

Measuring What Matters: A Dashboard for Success

Craig Schoenecker
System Director for Research

And

Linda L. Baer
Senior Vice Chancellor for Academic and Student Affairs

Minnesota State Colleges & Universities System
Suite 350
30 Seventh Street East
St. Paul, MN 55101

A Paper
Presented at
The Chair Academy's
19th Annual International Conference
March 16, 2010

Introduction

Higher education has entered a new era of accountability. Recent national reports have recommended more focused accountability from colleges and universities to demonstrate performance and results. The release of four key reports on accountability during the 2004-2005 academic year led Ewell (2005) to characterize it as a major turning point in higher education accountability. Several developments in Minnesota reinforced the national calls for enhanced accountability. The state's governor has made accountability and performance measurement key themes. The governor has used "pay for performance" as a prominent theme in operating budget recommendations for all agencies. As a result, one percent of the state appropriations for higher education were made contingent on achievement of specified performance goals. Finally, the Minnesota Office of Higher Education developed a state higher education accountability report.

Original Framework. The Minnesota State Colleges and Universities system's original accountability framework was approved by the board of trustees in 2003. It included 31 accountability measures that were designed to assess performance toward achievement of the four strategic directions or goals from the system's strategic plan. Each of the measures was aligned with one of the system's four strategic directions: increase access and opportunity, expand high quality learning and programs, provide programs integral to state and local economic needs, and integrate the system. Five of the measures were mandated by state law and the others were selected by the board of trustees.

The measures for the framework were defined and developed through a collaborative process working with the system's Institutional Research Directors Group (IR group). The group met almost monthly for three years to complete the task. By 2006, most of the measures had been defined, developed and reported publicly at the system level. The measures were not

reported publicly at the institution level, but were used within the system for performance assessment and improvement. The practice of not reporting institutional level measures publically was, in part, a response to a concern by the board it had become too focused on tactical and operational considerations. The board had wanted to shift its focus to strategic systemwide considerations and system level performance.

Review Process

In February of 2007, the board of trustees decided to review the system's accountability framework. There had been a substantial turnover of board members since the framework was originally adopted and the newer trustees brought a renewed focus on performance and on employers as stakeholders. The trustees also were well aware of national and state developments regarding higher education accountability. The board created an ad hoc committee on accountability to review the framework, identify key measures and recommend a public reporting process for the measures. Committee membership included five trustees, five college and university presidents and five system executives in order to balance trustee, system and institutional perspectives.

The ad hoc committee met for six months to develop a set of recommendations in response to its charge. The committee reviewed the original accountability framework and frameworks used by similar public higher education systems. Recommendations national and state accountability reports also were discussed by the committee. Finally, the committee reviewed a book written for governing boards by Ewell (2007). Ewell laid out five topics for trustees to use in assessing the quality of higher education. He described higher education concepts using business language that might be more familiar to trustees.

There was broad-based involvement from and extensive consultation with a variety of system constituencies to support the work of the ad hoc committee. The system's institution presidents and its vice chancellors were consulted regularly. A cross functional group of campus and system leaders that had developed the original framework was reconvened to assist in revising the framework. The system's IR Group also was convened to define and develop the measures and the approaches for establishing performance thresholds. Finally, the Ad Hoc Committee's draft recommendations and proposed measures were presented for review and feedback to system stakeholder groups including students, faculty, presidents, academic and student affairs officers, institutional research directors, employee associations and staff of the state's higher education agency. A survey of stakeholders was conducted and their comments and feedback on the proposed framework were discussed by the ad hoc committee as it considered its final recommendations to the board of trustees.

The ad hoc committee adopted a set of recommendations in November 2007 for a revised accountability framework for the system (Minnesota State Colleges and Universities, 2007). Key features of the framework included ten priority measures aligned with the system's four strategic directions, performance thresholds for each institution and for the system on each measure and an interactive web-based accountability dashboard that would be available to anyone from the system's website. The board of trustees approved the ad hoc committee recommendations, directed the chancellor's staff to implement the framework, address the concerns identified by system constituencies and present a progress report on implementation in March 2008.

A variety of tasks were undertaken to prepare for implementation of the revised framework and the public launch of the accountability dashboard. Development of the dashboard tool had begun during the summer of 2007, based on the clearly expressed intent of the ad hoc

committee. A full scale pilot test of the dashboard had been conducted in January and February of 2008 with presidents and staff from all institutions and the system participating. A survey of pilot test participants identified additional steps that were necessary to prepare for the public launch of the dashboard. Development of the content and the features of the dashboard continued. Accountability experts for each college and university were identified and trained in a series of workshops. Finally, a public relations plan for the launch of the dashboard was developed.

