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ABSTRACT

Information is provided on the Florida State University System's Indicators of Excellence Program and how it is evaluated. The 21 indicators of quality are used in setting annual goals for quality improvement, in justifying university budget requests, and in evaluating the results of the universities' quality improvement efforts. Some of these indicators are intended to measure the results of the state's efforts to move into the "upper quartile" of state systems. The upper quartile measures are global in nature and emphasize the funding of higher education at the state level. A second kind of indicator, the foundational measures, reflect improvements that cannot be tracked in relationship to national measures and are more directly associated with institutional quality. The indicators include output measures that reveal the status of student learning and input measures that identify the conditions under which the educational system functions. Process measures identify activities the system provides for students. Finally, opinion indicators identify attitudes about Florida's educational systems. Nine specific upper quartile measures and 12 foundational measures are identified and results are reported. 25 references. (SW)

Evaluation of State University System of Florida's Indicators of Excellence Program

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Indicators of Excellence

for Management Research, Policy Analysis, and Planning

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Abstract

Over the past four years, the State University System of Florida has pursued a policy of quality improvement. Central to this policy is a program in which twenty-one indicators of quality have been identified. Some of these indicators are intended to measure the results of the state's efforts to move into the "upper quartile" of state systems. The indicators are used in setting annual goals for quality improvement, in justifying university budget requests, and in evaluating the results of the universities' quality improvement efforts. This paper provides an analysis of the Indicators Program, describes its uses and evaluation, and suggests future directions.

Evaluation of State University System of Florida's Indicators of Excellence Program

The State Board of Education of Florida, in an attempt to improve the quality of education in the State, approved a program in 1982, whereby the progress toward excellence in education would be tracked on specific indicators of educational quality. The official goal of the program was, "On a statewide average, educational achievement in the State of Florida will equal that of the upper quartile of states within five years, as indicated by commonly accepted criteria of attainment." The focal point of the program is an annual report to the State Board of Education which is officially referred to as "The Report of Florida's Progress Toward Excellence in Education." The part of the report, which is the main interest of this paper, is the indicators report on the State University System.

The State Board of Education asked the Board of Regents (BOR) to identify the criteria and data sources which would be appropriate to use in order to meet the upper quartile goals stated in the official goal statement of the program. The Regents had already begun to work on some measures of quality prior to the State Board's approval of the indicators program. As a result, a compromise was worked out and two kinds of measures were included in the list of indicators. The upper quartile measures are global in nature and emphasize the funding of higher education at the state level, while the foundational measures reflect improvements which cannot be tracked in relationship to national measures and are more directly associated with institutional quality.

Description of the Indicators of Excellence Program

As stated in the goal, the program was to last five years. This would provide an adequate timeframe to determine whether any trends were altered or

whether any permanent improvements were made.

While the primary focus of the program is the systemwide annual report, a secondary part of the indicators program is a requirement that the university presidents make annual reports of their institutions' progress toward educational excellence. The Presidents' reports differ from the systemwide report in that they reflect institutional interests, missions, resources, and achievements, rather than statewide information and identify stategies which are to be used to meet the objectives of the program.

Originally, 26 different indicators were identified. Currently, there are 21 indicators on which an annual report is made to the State Board of Education for the State University System. These indicators include output measures, input measures, process measures and opinion. The output measures were intended to reveal the status of student learning, skills and knowledge. The input measures were to identify the status of the conditions under which the educational system must function. The process indicators are intended to identify the activities the system provides the students. The opinion indicators are to identify attitudes about Florida's educational systems. These indicators are divided into two categories.

Upper Quartile Measures. The first category includes those criteria for which national data are available. These were identified as the upper quartile indicators. The indicators in this category would provide comparability for determining achievement of the upper quartile status of Florida among the states (i.e., ranked among the top 12 states). The upper quartile goals include long range financial goals which are affected by the Florida Legislature at the state level. There are now nine indicators included in this category.

