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ABSTRACT

This paper discusses issues surrounding the use of licensure examination results as measures of outcome in institutions of higher education. Based on informal telephone surveys of several state university systems, and on information obtained from national certification organizations, faculty experts, reviews of the literature, and the experience of the State of Florida, the study finds no uniformity of opinion regarding the use of certification and licensure examination results to assess academic programs; examinations are seen more as a measure of student ability than program validity. Appendixes include: a list of national examination agencies by discipline; brief synopses of survey results of state universities and systems conducted from December 1997 through March 1997; a table of national licensure information by discipline; and a short monograph on the State of Florida's experiences in obtaining pass rate data. (CH)

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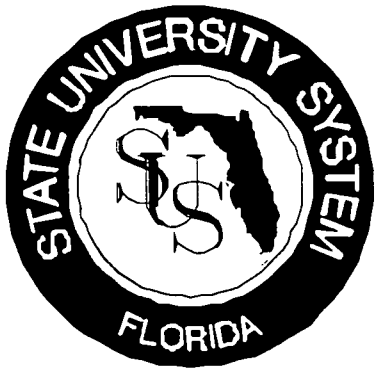
Licensure Examination Results as Outcome Indicators:

Issues and Challenges



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Licensure Examination Results as Outcomes Indicators: Issues and Challenges

Abstract

As accountability and performance based budgeting become increasingly prevalent in higher education, quantifiable outcomes measures have gained in popularity. A measure that has initial appeal is licensure examination results. However, the measure is not yet widely used, due primarily to difficulties in obtaining data, and is fraught with issues which need to be addressed in order to obtain meaningful information. The paper discusses the extent to which the measure is used in several systems of higher education, the issues surrounding pass rates on examinations, and provides a list of national organizations which administer licensure examinations, to assist researchers interested in the use of this measure.

Introduction

Outcomes measures which may be obtained with relative ease and not much additional expenditure have gained popularity as increased pressure has been applied to colleges and universities

to provide quantifiable data about their programs and graduates. The results of licensure examinations as an indicator of outcomes has a particular appeal because it is a quantitative measure and is directly related to the employability of an institution's graduates. While licensure examination results can prove useful as an outcomes measure and as a means to curricular improvements in academic programs, the ease with which the data may be obtained varies widely by state and by discipline. In addition, a number of issues should be taken into consideration when interpreting the data in order to understand the meaning of the information gathered.

The paper presents and discusses issues which should be taken into consideration and the challenges faced in the use of licensure examination results as a measure of outcomes in institutions of higher education. The discussion is based on telephone surveys of several state university systems, national entities responsible for certification examinations, faculty experts in various disciplines, review of publications and documents regarding licensure, and experiences in Florida, a state which has had greater access to licensure information than many others.

Certification and Licensure Examinations

What are certification and licensure examinations, and what is the difference between the two? Both types of examinations test the knowledge of an individual in a particular discipline, to assure a certain level of competence. Licensure is granted by the state, whereas certification is granted by a professional organization, and a certification examination may be developed and administered by a national entity such as a commission, a council or an association. Some national associations contract with a testing service, such as the Educational Testing Service (ETS) to develop and administer the examination. Passing a national certification examination is often one criteria for obtaining state licensure. In the case of some disciplines, a state may use a national examination and supplement it with a state-specific portion of the examination, usually dealing with the state laws relating to the profession. Such examinations may be called licensure examinations. Some professions may have certification examinations, but passage of the examination may not be required for employment and licensure may not exist (such as vocational rehabilitation counseling and health information management in Florida.) In this case, practitioners seek certification not because of necessity, but to reassure clients

of their capabilities.

It is important to understand the purpose of licensure and certification examinations before using pass rates to make assumptions about the quality of educational programs. In most professions, certification or licensure is intended to ensure a threshold of competence on the part of the examinee to safeguard the public. While a pass rate that falls significantly below the national average should be cause for concern and further analysis, a high pass rate does not necessarily signal a high quality program. The educational programs should be preparing students to do far more than simply meet a threshold of competence. It is possible that two programs of similarly high pass rates have vastly different levels of quality, where one program simply prepares the students to pass the examination, while the other goes much further.

Disciplines with National Examinations

Disciplines offered at the bachelor's level or higher, in which national examinations are available and widely used include accounting, architecture, landscape architecture, interior design, clinical laboratory sciences (medical technology), clinical social work, dentistry, dietetics and nutrition, engineering, law, marriage and family therapy, medicine, mental

health counseling, nursing, nursing home administration, occupational therapy, pharmacy, physical therapy, psychology, school psychology, radiological sciences, rehabilitation counseling, respiratory therapy, speech-language pathology and audiology, teacher education and veterinary medicine. Other disciplines which are offered at an associate degree level also have national certification examinations. In some instances, disciplines may have national examinations corresponding to programs at the associate and at the bachelor's level. In a few disciplines, such as nursing, both associate and baccalaureate degree students sit for the same examination. Appendix A contains a list of the national entities responsible for widely used certification/licensure examinations.

