

BENCHMARKING TEACHER EDUCATION: A COMPARATIVE ASSESSMENT OF THE TOP TEN TEACHER-PRODUCING UNIVERSITIES' CONTRIBUTIONS TO THE TEACHER WORKFORCE

Introduction

Pressure to reform the nation's schools that began with the publication of *A Nation at Risk* (National Commission on Excellence in Education, 1983) has yielded 23 years of evidence of ways to improve schools (Marzano, 2003). One factor that has consistently demonstrated its power to improve under-performing schools is teacher quality (Rice, 2003; Wenglinsky, 2002; Wright, Horn, & Sanders, 1997). The pressures exerted by the 2002 *No Child Left Behind* legislation have made the quality of the teacher workforce a cornerstone of that reform effort. Teacher quality is an elusive expression that speaks to the need for teachers who know what to teach and how to teach it to learners who differ in significant ways. Recommendations to address the need for high quality teachers to serve in urban, suburban, and rural settings include proposals for school-, district-, and state-based changes to alter both pre- and in-service teacher professional learning.

Thus, since 1983 teacher preparation programs have come under fire to produce more effective teachers to serve all schools better. Each teacher preparation program has its unique characteristics and need for evidence about how programs have affected the teacher workforce. A responsive teacher education community needs conceptual and practical tools for accountability and improvement. Such tools should make it possible to gather and use evidence about current students and alumni for these dual purposes. The purpose of this study is to demonstrate the usefulness of one such tool, the *Schools and Staffing Survey* (SASS), for the comparative analysis of alumni teachers. This article shows how SASS can be used as an evaluative tool by any institution that wants to appraise its alumni in comparison to those of its parallel institutions for the purposes of accountability and improvement.

Using the *Schools and Staffing Survey* for Benchmarking

The *Schools and Staffing Survey* (SASS) is one of the key survey projects conducted by the National Center for Education Statistics (NCES). It has been conducted five times so far, in school years 1987/1988, 1990/1991, 1993/1994, 1999/2000, and 2003/2004, and it is a potential source of long range data useful for comparative benchmarking. Benchmarking methodologies are helpful for making broad performance comparisons (Smith, Armstrong, & Brown, 1999). Benchmarking uses externally developed qualitative and quantitative measurements or standards to establish a foundation from which to develop internal improvements in a process of continuous evaluation and renewal (McNair & Leibfried, 1992). Critical to true benchmarking is this

notion of an external reference point. A large, external data set like SASS is one useful tool for understanding an organization within its environment from a neutral yet statistically powerful standpoint.

By benchmarking several indicators of teacher quality (e.g., retention rate, completion of the master's degree and certifications, and professional development) using external data collected from a national pool of in-service teachers, leaders in schools of education can make comparative assessments of their alumni. Individual universities could not possibly have the reach that SASS has for several reasons, not the least of which is the time and expense necessary to keep track of alumni throughout their careers in order to have this locally useful data. SASS puts the contribution of each institution in the context of its working alumni, providing a broad yet distinctive view of that contribution. In this article, the top ten teacher-producing universities, by sheer numbers, are compared. With a total *N* of approximately 150,000 in-service teachers disaggregated institutionally, it is possible to examine empirical patterns in critical areas of teacher preparation and in-service professional learning for this set of large teacher-producing institutions.

To demonstrate the potential usefulness of SASS to schools of education, Illinois State University (ISU)—a historic “normal school” or teachers' college (Cook & McHugh, 1882; Harper, 1935; Hurst, 1948; Ogren, 2005)—serves as a main but not sole example. As a perennial member of the cohort of top ten producers, ISU is representative of a class with extraordinary influence over the quality of the teacher workforce in our nation (AACTE, 2005). The data from SASS potentially provides ISU College of Education leaders and cohort peers with broad indicators of their individual and overall contributions to teacher quality that can help college leaders both to recognize opportunities for improvement and to develop other data sources to complement SASS.

In addition to exploring the utility of SASS for the evaluation of teacher education programs within a broader accountability movement, this investigation empirically establishes a set of benchmarks to compare top ten in-service teacher producers which can be used forever afterwards. These benchmarks are best characterized in two ways: (a) as demographic descriptors of teachers now in the workforce, and (b) as broad proxies for teacher quality. In this latter case, SASS provides data on teacher learning by exploring teacher experiences and preferences for professional learning. Teacher professional development and commitment to ongoing learning serve as proxies that education schools can use to understand how well their alumni are prepared for the demands of a changing profession.

The comparative assessment of teacher education through external surveys is potentially significant to the decision makers at university, unit, and department levels and to policymakers beyond. The SASS data analyzed here are from the days just before the enactment of the NCLB legislation, so they also provide a snapshot that can later be compared with data from subsequent years. The 2003/2004 NCES report was released in March 2006 and provides a post-NCLB characterization of the nation's teaching workforce (Strizek et al., 2006). SASS data on potential teacher quality

indicators can also provide a proxy of the status of ISU and other top producers nationally as one step in a self-evaluation process. With SASS as a tool for both accountability and improvement-oriented uses of data, ISU and its cohort of large-scale producers are poised to evaluate their influence, short- and long-term, on teacher workforce quality nationwide.

Teacher Quality and its Proxies

As teacher quality draws increasing attention from policymakers and the general public under the requirements of the federal *No Child Left Behind* legislation, the benefits of expert teaching become more clearly characterized in research. For example, scholars of value-added assessment approaches found that the effects of expert teaching stay with a child for years and can account for increases in standardized test scores of over 50 points in a three year period (Sanders & Rivers, 1996; Wright, Horn, & Sanders, 1997). The reverse also appears to be true: A poor quality teacher will also have lasting effects on student achievement but in the direction of lowered performance. Other scholars have also found student achievement on national/state standardized examinations to be closely associated with the quality of teachers (Rivkin, Hanushed, & Kain, 2002). Teacher professional learning has been further linked to better serving students in at-risk situations—those most likely to be caught in the so-called achievement gap (Carey, 2004).