Foundational Measures. A second category included criteria which could be monitored from data collected within the state for which there are no national comparable data. These criteria are immediate measures of quality in the individual universities. They are more useful than the available national measures to university administrators for gauging the results of their own efforts to improve the quality of their individual institutions. There are 12 indicators in this category.

History of Indicators Report

From the state perspective, the elected officials (i.e., the governor, the State Board of Education, and the legislature) were to use the reports to form policy decisions; particularly appropriations decisions. The Board of Regents and its staff were to use the report to determine which legislative initiatives should be pursued and for making decisions internal to the State University System. The University presidents were to use the reports to make decisions internal to the institutions which could move each institution as well as the State University System toward educational excellence.

The first report was made to the State Board of Education in December 1983 on the 1981-82 academic year. This was the year which would be used as the benchmark or baseline for determining future progress toward educational excellence. The fourth annual report was submitted in December 1986, and was approved by the State Board of Education in March of 1987.

The Board of Regents has been generally supportive of the indicators program. In the early stages of the program, as the indicators were being developed, there was some disagreement between the Board of Regents and the State Board of Education on what the indicators should be. The Board of Regents wanted to include some measures to highlight the legislature's support of higher education from a funding standpoint. It also wanted the indicators

to provide a measure of quality of the institutions. The foundational measures were in the development stage within the State University System when the indicators program was announced. The foundational measures were aimed at institutional quality rather than system quality. The negotiated list has apparently been satisfactory to all concerned. The changes that have been requested subsequent to the initial approval have resulted from a lack of adequate data on which to base meaningful annual reports. After the first year of reporting, five indicators for which data was not available were dropped. After the fourth year, the State Board modified two of the indicators at the request of the Board of Regents. Pretest/post-test growth on CLAST scores was changed to Pass rates on the CLAST. Graduate Record Examination (GRE) scores on graduating students was changed to Mean GRE scores on entering graduate students. The State Board of Education has been generally satisfied with the indicators program but unsatisfied with the reports in that they are not sufficiently uniform, quantifiable and comparable across the states and across the system.

Need for Evaluation

The last report in the five year program is to be submitted to the State Board of Education in December of 1987. An evaluation of the program is needed in order to determine whether the program has been effective in increasing the quality of education in the State University System as measured by the indicators and to determine whether the program should be extended beyond five years.

At the beginning of 1987, a new Governor and a new Commissioner of Education took office. The governor serves as the presiding officer for the State Board of Education and the Commissioner of Education serves as the secretary to the State Board of Education. The new governor has indicated

some dissatisfaction with the rather narrow concept of moving Florida into the upper quartile. Both he and the Commissioner of Education have indicated that the state should set more realistic goals for quality improvement. It remains to be seen whether this program will continue in its present form under the newly elected officials.

The program will be examined in this paper from a technical viewpoint. However, the decision whether to continue the program or not will be made in the political arena, not by technicians. It is hoped, however, that this technical report will provide some useful information to those who will be making the ultimate decisions about the fate of the indicators program and will be informative to others who may be involved in or considering a similar program involving indicators of educational excellence.

Strengths and Weaknesses. What are some of the strengths and weaknesses of the indicators program? On the positive side, the indicators program has provided a structure for communication which did not exist before. The exercise of identifying the indicators, which were to be used for reporting, provided the opportunity for dialog about quality among educators and elected officials which had not taken place with such intensity previously.

There is a negative side to the indicators program as well. Currently, the output indicators are inadequate to provide good answers to the question of whether so many additional units of an input or the addition of a particular new process will result in increased educational quality? Good sources of output measures are very difficult to find. There has been a problem from the start in finding appropriate and reliable national data which are updated annually, whether for measuring output, input, process or opinion. Many national studies do not lend themselves to use in comparing the State University System of Florida against other state university systems. There is

a diversity among the states in size, organization, economic development, and university structure and among the postsecondary institutions in missions, definitions, and record keeping practices. The complications for analysis are magnified when the diversity among the states is considered in conjunction with the diversity among the institutions.