Use of Examination Data by States

An informal telephone survey of several state university systems revealed that some states are already using licensure pass rates as a performance indicator at the state level, either as part of an accountability report or performance based budgeting. These states include North Carolina, Tennessee, Texas and Wisconsin. A complete list of states surveyed is included in Appendix B. North Carolina uses pass rates as a component of the University Assessment Plan. They are also considering using it

as a measure for the Incentive Funding Plan. Tennessee uses pass rates as a measure for performance based funding. It is one of 10 variables, accounting for 5% of the budget. Tennessee has devised a formula for this purpose which uses pass rates and a sliding scale based on the number of first time test takers (pass rates with many takers are weighed more heavily). The formula generates points for performance based funding. Pass rates are a measure in the performance based funding in Texas, although no funds are tied directly to this measure. Texas is planning to incorporate pass rates into the program review process. In Wisconsin, pass rates are one indicator on the accountability report. All these states only use pass rates on certification/licensure examinations in selected disciplines, such as nursing, law and medicine. The decision on which disciplines to use is based on ease of obtaining the data and how critical passage of the examination is to practice.

In Florida, South Carolina, and Colorado, pass rates are one indicator being considered for performance based funding in the near future. Florida used pass rates as an indicator in the accountability report in 1993, but they have not been used since then. However, pass rates continue to be used as one indicator of program quality in systemwide program reviews (a practice of

long-standing). A few states such as California, Arizona and Georgia have rejected the concept of using licensure pass rates as an indicator.

Problems encountered by state systems include: the limited availability of pass rates from national entities; the financial burden of obtaining pass rates from some agencies; the interpretation of the rates once obtained; and the non-existence of some type of national database or software coursefile where data can be entered, configured, and used for specific research interests.

Data Considerations

Accessibility. National and state agencies responsible for the examinations have traditionally viewed the examinations as tools for assessing the competence of individual test-takers, not as indicators of performance for the programs and institutions which prepared the test-takers. In fact, several agencies contacted for information cautioned against the use of pass rates for evaluating programs. Because of this viewpoint, obtaining data for program evaluation can be quite a challenge; many agencies are not "geared up" to provide such data. The extent to which useful data is collected, recorded, and made readily available varies greatly by discipline and agency. Some national

associations routinely provide the data to the institutions. Others either do not collect data in a form that would be useful to the programs or do not make a practice of providing the data to the programs. Some charge a fee to provide the data.

State systems or university central administrations may either request the affected programs to provide the pass rates to them, or obtain them directly from the national entity or state agency responsible for the examination. The benefit of requesting data from the programs is that this is probably the easier method since programs have better access to the information than a central administration or system office. The benefit of a central office obtaining data directly is that one has more control of the data included in the report.

In Florida, obtaining data from the appropriate state agencies is often a challenge. The ideal situation would be for the appropriate agencies to collect the relevant information, store it in an easily accessible form on a database, whereby institutions of higher education could tap in to the database to not only obtain pass rates but also conduct more in depth studies which could examine the pass rates by cohort, by race and gender, subtests, the average number of attempts to pass all subtests, and other variables. In Florida, the State University System,

the Division of Community Colleges, and some private universities are attempting to work with the Department of Business and Professional Regulation (DBPR) to bring about access to the data through a database.

Subtests. Many examinations, such as those in psychology, clinical social work, medical technology, speech pathology and accounting, consist of two or more subtests. Often in such cases a single overall pass rate for all subtests attempted will be reported. This means that a person who sits for two subtests and passes them both will be counted as a pass, and a person who sits for three subtests and passes two will be counted as a fail. However, in some disciplines such as architecture, only the pass rates for each subtest are reported. Examinees may retake only the subtests they failed. These factors make it difficult to interpret pass rates for repeat takers. Also, reporting pass rates on a number of subtests per discipline does not lend itself to brevity and simplicity which are important in reporting pass rates to the general public and legislators. For public reporting, it may be best to provide only the overall pass rate of first time takers (if available), rather than results on subtests and pass rates for repeat takers. Information on individual subtests is useful for curricular review purposes.

Test-takers. Individuals who sit for an examination for the first time are referred to as "first time takers." Those who retake the examination or subtests that they failed on the first try are "repeaters." Data is most useful if it distinguishes between first time takers and repeaters. Some national entities and state agencies provide data on these two types of test-takers separately, but some will only report first time takers, and others will combine the two. Combining first time takers and repeat takers is not advisable because it skews the data and makes useful interpretation difficult. Usually the repeaters tend to have significantly lower pass rates than the first time takers. Also, the relationship between the quality of the education received in the program and performance on the test is not as clear since time and other experiences have intervened. The most useful, most widely reported, and simplest measure to report is the pass rate of first time takers. That is, what percentage of the graduates from a particular program, taking the examination for the first time, received a passing score on the examination? In addition to this measure, it may be useful to know what proportion of your graduates do succeed in passing the examination within a reasonable period after graduation (e.g. 5 years). In ascertaining the economic impact of an institution's

programs on the state or local community it may be useful to have data on all graduates who eventually become certified or licensed in a field.

Annual data. Most examinations are administered more than once per year. When obtaining data it is advisable to request sittings for a complete year. Reporting agencies may not always specify if they are providing you with data on all the sittings for a given year; it is best to probe, and also to specify what constitutes the beginning and ending of the reporting year.