Revised Accountability Framework

The purpose of the revised accountability framework is twofold: first, to promote continuous improvement and second, to provide accountability on behalf of the board to system stakeholders through an ongoing strategic assessment of system and institution performance. The framework and dashboard are designed primarily for the board of trustees and other policymakers and stakeholders. Trustees, policymakers and stakeholders will use it to monitor system and institutional performance. Policymakers and stakeholders include system and institutional leadership and staff, state leaders, and decision-makers. The board will hold the chancellor accountable for system performance. The chancellor, in turn, will hold each president accountable for his or her institution's performance through annual evaluations and through leadership within the system.

Measures. The revised framework includes ten performance measures, down from 31 measures in the original framework. Early in the review process, the ad hoc committee reached a consensus that the original framework had too many measures. Their concern was that priorities and resources would be too diffused to meaningfully focus and act on the most important issues with the larger number of measures. The committee sought to identify a “vital few” measures

and settled on a maximum of ten to be included in the framework. If a new measure was to be added, the committee agreed, an existing measure would need to be removed. A survey of the presidents and chief academic and student affairs officers was conducted to support the ad hoc committee's measure selection process. Members of the committee selected the ten measures after review of recommendations from survey. The ten measures align with the four strategic directions or goals from the system's strategic plan (Minnesota State Colleges and Universities, 2008). The measures are reported in Table 1 according to the strategic goal with which they align.

***** Insert Table 1 *****

Performance is being reported in the dashboard initially on six of the ten selected measures. Four of the ten measures, licensure exam pass rate, persistence and completion rate, related employment of graduates and facilities condition index, were included in the original framework. Enrollment and affordability measures were defined and developed. The seventh measure, student engagement, has been developed with data from the national surveys of student engagement. All of the system's institutions participated in one of the two national student engagement surveys during 2008 or 2009. The three remaining measures, partnerships, high quality learning, and innovation, are being defined and developed in conjunction with chief academic and student affairs officers and the IR Group.

Performance Categories. The recommendations of the ad hoc committee called for the establishment of performance thresholds and the assignment of a performance category to each institution and the system on each measure. There were two primary reasons for this recommendation. First, assigning performance categories facilitates a quick review of performance results by stakeholders. Second, the performance categories permit appropriate

comparisons among institutions since their assignment takes institutional differences into account.

Three balanced performance categories were established and a color was assigned to each. The “exceeds expectations” category indicates exceptional performance and is denoted with the color gold. The “meets expectations” category indicates that performance is within accepted or expected ranges and is denoted with the color blue. The “needs attention” category indicates that performance is below standards or expectations and is denoted with the color red. The “needs attention” label was chosen to suggest the action that should result when performance is classified in category. The committee purposely chose both “exceeds expectations” and “needs attention” categories to highlight both ends of the performance spectrum.

Performance Thresholds. The performance thresholds for each measure were established through extensive consultation with the system’s IR Group. The approach used for a measure was based the nature of the measure, the nature and availability of data on the measure, the availability of an external reference and other factors. The IR Group would typically consider several options at multiple meetings before reaching consensus on an approach for each measure.

Four approaches were used for establishing lower and upper performance thresholds. If an institution’s value on a measure was between the upper and lower threshold, its performance was classified as meets expectations. If the value was above the upper threshold, performance was classified as exceeds expectations and if it was below the lower threshold, performance was classified as needs attention. The approaches, listed in order of preferred of use, included:

Specified Goal or Target. If a numerical goal or target for performance on a measure had been established by the board of trustees or the chancellor, it was used to establish the

performance thresholds. Thresholds for the facilities condition index were established based on a board of trustees target to reduce the system value on the measure from .13 to .07.

External Reference. If a national or state standard or benchmark or a national, state or system data set was available and appropriate, it was used to establish the performance thresholds. Thresholds for the tuition and fees measure were established at the 20th and 80th percentiles on the distribution of tuition and fee rates for similar U.S. institutions.

Expected Value. If an expected value that was based on institutional characteristics, performance of similar institutions or other comparisons could be determined, a confidence interval around that value was used to establish the performance thresholds. Thresholds for the licensure exam pass rate measure were established with a 99 percent confidence interval around the state mean pass rate for each exam.

