional diversity. It is necessary to group institutions into "meaningful, analytically manageable categories" in order to appropriately describe and compare those that are sufficiently similar.[2] In public policy, institutional classifications are everywhere, from statistics we use to describe the higher education landscape in a state or nationally; in debates over academic policy matters and considerations of role and mission; and in formula-funding models and examinations of institutional performance. All of these must rely on valid differentiations among institutions. Given the extent to which institutional types are influential in public policy, it is worthwhile to consider the extent to which our approach to classification is contemporary and inclusive of all the dimensions along which public policymakers and others should be thinking about higher education.

A look around at the world in which we live illustrates the advantages of reconsidering traditional ontologies. We live in an age of unprecedented and sustained change. Driven by technology, especially global communications breakthroughs, our world is witnessing an unprecedented acceleration of the cycle of creation and destruction. We see how major transnational organizations enter our consciousness, rise to a level of market penetration at a speed that in years past would have been difficult to imagine, and are overtaken by competitors: America Online is just one example. Netflix is another: having built its subscriber list to some 25 million households, it now faces serious challenges to its indisputably successful business model. In the realm of politics, social media has changed well-established modes of operating.

Meanwhile, the world of higher education, with some exceptions, continues to function much as it has for as long as any of us can remember. It is well understood that higher education is an industry that resists change and that the most significant adjustments tend to be externally imposed upon colleges and universities. This is not entirely bad, as it gives scholars and learners the space to acquire and extend knowledge thoughtfully and carefully, even as turmoil rages all about. Yet the growth in demand for higher education, coupled with the increased competition for resources, has raised the stakes. Society needs more from postsecondary education; in particular, it needs to know that institutions are operating as efficiently as possible. In this environment it is appropriate to ask if our study of higher education is equipped with a sufficiently contemporary framework for examining the changes that are buffeting the academy.

This white paper was written as background for a meeting at Stanford University held December 1-2, 2011. It describes how institutional taxonomies inform our understanding of the postsecondary education landscape and maps out where existing classifications work well in appropriately differentiating the community or are weak or incomplete. It first details the most common approaches, most importantly the Carnegie Foundation for the Advancement of

Teaching's influential classifications); then looks at institutional variations that are poorly addressed by those approaches; and concludes with implications for policy and research.

Existing Taxonomic Approaches

Recognizing the need to be able to rationally compare like institutions with one another, there already exist two widely employed taxonomies for categorizing institutions. Both rely heavily on the Integrated Postsecondary Education Data System (IPEDS), collected by the U.S. Department of Education's National Center for Education Statistics (NCES). Both use that data source as a lens through which to interpret institutional mission, in order to come up with reasonable differentiations.

The first way in which data on postsecondary institutions are cut is prepared by NCES itself, for reporting through publications such as the *Digest of Education Statistics* and for use as a variable in other NCES data collections, such as the National Postsecondary Student Aid Survey (NPSAS). It relies on several key IPEDS variables, most notably *sector,* which is derived by combining the control of an institution (public, private nonprofit, or private for-profit) with the level of the highest award conferred by that institution. Overall, in 2010-11 there were 7,129 primarily postsecondary institutions in the United States, excluding Administrative Units (like a system office). Table 1 lists the number of institutions based on the sector NCES assigns them in IPEDS and whether or not they offer postsecondary degrees.

Table 1. Institutions by Degree-granting Status and Carnegie Basic Classification

Type of Institution	Degree-granting	Not Degree-granting, Primarily Postsecondary
Public, 4-year or above	695	1
Private not-for-profit, 4-year or above	1,585	13
Private for-profit, 4-year or above	656	1
Public, 2-year	987	100
Private not-for-profit, 2-year	90	87
Private for-profit, 2-year	674	356
Public, less-than-2-year	0	214
Private not-for-profit, less-than-2-year	0	92
Private for-profit, less-than-2-year	0	1,578
Totals	4,687	2,442

Source: NCES, IPEDS *Institutional Characteristics* survey, 2010.

The majority of analysis conducted on postsecondary institutions focuses on the 4,687 institutions that award degrees. But as Table 1 indicates, such an approach leaves out 2,442 institutions that do not, the bulk of which are for-profit providers offering short-term vocational programs leading to credentials. Moreover, the educational community has raised concerns about the quality of the *sector* variable as a means of providing sufficient precision in categorizing institutions. While this relatively simple approach has been mostly effective over the years, current policy and practices increasingly blur the lines between these categories. The *sector* variable lumps institutions into each bucket based exclusively on the highest-level degree awarded by an institution, regardless of how many such awards it confers in a year or the relative proportion to the awards it confers by level. As a result, this classification tends to mix institutions whose mission is exclusively focused on bachelor's programs and above with those that are predominately focused on associate's degrees and vocational programs but which offer one or two bachelor's degrees.