Evaluating Pass Rates

A program's pass rate for a given year is the percentage of graduates from that particular program who received a passing score on all subtests attempted within the given year. Once pass rates are obtained, what does one do with them? It is not very illuminating to simply report pass rates for various disciplines for a given institution, without any points of reference. For example, whether a 75% pass rate is good news or bad news will depend on the discipline, and whether it is better or worse than previous pass rates for a particular program. The two reference points that are generally used are 1) national and/ or state pass rates for the examination, and 2) previous history of pass rates for graduates of the particular program. The passing

scores of the national examinations for most disciplines are set by the national agency responsible for developing, administering and scoring the examination. Individual states usually accept the passing score suggested by the national entity. If there is a change in passing score, it is usually increased by 5 points, thereby setting a higher standard for state competency and passage of the examination. Additionally, some states have developed their own section of the examination which tests candidates on the laws and rules of that state which govern the particular discipline. Normally, the passing score for this section of the examination is similar, if not the same, as that set for the national examination. Therefore, once the practice in a given state with regard to passing scores in various examinations is determined, one can make use of the national and state pass rate for comparison purposes. In most cases, national pass rates for various examinations do provide a useful point of comparison. These pass rates can be obtained through each national entity responsible for the respective examinations. A list of many of these national entities, their addresses and telephone numbers appears in Appendix A. National pass rates vary considerably by discipline, ranging from high rates of 90% and above for several allied health disciplines, to low rates of

20% such as the Certified Public Accountant (CPA) examination.

Criticality for Practice in the Profession

How critical is passing the certification or licensure examination for getting ones first job in the profession? This is an important question which should be asked before deciding which disciplines to include in a measure using pass rates as an outcomes indicator. Criticality can have a considerable impact on the pass rates themselves, as well as how important a measure of program quality the pass rates are. If passing the examination is not critical to obtaining their first job in the profession, students are not highly motivated to take the examination immediately upon graduation, or to perform very well on it. This may affect the pass rates through no fault of the educational program. Criticality can vary somewhat by state, depending on the state laws governing practice in the various professions. The criticality and other academic/licensure information, of each discipline, is listed in Appendix C.

In general, there seems to be an interesting correlation between the national pass rates and criticality for employment. Professions in which criticality is high generally have high national pass rates, and professions in which criticality is moderate to low generally have moderate to low national pass

rates. In most of the health disciplines, criticality is high. In these disciplines, unless you pass the examination you cannot practice at a professional level in the discipline, and the financial consequences to the individual are severe. The expectation of almost all (if not all) students entering such programs is that they will pass the examination upon graduation. In contrast, in disciplines such as architecture and law the criticality is moderate, and in disciplines such as engineering and accounting, the criticality is relatively low. In law, for example, it is possible to become employed in many professional jobs in the field of law, other than practice as an attorney, without passing the bar examination. In engineering most students do not need to take the Fundamentals of Engineering examination for entry level positions in Engineering. One registered engineer may have a large number of nonregistered engineers working under his/her supervision. The criticality of being a registered engineer is higher in some engineering disciplines, however, such as civil engineering. In accounting, employers do not expect graduates to have passed the CPA examination prior to their first job. In both engineering and accounting, not passing the examination may be a barrier to advancement in certain types of jobs. Therefore individuals may

take the examinations a few years after graduation. This brings up the issue discussed next, i.e. the time elapsed between graduation and taking the examination.

Time elapsed

Some disciplines, such as architecture, engineering (to become a registered engineer), and dietetics require an internship or some practical experience in the field prior to sitting for the examination. This experience is incorporated into some degree programs, while in others the experience occurs after graduation (this varies by discipline as well as by program within a given discipline). The duration of the experience varies by discipline. In programs where the experience is gained after graduation, and the duration of the experience is a year or more, the more tenuous are the conclusions one can draw about the program based on the examination results. The likelihood that a significant portion of the graduates may not be reported back as part of the institution's pass rates increases, particularly when graduates (perhaps the most able ones) obtain work experience in other states or other countries. Also, the examination may be practice-based, and the results may be as much a reflection of the intervening practical experiences of the students as of the

academic program from which they graduated.

Conclusion

Opinions vary as to the validity of using certification and licensure examination results to assess academic programs. The overwhelming response to the authors' query of testing agencies regarding the usage of examination results to improve curricula was one of caution. They felt that the examinations are more a measure of the student's ability than of program quality. Certain agencies expressed their concern over the use of licensure pass rates as a measure of program quality, stressing that their examination is designed to test the candidates' practicum experiences as well as their educational background. For example, the examination in architecture is designed to test the knowledge of the candidate after the two to three year practicum that is required of all examination candidates. Some state systems of higher education and many academic programs within the Florida State University System have questioned the use of examination pass rates to judge the academic quality of programs. The discussions surrounding this issue in regard to accountability and performance based budgeting are in the early stages; in addition to the problems of obtaining data, there is uneasiness on the part of entities responsible for the

examinations as well as the academic community regarding the interpretation of the data. Based on experiences in program review and accountability, examination of data, discussions with entities which administer examinations, faculty, and other state higher education systems, the authors offer the following thoughts and recommendations:

1. Pass rates above the national or state rates are not necessarily indicators of high quality educational programs. Certification and licensure examinations are generally intended to ensure a threshold of competence for the protection of the public. On the other hand, pass rates significantly below the national or state rates should always be cause for self-scrutiny in a program, and act as a trigger to examine the program for deficiencies, provided the number of test takers is not so low as to make the pass rate meaningless. There may be reasons for the low pass rates other than a problem with the quality of the program, but one should examine the relevant information before drawing conclusions or dismissing the pass rates.

