Committee: Academic and Student Affairs  Date of Meeting: November 17, 2009

Agenda Item: Study Session: Technical Education

Proposed Policy Change  Approvals Required by Policy  Other Approvals  Monitoring

Information

Cite policy requirement, or explain why item is on the Board agenda:

This item was placed on the agenda at the request of the Committee Chair.

Scheduled Presenter(s):

Linda L. Baer, Senior Vice Chancellor for Academic and Student Affairs
Manuel M. López, Associate Vice Chancellor

Outline of Key Points/Policy Issues:

- Enrollment in career and technical education has remained stable over the last five years.
- Customized training enrollments have increased in the last five years.
- As recently as 2007 Minnesota ranked first regionally in both actual post-secondary career and technical education enrollments and population-standardized post-secondary career and technical education enrollments.

Background Information:

The Board of Trustees, through discussions of the Academic and Student Affairs committee, raised questions about career and technical education. The Board of Trustees is concerned because there is a perception of a declining emphasis on career and technical education in Minnesota. Some have called this “detechnification.”
BACKGROUND

The Board of Trustees, through discussions of the Academic and Student Affairs committee, raised questions about career and technical education. The Board of Trustees is concerned because there is a perception of a declining emphasis on career and technical education in Minnesota. Some have called this “detechnification.”

SUMMARY

The initial review indicates that while career and technical education has decreased as a relative proportion of overall enrollment, it continues to be stable in an absolute sense and responsive to Minnesota’s needs. The system is not in imminent danger of “detechnifying” its programmatic or course offerings as demonstrated by:

- Enrollment in career and technical education has remained stable over the last five years.
- Customized training enrollments have increased in the last five years.
- The Office of the Legislative Auditor notes that “the Minnesota State Colleges and Universities (MnSCU) system generally does a good job of assessing economic conditions and workforce needs …”
- General education is a desirable, growing and necessary component of preparing an individual to be occupationally competent.
- Even under the current adverse economic conditions we are experiencing a greater number of additions (215) than removals (167) in career and technical programs.
- As recently as 2007 Minnesota ranked first regionally in both actual post-secondary career and technical education enrollments and population-standardized post-secondary career and technical education enrollments.

REPORT

This study session focuses on the character and extent of career and technical education in Minnesota. The report offers a brief presentation of trends and issues in career and technical education to support Board of Trustees discussion of these trends and issues within the Minnesota State Colleges and Universities.
Program Applications

On the programmatic level, data for the last five years as illustrated in Figure 1 indicate that for college career and technical education programs the primary transaction (45% of all transactions) has been program change (either a curriculum change or relocation of an existing program). Since 2005 the number of program closures has exhibited a downward trend. Program additions experienced a similar decline but have rebounded in the current year. Even under the current adverse economic conditions we are experiencing a greater number of additions (215) than removals (167) in career and technical programs in 2009.

An internal analysis shows a net reduction of only 6 programs, from 1,510 AAS and Diplomas on July 1, 2008 to 1,504 AAS and Diplomas on July 1, 2009, or fourth-tenths of one percent.

Enrollment Trends

Enrollment in career and technical education has not declined markedly in the last five years (2005-2009). While overall full-year equivalent (FYE) enrollment has grown by 8.4 percent (from 80,941 to 87,776), career and technical course full-year equivalent enrollments have remained relatively stable, growing .8 percent (from 38,830 in 2005 to 39,131) in 2009.

Compared to fiscal year 2005, the relative proportion of full year equivalent for 2009 enrollment in career and technical education courses has dropped primarily because of the greater increase in non-CTE

Figure 1. Transactions Affecting Career and Technical Education Programs

1 The data source is the Prinsys (Program Inventory System) system “Approved program applications”


3 Source: Office of the Chancellor Research and Planning, Table 1 Full Year Equivalent in Career and Technical Education Courses Minnesota State Colleges Fiscal Year 2005 to Fiscal Year 2009 (Preliminary). Headcount data exhibits a parallel trend with a growth in overall enrollment of 9.8 percent from 162,372 in 2005 to 178,285 in 2009. When comparing headcount data on the percentage of students taking at least 50 percent career and technical education coursework, there is a slight decline of 1 percent from 78,407 in 2005 to 77,635 in 2009.
enrollment, not because of reduced career and technical education enrollment. The combination of stable
career and technical education enrollment and increased total full year equivalent enrollment means that
career and technical education enrollment decreased in a relative sense, from 48 percent of total full year
equivalent enrollment in 2005 to 44.6 percent in fiscal year 2009.