This is becoming increasingly problematic as the number of two-year colleges awarding a limited number of baccalaureate degrees grows in response to state policies and practices aimed at finding more cost-effective ways to meet student and workforce demand. This misclassification

impacts nationally reported statistics by sector for enrollment, degrees conferred, average price, and graduation rates. For example, the reclassification of predominately two-year institutions into the four-year sector on the basis of award level resulted in reported enrollments shifting between the two sectors. The effects of this reclassification meant that the two-year sector's total reported enrollment in IPEDS declined at rates ranging from 0.4 percent to 1.8 percent annually between 2001 and 2009. In Florida, which has been particularly active in launching baccalaureate programs at community colleges, the share of public enrollments in the two-year sector climbed from just under 30 percent in 2000 to about 55 percent in 2009.[3] Erosion in our ability to distinguish institutions by their major thrust or mission is a significant loss in policy research because it diminishes our ability to examine the extent and consequences of mission drift as opposed to the institutional diversity that we have ostensibly treasured.

In search of a methodology for classifying institutions with greater precision, the Carnegie Foundation for the Advancement of Teaching has "become the custodian of a classification system that has been used to describe, characterize, and categorize colleges and universities for over 30 years, and the category labels are firmly established in the vernacular of higher education."[4] However uncomfortable the Carnegie Foundation may be about its role in assigning institutions to particular parts of the higher education landscape, it is a credible source, filling a necessary role. The Carnegie classifications represent the most extensive, empirically based, and time-tested taxonomy for postsecondary education that exists.

Recently, the Carnegie classifications have expanded to incorporate six different taxonomic approaches for disaggregating the universe of postsecondary institutions. The fact that the Carnegie classifications encompass so many different approaches is testament to the fact that the postsecondary education industry in the U.S. resists a single, or even simple, approach to categorization.

The most widely used scheme is the "Basic" classification, and it is probably safe to say that most members of in public policy community would be hard pressed to cite a widely influential article or report in which any of the other Carnegie taxonomies were central to the analysis. The Basic Classification dates back to 1972 and divides up the postsecondary universe into the broad categories indicated by Table 2. For the 2005 update, the Basic Classification underwent some significant changes in order to better capture the complexity within these broad categories, most especially to account for differences in size and location among the institutions categorized as Associate's Colleges. Institutions are categorized in the Basic Classification first and foremost according to the level and type of degrees they award and secondarily on institutional characteristics, such as size and whether or not they are residential; this classification also accounts for institutions with a specific and narrow mission to provide a limited scope of educational programs (engineering but few or no liberal arts programs, for instance) or service to a class of students (Native Americans). Because the Basic Classification makes distinctions among institutions based on total degree production at all levels and including consideration of the fields of studies in which degrees were awarded, it avoids the problems already described with the NCES sector-based approach. For an institution to change categories on the Basic Classification, it would need to cross a threshold of the number degrees awarded at the baccalaureate (or other) level, compared to all the credentials it awards. While the threshold levels are still somewhat arbitrary, the Basic Classification is nevertheless a much more robust and nuanced method for distinguishing institutions than the *sector* variable in IPEDS discussed earlier.

Table 2. Categories in the Carnegie Basic Classification

Broad Classification	Broken Out By…
Associate's Colleges	Public Rural-Serving Small Public Rural-Serving Medium Public Rural-Serving Large Public Suburban-Serving Single Campus Public Suburban-Serving Multicampus Public Urban-Serving Single Campus Public Urban-Serving Multicampus Public Special Use Private Not-for-Profit Private For-Profit Public Two-Year Colleges Under Universities Public Four-Year, Primarily Associate's Private Not-for-Profit Four-Year, Primarily Associate's Private For-Profit, Primarily Associate's
Baccalaureate Colleges	Baccalaureate Colleges – Arts and Sciences Baccalaureate Colleges – Diverse Fields Baccalaureate/Associate's Colleges
Master's Colleges and Universities	Master's Colleges and Universities (Larger Programs) Master's Colleges and Universities (Medium Programs) Master's Colleges and Universities (Smaller Programs)
Doctorate-Granting Universities	Research Universities (Very High Research Activity) Research Universities (High Research Activity) Doctoral/Research Universities
Special Focus Institutions	Theological Seminaries, Bible Colleges, and Other Faith-Related Institutions Medical Schools and Medical Centers Other Health Professions Schools Schools of Engineering Other Technology-Related Schools Schools of Business and Management Schools of Art, Music, and Design Schools of Law Other Special-Focus Institutions
Tribal Colleges	Tribal Colleges

Source: Carnegie Foundation for the Advancement of Teaching (www.carnegiefoundation.org).

But the Carnegie Foundation sought to extend the available classification schemes in new directions to offer more flexibility to the education community. Still relying on national-level detail on all accredited institutions, Carnegie produced classifications that distinguish institutions along other dimensions, as listed in Table 3.

Table 3. Other Carnegie Classifications Schemes

Classification	Characteristics Used to Classify Institutions
Undergraduate Instructional Program	The associate's and bachelor's degrees awarded, whether they are awarded in arts and sciences or professional fields, and how closely related they are to any graduate programs offered. (Associate's-granting colleges are not distinguished by field in this classification, due to the difficulty of inferring degree program information in institutions where only a small fraction of students take a formal award.)
Graduate Instructional Program	Master's and doctoral degrees awarded (research doctorates are distinguished from other doctorates), number of programs, and mix of programs by discipline.
Enrollment Profile	Relative mix of students pursuing associate's, bachelor's, and graduate degrees.
Undergraduate Profile	Attendance status, achievement of entering students as measured by entrance test scores to gauge selectivity, and proclivity to enroll transfer students.
Size and Setting	Enrollment numbers, share enrolled full-time and living on campus.