2. It is almost always useful for programs to review the examination results and pass rates of their graduates. Some disciplines, in which passing the examination is critical for practice, are more accustomed to such self-scrutiny than others.

Even in disciplines where passing the examination is not critical for practice, but many students enter with the goal of becoming certified or licensed, programs can glean useful information by examining the results, and should do so. Results for any one year may be an anomaly; a trend over several years would be more useful. After careful analysis of examination results and other relevant factors, programs should be willing to make curricular changes when necessary.

3. To this end, there should be a greater willingness and ability on the part of entities responsible for developing, administering and reporting examinations, to collect and provide relevant aggregate data to programs. Organizations such as the Association for Institutional Research (AIR) and legislators interested in greater accountability could be of great help in creating a national milieu where aggregate data on examination results are more readily available. It would also be of assistance to institutional researchers if there was a central data bank which contained the national pass rates in various disciplines against which to compare program pass rates.

3. A distinction should be made between scrutinizing pass rates at the program level and reporting pass rates at a state level for accountability and performance based budgeting purposes. At

the program level, the many complexities and caveats peculiar to a particular discipline, such as low criticality, time elapsed due to field experience requirements, etc. can be taken into account when interpreting the pass rates. Examining pass rates within the context of program reviews which involve external experts in the discipline is quite useful and brings a level of objectivity to interpreting a program's pass rates. At a state level, where examination pass rates are one of several measures reported, and the audience is not given to mulling the complexities of individual disciplines, it is best to limit reporting to disciplines where the criticality of passing the examination is high and no significant time intervenes between graduation and the examination due to a required field experience. Here the reporting can be relatively straightforward, and should include the annual pass rate for first time takers and a reference point such as a national or state pass rate for first time takers. Attempting to include information that does not lend itself to simplicity and brevity in an arena ruled by sound bites is likely to foster misunderstanding.

4. If pass rates reported for accountability and performance based budgeting are limited to disciplines in which the data is

relatively straightforward (high criticality, no significant time lapse after graduation), is it reasonable to judge the entire institution, and perhaps allocate a portion of the institution's budget, based on the performance of students in such a limited number of programs? The majority of the programs are likely to be in one discipline (health), which further limits the applicability.

5. Rather than individuals removed from higher education making judgements about entire institutions based on simple pass rates for a few programs, it may be preferable to hold institutions accountable, and they in turn hold programs accountable, for carefully scrutinizing the pass rates in relevant disciplines, and making changes when they are warranted.

Appendix A

National Examination Agencies

ACCOUNTING	American Institute of Certified Public Accountants 201 Plaza Three Harborside Financial Center Jersey City, NJ 07311 (201) 938-3429
ARCHITECTURE	National Council of Architectural Registration Boards 1735 New York Avenue, N.W., Suite 700 Washington, DC 20006 (202) 783-6500
CLINICAL SOCIAL WORK	American Association of State Social Work Boards 400 South Ridge Parkway, Suite B Culpeper, VA 22701 (540) 829-6880
DENTISTRY	Joint Commission on National Board Dental Examinations Southern Regional Testing Agency, Inc. 303 - 34th Street, Suite 7 Virginia Beach, VA 23451 (804) 428-1003
DIETETICS	Commission of Dietetic Registration 216 West Jackson Boulevard Chicago, IL 60606-6995 (312) 899-0040
ENGINEERING	National Council of Engineering Examiners and Surveyors P.O. Box 1686 Clemson, SC 29633-1686 (803) 654-6824
INTERIOR DESIGN	National Council for Interior Design Qualification 50 Main Street White Plains, NY 10606-1920 (914) 948-9100

National Examination Agencies

LANDSCAPE ARCHITECTURE	Council of Landscape Architectural Registration Boards 12700 Fair Lakes Circle, Suite 1109 Fairfax, VA 22033 (703) 818-1300
MARRIAGE and FAMILY THERAPY	Professional Examination Service 475 Riverside Drive New York, NY 10115 (212) 870-3384
MEDICINE	The Federation of State Medical Boards of the U.S., Inc. 400 Fuller Wiser Road, Suite 300 Euless, TX 76039-3855 (817) 868-4000
MENTAL HEALTH COUNSELORS	National Board of Certified Counselors, Inc. 3-D Terrace Way Greensboro, NC 27403 (910) 547-0607
MIDWIVERY	North American Registry of Midwives P.O. Box 15 Linn, WV 26384
NURSING	National Council of State Boards of Nursing 676 North St. Clair, Suite 550 Chicago, IL 60611-2921 (312) 787-6555
NURSING HOME ADMINISTRATORS	National Association of Boards of Examiners for Nursing Home Administrators 808 17th Street, NW, Suite 200 Washington, DC 20006 (202) 223-9750