While in-service teacher learning that can contribute to developing more quality teachers occurs in more than one context, certainly the university setting is a major contributor for both new and veteran teachers. Thus, through their pre-service and graduate programs for teachers, the ten university-based schools of education featured in this study are in a position to contribute to further developing a common understanding of what high quality teaching is and how it can be extended through learning opportunities for both groups. Alternative means of certifying teachers that show the most promise of producing high quality teachers among their candidates tend to have the same features as university-based programs. These features include a firm grounding in subjects and their distinctive pedagogies (Darling-Hammond, 2000; National Commission on Teaching and America's Future, 1996; Marzano, 2003); alignment between teaching assignment and teacher certifications (Seastrom, Gruber, Henke, McGrath, & Cohen, 2002); practical field experience with highly qualified mentors, and extended student teaching (Darling-Hammond, Chung, & Frelow, 2002). Teacher certification, initial licensing, master's degrees, years of experience, and advanced professional certification all contribute to teacher quality (Darling-Hammond, 1997; Goldhaber & Brewer, 2000; National Commission on Teaching and America's Future, 1996), accounting for as much as 90% of the variation in student achievement at the school level (Armour-Thomas, Clay, Domanico, Bruno, & Allen, 1989). The top producers of teachers in our nation have much to learn about themselves through research into teaching that produces lasting gains in students. While analysis of SASS data alone cannot

make this connection, it can be part of a broader accountability enterprise that attempts to do so.

The quality of teachers can be measured by many different variables (Cochran-Smith, 2004a, 2004b, & 2004c). To synthesize the major indicators and to consider the data available from the survey, we used shear numbers to define the class of schools of education as an appropriate category for comparative benchmarking. Next, we defined the quality of teachers using three commonly recognized proxies that can be queried using SASS:

1. Teacher retention rate, which is a common measure of the success of pre-service programs.
2. Professional qualifications (i.e., initial certification and master's degrees).
3. Professional development, defined by SASS as comprising:
 - Observational school visits
 - Regularly scheduled collaboration with others in the school about instructional issues
 - Mentoring/coaching based on peer observation
 - Participation in formally organized teacher networks
 - Attending conferences, workshops, or other training sessions
 - Serving as a presenter at conferences, workshops, or training sessions
 - Conducting individual or collaborative research

Using these broad proxies, in-service teachers who graduated from ISU were assessed in the context of a national comparison among the top ten teacher producers and all teacher producers as an aggregate.

In addition to providing the data on teacher retention, professional qualifications, and professional development that were used here, SASS has several other survey clusters useful for understanding the teacher workforce. These include: demographic data; general information about teacher placements and fields of study; certification, advanced certification, and training; pre-service experiences; school organization and decision making; resources and assessment of students; working conditions; and general employment information.

Data Sources and Research Methods

This research used the restricted data from the 1999/2000 SASS to examine the status of teacher education by comparing the top ten teacher producers with each other and with all teacher education institutions. SASS surveys investigate a broad range of issues, such as school safety, class size, district budgets, teachers' salaries, as well as a few possible proxies for the quality of instructional programs (Gruber, Wiley, Broughman,

Strizek, & Burian-Fitzgerald, 2002; Lin, Gardner, & Vogt, 2005). This exploratory study focused on the public school teacher survey to identify the top ten producers and compare them in broad strokes with one another and with teacher education institutions generally. The total weighted sample size of SASS is 2,984,781, which represents the entire population of teachers who work in the nation's public schools. For purposes of illustration, ISU is taken as a case of special interest. There are 18,572 weighted ISU graduates who participated in the in-service teacher survey.

To identify the top ten in-service teacher producers in the U.S., we selected a variable which represents the college or university wherein teachers earned their bachelor's degrees. By using the Integrated Postsecondary Education Data System (National Center for Education Statistics, 2006), we ranked the top ten teacher producers through their in-service teacher frequency distributions. Like SASS, IPEDS is a useful database that can be used for higher education benchmarking (Shuh, 2002). The top ten producers of in-service teachers were then compared as individual universities, with the remaining programs aggregated. All cross-tabulations and chi squares were calculated based on the comparison among the top ten teacher producers and the rest of the nation.

In conjunction with the methods above, benchmarking methodologies, widely used in business and management (Karlof, Lundgren, & Froment, 2001; McNair & Leibfried, 1992; Smith et al., 1999), are utilized in this study. While definitions of benchmarking vary (Jackson & Lund, 2000), one key idea is comparing an organization or institution with a peer group in the same sector in order to put the comparison to good use improving the organization and sharing the results of its programs (Doerfl & Ruben, 2002). This study can be best described as using a metric benchmarking approach that attempts to check the overall health of each organization against peers to review and select areas for performance improvement (Yarrow & Prabhu, 1999). These broad diagnostic checks will almost certainly involve further study assessing outcomes and evaluating merits. Ideally, the top ten producers and others could use benchmarking from large data sets like SASS to begin to identify strengths, challenges, and opportunities and then to investigate exemplary practices at other institutions by asking what other members of their cohort do well. After commenting on the most popular definitions of benchmarking methods, Smith et al. (1999) summarize that benchmarking definitions fall into four categories: competitive analysis, performance comparison, best practice, and other. Due to limitations of our research scope, we mainly focus on broad performance comparisons as proxies of the quality of in-service teachers. Competitive analysis and best practice of in-service teachers invite future studies.