Source: Carnegie Foundation for the Advancement of Teaching (author's paraphrasing).

Some of these dimensions are more precisely targeted at unpacking the higher education landscape and focus more on contemporary issues around educational attainment than the Basic Classification does. Of particular interest is the Undergraduate Profile classification, which distinguishes institutions based on the extent to which they enroll students full- or part-time, are selective in their admissions process (though this distinction only applies to four-year institutions), and attract and enroll transfer students. Because two-year institutions are generally open-access admissions, this profile is most useful for distinguishing four-year institutions, and nine of the 13 categories are devoted to that sector. Crossing the Undergraduate Profile with the Basic Classification yields Table 4, which, unsurprisingly, shows that as selectivity increases and the likelihood of admitting transfer students decreases, institutions are more likely to be classified as doctorate-granting institutions in the Basic Classification.

Table 4. Institutional Membership in Carnegie's Basic and Undergraduate Profile Classifications

	Basic Classification							
	Associate's		Baccalaureate		Master's		Doctorate	
Undergraduate Profile classification	#	%	#	%	#	%	#	%
Higher part-time	33	31.7	93	11.6	93	13.0	13	4.5
Medium full-time, inclusive	25	24.0	100	12.5	67	9.3	17	5.9
Medium full-time, selective, low transfer-in	1	1.0	10	1.2	19	2.6	7	2.4
Medium full-time, selective, high transfer-in	0	0	14	1.7	71	9.9	29	10.0
Full-time, inclusive	42	40.4	223	27.8	132	18.4	18	6.2
Full-time, selective, low transfer-in	2	1.9	142	17.7	116	16.2	23	7.9
Full-time, selective, high transfer-in	0	0	75	9.4	154	21.4	57	19.7
Full-time, more selective, low transfer-in	1	1.0	141	17.6	46	6.4	84	29.0
Full-time, more selective, high transfer-in	0	0	4	0.5	20	2.8	42	14.5
Total	**104**	**100**	**802**	**100**	**718**	**100**	**290**	**100**

Notes: "Higher part-time" means at least 40 percent of students are enrolled part-time (there is no "lower part-time" category in this classification). "Medium full-time" means 60-79 percent are enrolled full-time; full-time means at least 80 percent are enrolled full-time. "Inclusive" means institutions did not report test data or those data suggest that the institution extends opportunity "to a wide range of students with respect to academic preparation and achievement." "Selective" means test scores fell in the middle two-fifths of four-year institutions. "More selective" means test scores fell in the top fifth of four-year institutions. The threshold for "low" or "high" transfer-in was 20 percent of entering students.
Source: Carnegie Foundation for the Advancement of Teaching, Classification Descriptions; NCES, IPEDS *Institutional Characteristics* Survey, 2010.

On its website Carnegie offers a concise description of each classification scheme, provides statistics on the number of institutions in each category, and offers a search function to quickly find the categories an institution belongs to in each of the six classification schemes. Yet as Carnegie recognized when it developed an extensive breakdown in its Basic classification for Associate's Colleges, there probably is as much variation in open- or broad-access institutions as there is among selective institutions, though based on characteristics other than selectivity. Carnegie's Undergraduate Profile classification therefore does not provide much granularity in distinguishing open- and broad-access institutions, nor much guidance about what dimensions analysts should consider when attempting to account for such differences. What Carnegie has done is to enable users to create customized classification schemes that allow for the selection of institutions that are found in multiple categories across any or all of the six standard

classifications. This customization has the virtue of allowing users to quickly generate a list of institutions with characteristics specific to a need: identifying institutions that focus on serving transfer students with a wide variety of programs in arts and sciences through a residential college model, for instance.

In addition to the Carnegie classifications, we can identify colleges and universities according to the underrepresented populations they serve. Minority-serving institutions include tribal colleges (also, as we have seen, a separately identified category in the Carnegie system), historically black colleges and universities (HBCUs), and Hispanic-serving Institutions (HSIs). HBCUs typically get that appellation by virtue of the unique historical role they have assumed (or were assigned). They tend to be concentrated in the Southeast. HSIs are so called simply because their student population is at least one-quarter Hispanic. Unlike HBCUs and tribal colleges, HSIs do not necessarily have a history of providing educational opportunities that would be largely unavailable to Hispanic populations otherwise; nor do they uniformly have a specific mission to reach out to and serve those students, although there are certainly institutions that do in fact have that history and mission. The HSI distinction is based on the notion that having a "critical mass" of students from a common minority background cannot help but shape institutional culture and mission, and there is probably some truth to that assertion. As the Hispanic population grows, it is all but inevitable that the enrollment at more and more institutions will cross the threshold for designation as an HSI. Yet this distinction, as currently defined, may become less helpful because basing the designation solely on the percentage of students enrolled does not necessarily capture the share "served," given it considers neither the community being served, which may exceed the percent of students served, nor the share of graduates who are Hispanic, which may be appreciably less than the share enrolled.