National Examination Agencies

OCCUPATIONAL THERAPY	National Board for Certification in Occupational Therapy 800 South Frederick Avenue, Suite 200 Gaithersburg, MD 20877-4150
PHARMACY	National Association of Boards of Pharmacy 700 Busse Highway Park Ridge, IL 60068 (847) 698-6227
PHYSICAL THERAPY	Professional Examination Service 475 Riverside Drive New York, NY 10115 (212) 870-3384
PHYSICIAN ASSISTANT	National Commission on Certification for Physician Assistants 6849 B-2 Peachtree-Dunwoody Road Atlanta, GA 30328 (770) 399-9971
PSYCHOLOGY	Professional Examination Service 473 Riverside Drive New York, NY 10115 (212) 870-3384
RESPIRATORY CARE	National Board of Respiratory Care, Inc. 8310 Nieman Road Lenexa, KS 66214 (913) 599-4200
SPEECH-LANGUAGE PATHOLOGY	Educational Testing Services Princeton, NJ (800) 772-9476
TEACHER EDUCATION	Educational Testing Services Praxis Series Princeton, NJ (800) 772-9476

National Examination Agencies

VETERINARY MEDICINE	Professional Examination Services 475 Riverside Drive New York, NY 10115 (212) 870-3384

Appendix B

Survey of State Universities and Systems
Conducted December 1996 to March 1997

Arizona

Contact: Arizona Board of Regents
2020 N. Central Avenue, Suite 230
Phoenix, AZ 85004-4503
(602) 229-2500

The Board of Regents is in the process of developing various measures of performance. Performance based budgeting has been looked at by the legislature, but not implemented. After reviewing several indicators to possibly use for their measures, the Board decided that licensure exam pass rates were not quality measures.

Arkansas*

Arkansas is currently computing pass rates on the nursing and national teachers exam. They obtain the data from the individual boards responsible for each discipline collected, State Board of Nursing and State Department of Education Certification Office, respectively.

California

Contact: California Postsecondary Education Commission
1303 J Street, Suite 500
Sacramento, CA 95814-2938
(916) 445-7933

Currently, the California System does not have any performance based funding initiatives or comprehensive accountability model in place for their universities. They are required to publish an annual Performance Report that outlines performance indicators used to measure programs within the system. Licensure pass rates are not one of the indicators used. The information published gives a summary of the system through the following types of information: Characteristics of the California population, Fiscal support for the universities, Student preparation for college, Student access to college, and Student experiences and outcomes.

Colorado

Contact: Colorado Commission of Higher Education
Colorado History Museum
1300 Broadway, Second Floor
Denver, CO 80203
(303) 866-2723

This system is currently developing a quality indicator system to be used with performance based funding. The committee charged with the responsibility to work on this has recommended that the licensure pass rates for teacher education be used as an indicator of those programs in the system. The interviewee did caution anyone exploring the possibility of using this type of measure not to use it as the only determinant of program quality as they are already experiencing problems with this indicator.

Georgia

Contact: Board of Regents of the University System of Georgia
224 Washington Street, SW
Atlanta, GA 30334
(404) 656-2202

The assessment of student learning outcomes is an institutionally defined process. Each individual university is responsible for gathering data to assess program quality and student learning. At the university level, budgeting is linked to assessment, so indicators must be collected. This year, the Office of Fiscal Affairs proposed standard measures for all universities to collect, but steered the universities away from gathering information/data on retention, enrollment, and licensure pass rates because they "don't provide you with feedback to improve your programs. They might not really indicate student learning or program quality, but issues in the economy or society that impact the university."

Kentucky*

SHEEO and the Kentucky Council on Higher Education reports that Kentucky is currently collecting pass rates for accountability reporting for fields of dentistry, medicine, law, nursing, and teaching. Discussions are ongoing about the possible use of other disciplines. These pass rates are used to compare institutions with dental, medical, and law schools based on the number of graduates from the previous year who took the respective licensure test for the first time and the number who passed.

Pass rates obtained by the Kentucky Council on Higher Education (CHE) are provided to campuses with lists of their graduates of first-professional programs with the following elements: major, SSN, last name, first name, took exam (y/n), pass exam (y/n). Institutions are permitted

to request amendments to CHE's analysis if they have documentation of specific exceptions.

Maryland*

The public campuses in Maryland are required to report this information as one of the indicators in the annual performance accountability report submitted to the Commission. Specifically, campuses report the percentage of students who passed licensure and certification examinations in each academic field offered at the institution for which such tests are conducted. The data sources used and method of calculation are the responsibility of each campus.

New York

Contact: SUNY System Administration
State Education Department
Albany, NY 12234
(518) 443-5355

The Administration is currently studying performance based budgeting, but has not begun any formal process for implementation. The Office of Policy Analysis and Planning publishes a Performance Indicators Annual Report, but does not use it for funding purposes. It is used more as an indication of what/how the system is doing on certain indicators. While the BOR does oversee the system, it also has responsibilities for elementary and secondary education, as well. In turn, the campuses are more autonomous than is usually the case in a system. Licensure information, therefore, is used by individual campuses to assess program quality, teaching, and student learning. The BOR does not use that information to assess any campus programs, although they do store the information for the universities.