Results

SASS Rankings

Teacher education programs can be evaluated using a variety of measures, indicators, and benchmarks. Since the ultimate goal of teacher education programs is to place quality teachers in classrooms, retain them in the profession, and prepare them for ongoing professional growth, using a sample directly drawn from in-service teachers is more useful for accountability about the effects on the teaching profession than some other sources because it provides a long range view that begins in pre-service programs. In the case of ISU, the initial data analysis of IPEDS reveals that 18,572 of its graduates are currently teaching in the nation's public schools, making ISU the number one ranked college in providing in-service teachers in the country. Other top producers and the number of in-service teachers each institution had in 1999/2000 using the IPEDS database are:

- Central Michigan University ($N = 16,597$)
- California State University-Long Beach ($N = 16,261$)
- San Diego State University ($N = 16,137$)
- University of South Florida ($N = 15,409$)
- Michigan State University ($N = 15,051$)
- Western Michigan University ($N = 14,571$)
- Ohio State University-Main Campus ($N = 14,458$)
- Northern Illinois University ($N = 14,335$)
- Eastern Michigan University ($N = 14,268$)

These ten were then compared to one another and an aggregation of all teacher education programs' alumni nationwide along several dimensions.

Teacher Retention Rate

Table 1 compares the top ten producers with teacher education institutions generally and demonstrates that ISU alumni are more likely to remain in the teaching profession than other top producers and about as likely to remain in the same jobs. Several teacher producers in the top ten have approximately 90% of their in-service alumni remaining in the same jobs (i.e., California State-Long Beach, Central Michigan, Illinois State, and San Diego State). Among top ten producers overall, when "stayers" (i.e., those who remain in the same job across their careers) are added to "movers" (i.e., those who change jobs but remain in public school teaching positions), an overwhelming majority of alumni in this category are retained in the profession. This is a surprising figure given commonly reported high attrition levels, particularly among novice teachers. Granted, this survey is from in-service teachers who stayed in the field and self-selected as survey

respondents. It is also noteworthy to consider that these are public school teachers taking the survey, so alumni who remained in education as private, charter, and tribal school teachers, administrators, consultants, and education policymakers and professors are not counted in these figures. Therefore, the overall contribution of each institution to professionals who remain in the field of education is a complex matter to study.

Table 1

Teacher Retention Rate Comparison Among the Top 10 Largest Public School In-Service Teacher Producers in the United States

University	Stayer	Mover	Leaver	<i>N</i>
Illinois State University	89.3	6.8	3.9	18,572
Central Michigan University	89.9	5.7	4.3	16,597
University of South Florida	77.9	16.4	5.7	15,409
California State University-Long Beach	90.4	3.1	6.4	16,261
All other universities	85.0	7.3	7.7	2,825,752
San Diego State University	91.1	0.9	8.0	16,137
Eastern Michigan University	82.5	9.1	8.4	14,268
Ohio State University-Main Campus	85.1	5.5	9.3	14,458
Northern Illinois University	79.0	11.6	9.4	14,335
Michigan State University	83.3	6.5	10.2	15,051
Western Michigan University	81.2	8.0	10.8	14,571

Note: $\chi^2(20, N = 2,984,783) = 5,090, p < .01$

Also of interest to several institutions in this class, including Northern Illinois University (NIU) and University of South Florida (USF), is the high proportion of in-service teachers from these schools who move during their careers when compared to other top producers and teacher education generally. Each of these institutions has a double-digit percentage of “movers,” in striking contrast to other top ten schools, with USF having more than twice the number of “movers” as the national average outside the class. When “movers” are added to “stayers,” NIU retained 90.6% and USF retained 94.3% of their respective alumni in teaching, suggesting that this part of an institution’s profile can provide a more complex view of retention and raise questions about each school’s contribution to the teaching workforce nationally. Teacher education generally retained about 92% of alumni when “movers” were added to “stayers.”

SASS can raise questions about state level teacher education policies as well, and retention is one area that policymakers might usefully consider. For example, Michigan State (MSU) and Western Michigan University (WMU) have the smallest percentage of teachers who remain in the profession from the top ten group, although they too are close to

90%. Michigan is a state with four of the ten top producers. The local issue for the two universities is perhaps to better understand and develop their own niche or brand in teacher preparation in a state with so many large programs. State level policymakers may raise their own questions about the teacher workforce in the state as they think strategically about supporting several large teacher education institutions, although retention would not be their only issue. These results suggest the complexity of tracking teacher careers to determine education's professional retention rate. They also suggest that SASS is a data source that can complement others in addressing questions of teacher retention and attrition and can serve policymakers at institutions and state agencies.

Top Ten Producers' Contributions to Teacher Diversity

The 1999/2000 SASS data in response to the question "What is your race?" revealed an area that ISU and others might target for improvement: preparing diverse alumni from all racial/ethnic groups, including American Indians and Native Alaskans, Asians, Blacks, Whites, and Hispanics (whom SASS includes as Whites). ISU had 95.6% White alumni in the field in 1999/2000, which was not atypical in the cohort (see Table 2). Most top teacher producers are behind the national average in terms of diversity. For example, all top ten teacher producers lag behind the national average in percentage of Black teacher alumni they contribute to the teaching workforce, although Northern Illinois University (NIU) and California State University-Long Beach (CSU-LB) lag less. In fact, these two top producers also demonstrated greater diversity overall, with NIU and CSU-LB having less than 90% White in-service teacher graduates. The national average is 89.0% White; NIU is at 87.1% and CSU-LB at 80.9%. While NIU attracts students from metro Chicago and CSU-LB is an urban campus, several of the remaining eight top producers, like ISU, are in rural areas or small cities away from major metro centers. NIU also has the highest American Indian population in the cohort, more than five times the national average. This suggests that NIU is a major contributor of American Indian teachers to public schools, though it is not to tribal schools (SASS provides data on tribal schools, but we did not include them in this report). It should also be noted that the top ten producer cohort does not represent very many states, with California, Illinois, and Michigan dominating. States like Alaska and Hawaii, among others, would certainly have higher numbers of Native Americans and Asians, for example, but they are not in the sample except in the aggregate.

