Report

September 2004

Board of Governors for Higher Education
Department of Higher Education
State of Connecticut

BEST PRACTICES IN DOCUMENTING WORKFORCE SUCCESS OF COLLEGE GRADUATES

FINAL REPORT

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Introduction

This report documents the Connecticut Department of Higher Education's efforts to investigate and document best practices in assessing student achievement as measured by workforce success. That effort is part of a five-state project to Define Best Practices for Responsible Accountability Models in Higher Education funded by a U.S. Department of Education's Fund for the Improvement of Postsecondary Education (FIPSE) grant to the South Carolina Commission on Higher Education. The original project participants included South Carolina, Connecticut, California, Arkansas, and Oklahoma and targeted specific outcomes in three areas of concern for higher education:

1) decreasing college costs;
2) documenting student achievement including access to higher education, achievement while enrolled in college, and workforce success of college graduates; and
3) rebuilding public trust in higher education.

Each participant agreed to focus on one or more of these outcomes and to act as a peer reviewer and collaborator with the other states on their areas of focus.

Connecticut's analysis of best practices in documenting workforce success of college graduates included the review of twenty-four states' plans for higher education. Identification of states with relevant workforce measures began with the responses to an email survey through the State Higher Education Executive Officers (SHEEO) in November of 2002. Where SHEEO representatives indicated that employer satisfaction surveys were in use in their state, an internet search was performed to locate the state's higher education long-range plans or accountability reports for more details on the survey process and purposes. In each case, the plans and reports noted that survey data was being used to assess higher education's contributions to economic development goals. In some cases these goals were defined at the state level, at others, they were part of the institutional mission. The internet search was then expanded: following leads in successive documents as to which additional states and institutions had economic or business goals in their higher education plans and what measurements, beside surveys, were being used to address these goals. Some surveys and data reports were requested directly from institutions and organizations, but many states were not evaluated because no statewide plans or references to such plans were found on-line. This may have led to some gaps in the data.

Of the twenty-four plans reviewed, fourteen had some kind of mandate for reporting higher education outcomes (from the legislature or from a higher education governing or coordinating board) although they varied considerably as to whether all sectors of higher education were included and whether the results were aggregated by state or only evaluated for each institution or sector individually. Twelve of the 24 had statewide goals addressing higher education's contribution to workforce or economic development – many without specific reports or measures defined that would document those contributions. Only nine states had mandates, workforce goals and indicators clearly lined up to show the contribution of higher education within the state to workforce

development. Several were piloting or searching for better indicators or instruments, some were still in flux with regard to development of goals for higher education or state control thereof. Some had more specific plans in the past that have now been rejected based on problems of implementation or interpretation of data. And the most serious gap in all the data uncovered, is the fact that even where performance indicators were defined, benchmarks were generally not – in most of higher education we are measuring change without a clear indication our aim.

But a few trends have emerged, and a few promising structures and instruments are in place.

An initial reading of the plans and reports available made apparent that four models are developing as institutions and organizations discuss measurements of success as they relate to business and economic needs:

1) Reporting graduates and licensure/certification rates by program area.
2) Determining employment rates of graduates.
3) Developing qualitative evaluation procedures that utilize direct input from the business community to assess graduates or programs with regard to how they meet the needs of local business.
4) Surveying employers or graduate employees on their perceptions of graduates' success in the workplace.

At some institutions several of these approaches are used as complementary measures that together give an overall picture of how well business needs in the state are being met; at others the approaches are competing measures as limited resources or concerns about data preclude the use of multiple measures. Within each general measurement category, there is also some variation as to the actual instruments and procedures that are used to assess outcomes, as well as variations in which goals are addressed by which indicators.

Model 1: Graduates and Licensure/Certification Rates

Background

The justification for using graduates or licensure and certification rates to assess higher education's contribution to workforce success rests on the basic assumption that if institutions are producing graduates in areas of employment shortage in the state, they are meeting the needs of business.

Licensure and certification are more often used as measures of student learning goals[1] [2] [3] than as indicators for economic development goals[4]. The greatest problem with using licensure and certification data for any assessment purpose is that it represents only a small percentage of graduates and programs. Even among occupational programs, there are only a limited number requiring certification, and among liberal arts programs there is much discussion, but no widespread agreement yet, on a skills certification procedure.