Historical Performance. If performance thresholds could not be established on the basis of the other approaches, thresholds were established based on each institution's historical performance. Upper and lower thresholds were established on the basis of the college or university's high and low values during the six year period from 2002 to 2007. This approach was used for the persistence and completion rate and the percent change in enrollment measures. The thresholds will remain fixed for several years and then be re-established.

Accountability Dashboard. An interactive web-based accountability dashboard was developed in partnership with a business intelligence contractor (Minnesota State Colleges and Universities, nd). It was designed to deliver the system's accountability measures and related information to stakeholders and to facilitate performance monitoring and improvement. The dashboard tool consists of nine sections and with a variety of features and functionality and was developed using Hyperion Intelligence Dashboard Builder. The content, form, and functionality

evolved through an extensive consultation and review process that involved system constituencies and stakeholders and included several iterations and pilot tests.

The ad hoc committee and other stakeholders expressed preferences for a dashboard tool that provided a quick and easy review of performance. McLaughlin and McLaughlin (2007) described the following three attributes of dashboards that characterized their expressed preferences: provide a small number of metrics, permit multi-faceted analysis and use visual displays. Three approaches were identified for providing trustees with context for interpreting the metrics: assign a value judgment to the performance; display trends over time; and provide comparative information from inside or outside the institution. Definitions, comments, and additional narrative about the measures and performance would be accessible in other sections of the dashboard by clicking on icons.

The consensus of trustees and other stakeholders was to use a dial display to present institution and system performance. Butler (2007) suggests that such displays direct decision-makers' to issues that need their attention. The dashboard contains gray dials for the three measures not yet defined and the fourth for which data are being collected. This presence of gray dials indicates that the system is committed to developing these measures. Other displays including trend graphs, bar graphs and symbols are used to present performance information within the dashboard. In response to requests from college and university staffers, a commentary section was added to enable institutions to comment on their performance and describe improvement activities. Other features include the ability to produce reports and download the underlying data as well as help and frequently asked questions.

Drill-down Tools. An interactive web-based drill-down dashboard is being developed for each of the performance measures. These tools will support performance improvement by

enabling college and university staff to explore and analyze sub-populations on the measures. College and university IR staffers also have access to the student and graduate record data files that are prepared to calculate the measures. The drill-down dashboards also provide information to provide context for interpreting institutional performance. Five of these tools are currently in production and another is under development.

Impact of the Accountability Framework

The twofold purpose of the accountability framework is to promote continuous improvement and provide accountability to system stakeholders. Since its launch in June 2008, the framework has been effective at accomplishing both purposes.

Action Analytics. The accountability framework and dashboard are the most visible component of a larger “action analytics” initiative within the Minnesota State Colleges and Universities system that is intended to promote and support continuous improvement. Dr. Baer and several colleagues developed the concept of “Action Analytics” in a recent article (Norris, et. al., 2008). Action analytics is characterized as a fusion of new analytic tools with the increasing expectations for higher education accountability. The system has undertaken a multi-year initiative to implement action analytics by building organizational capacity, culture and technology to support evidence-based action.

Business Intelligence. One goal of the analytics initiative is to expand the availability of business or institutional intelligence to support institution and system decision-making and action. By expanding the availability of self-service information about each institution along with the appropriate contextual information, college and university staff can focus more of their efforts on using the information to address institutional priorities. The accountability dashboard and associated drill-down tools are providing each college and university with a cascading of

more granular information on the accountability measures. The system recently contracted with two leading software vendors to perform assessments of its current technology and data infrastructure and of its current business intelligence capabilities. The results of these assessments will help inform system decisions about business intelligence development.

Predictive Analytics. A second goal of the initiative is to expand the use of research and predictive analysis techniques to develop evidence about student performance and institutional practices to support improvement. One example is a project to develop predictors of student course performance and success. The colleges and universities offered 9,000 online courses and served over 80,000 online students in 2009. The vast majority of these courses and substantial numbers of face to face courses use the system's common learning management system (LMS). The LMS stores data on students' access to course content, participation in discussion groups, submission of assignments and performance on tests and quizzes. The LMS data, when linked with data from the student record system, can be used to develop and test measures of student course engagement. Effective predictors of student course success could be used to target interventions early in the semester to improve student course success.