Table 2

Racial Diversity of In-Service Teachers

University	American Indian	Asian	Black	White*	N
Central Michigan University	0.8	0.1	0.0	99.1	16,597
Ohio State University-Main Campus	0.8	0.1	1.3	97.8	14,458
Western Michigan University	0.3	1.0	1.3	97.4	14,571
Eastern Michigan University	0.1	0.0	3.3	96.6	14,268
San Diego State University	1.2	1.3	1.2	96.3	16,136
Illinois State University	0.0	0.2	4.2	95.6	18,572
University of South Florida	0.0	4.0	0.6	95.3	15,409
Michigan State University	1.0	0.0	7.9	91.1	15,050
All other universities	1.0	1.8	8.2	89.0	2,829,123
Northern Illinois University	5.8	1.2	5.9	87.1	14,334
California State University-Long Beach	2.1	14.2	2.7	80.9	16,261

Note: $\chi^2(10 N = 2,984,779) = 26,889, p < .01$

* White here includes Hispanic

One possible explanation for the Whiteness of teacher preparation institutions like ISU is that they were originally nineteenth century normal schools or teachers colleges, which are typically not found near urban settings. The nineteenth century ideal for teacher education was a rural setting that used government appropriated lands in remote areas on which to build. But what was practical in the nineteenth century is a structural problem for teacher education nationwide today. The nation's public schools need teacher diversity more than ever as student diversity increases. Communities like Normal, Illinois, home to ISU, and their surrounding areas do not have very diverse populations, and this fact may have a chilling effect on minority induction and retention. In any case, the problem remains for ISU to attract and retain diverse teacher candidates.

SASS shows that, while ISU is far from alone, there is work to be done in this area, particularly given ISU's goals. The guiding framework for teacher education at ISU is "The Democratic Ideal" (Council for Teacher Education, 1997). This supports a "historic and enduring commitment to educate teachers who will be responsive to the moral and intellectual demands a democratic society places on them" of which an understanding of diversity is a core value. This core value also must manifest in the dual tasks of preparing teachers to be effective with diverse students and to be themselves more diverse as a group. Because the theme of democratic educational institutions that support human diversity is so prominent at ISU and so integral to its mission, the implications of this finding is that this area is a priority for increased efforts that future benchmarking with SASS data can

evaluate. Using benchmark data makes it more likely that ISU and others that espouse the laudable though difficult goal of increasing teacher diversity will work concertedly to reach it.

In Illinois, with two top producers, ISU and NIU, comparisons for policy purposes are suggested by the very real contrast that emerges on several SASS data points, including the retention and diversity data. NIU apparently produces a more diverse and mobile alumni group than ISU. At ISU, this raises questions about one goal of the College of Education. The ISU College of Education leaders seek to better serve the Chicago metro area despite the 140 mile distance that separates ISU and the city (College of Education, 2002). Currently one major ISU initiative is a teacher education pipeline to prepare ISU alumni for urban teaching. Combined with other ISU professional development, certification, and graduate cohort programs in Chicago, this pipeline entails a major commitment of resources that ISU might want to review strategically in light of what NIU and other Chicago-area teacher preparation institutions do in and for Chicago, considering that urban centers like Peoria and Decatur are closer. Coupled with ISU alumni's profile for professional development discussed below, ISU might ask what it can do for professional learning for these and other closer-by communities that may, on further inspection, demonstrate the need for more current and useful professional learning opportunities.

Among the questions that the ISU-NIU comparison raises is a statewide policy issue about what teacher education programs produce for the wide range of urban and rural high need public schools in a state like Illinois that has within its borders a city as large and diverse as Chicago. Finally, using NIU and other state institutions for diagnostic benchmarking, ISU can and should measure its own progress using SASS data if it remains committed to the dual goals of diversifying its alumni and placing more of them in urban and other high need settings.

Professional Qualifications

This section compares top producers' alumni in two areas of professional qualification: state teacher certification for teaching area and graduate education. State certification (Armour-Thomas et al., 1989; National Commission on Teaching and America's Future, 1996) and graduate education (Darling-Hammond, 1997) are useful teacher quality proxies. In both cases, the proxies serve as indicators of teacher learning that occurs because of university programs. Appropriate teacher certification represents alignment among teacher preparation, state standards, and teacher assignment, which is a cornerstone of NCLB reform. Master's degrees represent expanded certification and ongoing professional learning. In both these areas, the university setting is a direct contributor.

State teaching certification. All the cohort institutions have more than 91% (and all but one over 94%) of their alumni teaching in their main teaching assignment area (see Table 3). Illinois State University (97.8%)

ranks near the top of its cohort in maintaining a match between certifications and main teaching assignments, and the national average for this quality indicator is 94.3%. If content and pedagogical expertise both matter in improving student learning outcomes in schools, then this finding indicates that the cohort contributes in real terms to the overall quality of the teaching workforce given the NCLB definition of teacher quality. Furthermore, despite NCLB's interest in certification as a reform intended to improve student achievement, SASS data from a time just before the 2002 enactment of the law suggest that it is not a major structural problem with the teaching workforce overall. However, students in high poverty schools and other at-risk situations do have less access to the most qualified teachers, so achieving 100% alignment between preparation and assignment remains a significant goal (Peske & Haycock, 2006).