What's Missing from Current Categorization Schemes

Notwithstanding the flexibility built into the Carnegie Classification website (which, judging from the research literature, seems to go largely unutilized), there are big gaps in our ability to examine whether and how the higher education industry develops human capital as it's intended to do. Through Carnegie and other efforts, we are well equipped to organize our understanding of institutions according to their missions, as expressed through the level of awards they offer and the content they teach (and research). Yet our tools for differentiating institutions according to the characteristics of the students they serve are limited.

This gap in our understanding is not wholly unaddressed: Carnegie and other taxonomic approaches, including peer groups, do take into account student characteristics, and we even have three kinds of formally defined minority-serving institutions. What is left out of common formal taxonomies is the extent to which institutions serve at-risk student populations, such as the age of the modal student, first-generation status, minorities, and low-income students. Differences by age, and perhaps other characteristics that capture the many ways in which students differ based on life stage, are particularly salient. At-risk characteristics matter a great deal for shaping a campus culture and the ways in which an institution delivers instruction and student services. They also correspond to the kind of academic and nonacademic programs the institution offers.

Carnegie's Undergraduate Profile classification, in focusing on selectivity and attendance status, surely captures a great deal of the variation among institutions that relates to student age, since older adult learners and at-risk populations are less likely to be found in selective institutions and are more likely to enroll part-time and in community colleges. Where it is less likely to provide a comprehensive set of meaningful distinctions is in the two-year sector and among for-profit institutions, where these populations are more heavily concentrated. Given that

the success of these students helps to determine how well we will be able to meet our educational attainment goals as a nation,[5] an explicit focus on institutions that serve them would be appropriate.

To that point, Table 5 illustrates the extent to which institutions categorized as "selective" or "not selective" in Carnegie's Undergraduate Profile served students according to their ages and races/ethnicities. Whereas nearly half of all students 24 years of age or younger attended selective institutions, over 80 percent of older adult learners toiled away in broadly accessible institutions. indicate that a much larger majority of American Indians/Alaska Natives, Blacks, and Hispanic students were found in institutions with no admissions selectivity, as compared to Asians/Pacific Islander students and White students. Notably and not surprisingly, a minority of nonresident aliens attended non-selective institutions.

Table 5. Undergraduate Enrollment by Carnegie Undergraduate Profile Classification, 2009

Student Characteristic	Not Selective	Selective	Not Selective Share
Age Groups			
24 and younger	5,939,291	5,595,925	51.5%
25 and older	4,400,429	1,061,578	80.6%
Race/Ethnicity			
AIAN	117,989	50,369	70.1%
API	545,058	461,621	54.1%
Black	1,646,866	564,932	74.5%
Hispanic	1,612,409	604,351	72.7%
White	5,276,614	4,320,271	55.0%
Two or more	50,139	27,093	64.9%
Nonresident alien	153,321	204,713	42.8%
Unknown	970,918	436,473	69.0%

Notes: "Not selective" institutions are those without the word "selective" in their Carnegie's Undergraduate Profile description. Institutions not classified in the Undergraduate Profile, those Carnegie indicated were not in its universe of accredited, degree-granting institutions, and those Carnegie indicated were not suitable for the Undergraduate Profile, are not included in these counts. This is why a sum of students by race/ethnicity and by age groups will not be equal.
Source: NCES, IPEDS *Fall Enrollment* Survey, 2009.

The foregoing discussion should not suggest that there have not been attempts to distinguish institutions along additional dimensions. In fact, institutions themselves do this when they create peer groups, although the quality and appropriateness of peers selected by institutions are hardly above reproach, as many peers could be considered "aspirational" rather than true peers. Yet there is a cottage industry of consultants who attempt to bring rigorous analysis to the peer selection process, and there will always be considerable subjectivity and judgment involved in any such attempt. Large-scale, systematic efforts to define peers also exist. One such example is the methodology employed by the College Results Online website, which is a product of the Education Trust.[6] This approach presents a user with a set of "similar" institutions based on regressing a wide array of information about institutions on their graduation rates, as measured in IPEDS. Independent variables in this analysis account for common characteristics such as control, size, Carnegie Classification (and hence program mix and level), enrollment of older and part-time students, status as a commuter campus, and selectivity.

Mostly missing in these attempts to get at meaningful institutional distinctions is how variable institutions are in terms of the educational delivery modalities they employ and in their delivery of noncredit education. These two gaps exist because consistent, widely available data to dig into the two topics are largely unavailable. Going beyond existing classification schemes to account for increasing diversity in such areas is tempting. But there are real constraints to doing so, as recognized by McCormick and Zhao, who point out that empirical data that would allow for examining important dimensions along which institutions vary simply do not exist in large measure.[7] That leaves either a large data collection effort (though possibly a survey of the accreditation agencies could accomplish much of that with relative speed, if not recency) or a non-empirical approach. Nevertheless, the former is a way in which institutions are increasingly differentiating themselves, while the latter is an area that has been underappreciated by the

higher education and policymaking communities as contributing to human capital development. Atypical approaches with respect to either of these two dimensions are probably more common in less selective institutions, but our capacity for investigating how well such approaches may be working would be improved by being able to further distinguish less selective institutions from one another.