To address the lack of a credential representing a given set of skills for majors without certification requirements, the California Postsecondary Education Commission proposed the development of a skills certification instrument which would be part of a "workforce report card" for students entering the job market[5]. Under the goal of "…play[ing] a major role in the economic development of Tennessee", Tennessee's Higher Education Commission includes Objective 6.4 to develop "credentialing program" that would communicate individual skills and competencies to employers[6]. Both of these plans link certification of skills to workforce success. This connection is also the premise of ACT's WorkKeys® three-part program of assessment, job profiling and need determination. ACT puts forward their WorkKeys® system as a way to "take the guesswork out of hiring decisions by providing reliable measures of a job applicant's skills"[7].

WorkKeys® is currently used by Illinois, Kentucky, Michigan, Mississippi, and Tennessee in their statewide workforce development programs. Individual programs/institutions in other states are also using it both to evaluate the skills of individuals in job training programs, and to match program completers to available jobs.

The states vary in the locus of both the leadership and provision of workforce development programs. Workforce development programs are more often administered by state agencies, secondary career and technical education providers and adult education providers than by the post-secondary institutions which are the focus of this research. The information these programs provide can be useful in the discussion of assessing skills as they relate to workforce success, but it should be noted that with regard to the broader programs at baccalaureate institutions there is a concern as to whether completion of a degree or possession of a set of skills equals actual employment, and whether either one equals workforce success in a society where multiple job and career changes are the norm.

Since the mid-eighties, there has been an avalanche of research focusing on business leaders' concerns that the graduates they hire lack the skills to succeed in the workplace despite holding a credential[8]. In response to this growing concern, the U.S. Department of Labor established the Secretary's Commission on Achieving Necessary Skills (SCANS) for "bridging the gap" between work and school[9]. The result was the definition of a set of foundation skills and competencies that respondents found to be needed (and lacking) for employees to succeed in the workforce. None were industry specific; they were found to be basic across industries and job categories. Although the SCANS report focused on the competencies and foundation skills needed for entry-level work and what elementary and secondary schools needed to teach to achieve those levels, it also postulated that a hierarchy could be developed, in which additional levels within the same basic competency areas would correlate to more complex jobs, higher achievement in career areas, and presumably, be taught by higher education institutions.

In 1995, SHEEO and the Education Commission of the States published a review of a survey conducted for the New Jersey Business-Higher Education Forum of New Jersey employers concerning what they want from higher education graduates and how they

view the training services provided to the workforce by higher education[10]. The survey used as the point of reference the skills set defined by the SCANS report.

In the SHEEO survey, participants were asked how important each of the skills were for their college-level employees, and how well prepared New Jersey's college and university graduates were in these skills. Along with more traditional academic skills such as "reading" and "math" were cross-functional skills such as "problem solving" and personal skills such as "honesty". The report found that while employers rated general education skills as important to work, the areas they found most lacking in their graduate employees were integrity, honesty, diversity and sociability, not academic skills.

In another national study of employers, respondents indicated that in the hiring process as well they focused less on academics than on personal qualities[11]. In recruiting employees, employers ranked an applicant's attitude during the interview as the most important factor in their considerations, followed by their application responses and employer references. Much further down on employers' lists was the importance of tests or of school transcripts, which could indicate what academic skills were mastered or at least studied in school. A study by the Maryland Business Roundtable for Education also confirmed that while business respondents indicate they have difficulty in hiring qualified graduates, actual transcripts of potential college hires were not often checked by small companies[12].

Using Graduates and Certification Rates for Assessing Workforce Success

Currently, Connecticut and New Jersey higher education institutions are reporting graduates by program in response to requirements to document contributions to economic development. Wyoming utilizes licensure and certification along with other economic indicators.

Connecticut utilizes a multi-tiered system of reporting. The state mandated annual accountability reporting and a Performance Task Force was assembled with representation from the Board of Governors for Higher Education and each of the four sectors of public higher education in the state. The Task Force defined accountability goals and common core measures to address them at the state and sector level, and specified that mission-driven measures be defined and reported at the institutional level. A count of degrees awarded by program area is a common core measure for the goal of economic development. All of Connecticut's accountability measures are reported annually. In 2003, trends in graduation were compared to areas of employment shortages as reported by the State Department of Labor, but no specific goals or strategies to address the shortages were included in the report.

New Jersey's Long-Range Plan for Higher Education directs institutions to include in their planning processes programs to support New Jersey's "Major Clusters" (groups of interrelated businesses and industries having a major impact on the state's economy)[13]. Again, degree completion relative to industry need in these areas is the performance

measure monitored, but no specific benchmarks are cited. New Jersey does have an employer satisfaction survey component as a related indicator which is discussed later in this report.