Table 3

State Teaching Certificate in Main Teaching Assignment Field

University	Yes	No	N
Western Michigan University	98.8	1.2	14,571
San Diego State University	98.0	2.0	16,137
Illinois State University	97.8	2.2	18,572
Michigan State University	96.9	3.1	15,051
Northern Illinois University	96.3	3.7	14,335
California State University-Long Beach	96.0	4.0	16,261
Central Michigan University	95.7	4.3	16,597
Ohio State University-Main Campus	95.0	5.0	14,458
All other universities	94.3	5.7	2,829,123
Eastern Michigan University	94.1	5.9	14,268
University of South Florida	91.9	8.1	15,409

Note: $\chi^2(10, N = 2,984,782) = 2,018, p < .01$

Master's degrees. Table 4 reports results from the SASS question: "Do you have a master's degree?" Here, the cohort members diverge in ways that raise questions that other data sources would need to answer. For example, Michigan State (67.1%) has the highest and University South Florida (26.8%) the lowest rate of in-service teacher graduates who attained master's degrees. In fact, there is a 10.4% difference between USF and San Diego State, its closest cohort member in master's completion, making USF an outlier in the cohort. Given the number of similarities among top ten producers in many SASS categories, this is a dramatic difference between these two top producers, although Michigan requires graduate hours for more than provisional certification and Florida does not. This helps to explain part but not all of the discrepancy.

Table 4*Attainment of Master's Degrees*

University	Yes	No	N
Michigan State University	67.1	32.9	15,051
Eastern Michigan University	59.1	40.9	14,268
Ohio State University-Main Campus	56.7	43.3	14,458
Northern Illinois University	53.5	46.5	14,335
Western Michigan University	50.5	49.5	14,571
Illinois State University	46.7	53.3	18,571
All other universities	46.5	53.5	2,808,822
California State University-Long Beach	44.0	56.0	16,261
Central Michigan University	42.9	57.1	16,597
San Diego State University	37.2	62.8	16,137
University of South Florida	26.8	73.2	15,409

Note: $\chi^2(10, N = 2,964,480) = 7,548, p < .00$

The master's degree percentage for ISU is in line with the national average but lower than that of most of its peer institutions. ISU is almost 7% lower than NIU, a teacher education program in the same university system but closer to the Chicago metro area. Access to graduate programs by rural teachers can be a factor in some circumstances, and we can see that Michigan has liberally distributed large teacher education institutions around that state. But given that most ISU teaching alumni are working near large or in mid-sized cities (according to their demographic data not included here but useful for contextualizing these results), access to graduate education is not likely the issue here. Formatively, the explanation for the lower levels of master's completion by ISU teachers bears further investigation about the preparation of alumni for career-long learning. Further exploration could provide clues about graduate education options that ISU could offer to its alumni, keeping its graduate offerings current and attractive. Given that the cohort has so many similarities, the differences in this area suggest that this is a potentially useful benchmark for several peer institutions, including those seeking to improve and market their graduate programs.

Preparing Teachers for Career-Long Learning: Professional Development

SASS concerns itself with teacher access to professional learning opportunities after graduation. As public schools and districts face pressure to demonstrate student achievement, in-service professional development takes center stage (Randi & Zeichner, 2004). The face of professional development is changing too, so the profile of alumni suggests a quality

factor related to ongoing professional learning. Universities can use these benchmarks and explore how best to socialize pre-service teachers for the newer forms of professional learning and to remain in touch with teacher learning needs in their course offerings and school-university professional development partnerships.

Taking courses and attending workshops/conferences. Courses, conferences, and workshops are traditional choices for professional learning, and there is wide variation among alumni in the need to take college courses for re-certification or to attain credentials beyond provisional. In-service teachers who graduated from Ohio State University (54.4%) and ISU (43.0%) are far more likely than peers from other high producers to favor courses, conferences, and workshops for professional development (see Table 5). Ohio State University (OSU) has no other in-state university with which to compare it, and it is not clear what role state requirements that favor these traditional forms of professional development play here. ISU has NIU as a state peer, and NIU alumni have a much lower incidence of taking classes for re-certification and in their main teaching assignment. All cohort alumni attend workshops and conferences, but OSU and MSU graduates assume more leadership as presenters. ISU has a low rate of presentation, which may suggest a traditional view of professional learning that emphasizes outside expertise over teacher action research or other forms of school-based, collaborative teacher learning.

Table 5

Professional Development Through Taking Courses and Attending Workshops/Conferences

University	Taking university course(s) for		Attending workshop/conference as	
	Re-certification	Main teaching assignment	Attendee	Presenter
Illinois State University	43.0	38.0	97.4	16.8
Central Michigan University	29.1	15.7	95.4	13.9
California State University-Long Beach	39.5	28.0	96.7	17.5
San Diego State University	31.1	25.7	93.0	21.8
University of South Florida	19.2	12.5	99.8	17.3
Michigan State University	21.9	13.5	97.5	32.9
Western Michigan University	22.8	20.3	92.7	18.8
Ohio State University-Main Campus	54.4	33.9	93.5	31.1
Northern Illinois University	18.8	27.5	95.0	24.2
Eastern Michigan University	31.7	16.5	94.3	21.8
All other universities	31.6	23.4	94.7	22.4

One way to look at these broad data is to look for patterns that suggest balance among these options for robust professional learning that takes advantage of a variety of opportunities. Some patterns align better with current views of professional development as job-embedded and actively engaging teachers, in sync with theories of adult learning. For example, the pattern for USF alumni shows that they are notably reliant on workshop attendance for their out-of-school professional learning with low levels of participation in the other options surveyed by SASS. Eastern Michigan University (EMU) alumni have a similar profile. As professional development, workshops and conferences are less ideal as they usually do not require active participation by teachers. Taking classes and presenting are more active forms of adult learning for teachers which allow them to engage dynamically and to take responsibility for their own and others' learning.