Design for the Evaluation of the Program

The basic question of this study is, "Has the program resulted in significant differences between the base year measures and current year measures?" In order to answer this question it was decided to compare the mean gain of all the states with the gain reported for Florida on each of the indicators which have national data. The test for significance was set at two standard deviations above the mean using a one tailed test. However, if Florida fell into the range between the mean and two standard deviations above the mean, there would be no significant difference between the gains made by Florida and by the other states.

For those indicators which have no national comparative data, we were only able to look at the overall differences between the 1981-82 and 1984-85 information. A determination of positive and negative movements or changes in percentages were calculated for each indicator for which no national comparative data exists. The data which we analyzed was the source data for the information contained in the first and fourth annual reports on the indicators submitted to the State Board of Education in 1983 and 1986 respectively.

The data from the reports were analyzed using Statistical Analysis System (SAS) to compute the means and standard deviations. The Z scores were calculated for Florida's gains to determine whether the gains experienced by Florida could be attributed to the indicators program. It was decided that a

Z score of 2 or above would indicate that Florida's gain was significantly different from the other states.

Data Analysis

The results of our analysis for each of the indicators are presented below under the categories of Upper Quartile Measures and Foundational Measures. (See Table 1, Analysis of Upper Quartile Measures.)

Upper Quartile Measures

1. Average full-time faculty salaries for all ranks (input measure). The most visible gain was is Florida's national rank based on faculty salaries. Florida's rank on average full-time faculty salaries moved from 22nd to 14th from 1981-82 through 1985-86. When compared with the other states, Florida's increase in average faculty salaries was $7923.00 over the four year span while the average for all 50 states was $7015.00. The Z score was 0.52. This is approximately one-half standard deviation above the mean increase for all states and is not large enough to say that Florida's increase on average faculty salaries for all ranks is significantly different from other states.

2. Average full-time faculty salaries by rank (input measure). When analyzed by rank, faculty salaries for professors, associate professors, and assistant professors showed similar gains while instructors fell from 20th to 23rd. The Z scores were calculated for the change in the average faculty salaries for each rank. For full professors, the Z score was 0.90; for associate professors, 0.96; for assistant professors, 1.22; and for instructors, 0.21. In each rank, Florida's increase in average full-time faculty salaries was not sufficiently large when compared to the increase in average full-time faculty for all states for us to conclude that Florida's change was sufficiently different from the other states.

3. Number of National Merit Scholars enrolled (input measure). Florida's rank on the number of National Merit Scholars enrolled as first-time-in-college students moved from 5th to 2nd the first year of the program then declined to 4.5 (ie. tied for fourth place) by the 4th year. While Florida's rank among the states was improved, the Z score was 0.29. Thus, there was no significant difference between Florida's increase on this indicator and the increase for the other states.

4. State financial aid per headcount student (input measure). The amount of state financial aid per student declined in actual dollar value and Florida's rank among the states dropped from 15th in 1981-82 to 18th in 1984-85. The Z score on this indicator was 0.12. Again we failed to show that Florida's changes were significant.

5. Appropriations per headcount student (input measure). During the same period, the appropriations per headcount student increased from $3905 to $4196. This was a 7% increase, but Florida's rank among the states slipped from 9th to 11th. The Z score here was 0.90. We found no statistical significance to this change either.

6. Number of scientists and engineers employed (input measure). The rank of Florida on the number of Full-Time Scientists and Engineers Employed at Public Universities increased from 9th to 8th among the states. The methodology used by the National Science Foundation for reporting the number of full-time scientists and engineers employed changed beginning with the report for January 1984 and we were unable to run a meaningful statistical analysis on this indicator. Casual observation shows that the number of scientists and engineers employed in public postsecondary institutions in Florida increased from January 1982 to January 1983 and in Florida's public doctoral granting postsecondary institutions from January 1984 to January 1985.

7. Rank of research libraries (process measure). The Association of Research Libraries' rankings are of individual institional libraries and not by state. The rankings of the states reported in Florida's indicators report are based on the highest ranking public university research library in each state and were assigned by the Board of Regents staff. For three consecutive years, Florida's rank declined. In 1981-82 Florida's rank was 16 out of 35 states having research libraries. Florida's rank declined to 19 in 1984-85. The Association changed its methodology for determining rank for the fourth reporting year and Florida's rank increased to 16, the same rank reported three years earlier. Because of the change in methodology for determining rank, we were unable to perform a statistical analysis on this indicator.