While attainment of credentials is more often used to assess student learning than workforce success, the relationship between student learning and workforce success is also being explored. South Carolina's assessment plans link the indicator "support of economic development" directly to the goal of improving "Graduate Achievement"[14]. The Michigan Department of Career Development used the ACT WorkKeys® program in a study to measure the **"**skills gap": a statewide measure of the career development system's effectiveness which calculates the difference between the average WorkKeys® scores (composite of 4 subtests) of workforce training program participants and the average scores of all the job profiles in Michigan[15]. The reduction in this skills gap in consecutive years is a measure of workforce development success in the state.

Currently the National Forum on College-Level Learning is evaluating several different measures of student learning (including WorkKeys®) for their utility in assessment practices. The forum is an outgrowth of Measuring Up 2000 and 2002[16], in which the National Center for Public Policy and Higher Education compiled available statistics relating to higher education performance. The reports present the data as statewide aggregate measures in an attempt to foster discussions about benchmarks for such measures. Although the College-Level Learning project is focused on measuring student learning, not workforce success, Margaret Miller, the Director of the Forum, does equate workforce goals to acquisition of general intellectual skills. She notes that one of the reasons graduates need to possess the skills being assessed by the project is so that they can be successful in the workplace. Conversely, she also writes "In choosing which college graduates to hire…industry need[s] information about which skills and abilities are certified by a given diploma."[17]

Utility to Statewide Assessment

Use of graduation and certification data is fairly straightforward. It is already collected by accrediting agencies, although not all licensing and certification boards provide national data for comparisons. It has meaning at the state level when analyzed by program with relation to state identified areas of industry need, although the relationship between program of study (CIP code) and field of employment (SIC code) is not well defined.

The problem of using completions or certification rates for statewide assessment lies in the question of what constitutes workforce success at the state level: having a sufficient number of skilled graduates or actually filling necessary jobs with those graduates? While possession of various skills may ultimately be indicative of success in a job, hiring practices (and therefore actual employment of graduates) seem to still rely on the intangible results of good interviewing processes. Therefore, numbers of graduates produced will not necessarily translate into jobs filled. And if basic skills are, by definition, required by all jobs, assessing basic skills does not indicate whether the jobs

ultimately filled by these graduates are the ones most needed for the state's economic well-being.

Model 2: Employment Rates

Background

The current most widely used practice for assessing outcomes on business/economic goals is tracking employment rates. Seven of the states evaluated were using it for at least some sectors of higher education: Connecticut, Florida, Kentucky, Louisiana, Oklahoma, South Carolina, and Wyoming. It is a mandatory reporting measure for workforce training programs at institutions using WIA funds, in which employment goals are set that institutions must meet to maintain funding, and other federal programs such as Perkins Vocational Education which provide funds for occupational education. As with licensure and certification rates, employment measures are already required for occupational program accreditation purposes.

The justification for using employment data to evaluate workforce development is straightforward: the graduates are employed in the workforce. Additional data on relationships between programs and fields of employment is necessary, and somewhat more difficult to evaluate, if conclusions are to be drawn about how well specific needs are being met, or how well specific institutions or programs are doing in meeting these needs – but it is possible to look at statewide employment openings by industry and graduate employment rates by industry and draw conclusions about higher education's overall contributions to the workforce.

Using Employment Rates

The simplest calculation of employment rates involves matching student records to the Unemployment Insurance (UI) data base maintained by each state. In Connecticut, the State University system and the Community College system both use 6 month post-graduate employment rates as performance indicators for the goal of economic development. Data is provided by the Connecticut Department of Labor and is reported by institution but not broken down by program of study or field of employment.

Florida's K-20 Accountability Task Force developed a more detailed model which looks at employment, employment retention after 5 years and wage increases[18]. The Department of Education maintains the Florida Education and Training Placement Information Program (FETPIP) for tracking graduates through the UI wage file and federal employee data base. The system includes continuing education data, public assistance and state prison data to fully track outcomes for graduates. Information from employer satisfaction surveys is also part of the plan for overall outcome assessment, but the only link between the two sets of data is the use of the FETPIP data base to identify employers to survey.

Using the FETPIP data base, an analysis was made of employment of Florida's graduates compared to the general population by industry to show where higher education had the

greatest impact on the workforce[19]. The results pointed to the complexity of the relationship between field of study and area of employment. Besides the difficulty of assigning equivalencies between the two, there is significant hiring crossover between the two. One common example: a graduate in accounting could show up in the business office of any industry. The study cautions that policies designed to increase the responsiveness of a program to a specific industry need may actually decrease employment options for graduates by narrowing the curriculum scope. This would indicate that analysis of how well institutions are serving the overall needs of an industry or business is a better option for state level assessment than assessing how well a particular program is serving those needs.