Educational Delivery Models

There are increasingly pressing reasons that suggest we need a way to think more systematically about how institutions organize and deliver education. Today, a college education is increasingly unlikely to be delivered in lecture format by a full-time, tenured faculty member at a consistent time and location. More and more, students are taking courses online and at a distance, from multiple institutions in multiple instructional modalities, which makes following their educational progress more challenging.

But online courses are just one way that technology is impacting educational delivery. Institutions are experimenting with multiple forms of technology-enhanced learning, some of which are generating both savings for the students and better learning outcomes. The National Center for Academic Transformation (NCAT) has described six different models for how institutions are reengineering the delivery of instruction for lower-division general education courses.[8] These models have significant implications for the organization of labor within the academy, including the role of the faculty member and support personnel.

Advancements in technology and its application to postsecondary education are not only increasingly common, they also create the potential for disruptive innovation that transforms the delivery of higher education in significant new ways.[9] Indeed, we are in the midst of an era in which rich new models and even new kinds of institutions are being developed and gaining

traction. Such models resist classification, since they seldom have peers; but though they depart from the traditional model of educational delivery, they are growing in importance. McKinsey and Company delineated some prominent examples across the postsecondary spectrum (public, private nonprofit, and for-profit), including Western Governors University (WGU), Brigham Young University-Idaho (BYU-I), and Rio Salado College.[10] These institutions – a term which is not always the most appropriate for all of the activity in this space – are awkward fits into the standard approaches we take to distinguish institutions. For example, StraighterLine – a for-profit corporation that offers a set of no-frills, self-paced courses for a one-time course start fee, combined with a low monthly subscription price – is not accredited itself, but partners with regionally accredited institutions that agree to award general education credit to students who succeed in its courses. How do we compare and contrast institutions that experiment with innovative approaches to instructional delivery – such as those willing to outsource general education delivery, as illustrated by StraighterLine's business model – against institutions that tend to adhere to traditional delivery modes?

Similarly, while regionally accredited, WGU differs fundamentally from more traditional institutions in its reliance on competency assessments to award credit. So long as a student can prove he or she has mastered the learning objectives of particular courses, whether or not they sat through a semester's worth of class sessions, WGU will award credit. It tends to serve older adults in a relatively narrow set of academic programs, and no other institution operates quite like it, though other programs offer students credit for demonstrating competency. The American Council on Education, for example, has a program that facilitates credit awards for students who have substantial employment or military experience, equivalent to coursework requirements. And the Council on Adult and Experiential Learning is working to standardize the process for prior learning assessments (PLA).[11] Although selective colleges and universities also engage in

entrepreneurial and innovative activities, institutions which serve students who are older and more at-risk are likelier to embrace atypical credit award practices such as these. In any case, the use of PLA, StraighterLine, or other novel educational delivery models has the potential to influence the data we rely on for institutional performance metrics, especially if students are not captured in the cohort used for calculating institutional graduation rates.

A major challenge to describing institutions on the basis of their educational delivery model is that there is rarely a common model in place institution-wide. Rather, it may be that institutions vary internally far more than they do from one institution to the other, as departments find the approach that serves their students and labor force most effectively. This is likely to be increasingly true as new approaches prove their effectiveness and institutions adopt them. But understanding the variation would allow institutions and researchers greater analytical capacity for benchmarking effectiveness and seeking improvement among like educational delivery models. Moreover, distinguishing institutions by the specific type(s) of educational delivery model may not be the most useful approach, at least beyond a certain point. What may in fact be more interesting and useful is coupling the modal educational delivery mechanism in use at an institution with information about how the institutions locate the decision points for where the educational model is selected and, not unrelated, where institutional revenues are collected and expenditure authority lies. For example, an institution that centralizes the educational decision to deliver instruction via distance education and utilizes a centralized resource allocation model is probably different in important respects from an institution whose central administration decentralizes the decision about whether to employ a traditional classroom-based instructional model in mathematics or an emporium approach such as that taken by Virginia Tech. Decentralization of authority provides the units responsible for a content area great latitude in raising funds and spending them as necessary to deliver that education. Both are probably

different from that of an institution where the central administration sets down a common educational model but leaves it to the units to implement that model.

Another dimension to think about when distinguishing educational delivery models is the particular mechanism that the model focuses on. For instance, a model based on competency assessment, like WGU's, or on credit awarded for demonstrated prior learning is not the same approach as an instructional practice that relies on embedding continuous assessment in exercises delivered online to students, as exemplified by Carnegie-Mellon's Open Learning Initiative. The former is an example of a summative assessment approach intended to help the institution assure itself that a student has successfully acquired the necessary knowledge and skills (though clearly there are also benefits to the student, who can accelerate his or her progress to the degree), while the latter is intended as a formative assessment for students who benefit from real-time feedback on specific deficiencies on which to concentrate attention. Neither is the same as the actual provision of a course online and asynchronously, which may or may not involve an innovative approach to assessment at all.