8. The number of Phi Beta Kappa chapters (process measure). The number of Phi Beta Kappa chapters changes every three years. There will be no new Phi Beta Kappa chapters until 1988. Florida's rank has been 5th among the states on this indicator and dropped to 7th in 1985 when new chapters were authorized for institutions in other states by the national organization. The number of states having more Phi Beta Kappa chapters than Florida increased by 2 in 1985. There is no measure for this indicator which can be tracked year by year whereby a statistical analysis could be made.

9. National rank of program, school, or college (opinion). The one indicator based on opinion is the National Rank of Program, School, or College. There have been no new studies at the national level which compare with the study done by the Conference Board of Associated Research Councils which was reported the first year of the indicators program. There is no information on which to base a statistical analysis for this indicator.

Foundational Measures.

1. Pretest/post-test growth on College Level Academic Skills Test

(CLAST) scores (input and output measures). The CLAST is Florida's version of a rising junior test. Pretest/post-test growth on CLAST scores has not been reported because the pretest was not implemented. We were unable to analyze this indicator since no data has been collected for it.

2. Findings of follow-up studies (output measure). The findings of follow-up studies (placement and performance) of State University System graduates have been reported primarily as anecdotal accounts of how the universities are conducting or planning to conduct follow up studies. No two studies have been alike and at least half of the institutions have not yet begun to implement their follow up studies. We were not able to make an analysis of this indicator.

3. Licensure examination results of graduates (output measures). The licensure examination results have been difficult to analyze. There are some complex issues associated with use of the examination pass rates on examinations administered by the various professional licensing agencies. Added to the difficulties in interpreting the data, the agencies administering the examinations have not provided reports consistently from year to year. Our only observation for this indicator is that of the 10 examinations for which we have annual data, 6 show improvements in pass rates.

4. Graduate Record Examination (GRE) scores of graduates receiving bachelor's degrees (output measure). The (GRE) scores of graduates provides ambiguous information since only a small, non-representative number of graduates request that GRE scores be sent back to the universities awarding the degrees. Nevertheless, the trend observed on this indicator is toward higher average GRE scores.

5. Percent of faculty by highest degree earned (input measure). The percent of full-time faculty by highest earned degree for the State University

System showed a gain in the percentage of faculty holding doctoral or professional degrees. The percentage increased from 78.8% to 80.2% for a net gain of 1.4%.

6. Admissions test scores (input measure). The Scholastic Aptitude Test (SAT) and American College Test (ACT) scores showed a dramatic increase in the second year of the program due to an increase in the admissions standards at the state level; then the averages began to decline gradually. The mean SAT score for the Fall 1981 Freshman class was 967.3. The second year the mean jumped to 994.5 where it stayed through Fall 1983, then it declined to 991.6 for the Fall of 1984. The overall gain in four years on the SAT average score was 24.3 points. The ACT scores showed a small increase from Fall 1981 through Fall 1984 moving from 21.2 to 21.6 over the first four years of the program.

7. Number of endowed chairs (input measure). The Florida Eminent Scholars Program, whereby the Florida Legislature provides $400,000 for the establishment of an endowed chair when a university raises $600,000 in private funds, has provided an effective incentive for increasing the number of endowed chairs in the state universities. During the base year, the number of endowed chairs increased by four. During subsequent reporting years, the number of endowed chairs increased by 8,7,5, and 15 respectively for a total increase of 39. While the overall trend is generally upward, the real value of the program lies in the cumulative effect of establishing endowed chairs.

8. Specialized or programmatic accreditation (process measure). Specialized and programmatic accreditations increased. Eight programs were added to the system list of accredited programs during the second reporting year. Five were added the third year, and 9 were added during the fourth reporting year. The number of newly accredited programs was not reported for

the base year. As with the number of endowed chairs, there is a cumulative effect in increasing the number of accredited programs, assuming that none lose their accreditations.