Problems with tracking employment go beyond how to categorize program/industry relationships. Those employed in surrounding states and those self-employed are missing from a simple search of a state's UI data base. There is also the problem of assessing the contribution of an education to career development through salary increase or promotion rather than new job acquisition. Wyoming has addressed these issues through expansion of the data base and the follow-up time[20]. Memos of understanding with surrounding states allow cross-checking with their UI data bases. An additional 6% to 9% of wage data was found in surrounding states. A detailed study by the Wyoming Department of Employment, Research and Planning evaluated graduates' wages as well as employment over the first 4 quarters after graduation. This resulted in the conclusion that Community College graduates did not always reap the benefits of their degrees in the form of increased salary until 12 to 18 months after graduation. The Wyoming study was also able to identify a small group of graduates (4.8%) who failed to transition to higher salaries or stable jobs. This may ultimately lead to efforts to identify the characteristics of this group and develop policies to address their needs. One further finding was that the percentage of graduates found in Wyoming and the surrounding states decreased over time; a factor which has implications for determining how long after graduation it is practical to track students.

Oklahoma went even further in their analysis by including employment data 5 years after graduation[21]. Besides looking at the salary differential among Oklahoma residents with and without higher education, the Oklahoma study looked at factors affecting in-state retention of graduates in various industries – reasoning that in order to affect state economic development the key was retaining qualified graduates[22]. The study also tried to improve employment follow-up data by searching for employed graduates who did not show up in the UI data base (such as self-employed and federal employees) in the state tax commission's tax return data. This data base only indicates household income and does not include specific employment information – there is no indication on joint returns as to what proportion of the household salary belongs to the graduate and no job field code – but it did account for up to 8% more graduates in the 1998 cohort (percentages varied by program) adding to Oklahoma's understanding of whether graduates were still in-state, a key factor in their economic development plans.

Utility to Statewide Assessment

While job acquisition may be a better measure of statewide workforce success than job readiness (as measured by graduation totals and certification rates), using employment rates introduces a huge number of variables if the goal of state assessment is to formulate policies which will effect change at the institutional level. Assessment requires consideration of such factors as relation of job to field of study (if no relation, did the program of study not qualify the graduate for the appropriate field?), timing of job acquisition (before or after beginning a program of study), employment persistence, etc., to know whether institutions were effective in preparing students for jobs. Using first job acquisition as an indicator of success also skirts the issue raised under graduation and certification – that business leaders are dissatisfied with the skills of the graduates they hire, so that workforce success is dependent on more than just job acquisition. The Wyoming study addresses a number of these issues by extending the follow-up period, including wages in the analysis, and also separately surveying employers to evaluate satisfaction with employees.

One advantage of using employment rates as shown in the Florida study, is that when combined with labor department information on areas of job shortage, high/low wage fields and analysis of emerging industries, this information can provide extremely useful data at the state and system level for assessing whether post-secondary institutions are producing graduates appropriate to the fields most critical for economic development, regardless of from what program they graduated. The data can also be useful to institutions in counseling students on what fields will be the most promising for future employment.

As shown by the state models currently in use, much of the employment and wage data gathering can be automated. Good, computerized data retrieval makes tracking and aggregating the data easier, allowing the long-term analysis and addition of factors such as wages which address the concerns about analyzing higher education's contribution to workforce success beyond first hire. The data file maintenance and the analysis can be done at the state level, and information provided to institutions can include their own service area employment projections.

Model 3: Qualitative Improvement Processes

Background

The third trend primarily involves participation of business representatives in on-campus groups evaluating students or programs through capstone courses, portfolio assessment or program review procedures. Supporters of this model argue that it is the only one which can account for institutional mission and program differences, and for the multi-dimensional nature of student outcomes[23]. It also offers local businesses the opportunity to specify what skills they need in their employees and gives institutions the opportunity to demonstrate where those skills are being incorporated into programs. Creation of a process improvement model is, in effect, creation of an action plan to address economic goals through program assessment and development.

Using Quality Improvement Processes

There are a number of variations on this model, most relying on institutions to create their own processes based on mission and program goals. In Nebraska, the Comprehensive Statewide Plan for Postsecondary Education specifies a completely decentralized focus with institutionally defined outcomes and measures[24]. State level accountability involves review of institutional 'portfolios' some of which contain workforce related factors such as job placement rates, narratives on employer partnerships and lists of business/community related activities.