In contrast to USF and EMU alumni, more Ohio State and Michigan State teaching alumni participate in all these options, taking classes, attending workshops and conferences, and especially presenting. OSU and MSU are distinctive in their flagship status, but it is not clear why their alumni would be noticeably more active in professional development options in this category. Again, the differences in this area for this cohort suggest that benchmarking could help programs to understand how they affect their alumni' prospects for ongoing professional learning, taking local circumstances such as state requirements and institutional differences into account. ISU is not distinctive in this category, but campus leaders could see these results and decide that socializing students to take leadership in professional development needs to be a priority. More effort could be made to encourage and support pre-service teachers to become involved in their professional associations, which the university could also work with to provide ongoing, school-based, participatory professional development.

Collaboration and research. SASS also surveys in-service teachers with respect to professional development activities that are collaborative and research-based. The options SASS offers in this category include professional development through school visits, research, formal collaboration, mentoring, teacher networks, and in-depth study (see Table 6). These newer forms of professional development are based on collaboration and collaborative inquiry and increasingly viewed as exemplary practices for designing professional learning opportunities for teachers (Diaz-Maggioli, 2004; Hawley & Valli, 1999; Levine & Lezotte, 1990; Miller & Pine, 1990; Sagor, 1997; Sammons, 1999; Scheerens & Boskers, 1997), even if most schools and districts have yet to make systematic use of them (Spillane, 2002).

Table 6

Professional Development Through Collaboration and Research

University	School visits	Research	Formal collaboration	Mentor	Teacher network	Prof dev in-depth study
Illinois State University	23.1	48.8	77.4	29.7	18.2	58.4
Central Michigan University	34.4	48.6	74.2	48.9	32.8	62.2
California State University-Long Beach	35.9	49.7	78.5	34.7	25.3	63.6
San Diego State University	46.7	48.5	79.2	37.9	30.8	65.7
University of South Florida	37.6	39.1	74.2	32.5	15.2	65.7
Michigan State University	26.6	41.9	83.4	49.8	32.8	61.6
Western Michigan University	27.8	39.1	72.6	43.7	29.1	58.4
Ohio State University-Main Campus	37.0	50.4	72.8	40.1	29.7	49.9
Northern Illinois University	47.5	61.3	79.0	45.3	24.4	52.2
Eastern Michigan University	33.6	54.1	73.4	34.9	20.8	59.6
All other universities	34.4	46.6	74.3	42.2	25.0	59.1

This category is complex, and some of the results are difficult to interpret. For example, it seems astounding that, on average, 50% of in-service teachers from eight of the top producers claim to be engaged in doing research. Looking for patterns, MSU appears strong in this category because it ranks highest in three areas of teacher collaboration: formal collaborations, mentoring, and networking. In fact, formal collaborations appear well-utilized across the cohort's graduates (76.5%) not to mention among all in-service teachers (74.3%). NIU graduates respond that they are engaged in visiting other schools and doing research for their professional learning. ISU's pattern is not outstanding in any of these emerging professional learning approaches. Coupled with their preference to attend rather than present at conferences, it seems that ISU teachers are a bit stodgy in their professional development activities. For benchmarking, there is enough variation among alumni groups in some categories like school visits and research to make the data useful for thinking broadly about how and why in-service teachers differentially use collaborative and inquiry-oriented professional development.

Perceived value of professional development. Table 7 shows that, on average, most cohort alumni (73.3%) find professional development either "useful" or "very useful" (items 4+5) while only 4.5% of them say it is not useful (items 1+2). In other words, teachers in the survey inclined to be quite positive about professional development. This is an important finding because it is contrary to the commonplace belief that teachers think professional development is a waste of time.

Table 7*Usefulness of Professional Development*

University	Items 1+2	Not use- ful at all (1)	2	3	4	Very useful (5)	Items 4+5
Illinois State University	9.8	0.9	8.9	9.9	54.6	25.8	80.4
Central Michigan University	4.2	0.0	4.2	25.6	43.3	27.0	70.3
California State University- Long Beach	2.9	0.2	2.7	25.6	43.2	28.3	71.5
San Diego State University	7.7	1.9	5.8	26.3	33.9	32.1	66.0
University of South Florida	5.0	0.2	4.8	29.1	42.3	23.7	66.0
Michigan State University	5.0	0.0	5.0	27.6	38.2	29.2	67.4
Western Michigan University	4.2	0.9	3.3	22.3	47.6	26.0	73.6
Ohio State University- Main Campus	2.1	0.9	1.2	22.8	38.7	36.5	75.2
Northern Illinois University	2.8	0.0	2.8	13.5	42.9	40.7	83.6
Eastern Michigan University	1.5	0.6	0.9	19.9	35.6	42.9	78.5
All other universities	5.5	0.9	4.6	23.3	39.1	32.1	71.2

Considering the patterns of responses, USF and San Diego State alumni, the two groups least likely to get a master's degree (see Table 4), also find the least utility in professional development. But Michigan State alumni are not much more likely to find professional development useful, despite engaging in a richer pattern of professional development options, including those the professional development research suggests are most effective. ISU-educated teachers are the most bipolar in their assessment of professional development, with the highest percentage of teachers who find it not useful (9.8%) even though the vast majority (80.4%) find it useful. Compared to graduates of peer institutions, ISU in-service teachers are also less likely to use classroom observations and school visits (Fiszer, 2004; Gordon, 2004; Short, 1999), mentoring (Boreen, 2000; Diaz-Maggioli, 2004; Portner, 2005), and networking (Adams, 2000; Lieberman, 2000; Lieberman & Grolnick, 1997; Mycue, 2001) for their professional development. These are newer approaches to professional learning which emphasize collaboration and inquiry that break the traditional isolation in the teaching profession. Teacher isolation is a longstanding concern in the profession and even more so in the current environment of school renewal that increasingly relies on teacher collaboration and leadership (Little, 1990; Lortie, 1975; School Leadership for the 21st Century Initiative, 2001). Lack of alumni interest in collaboration and research suggests an area in which programs can improve the ways in which they prepare their graduates for ongoing learning and do their part to break the well-documented culture of teacher isolation.