Since the standard classifications schemes in wide use do not do much to distinguish differences among institutions in educational delivery models, the data we have on how students who are served through various delivery models is sparse. As a result evidence on the extent to which new models are serving equity goals is hard to come by. To the extent that it exists, it tends to come out of costly data collection efforts that exist outside of the federal data collection activities required for Title IV-eligible institutions, which may have issues with respect to comparability across institutions and over time, especially as modalities evolve.[12]

Trying to develop a categorization scheme around educational delivery models is, however, first and foremost an issue of capturing the right information about different kinds of educational delivery and how widespread such practices are, as measured by the number of

students being served. Such information is critical to the development of a taxonomy that can adequately differentiate institutions on this dimension. However, one might reasonably wonder if the institution is the most appropriate unit of analysis for examining educational delivery models, particularly if the delivery model is based at least in part on the market an educational program serves. In such cases, perhaps the program is the more appropriate unit of analysis. Yet at least for institutions offering associate's degrees and bachelor's degrees, information about the kind of educational delivery models in use for the general education core of those degrees, if not for the disciplinary or interdisciplinary concentrations, would yield a useful dimension along which to contrast institutions.

As a step to filling the gap in information, the federal government will begin collecting more data on distance education activities beginning with the 2012-13 academic year. The relevant questions will first count the students who are enrolled exclusively in distance education courses, enrolled in no distance education courses, or enrolled in a mixture of in-class and distance courses. The survey will then focus on students enrolled exclusively in distance education courses, asking how many are residing in state, in the U.S. but in some other state, or outside the U.S. (if known). The federal effort, in short, will hone in on just one kind of educational delivery model and even then will ignore important distinctions in approaches, such as those captured by NCAT.[13] But it will provide some indication of the extent to which institutions are serving students locally, which is especially important for fully online institutions, like the University of Phoenix's online division, which currently shows all enrolled students as Arizonans, no matter where they are.[14]

Noncredit Activity

Another serious blind spot in our understanding of postsecondary education and training relates to noncredit programs. Historically, compared to traditional higher education as quantified by the credit hour, far less attention has been paid to noncredit programs and enrollment, though these enrollments may make up as much as 40 percent of community colleges' instructional activity (the precise figure is uncertain because there is no attempt to systematically collect data on the extent of noncredit activity). As articulated in a 2009 report published by the Business Roundtable, "There is no standard national measurement of the direct educational and economic benefits of noncredit courses, so they are not systematically evaluated. The lack of relevant and appropriate measures leaves vast holes in policymakers' understanding of the scope, impact, and effectiveness of the work of community colleges."[15] The same could be said for other institutions that offer noncredit programs. The report goes on to offer a taxonomy to describe noncredit activities according to three levels of outcomes (Table 6).[16] The proposed model reflects the common practice at community colleges of serving specific employers through contract training activities. That model that may or may not be relevant for other types of institutions, but it offers one approach to thinking about noncredit activity. Using this model, a classifier could distinguish institutions according to the relative dominance of such types of noncredit activity as: ESL classes, training programs customized for an employer or industry, developmental education, and even courses offered for personal fulfillment.

Table 6. Distinguishing Noncredit Education Activity According to Outcomes

Level	Description
1. Focus of outcomes	Differentiating between goals of economic or personal advancement.
2. Who benefits from outcomes	Whether the intended beneficiaries are individual students or sponsoring organizations.
3. Application of outcomes	Classifying skills by how they will be used – in academic or general settings or to meet a company's specific training goals.

Source: Macomb Community College, LaGuardia Community College, and Community College Research Center.

What's more, human capital does not develop solely in the postsecondary settings that are classified in the familiar models like Carnegie, which tends to rely on accreditation status and Title IV-eligibility to establish what settings to categorize. As illustrated in Table 1, there were 2,442 nondegree-granting, primarily postsecondary institutions in 2010-11. These institutions tend not to receive a great deal of policymaker or media attention (until there is a scandal involving the misappropriation of taxpayer funds). In addition, there are formal educational activities that are not fully captured in the U.S. Department of Education's data. Apprenticeship programs (often offered through unions) and activities funded by the U.S. Department of Labor through the Workforce Investment Act (WIA) are examples of human capital development efforts, sometimes supported with public subsidies. Not all of this activity is captured in data sources like IPEDS that are typically used by researchers and policy analysts. Failure to include these data mean that such programs are not all evaluated alongside one another, nor are they considered in any classification scheme for postsecondary education.

Summary and Implications

Out of this discussion of traditional means for classifying postsecondary institutions come a few considerations for policymaking and educational practice. First and foremost, it is clear that the

ways in which we shape the universe of educational providers matters tremendously in the conclusions we draw about institutional and student performance. Virtually all of the important work related to those analyses gets done on the basis of the type and level of degrees being offered, as exemplified in the Carnegie Basic Classification, first conceived of in 1972 and updated regularly since. This scheme has demonstrated its usefulness time and again over the years and has broad acceptance in the education research and policy communities because it works. The Carnegie Basic Classification truly is foundational to our field, but it is not the only way to map the landscape of postsecondary education; yet its influence is vast and often unquestioned. Recognizing that it is imperfect, however, Carnegie has created new classifications as an attempt to capture variation along other meaningful dimensions, even though their expanded set of schemes receives little attention. Limitations in data have meant that distinctions among non-selective institutions are less fine than those among more selective institutions.