North Carolina

Contact: University of North Carolina General Administration
910 Raleigh Road
Chapel Hill, NC 27515
(919) 962-1000

The North Carolina System utilizes licensure pass rates as a component of its University Assessment Plan. The system is currently considering the use of licensure pass rates as well as other measures in an Incentive Funding Plan. The UNC-GA collects information on licensure pass rates from the individual national organizations of Nursing, Law, and Accounting. The Praxis/NTE scores are collected from the Educational Testing Service. These particular academic areas were chosen based upon the essentialness of obtaining a license to work in that field.

Rhode Island*

Rhode Island does not collect or review the results of professional licensure or certification examinations, with the exception of nursing. Pass rates are collected for the nursing examination because all three of the public institutions have nursing programs. Since no other examination is taken by all students at all institutions, the results are of less interest to Rhode Island Higher Education Administration.

South Carolina

Contact: South Carolina Commission on Higher Education
1333 Main Street, Suite 200
Columbia, SC 29201
(803) 737-2260

South Carolina's university system is currently studying the pros and cons of using specific indicators as performance measures in a move to permanently implement performance based funding. The legislature, in Spring 1996, passed into law a list of 37 indicators to be used in this process. The S.C. Commission now has the responsibility of developing measures, benchmarks, weights, etc. for each of these indicators as a part of their effort to implement the proposed indicators. One of the indicators reads: "Scores of graduates on post-graduate professional, graduate, or employment-related examinations and certification tests. 1) Percentage of total students taking certification examinations who pass the examination on the first attempt, and 2) Percentage of the total students who pass the examination on subsequent attempts."

Tennessee

Contact: Tennessee Board of Regents
1415 Murfreesboro Road, Suite 350
Nashville, TN 37217
(615) 366-4400

The Tennessee System does utilize licensure pass rates as indicators of program assessment and quality. It collects pass rates for the following major areas: Engineering, Allied Health, Law, and Medicine. These particular areas were chosen according to the criticality/essentialness of the license and whether the licensure agency makes it easy to obtain scores and other information. The pass rates are measures used for the performance based funding process set up by the legislature. It is just one of 10 variables used to determine allocations of funding for the universities in the system. Five percent of funds are determined through this method. The System uses the licensure pass scores as a means of making decisions about curricular revisions, accreditation, and performance based funding. Tennessee has developed a formula which uses a sliding scale based upon number of test taker and pass rates (pass rates with many takers are

weighted more heavily; only first-time takers scores are used). The formula is used to generate points for performance based funding. Using licensure pass rates as a measure generates a certain number of points to be used toward the performance based funding criteria.

Texas

Contact: Texas Higher Education Coordinating Board
Capitol Station
Austin, TX 78711
(512) 483-6101

The Texas System currently uses licensure pass rates as a measure of performance based funding, however there is no link between the measures and money received. The system collects pass rate information on the following academic areas: Law, Pharmacy, Nursing, Teacher Education, and Engineering. The Legislative Budget Board requests these scores from the national agencies, so there is little problem receiving the information on a regular basis.

West Virginia*

The State College and University Systems of West Virginia Central Office collect annual data on licensure and certification pass rates via paper forms from their 16 public institutions. They are mandated to collect this data for a legislatively-mandated document entitled, "The Higher Education Report Card".

The forms used to collect the data contain three elements (# examinees, # passing, and % passing) for the period July 1 - June 30. The forms also include a statement explaining that "individuals who have taken various licensure exams are not necessarily graduates. They may have completed only the course(s) required for licensure in accordance with the licensing agency."

Forms are collected on 8 licensure exams at the associate's level (Radiologic Technology, Medical Laboratory Technology, Nursing, Medical Records Technology, Nuclear Medicine Technology, Land Surveying, Emergency Medical Technology, and Dental Hygiene), 6 licensure exams at the bachelor's level (Medical Technology, Nursing, Dental Hygiene, Social Work, Teacher Education, Pharmacy, and Physical Therapy), and 9 licensure exams at the graduate/first professional level (Law, Dentistry, Medicine, Teacher Education, National Certified Counselor Exam, West Virginia Counselor Exam, Speech Pathology and Audiology, and Family Nurse Practitioner).

Wisconsin

Contact: Higher Educational Aids Board
131 W. Wilson Street, Room 902
Madison, WI 53703
(608) 267-2208

The Wisconsin System develops an annual system wide accountability report that lists 18 indicators. The system does use licensure pass rates as performance indicators, but only in the sense of measuring post-graduate success and only on the Nursing and CPA exams. They chose these two areas based on the number of programs within their system. Other programs in the system requiring licensure exams were not chosen either because of the low number of programs within their system, low number of students in the programs, or because of a problem with obtaining the pass rates from licensure agencies.

* Information was obtained from an informal electronic mail survey conducted by the New York State Education Department, Office of Higher Education Research and Information Systems; May 1997.