In an effort to have better unified processes and plans, Nevada's Board of Regents for the University and Community College System includes specific statewide goals in their Master Plan that institutions must address in their plans in addition to their own missions[25]. Goal 1 is "A prosperous economy" and targets for achieving the goal include increasing programs focusing on state needs and critical shortage areas and focusing workforce development in areas of high growth potential. Institutions are directed to develop a continuous improvement model based on clear mission specification and evaluation relative to quality, efficiency and accountability as set out in a RAND study done for the state in March 2001[26]. However, no benchmarks are specified in the Plan, and the RAND study primarily focuses on measuring student learning as a means of informing a value-added assessment system.

Utility to Statewide Assessment

This format is not unlike the process of outside accreditation, and much of the data requirements would be the same for the institution. But from the state's viewpoint, it is difficult to evaluate the overall effect on statewide workforce development from program assessment data, and if there are many institutions in a state, burdensome to regularly evaluate all the portfolios. In addition, to have a true process improvement model, it is still necessary to define specific measures to benchmark – whether it is an increase in student knowledge, rate of mastery of a (measurable) skill, acquisition of jobs, or employer satisfaction with employed graduates. Measures against these benchmarks could form the basis for a better statewide analysis, but only if the definition and use of indicators is standardized across institutional improvement plans.

The advantages to this process model approach are generally at the institutional level: the depth and immediacy of the information available for program improvement; the development of a process-improvement culture at institutions; the public relations benefits to involving local business in institutional functions; the chance to make business contacts that are advantageous to students seeking employment; and the ability to respond to multiple institutional missions and program goals without burdening students and faculty with multiple tests. If the state or sector governing agency uses employment rates or employer satisfaction as the mandated indicator of workforce success, process improvement models can be developed to serve as an effective institutional mechanism for increasing those measures and demonstrating responsiveness to needs pinpointed by the indicator. Developing those processes could count as progress toward goals in an

accountability model even before indicator numbers rise, but they do not eliminate the need for a quantitative indicator.

Model 4: Employer/Employee Satisfaction

Background

The final approach to assessing how well institutions meet the needs of business and industry relies on post-employment surveys of either employers or the employed graduates. Surveys are widely used throughout higher education to track graduates' outcomes for a variety of purposes and evaluating current methods of surveying employers was the starting point of this research project.

Surveys, like employment data, vary as to timing and therefore what question they answer. In surveying employers, institutions and governing bodies must agree whether the goal is to ascertain the preparation level of incoming employees or the long term success of employees. All of the employer surveys found involved skills of recently hired employees. In surveying graduates, timing is a factor in another way: there is an effect on responses attributable to the respondents' most recent interaction with the institution. For example, if a student finds a job through the placement office of the college, it will positively 'color' their responses on how their education prepared them for work. It may take a few months or even years for them to judge the effectiveness of the actual education they received to their workforce success, as opposed to judging the effectiveness of the placement office.

Surveys also vary as to the locus of accountability – is the survey designed to assess the institution's benefit to the graduates they trained or to the businesses that hired them? Graduates who are employed may be asked about how their education helped them meet their goals, while business leaders evaluate graduates' skills in relation to the business' needs. These different points of view may lead to different results in answering the general question of how institutions are contributing to workforce success.

The SHEEO survey referred to at the beginning of this report inquired which states were requiring employer satisfaction measures in their accountability and assessment reporting for graduates of higher education. The responses indicated that in 2002 only a few were mandating such measures for assessing graduate success, although more were developing such requirements or were aware of campus activities related to assessing employer satisfaction that were not specifically mandated. SHEEO respondents also indicated that employer satisfaction was more often being assessed for workforce training participants than for baccalaureate graduates because customer satisfaction data is currently required by the U.S. Department of Labor in performance measures of programs funded under the Workforce Investment Act (the proposed 2003 reauthorization act would change this to a state-optional reporting requirement). The data collection procedures and reports related to WIA activities were also evaluated as potentially useful for assessing workforce success of graduates.

Using Satisfaction Survey Data

Surveys referred to in this section may be found in Appendix A.

Under WIA requirements, both customer (trainee) and employer satisfaction can be assessed by the American Customer Satisfaction Index (ACSI). This instrument has long been used to assess customer satisfaction with private sector corporations, and has been adopted by the federal government for use in improving customer service in a number of agencies. Because the questions in the survey are broad, generalized views of a customer's interaction with a program (e.g. "What is your overall satisfaction with the services provided?"), they must be asked of a specific population in relation to a specific service received to give useful data. Furthermore, the survey is structured not to address employer satisfaction with a graduate employee, but with the services provided by the institution to the employer. Because of these limitations, in its current form, the ACSI does not appear to be useful to an analysis of graduates' success.