Prioritizing professional development needs. Table 8 depicts priorities for professional development for in-service teachers. ISU teachers are more likely than others in the peer group to select student discipline and behavior problems and student assessment as top priorities. They are also likely to rank their main subject area as a high priority. Overall, student assessment was ranked low across universities, with ISU as the highest in this category (6.1%). This is disconcerting as many teachers may not be sufficiently assessment-literate to meet new accountability demands (Stiggins, 2002). These surveys were conducted in 1999/2000 when NCLB was not in place, which may explain why student assessment is ranked low. The 2003/2004 SASS should reveal higher interest in this area now that mandated large-scale testing and the need to use assessment data effectively for accountability and improvement are facts of life in schools.

Table 8

First Priorities for Professional Development

University	Student discipline & behavior problems	Teaching students with special needs	Use of technology in instruction	My main subject field	Content & performance standards in my subject area	Methods of teaching	Student assessment
Illinois State University	21.1	14.4	16.3	27.2	6.4	8.6	6.1
Central Michigan University	16.0	7.8	23.2	23.2	16.9	8.5	4.4
California State University-Long Beach	11.5	20.8	24.5	16.0	19.1	4.9	3.2
San Diego State University	13.3	23.6	17.9	17.9	13.9	10.6	2.9
University of South Florida	17.1	14.6	20.9	21.3	13.9	9.1	3.2
Michigan State University	16.7	17.9	25.8	20.8	6.2	9.4	3.3
Western Michigan University	14.4	12.9	31.9	16.4	10.1	9.9	4.3
Ohio State University-Main Campus	9.9	11.6	26.1	20.1	16.5	15.7	0.0
Northern Illinois University	11.8	5.3	22.5	32.7	11.4	14.6	1.6
Eastern Michigan University	13.2	15.2	30.2	13.9	16.2	8.1	3.2
All other universities	16.8	13.7	21.0	23.1	12.8	8.4	4.2

Generally, the variation in this area is not great and in any case would be difficult to interpret from these teacher self-reports. It would not be useful to consider each of these areas of professional development interest in light of pre-service training because the sample is of all working alumni, many of whom graduated years ago. More likely, the interests

represent pressures to update. For example, there is a relatively strong interest in educational technology applications, an area for which teachers must seek ongoing updates. Subject area is another strong area that requires updates. These responses are now of particular interest because they serve as a snapshot of pre-NCLB professional development.

How Can National Surveys Improve Teacher Education?

This study takes an atypical approach to accountability and improvement in teacher education programs by using a large, nationally representative survey to describe in-service teachers who graduated from a cohort of top ten producers. This is an approach that institutions may find useful as they find, develop, and refine measures they can use to address the changing teacher education landscape. SASS provides broad descriptors of the alumni of the top ten producers and can help to illuminate each institution's particular contributions to the broad quality of the teacher workforce as well as to suggest areas that could benefit from further attention and alignment to institutional mission. SASS data provide a profile and raise at least as many questions as they answer in key areas that may link to each institution's mission, core values, and sense of its own contribution. This article only touched upon a few areas available for inquiry in this massive database on the education workforce in order to raise issues about the contribution of major teacher education institutions to the teacher workforce. These included teacher retention, professional qualifications, and professional development as broad proxies for teacher quality. SASS can provide teacher education institutions with demographic and other data useful for characterizing and coming to understand the teachers and principals each contributes to the nation.

One benefit of benchmarking is the ability to make comparisons between and among programs. This study is an initial diagnostic example of how any teacher education program can add benchmarking approaches using large data sets to its institutional research, program evaluation, accreditation, and assessment arrangements. There are rich possibilities to explore regarding how to purposefully supplement the variety of benchmarking approaches with more focused accountability and improvement-oriented arrangements. These include various data sources and applications the uses of which need to be locally developed and refined. Benchmarking is not a finely-grained approach to improvement, but it can suggest in broad strokes areas that require attention and further data collection and analysis. This study reveals a few prime candidates for further consideration at each institution. It must be reiterated that the similarities shown by these select SASS data points are stronger overall than the differences. We conclude by featuring a few institutions from this study to illustrate the ways SASS can be used by schools of education to appraise themselves through their alumni. In such a process, the mission of each institution and the distinctive character of the contribution it seeks to make are necessary to contextualize the use of benchmarks and other evaluation data.

Illinois State University

Illinois State University is a case in point of how these data can provide useful benchmarks in relation to peer institutions and suggest next steps in the development of self-evaluation capacity through complementary data sources and targeted improvement intended to extend the university's influence in improving public schools. ISU is not outstanding among its peer group, but there are several broad points worth considering in light of ISU's vision for its contribution to the teaching workforce. First of all, ISU has a lower percentage of minority teachers than four other top teacher producers as well as the national average (see Table 2). Yet Illinois is a state with a large minority population. It ranks 15th among all 50 states and the District of Columbia in its percentage of Black population, 34th in its White population, and closely matches the national average in its Hispanic population (American Community Survey, 2004). This suggests an area to target for inquiry and improvement if ISU wishes to achieve its democratic ideal in terms of diversity and provide minority teachers for classrooms in Illinois and across the nation. Diversity in the teacher workforce in an increasingly diverse nation is a quality factor that warrants further investigation (Villegas & Lucas, 2004).