As pressure mounts to improve educational attainment, resources become increasingly scarce, and demographic changes demonstrate that college students are increasingly likely to hail from communities that are traditionally underserved, more attention must be paid to the broad access institutions that serve greater densities of those populations at lower costs. Moreover, innovation and entrepreneurial behavior have come to higher education in a big way, but none of the ways in which we analyze institutions specifically considers the educational delivery models they use. The time has come to consider how else we might cluster institutions for policy and practice implications, or what we would need to better inform our thinking in that respect.

The key implication for policymakers is to make sure that the state has **the right mix of institutions for the student populations it is serving and those it wants to serve.** Too much attention is paid (and too much acclaim given) to the institutions at or near the pinnacle of the higher education status hierarchy. Having a clearer sense of the distinctions that are meaningful

among the broad-access institutions would equip policymakers with better information about who is being served, and how effectively. Such information could help policymakers better evaluate institutions' contributions to the cost-effective delivery of education for state residents. Policymakers could also use that information to more easily identify ways in which institutions could be encouraged to engage in collaborative activity within the state or within systems. Finally, policymakers should use the lens provided by new modes of classification to consider how they might allow innovative providers to emerge and thrive, while also ensuring that quality and performance are not compromised.

Consider other sources of data that may enable finer-grained distinctions among broad-access institutions. There are two principal alternatives: longitudinal data systems and the accreditation process. Although national data showing the array of educational delivery mechanisms in operation in postsecondary settings are not readily available, there may be useful information that could be mined in student longitudinal data systems currently under development, in transcript records held by institutions, and in the hands of regional and national accreditors. State and federal policymakers interested in knowing how institutions differ in terms of student characteristics should focus attention to the questions they most need answers to concerning who is being served by the institutions they fund directly or through financial aid. As students increasingly take nonlinear paths through their postsecondary education career, tracking their progress regardless of where they take courses is ever more essential. Such data could also capture information about student backgrounds and financial characteristics that become available when a student applies for financial aid. Additionally, both state and institutional data systems might be mined for transcript data that provides insight as to how credits were earned for the purpose of distinguishing institutional practices (when such data is collected by institutions). However, there may be serious unintended consequences that accompany the use of that data,

like disparate treatment of students by employers who may have developed a preference for one kind of educational delivery over another or micromanagement of educational institutions by policymakers. But states that do carefully regulate the collection and use of data, allowing for comparability across institutions and institutional sectors, and that focus on student-level information would be better equipped to examine student success and institutional performance.[17]

A second source is information captured through accreditation, but that information is generally not publicly available. As with institutional classifications generally, the accreditation process itself both fails to cover the full gamut of human capital development activities and also can serve as a reifying exercise, in which only those time-honored delivery models are acceptable. But it seems reasonable that information about the educational delivery models in use by institutions, without the assessments produced by the accrediting team, might inform us about how institutions are taking advantage of educational technologies while permitting insights into how institutions might be clustered based on their approaches.

Equipped with these data, the educational community could better address the question raised earlier about the extent to which our understanding would be advanced through a taxonomy of educational programs, not just institutions. Educational policy, especially with respect to funding decisions, has to consider the institution as a whole. But policymakers and practitioners who are specifically interested in programs with a tight connection to the labor market might have better information about how both capacity and student success in those programs could be facilitated through the application of different models. For instance, the shortage in nurses and other health care professions has been well documented, and part of the reason for the shortage is due to capacity constraints in institutions. Educational delivery models that produce higher productivity and performance with at least equivalent quality measures, but

which are difficult to scale up due to existing funding mechanisms, might prove valuable to policymakers looking to facilitate more entrepreneurial behavior that is shown to work effectively.

Policymakers should seek to understand more comprehensively **how traditional higher education is aligned with other workforce development training programs and investments** through state departments of labor and the U.S. Labor Department. Noncredit enrollment is not well-captured by existing data on postsecondary education institutions, even though for many institutions it is a significant line of business. One example of this disconnect is evident in the Census Bureau, which has long lumped those who have earned certificates in with those who have simply taken a single postsecondary course in the "Some College" category. With the President's Council of Economic Advisors and others arguing that our economy will need more sub-baccalaureate-level education and training, that lack of precision is a real problem. To address it the U.S. Education, Commerce, and Labor departments have been examining how to better collect information about certificates awarded for a couple of years now—but progress is slow.

Such challenges are symptomatic of how siloed our analytical approaches to human capital development, as well as the organization of our human capital development modalities, have been. This is as true generally in the states as it is in the federal government. Better information about apprenticeships and other training efforts, and linkages between them and formal, institutionally provided education and degrees, is necessary if we are to get a complete picture. Furthermore, labor market information is critical to evaluating how well our postsecondary education systems are aligned with workforce needs.[18] Policymakers can be asking questions of their data systems to best understand those linkages. (As they do so, however, it will be important to remember that such data systems are developing and still embryonic: insufficient data going back in time far enough means there is danger in assigning too much significance to

individuals' initial employment outcomes. Clearly, the wage gains associated with education and training are important indicators of success and return on investment. But it will be essential to also account for how education and training can reveal career pathways over a longer time horizon, even if our ability to take that long-term view awaits the accumulation of additional years of data.)