In Maryland, the state profile of higher education includes overall employer satisfaction with colleges and universities in the state based on one question administered by the Census Bureau in an employer survey from 1997[27]. A somewhat more extensive Public Agenda survey in 2000 looked at public perception of the graduates, but like the Census survey, without an indication of which graduates are being evaluated, it is difficult to draw conclusions about the state's higher education institution's contribution to those perceptions. The results of these types of broad-based surveys may be more useful to those studying the issue of building public trust in higher education than in measuring workforce success.

The Maryland Community Colleges have a more extensive survey of their graduates. Questions about the employee's college program's relationship to their current job as well rating the employee's preparation in 12 skill areas and overall do require that the respondent have specific knowledge of the college's graduates[28]. Most of the data is used for internal assessment purposes. The positive response rate from the question on the graduates' "overall preparation for employment" is reported in the colleges' annual Performance Accountability Reports to the Maryland Higher Education Commission as their required indicator of employer satisfaction with the colleges' career program graduates.

Among the Florida state legislature's mandated measures for institutions are the goals of having a "skilled workforce" and "economic development". These are measured by both rate of employment of graduates (see above) and the perceptions of businesses and the community that graduates posses the skills they need. Since 1998, the FETPIP data base has been used to identify employers of graduates to survey. Each year, several occupational areas have been selected for follow-up.

The survey includes questions about recent employees' competencies in basic or "soft" skills and in specific skills that are unique to the occupation. The report summary[29] cautions that the survey is designed not to evaluate specific graduates, but to evaluate overall the skills being taught by the programs. Questions are designed to reflect the

"intended outcomes" of each curriculum. For example: education graduates are evaluated as to "Plans instruction that draws upon a variety of techniques…" while nursing graduates are evaluated as to how well they do "care planning" and engineering graduates on their "Ability to design & construct experiments…" In these examples, all three questions involve planning functions, but lack of comparability between the format and even the number of questions asked on each survey form makes it difficult to establish a reasonable benchmark score for employer satisfaction. Nor has Florida attempted to repeat the surveys by program area on a systematic timetable which would allow longitudinal follow-up; making it difficult to assess changes in scores even within a single program. The 2003 report focuses on differences in related programs' satisfaction scores for types of institutions (2-year vs. 4-year, public vs. private).

Illinois, like Connecticut, uses a matrix of state, common and mission specific indicators to address the Board of Higher Education's goal of assisting economic growth in the state[30]. They are currently developing a business survey at the state level; there is already a common survey of alumni. As of December 2003, the accountability reports were still including the results of a 1998 statewide employer survey. Questions on the phone survey included overall rating of the preparation of public higher education graduates, overall knowledge and skills of graduates; importance of higher education in training for particular employer's needs; and perceived responsiveness of higher education institutions to business needs. However, the administration of the 1998 survey was based on distribution of industries and business sizes in the state, not the distribution of graduates among them. The only determination of whether a business could assess the qualifications of public institution graduates was whether college graduates were employed by the company at all and, although respondents were told to consider state higher education graduates in their responses, there is no check on whether they determined who those employees were prior to responding.

A similar problem was encountered by the University of Texas-Pan American (UTPA) in 2001[31]. Their study of employer satisfaction selected businesses to survey by determining which businesses had recruited on campus. But after the survey was completed, it was determined from the responses that more than 19% of the businesses surveyed either did not have any employees from UTPA or (particularly for large businesses) could not determine which employees were UTPA graduates. Comments the university received from the survey completers included requests that the university identify the graduates they wanted evaluated, however, the researchers note that this would raise confidentiality problems.

One improvement in the UTPA survey over the Florida survey was having the same questions on skills administered to all respondents, regardless of industry represented. This allows overall scores and comparisons to be made. Additionally, respondents indicated for various skills both how important the skills were to the job and how satisfied they were with UTPA graduates' performance of those skills. In this way, importance and satisfaction are evaluated for the same skill introduced with the same wording. This is an excellent tool for program assessment and priorities can be set for

program development based on those skills that received both high importance and low satisfaction ratings among employers.