Appendix C

National Licensure Information by Discipline

DISCIPLINE	CRITICALITY **	NATIONAL PASS RATE	NATIONAL BOARD EXAMINATION	EDUCATIONAL REQUIREMENTS	INTERNSHIP REQUIREMENT	# OF RETAKES
Accounting	Low	20% for first time takers	National Uniform CPA Examination	bachelor's degree plus at least 30 semester or 45 quarter hours in excess of those required for bachelor's degree		retakes are allowed conditional to category of examinee (first time candidate; extended candidate; conditioned candidate)
Architecture	Medium to Low	Scores reported in percentiles for each section of exam	Architect Registration Examination	Graduate of an accredited architecture school	3 years for bachelors 2 years for Master's	Must pass all parts within 5 years
Clinical Laboratory Personnel	High	82% for first time takers	American Society for Clinical Pathology Board of Registry Examination	Possess either Doctorate, Master's, or bachelor's degree from accredited program	completed approved clinical lab personnel technician training program in general lab practice principles	Must retake only parts of exam failed. If failed twice, candidate must take 25 hours of continuing education. If failed three times, candidate must take one year of continuing education hours.
Clinical Social Work		82% for first time takers; 38% for repeaters	American Association of State Social Work Boards Examination	Does not specify	Supervised experience required	May retake either section failed; provided a passing score on Part I of examis valid for 24 mths. & Part II passing score is valid 5 years.
Dentistry	High	90% for first time takers of Part II exam	National Board of Dental Examiners Dental Examination	Part I taken in second year; Part II taken at end of fourth year	Does not specify	Must complete all three portions of exam within 13 month period to receive licensure
Dietetics and Nutrition	HIgh	88-90% for first time takers	Registration Examination for Dieticians	Bachelor's or post-graduate degree from accredited program	900 hours of preprofessional experience	not specified

**Criticality - Criticality of passing examination to practice in the field upon graduation. This index was devised by the authors; it may vary by state.

National Licensure Information by Discipline

DISCIPLINE	CRITICALITY **	NATIONAL PASS RATE	NATIONAL BOARD EXAMINATION	EDUCATIONAL REQUIREMENTS	INTERNSHIP REQUIREMENT	# OF RETAKES
Engineering	Medium to Low	60% - 70% first time takers	Professional Engineers Examination	Graduate of an approved 4 year engineering curriculum	Active 4 year record of engineering experience	May take up to 5 times; beyond 5, additional course work must be completed
Landscape Architecture		Passing scores given for each section of exam	Landscape Architect Registration Examination	Has completed accredited program in architecture	One year of practical experience	Can retake section of exam failed
Law	Medium	83.7% first time takers and repeaters	BAR/MPRE Examination	Holds Juris Doctorate from ABA accredited school	Does not specify	May retake unlimited number of times to achieve passing score
Marriage and Family Therapy			Association of Marital and Family Therapy Regulatory Board Examination	Does not specify	verification of supervised experience is required	May retake either section failed; provided that a passing score on Part I of exam is valid 24 months and Part II passing score is valid 5 years
Medicine	High	3 steps of exam; taken at different points in education; no nat'l. pass rate available	United State Medical Licensing Examination	completed the equivalent of 2 years of preprofessional, postsecondary education, prior to entering medical school.	Residency requirement for medical students	May retake exam 5 times within a seven year period, after which, applicant is no longer eligible for licensure
Mental Health Counseling		75% first time takers and repeaters	National Board of Certified Counselors Examination	Does not specify	Supervised experience required	May retake either section failed; provided that a passing score on Part I is valid 24 mths. & Part II passing score is valid 5 years.

**Criticality - Criticality of passing examination to practice in the field upon graduation. This index was devised by the authors; it may vary by state.

National Licensure Information by Discipline

DISCIPLINE	CRITICALITY **	NATIONAL PASS RATE	NATIONAL BOARD EXAMINATION	EDUCATIONAL REQUIREMENTS	INTERNSHIP REQUIREMENT	# OF RETAKES
Nursing	High	88% first time takers	National Council of State Boards of Nursing Examination	graduate of accredited nursing program		If fail R.N. exam, may be qualified for P.R.N. exam
Nursing Home Administration		80% first time takers	Nursing Home Administrators Examination	Holds bachelors degree from accredited institution	2000 hour nursing home administrator- in-training program	must pass both sections of exam within 1 year from first failure
Occupational Therapy	High	95% for first time takers	American Occupational Therapy Association Exam	Completed educational requirements of accredited occupational therapy program	Supervised fieldwork of 6 months	May retake after resubmittion of application and fee
Pharmacy	High		National Association of Boards of Pharmacy Licensing Examination		1500 hours in approved Pharmacy practice	May retake part of exam failed to obtain passing score on each part of exam
Physician Assistant	High	89.9% first time takers				
Psychological Examiners	Medium		State Psychology Boards Examination	Received Doctoral level psychological education from accredited program	4000 hours or 2 years of experience in field in association with or subordinate to licensed psychologist	May retake part failed to achieve passing score
Physical Therapy	High	91.67% for first time takers	National Physical Therapy Examination	Graduate of accredited physical therapy program	none	May retake 3 times; on 4th attempt, applicant must complete internship or additional coursework; no longer eligible for licensure after 5 attempts

**Criticality - Criticality of passing examination to practice in the field upon graduation. This index was devised by the authors; it may vary by state.