9. Student full time effort (FTE)/faculty FTE ratio (process measure) After an initial decline, the student FTE to faculty FTE ratio improved. The 1981-82 student/faculty ratio was 15.3. For 1984-85 the ratio was 14.2, an improvement of 1.1 students per faculty member.

10. Employment goals of the BOR Equal Access Equal Opportunity (EAEO) plan (process measure). While only slight positive changes occurred in the percent of black employment in faculty and administrative positions, the State University System exceeded its EAEO goals. The percentage of blacks in positions requiring the doctor's degree changed from 4.7 percent in 1981-82 to 5.0 percent in 1984-85. The EAEO goal for this category of employee was 2.1 percent which was the approximate black representation in the national doctoral degree workforce in 1976. For faculty and administrative positions not requiring the doctor's degree, the percent of blacks employed changed from 10.3 percent in 1981-82 to 10.4 percent in 1984-85. The goal for this category of employee was 7.6 percent which approximated the percentage of master's degrees awarded to black students in 1975-76.

11. Student enrollment goals of the BOR EAEO plan (process measure). Progress was made toward the student enrollment goals for minorities enrolled as first-time-in-college students and for minorities transferring from Florida community colleges with Associate of Arts (AA) degrees. The goal was stated in terms of the percentage of minorities in the admissions pool. The percent of first-time-in-college students who were black increased from 11.9 percent to 14.4 percent, but the percentage of high school graduates, which made up the admissions pool, who were black increased from 17.8 percent to 19.4

percent. The difference between the enrollment goals for black first-time-in-college students and actual enrollments decreased from 2.5 percent to 1.6 percent. The difference between enrollment goals for black transfer students with AA degrees and the actual recipients of AA degrees decreased from 1.7 to 1.4 percent. The difference in percentage of Hispanic high school graduates and the Hispanic high shcool graduates who enrolled in the universities was reduced from 1.9 percent to 1.5 percent. The difference in percentages of Hispanic AA degree recipients and AA transfers showed a negative result having increased from 2.7 to 3.8 percent.

12. Contract and grant dollars per faculty member (process measure). The contract and grant dollars per faculty member increased by 15 percent, from $22,141 per faculty member in 1981-82 to $25,558 in 1984-85.

Observations

Perhaps the acid test of the program lies in its ability to provide for effective policy analysis and decision making. While a thorough analysis from that perspective is outside the realm of this study, a few observations about the program's perceived effectiveness can be made. First, it is difficult for some presidents to support the systemwide goals because they are in conflict with institutional missions. The signals become mixed for the presidents when the statewide goals are superimposed over the goals of the nine different universities within the system. The individual institutional missions require a set of priorities at the local level which are different from those at the state level.

Another problem with the program is that the upper quartile goals are moving targets, stated in variable terms. The ability of Florida to achieve upper quartile goals depends upon decisions made for several other states as well as those made for Florida. Some of the foundational goals are also

stated in variable terms which vary with conditions outside the control of the universities or the state. Some of the upper quartile goals are or have become so far out of reach that achievement of them for Florida will not be possible within the five year timeframe of the indicators program. In other areas, Florida was already in the upper quartile when the program began.

Regardless of the shortcomings, the indicators reports are providing information which is potentially helpful in policy analysis and decision making. Even with less than adequate output measures of quality, it is useful to assume that certain inputs, when increased, or certain processes, when implemented, have a positive effect on educational quality. From that standpoint it is possible to track progress indirectly. It is from within this framework that we have asked the question, "Has Florida made progress during the four years of the indicators program?" We then turned to the indicators themselves to see what differences were reported over the four year history of the program.

Conclusions and Recommendations

In conclusion, the indicators program may have been successful in generating positive improvements, but not to the degree that statistical significance could be established. On most of the foundational measures where information was adequate to track improvements, increases were reported rather than declines. While the foundational measures used to monitor improvements primarily under the control of the presidents are not subject to statistical analysis like the upper quartile measures, they do provide some sense of positive change.