As policymakers look for better ways to understand and improve the performance of postsecondary institutions, their focus should be on **ensuring that those who lead postsecondary institutions have room to operate, as well as room for risk taking**. Micromanagement on the basis of educational delivery models is a real danger of collecting information about how institutions choose to provide instruction. Furthermore, even in this discussion of taxonomies, care must be taken to ensure that fledgling models of delivery are not inappropriately made subject to the "normalizing" force of classification and that the educational community recognizes the inherent power and status-seeking behavior that can be exacerbated by classification. As McCormick and Zao point out, "A special irony of the Carnegie Classification – which called attention to institutional diversity – is the homogenizing influence it has had, as many institutions have sought to 'move up' the classification system for inclusion among 'research-type' universities."[19]

The higher education industry is being buffeted by the winds of change, particularly as funding grows scarcer, demand from the labor market climbs, and the pool of students rapidly diversifies. Change is also coming as technology exerts its disruptive influence over all aspects of our lives and society, and the academy is not exempt. In this environment, researchers and analysts could benefit from creative ways of thinking about how the array of institutions serves the many needs and demands of our society. While we surely will continue to rely on time-tested

classification schemes, the use of additional lenses may offer new insights to supplement our understanding.

ENDNOTES

[1] This assertion presumes that the diversity described reflects differing institutional missions, not differing quality in the degree to which institutions serve those missions.
[2] A. C. McCormick and C. M. Zhao, "Rethinking and Reframing the Carnegie Classification," *Change* (September/October 2005), 52.
[3] K. Phillippe, "Now that Community Colleges are Offering Baccalaureates, What Is the Impact on National Data and Trends," presentation at the Association for Institutional Research Annual Forum, Toronto, Canada (2011). In an attempt to address these problems, NCES convened a technical review panel in 2005 to consider a new classification variable to more carefully distinguish the IPEDS universe. This resulted in the derivation of the *instcat* variable, which is available to researchers and analysts in IPEDS but sees little usage by NCES in its own analyses or officially reported statistics.
[4] McCormick and Zhao, "Rethinking and Reframing," 53.
[5] Kelly, P.J. (2010). *Closing the Attainment Gap Between the U.S. and Most Educated Countries, and the Contributions To Be Made by the States.* Boulder, CO: National Center for Higher Education Management Systems.
[6] See www.collegeresults.org
[7] McCormick and Zhao, "Rethinking and Reframing," 56.
[8] C. A. Twigg, "New Models for Online Learning," *Educause Review* (September/October 2003), 28-38.
[9] C. M. Christensen, M. B. Horn, L. Caldera, and L. Soares, *Disrupting College: How Disruptive Innovation Can Deliver Quality and Affordability to Postsecondary Education* (Washington, D.C.: Center for American Progress, 2011).
[10] B. G. Auguste, A. Cota, K. Jayaram, and M. C. A. Laboissiere, *Winning by Degrees: The Strategies of Highly Productive Higher-Education Institutions (New York,* McKinsey & Company, 2010).
[11] Information about ACE's program can be found at <www.acenet.edu/AM/Template.cfm?Section=Orgs&Template=/CM/HTMLDisplay.cfm&ContentID=6103>. Information about CAEL's initiative is available at <www.learningcounts.org>.
[12] I. E. Allen and J. Seaman, (2011). *Going the Distance: Online Education in the United States, 2011* (Boston: Babson Survey Research Group, 2011).
[13] Twigg, "New Models."
[14] Along with getting a understanding of where students who are being served at a distance actually reside, we need to get a better grasp on the cross-border and branch campus activities of institutions (especially public ones) that do not separately report that information to IPEDS. See J. E. Lane, K. Kinser, and D. Knox, "Interstate Regulation of Cross-Border Public Higher Education Enterprises," paper presented at the Association for the Study of Higher Education Annual Meeting (Vancouver, British Columbia, 2009).
[15] Macomb Community College, LaGuardia Community College, and Community College Research Center, *Counting the Hidden Assets: First Steps in Assessing the Impact of Community College Noncredit Education Programs on the Workforce and Local Economies* (Washington, D.C.: Business Roundtable, 2009), 1.
[16] Ibid.
[17] Even states awaiting the implementation of a robust state-level unit-record data system can glean considerable insights on student progress and success through the National Student Clearinghouse, which has enrollment and degree status information on most students.
[18]L. Jacobsen, "Improving Community College Outcome Measures Using Florida Longitudinal Schooling and Earnings Data" *(*New Horizons Economic Research & CNA Analysis and Solutions, 2011); and B. T. Prescott

and P. Ewell, "A Framework for a Multi-State Human Capital Development Data System" *(*Boulder, CO: Western Interstate Commission for Higher Education, 2009).
[19] McCormick and Zhao, "Rethinking and Reframing," 52.