Second, ISU in-service teachers are less likely than teachers from at least half its peer institutions to use collaborative and research-oriented professional development strategies that end teacher isolation to support school renewal (see Table 6). It is unrealistic to expect to improve learning outcomes in PK–12 education classroom-by-classroom. The school is now the unit of analysis for renewal, and teacher work will likely continue to be restructured in the direction of more, not less, collaboration and teacher research. The new forms of professional learning are more collaborative and democratic than traditional norms and are consistent with ISU's core values and mission. ISU has the opportunity to socialize its pre-service and graduate teachers to these promising forms of professional development through its courses and to provide appropriate in-service learning opportunities through its school-university partnerships.

Third, ISU alumni also pursue master's degrees at lower rates than do graduates of half of its peer institutions (see Table 4). The master's degree is an integrated set of learning experiences that presents the possibility of making professional development more coherent than unrelated workshops and conferences. Like teacher collaboration, graduate education building towards the master's degree is a growing necessity for teachers. Some states like California and Michigan require graduate credits as a path to professional certification after initial provisional certification. Master's degrees are opportunities for universities to influence the lives of working teachers who need renewal if they are to be partners in educational renewal writ large. ISU will want to offer master's programs that they are confident their alumni and others want to join.

Finally, ISU may be missing other opportunities to understand its own distinctive character and capitalize upon it through better understanding of its strengths, weaknesses, and inherent constraints. It could benefit

from watching Northern Illinois University, particularly as a benchmark for the diversity of alumni, and others in the state to monitor its own distinctive contribution, improving and marketing programs as a result. In this way, it can develop its distinctive contribution to the state and nation while monitoring data like those of SASS to evaluate and further shape the programs it offers to educators.

The Flagship Cases: Michigan and Ohio State

Michigan and Ohio State Universities can exemplify the value of benchmarking using SASS in part because they are the only members of the cohort that are flagship campuses with the prestige and responsibility that come with that status. Thus, they form a peer unit among the top ten producers that can serve as mutual benchmarks in the areas discussed in this article and more. They also have strong patterns in terms of the few broad proxies of teacher quality examined here.

How can these schools use SASS? Large flagship campuses face certain challenges of scale when offering pre-service education, although they have an advantage in graduate education because of their status. They can use one another for benchmarking as they admit comparable students and offer rich subject area majors that draw on their prestigious faculties. The selected SASS data suggest that MSU and OSU teaching alumni take leadership roles and engage in multiple forms of professional learning through university-based programming and emerging forms of professional development (see Tables 5 & 6). Variations between them might provide campus education leaders with useful data for understanding how each contributes to the quality of the teacher workforce and serves as a leader in the cohort of top ten producers. Finally, as flagships, they make useful benchmarks for other teacher education institutions in their states. Michigan dominates the top ten with four cohort members, but the state of Ohio has no other members in the cohort. But SASS has data on the other schools in the system for state-wide benchmarking. To use teacher and graduate education resources wisely, a differential look at schools within the state and the distinct patterns of service they provide can help policymakers to develop coherent approaches for supporting teacher education to contribute to the viability of urban, suburban, and rural schools.

University of South Florida

The University of South Florida presents an outlying case when all the SASS factors discussed here are considered in a broader pattern, even though the findings overall suggest many strong similarities among the top producers in terms of some of the contributions they make to the quality of the teacher workforce. We used broad proxies for the contribution each university makes to the ongoing development of the quality of the teacher workforce based on the factors from the literature that are also available from SASS. We do not to suggest that USF is an inferior program or that its alumni are not contributing to teacher quality. USF teach-

ers remain in the field at a rate of 94% and positively impact the learning of thousands of children. If we are using SASS to benchmark the alumni from this program, however, the school's profile is distinctive in the number of categories in which it is the low benchmark. SASS data not shown here further reveal that USF teachers are the lowest paid of the graduates in the cohort as well, with an almost \$4,000 a year gap from the next lowest ranked school in terms of alumni salaries, Illinois State University. The gap between top paid Michigan State and USF alumni was about \$14,000 annually in 1999/2000, with the state of Michigan having the two top-salaried alumni groups, MSU and Eastern Michigan, in the nation. In terms of the locations of the schools in which USF alumni teach, which could impact salaries, they are not distinctive in the cohort.

These low rankings for USF overall suggest a systemic set of issues that goes beyond the choices of individual teachers and teacher education programs. In broad strokes, this use of SASS data for benchmarking suggests that policymakers in the state of Florida might usefully recognize that they have a top ten teacher producer in their state with greater potential to contribute talent to the teaching workforce than is currently realized. With this recognition they might consider how these teachers who are loyal and remain teaching can be supported to engage in more varied, collaborative, and inquiry-oriented professional learning; to achieve master's degrees and aligned certifications; and to be rewarded with salaries comparable to their national peers.

Conclusion

In the process of researching the impacts of teacher education, older tools like SASS will be put to new uses and new tools will be developed to help fill the gaps in our understanding of how to strengthen the teacher workforce nationwide, working through individual programs and their own efforts at institutional research and program evaluation. This study identified peer institutions in terms of numbers of in-service teacher graduates whose responses to the *Schools and Staffing Survey* were then used to locate relative institutional benchmarks with respect to indicators of teacher quality. These indicators are useful for benchmarking how each institution contributes to the quality of the teaching workforce, providing sharable data for accountability and improvement purposes. This study explored some means by which universities could use SASS to understand themselves better and suggested how states might also find SASS a useful tool to understand and distinguish state teacher education programs.

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