Western Washington University marked its 100th anniversary in 1998 by doing a multi-faceted assessment of how well the university was performing its mission. The assessment included a survey of employers of Western's 5-year-past graduates. Like the Florida study, they were able to use an existing data base from the Employment Security Department to identify employers of graduates, and confidentiality was maintained in how the data were handled and presented. An additional group of employers were identified from an alumni survey. Like the UTPA study, Western included an opportunity to rate the importance of various skills to their employees along with rating performance in those skills. Western's own innovation was having, for each graduate employee, both a human resource manager and a direct supervisor complete similar surveys. Although no statistical analysis of reliability was performed, the results of the two sets of surveys were remarkably consistent in their overall portrayal of skill requirements for various employment areas, and in where the university was doing the best and worst in training its graduates in those skills. The summary statistics provided both a good "benchmark" of the university's overall performance in training graduates for work, and some clear areas for the various departments to focus on in any program improvement plans[32].

In dealing with the problem of identifying graduates to employers, the University of Nevada in Reno also used a blended approach. In their 1994 survey of employers[33] they both contacted businesses that had recruited on campus (asking them to consider UNR graduates in their responses, but not identifying any) and contacted alumni for permission to survey their employers specifically (assuring the alumni that the university was looking to rate the institution not the individual). The researchers noted that while the first method leaves uncertainty concerning who, exactly, respondents are considering when they complete the survey, the second method leads to self-selection of graduates – with the assumption that those who feel their employers are dissatisfied with their performance are more likely to refuse to participate. They felt that the combination of the two data sources would provide a good data distribution, although in the final analysis, they did note a positive response bias. The use of alumni-identified employers was dropped in subsequent survey years.

In the Maryland Community Colleges employers survey discussed above, permission is also sought from the graduates to contact their employers and those employers surveyed are asked to evaluate the identified employee. There is no analysis of how this selection procedure might have affected the survey pool.

As in models of employment measures, the Wyoming Community Colleges once again have one of the most detailed plans for employer survey measures. Originally designed to survey graduates of WIA programs, the survey method involves contacting known employers of recent graduates and specifically identifying the graduates in their employ for them to evaluate when answering the questionnaire. This extensive and intensive project was designed and implemented in 2001 by the Wyoming Department of

Employment, Research and Planning, using the same UI data base as used for tracking graduate employment. The Community Colleges, Workforce Development Council and State Youth Council all had input into the project. The identifiable employers of all 2001 occupational graduates of 4 community colleges were mailed surveys. Privacy was maintained because the results were aggregated by program at the state level – no individual data was released by the Department of Employment, nor was data presented from programs with small numbers of respondents that might allow identification of individuals. Both the administration and analysis were at the state level.

An alternative survey model of asking graduates how well prepared they are for their jobs instead of asking employers has also been used to assess how well programs are preparing students for work. One such survey of community college graduates was found, again, in Maryland. The survey asks only whether graduates are employed and whether their degree is related to their employment[34]. These questions appear in similar form across many institutions' graduate survey instruments – data on program/job relationship is required by IPEDS for occupational program graduates and therefore appears in many states' community and technical college reports. Allowing graduates to assess degree applicability to their jobs bypasses the problem of assigning relationships between CIP and SIC codes, and the problem of the limitations of 1:1 program to industry assumptions about hiring. However, no study was found which asked graduates to assess how well prepared they were in specific skills in relation to the needs of their job. In the Wyoming Community College 2001-2002 Performance Report, students who transferred to the University of Wyoming were asked about specific skills (e.g. writing skills, speaking skills) they wished they were better prepared in prior to transferring – this format may have the potential to be expanded to allow graduate employees to rate their skills training.

Utility to Statewide Assessment

Employer surveys that are not designed to capture employers' impressions of specific employees or institutions are too generalized to be useful for either state or institutional accountability or planning purposes. Alternatively, when specific individuals are identified for survey respondents, there are problems of confidentiality and administration. With surveys of graduates, responses are affected by satisfaction with current employment status and overall ties to the graduating institution, but the ability to tie outcomes to graduates' original goals and the ability to track program to job field relationships make this data a useful addition to overall assessment and planning – particularly where graduates from multiple fields of study are required to meet the needs of a particular industry.

Even with these limitations, data from such surveys can be useful for state and system level analyses. For state purposes, it is important to have at least some of the same survey questions used across institutions and programs and for administration of the survey to be standardized. To facilitate this, the survey could be administered at a system or state level to take advantage of economies of scale and to relieve institutions of additional reporting requirements – as with employment data, an institution's results can

be provided back to it with additional breakdowns and other data as needed. The larger scale of the data collection and reporting makes it easier to protect individual information as well.