National Licensure Information by Discipline

DISCIPLINE	CRITICALITY **	NATIONAL PASS RATE	NATIONAL BOARD EXAMINATION	EDUCATIONAL REQUIREMENTS	INTERNSHIP REQUIREMENT	# OF RETAKES
Respiratory Care	High (varies by state)	82.75% for first time takers	National Board for Respiratory Care exam for entry-level certification	Graduate of approved program for respiratory therapy	temporary certificate issued until notified of elegibility for certification or until one year from date of graduation	Does not specify
School Psychology			Examination for Professional Practice in Psychology	Received Doctoral level psychological education from accredited program	4000 hours or 2 years of experience in field in association with or subordinate to licensed psychologist	May retake part failed to achieve passing score
Speech-Language Pathology and Audiology	Medium to High	S/L Pathology - 81.4%; Audiology - 78.9%	National Examination in Speech-Language Pathology or Audiology	Received Master's Degree from accredited institution	300 clock hours of supervised clinical practice; 200 hrs. of that in speech-language pathology	May retake portion of exam not passed to achieve passing score
Surveyors and Mappers			Professional Surveyor and Mapper Examination	graduate of approved college or university	4 years work as subordinate to professional surveyor	May retake parts failed at regularly scheduled exam sitting
Teacher Education		*Each state may develop and administer own exam; may differ from NTE	National Teachers Examination	Received degree from accredited program	Supervised teaching internship of length determined by program	May retake to achieve passing score
Veterinary Medicine	High	87.6% first time takers	National Board Exam of Veterinary Medicine	graduate of accredited College of Veterinary Medicine		May retake portions of exam failed to achieve passing score

**Criticality - Criticality of passing examination to practice in the field upon graduation. This index was devised by the authors; it may vary by state.

Appendix D

Appendix D

NOTES ON FLORIDA'S EXPERIENCES IN OBTAINING PASS RATE DATA

Florida's Department of Business and Professional Regulation (DBPR) includes a Bureau of Testing which produces examination statistics for more than 50 professions. Each profession has a board that creates their own rules, regulations and methods for administration. Different departments within DBPR have different functions; Psychometrics designs the state exams, Exams Services administers the exams, and Systems generate statistics from the exam results. The reports generated provide information on biographics, education, pass/fail rates, schools, and in-state/out-of state status. Copies of the reports are obtained from the Listing and Labels department and are available on paper or diskette.

Unfortunately, the reports currently generated provide very limited feedback when trying to trace back to our universities. The biographics such as race, sex, and age are a sum of all the test takers and are not presented by university. The State University System (SUS) has been able to select First-Time takers who graduated from our universities, but not the date of graduation.

The SUS collection of information is at the mercy of the sender. During the course of a year, for most professions, there are multiple opportunities to sit for an exam. Reports for a particular time period can be requested, but if they are not included we must assume that there were no other test takers than the reports that we recieved.

The licensure reports do not tell us whether a person ever manages to pass all the required subtests within the prescribed time limit to earn a license. This is important to learn how many of our graduates are ever able to practice within their field, if licensing is a requirement.

Many exams are made up of subtests. If the test taker is required to sit for all the subtests, then the report is counting equally. But, if test takers are allowed to sit for part of the exams, then it changes the meaning of the pass/fail rates. For instance, if a profession has five subtests and a person sits for four and passes only three they are marked as a fail. If another person sits for two subtests and passes both, they are considered a pass.

The first time a candidate sits for the test, they are labeled a first time taker. If it takes three sittings before successfully passing all the subtests, they are counted as a fail for First time taker, one fail and one pass for repeat takers.

Some exams require that the person have certain experiences in the field before being eligible to sit for the exam. In these cases pass/fail rates should not be used as an instrument to evaluate the quality of the educational program. The content of these licensure exams are based on the professional activitites which need to be performed correctly by a newly licensed practitioner in order to prevent any harm to the public. Emphasis is given to testing the candidate's clinical or

practical knowledge essential to protecting the public. Therefore, licensure exams requiring experience in field are not limited to knowledge gained solely from the educational program.

The greater the time that has passed since completion of the program, the candidate's performance on the exam decreases. Rather than a reflection on the quality of the program it indicates that what was learned was not retained over time. On certain exams recent graduates who have less practical experience will generally perform less well than their counterparts with more experience.

The State University System has been fortunate that we are not currently required to report licensure for Accountability. It is under consideration for inclusion in Performance Based Funding Reports. However, other levels of post-secondary institutions are required to report licensure, such as the community college system, the Independent colleges and universities, and the vocational institutions. The Board of Regents is often asked to furnish licensure data for the legislative staff. The information is also used when conducting program reviews or examining programs for various other reasons.

It has been our experience that getting information from the state agency is very difficult. However, in recent years the agency has begun building a computerized data base. At the present time, we are working towards acquiring permission to tap into their data base to run statistical reports that have meaning. Ideally, we would like to share the data base with the other agencies who are required to furnish similar reports.

Curently, the focus is on the pass rates of first time takers. If we could tap into a data base we would be able to expand our knowledge and compare pass rates on sub-tests, to follow candidates through the entire process. We could more easily compare our graduates to candidates moving into our state who also sit for the exam. We could run statistics on race and sex and age. We could compute an average length of time and number of sittings that it takes candidates to complete the licensure process. In other words, we would gain a greater understanding of how licensure affects the process of our graduates ability to work in their field.

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