The accountability framework and dashboard are used within the system in several ways and are having a positive impact on performance. Each institution's performance on the measures is a component of the system's presidential performance evaluation process. The transparent display of institutional and system performance that "needs attention" has focused discussion and actions on improvement efforts. Several universities, for example, had low licensure exam pass rates which were classified as "needs attention". Discussions and analysis indicated that the low pass rates were due to the performance of a subset of teacher education

candidates. Improvement efforts led to significant increases in teacher education pass rates and all but one of the universities are now classified as “meets expectations” on this measure.

The system has received accolades for the transparency of its accountability framework. The reactions from the media around the state when the dashboard was launched were all positive. The largest daily newspaper in the state characterized the dashboard as “glass walls on the ivory tower” (Lee, 2008). Ewell (2008) suggested that the system’s accountability framework was an example of “new looks” in higher education accountability systems since it uses new measures and is based on a detailed student record system. He noted that the dashboard display demonstrates “new thinking”. Carey and Aldeman (2008) identified the system’s accountability dashboard as a model for transparency.

References

- Butler, L. M. (2007). Warning Lights: New Dashboard Reports Help Institutions Gauge their Performance. *Connection*. Spring, 2007, 31-3. New England Board of Higher Education.
- Carey, K. & Aldeman, C. (2008). Ready to Assemble: A Model State Higher Education Accountability System. Washington, D.C.: Education Sector.
- Ewell, P. T. (2007). *Making the Grade: How Boards Can Ensure Academic Quality*. Washington, D.C.: Association of Governing Boards of Universities and Colleges.
- Ewell, P. T. (2008). From the States: "New Looks" in Performance Measures: Indicator Systems in Two States. *Assessment Update*. May-June, 9-11.
- Ewell, P. T. (2005). From the States: Looking Back on "The Year of Accountability." *Assessment Update*. September/October, 9-11.
- Lee, P. (2008). MnSCU Installs Glass Walls on the Ivory Tower. *StarTribune*. June 17, 2008.
- McLaughlin G. W. & McLaughlin, J. S. (2007). The Information Mosaic: Strategic Decision Making for Universities and Colleges. Washington, D.C.: Association of Governing Boards of Universities and Colleges.
- Minnesota State Colleges and Universities (2008). *Designing the Future: Minnesota State Colleges and Universities 2008-2012 Strategic Plan*. Retrieved May 9, 2009, from <http://www.mnscu.edu/about/strategicplan.html>
- Minnesota State Colleges and Universities (2007), *Report and Recommendations of the Ad Hoc Committee on System and Institutional Assessment*. St. Paul, MN: Author.
- Minnesota State Colleges and Universities (nd). *Accountability Dashboard*. Available at <http://www.mnscu.edu/board/accountability/index.html>

Norris, D., Baer, L., Leonard, J., Pugliese, L., Lefrere, P. (2008). Action Analytics: Measuring and Improving Performance That Matters, *EDUCAUSE Review*, Jan/Feb 2008.

Table 1: Accountability Measures		Years Reported
Strategic Direction: Increase Access and Opportunity		
1.	Percent Change in Credit Enrollment - Reports the percent change from a three year rolling average in fiscal year unduplicated headcount students enrolled in credit courses.	Six Years
2a.	System Level Affordability: Net Tuition & Fees as a Percent Median Income - Reports full-time undergraduate resident tuition and fees net of scholarships and grants as a percent of state median family income.	Six Years
2b.	Institution Level Affordability - Full-time undergraduate resident tuition and fees.	Six Years
Strategic Direction: Expand High Quality Learning Programs and Services		
3.	Licensure Exams Pass Rate - Reports percentage of a cohort of students or graduates that passed a state or national licensure examination.	Six Years
4.	Persistence and Completion Rate - Reports the percentage of a cohort of entering full-time undergraduate students that have either graduated, been retained or transferred to another institution as of the second fall after entry.	Six Years
5.	High Quality Learning - Being defined.	Undefined
6.	Student Engagement - Reports the extent to which students are actively engaged and satisfied with their educational experience.	Data being collected
Strategic Direction: Provide Programs & Services Integral to State & Regional Economic Needs		
7.	Partnerships - Being defined.	Undefined
8.	Related Employment of Graduates - Reports the percentage of graduates employed during the year after graduation in occupations they indicate were related to their program/major.	Six Years
Strategic Direction: Innovate to Meet Current and Future Educational Needs		
9.	Innovation - Being defined.	Undefined
10.	Facilities Condition Index - Reports the dollar amount of deferred maintenance as a proportion of facility replacement value	Six Years