If good survey instruments can be agreed upon, and reasonably specific data acquired (with regard to who is being evaluated), then reliable, quantifiable data could be available for many types of analyses by state, region, industry, field of study, etc. One current problem is that none of the surveys have been validated against some other measure of employee competence. Several verification models might be useful – a comparison of employee and employer ratings on the importance of various skills for a particular job, or a comparison of employer ratings of skill importance in a particular job with an instrument such as the job skills profile generated by WorkKeys®. A similar comparison could be made between employer ratings of satisfaction with employee's skills to some standardized measure of those skills. These types of studies would have to be large enough in scale to allow generalizations about the accuracy of the survey instrument.

Employer or employee satisfaction data as it stands now could be used as one performance measure in a process improvement model, adding to the usefulness of process improvement to both statewide and institutional analyses. Alternately, if employment rate is the performance measure being assessed, employer satisfaction data can be used as a check to validate that employment does equate to filling the needs of business. Alumni surveys would also act as a check on employment data, especially in evaluating whether program of study impacted employment even if the two are seemingly unrelated areas.

Research and Recommendations from Other Organizations

Many organizations are looking at the questions surrounding the accountability of higher education to the workforce. Some, like the National Governor's Association (NGA), approach the question from the point of view enhancing economic development[35], others, such as the American Association of Colleges and Universities (AACU) are concerned with redefining institutional accreditation[36] – but all discuss measuring outcomes of higher education and all include the assumption that part of higher education's mission is preparing workers. As one essay notes, although colleges and universities do more than simply prepare students for jobs, "Ours is a society based on work"[37]. Therefore, higher education must include in its accountability measures some meaningful estimate of higher education's contribution to this working society.

The NGA Center for Best Practices urges governors to implement policies to connect workforce development to economic needs through education, to build a stronger education pipeline partly by funding postsecondary education institutions based on demonstrated performance, and to focus on meaningful outcomes including income, skill level and job advancement of graduates[38]. This approach argues for a long-term

employment follow-up, and uses Florida's FETPIP tracking system as an example of a serious investment in data systems to inform higher education accountability.

The Southern Regional Educational Board (SREB) also recommends a variety of indicators to measure higher education's performance relative to goals, including using graduates' employment and income information to assess how higher education is helping the state respond to changing social and economic conditions[39]. They cite certification and licensure rates and employers' assessments of graduates as program measures rather than state measures – although good program assessment is necessary to inform good public policy decisions. As was found in the research for this report, SREB also notes that after a decade of reporting on higher education, most states have not established benchmarks for the indicators they are using. Significantly, Measuring Up, the Federal Government's State by State Report Card for Higher Education, compares states on various measures, but sets no benchmarks either – other than establishing a national average for various measures. While this data is essential to building a picture of higher education – most states had no idea what the distribution of these measures was prior to the publication - the report is not a tool for setting improvement goals.

Preliminary Findings and Recommendations

As presented in this background analysis, the discussions, plans and projects for evaluating higher education with regard to its workforce and economic contributions are legion. As more states are making explicit the link between economic development and higher education, the need to assess the contributions of the latter to the former is becoming more apparent, as is the lack of information available to do so. Most of the states' long-range plans lack specific measures and benchmarks, or incentives to develop them. In many cases, simply adopting business related goals constitutes adequate action on addressing economic needs by higher education institutions.

The elements of a good assessment process are out there: Florida's and Wyoming's employment tracking systems; Connecticut's and Illinois's hierarchies of state, system and institutional measures tied in to state-defined goals; New Jersey's efforts to define industry clusters to focus on rather than specific job openings; Nevada's attempt to put in place continuous improvement models informed by value-added measures; several institutions' use of annual employer satisfaction surveys and the efforts to tie employer satisfaction surveys more directly to actual employment. Several employer survey forms are being used on a regular basis – but they have not been validated against other measures of satisfaction or skills.

Evaluating the data from the studies included in this report, possible next steps in developing a comprehensive model of workforce success include:

1. Discussing the establishment at the state level of an explicit link between higher education and economic/workforce development goals.
2. Using employment outcome as opposed to employment potential (degrees earned, licensure and certification granted or skills mastered) as a more direct measure of higher education's contribution to economic development.
3. Development of an automated employment/education tracking system at the state level that allows individuals' progress from student to employee to be followed. Inclusion of longitudinal employment and salary data and access to information from surrounding states increases the utility of such a system.
4. Analysis of graduate employment data in relation to current and projected industry needs as supplied by the state's labor department.
5. Creation and validation of a survey of employer satisfaction that is linked to specific graduates so that the information gathered is less indicative of general impressions of higher education and more indicative of how specific programs or institutions are addressing industry needs.

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