Improvements were also made on the upper quartile measures where improvements are largely dependent upon the legislature. The indicators showed that increased faculty salaries were supported by the legislature, but

there was less support in the appropriations per student, in state financial aid per student, and in the rank of research libraries. The legislature apparently responded most adequately in the one area where the Board of Regents was committed and active in the political process. Average salaries for faculty were increased, although not enough to establish statistical significance. The total appropriations increased also, but increases in other states counterbalanced the rankings and Florida failed to move ahead in this area when compared with other states. Much of the increase in appropriations per student could be accounted for by the faculty salary increases.

The legislature increased funding for state financial aid, but not enough to maintain Florida's rank over the four reporting years. State financial aid is administered by the Department of Education rather than by the State University System and the Regents may have left it up to others to be advocates for the financial aid legislation. The rank of research libraries also declined during that period because of the level of funding. The Board of Regents share the responsibity for Florida's decline in rank of research libraries. They favored a more egalitarian approach to distribution of library funds and strengthened the libraries of the younger universities as well as those of the mature research universities with the limited appropriations provided through the legislature rather than expand the largest and most mature library in the system to a degree that would increase Florida's rank.

While progress on other indicators can be partially attributed to legislative support, these are the ones for which the legislature is primarily responsible. Their track record looks good in only the faculty salary area. The legislature has, thus far, failed to move Florida into the upper quartile in any indicator and analysis has failed to show that any of Florida's changes were statistically significant when compared to other states.

Recommendations

The program is lacking in several critical areas. Much of the data collected is lacking in quality and meaning. There should be a continued effort to improve the uniformity, quantifiability and comparability of the data reported for the indicators. Florida should work with the National Center for Higher Education Management Systems (NCHEMS) and the Committee on Coordinating Educational Information and Research of the Council of Chief State School Officers to develop further the common measures which would facilitate cross state comparisons.

The output measures should be improved and increased in number. With recent modifications there are only 3 output measures. One is quantifiable (Pass rates on the CLAST), but does not represent a true output measure. Another one has not yet been implemented across the system (Follow up studies on graduates and their employers) and the third is so difficult to monitor that no conclusions can be drawn from the data reported (Licensure examination results of graduates). None of the current output measures relate to national data.

Another suggestion for improvement in the program is to require that each institution have its own set of indicators since the desired outcomes as well as the resources may be very different from one institution to the other. Some institutions include national status in their institutional missions while others are more concerned to provide educational access to a target population. Comparisons with institutions of similar status may be more useful in resource allocation than comparison of the system as a whole with systems of other states. Provision should be made for reporting progress on the basis of institutional missions as a supplement to the state level goals for the entire State University System.

For the immediate future, should this program be continued? We think the answer should be, "Yes, but with a one year planning period for rethinking the indicators." For each indicator, there should be a particular policy issue addressed, the policy maker should be identified, and a measurable goal established for each reporting period. Collection of any data simply because it is available will not be useful and, as a result, will detract from the quality of the indicators program. If the indicators program is to be useful, its design must be that of a formative evaluation. Some issues may arise or new data sources may become available in the future which should be included in the program as it progresses. There should be an ending point, however, where evaluation of the program itself, such as this paper, can be made of any future indicators program.

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Table 1

Analysis of Upper Quartile Measures

Name of Upper Quartile Measure	Fla's change	st dev	mean	delta	Z	Z≥2?
Avg. full-time faculty salaries						
All ranks	7923.	1758.	7015.	908.	0.52	no
Professors	10019.	2012.	8202.	1817.	0.90	no
Assoc. professors	7824.	1521.	6363.	1461.	0.96	no
Assist. professors	7281.	1230.	5775.	1506.	1.22	no
Instructors	4617.	1493.	4296.	321.	0.22	no
Number of National Merit Scholars	8.	31.	10.	-2.	-0.06	no
Appropriations/head count student	539.	599.	770.	-231.	-0.39	no
State financial aid/head count st.	-4.	35.	17.	-21.	-0.60	no