While it would appear that, at least initially, students are choosing more non-CTE coursework, it should
be remembered that contemporary Associate in Applied Science degrees require, as a result of
accreditation standards and the need for better prepared and skilled workers, a non-CTE general education
component. In the 2002 study *The Status of Occupational and Technical Education in Minnesota’s
Community and Technical Colleges*, faculty agreed that including general education courses in career
and technical programs benefited employers.

**Market Responses**

The occupational “market” also appears to be a significant factor that influences the variety of career and
technical education programs. As stated in the 2002 study: “Changes in the relative importance of
occupations in Minnesota also pose challenges for the occupational and technical education system” Of
the ten occupations projected in 2002 to be in highest demand by 2008, none were among the top
ten in 2006 nor are they projected to be in the ten most-in-demand occupations in 2016.

The Office of the Legislative Auditor, in its 2009 *Evaluation Report on MnSCU Occupational
Programs*, stated that “the Minnesota State Colleges and Universities (MnSCU) system generally does a
good job of assessing economic conditions and workforce needs …” For example, the report identified
programs that generally matched shifts in statewide employment with additions in Tourism/ Fitness/
Personal Care/ Hospitality, Healthcare Support Services, Healthcare Practitioners and Technical and
reductions in Production/ Manufacturing/ Repair, Sales and Related Services, and Administrative and
Office Services.

Enrollment trends reflect adjustments to occupational markets. A few examples for the 2005-2009

timeframe make the point.

**Manufacturing:** Enrollment in the manufacturing cluster registered both the largest
numerical and percentage gain of any career and technical education cluster during the
period. Enrollment in precision manufacturing grew by over 44 percent, and enrollment

---

4 *The Status of Occupational and Technical Education in Minnesota’s Community and Technical Colleges*, National Center for Career and Technical Education, University of Minnesota, June 2002, Table 3.6, page 47.


8 Ibid., pp. 53-55.

9 Source: Office of the Chancellor Research and Planning, CTE Course Trends, tables related to *Full Year Equivalent in Career and Technical Education by Career Cluster Minnesota State Colleges Fiscal Year 2005 to Fiscal Year 2009 (Preliminary)* as analyzed by the labor market analyst in the Academic Programs unit.
in heavy/industrial equipment maintenance grew by 207 percent. The increase probably reflects the special work of the Manufacturing and Applied Engineering Center of Excellence and its work with specific companies and industry associations to strengthen competitiveness.

Law, Public Safety and Security: This career and technical education cluster grew at the second fastest rate of any cluster, up by 15.1 percent.

1. Architecture and Construction: Enrollment in this cluster experienced the largest numerical and percentage drop of any cluster. Based on DEED-LMI seasonally adjusted data for Minnesota, the statewide number of construction wage and salary jobs has dropped by 38,700 or -29.3% from its post 2001 recession peak in February 2006 to July 2009.

The experience with a mission change to add an Associate in Arts degree at Saint Paul College also reflects this new reality. As stated by a Saint Paul College administrator: “The last two years the health and business programs have really grown and trade and technical have declined, but we believe that is because of the economy and we fully expect that to change as the economy recovers. We do not think that [the trade and technical declines] occurred because we added the liberal arts and sciences.”

Business and Industry Viewpoints

Bryan Albrecht, former president of the Association for Career and Technical Education and president of Gateway Technical College, in Wisconsin, does not “buy the myth” that trades like welding are being shortchanged by two-year institutions: “Community colleges are very in tune with what the industry is requesting of them. A lot of times, we’re adding the use of new resources to enhance that training.”

As described in a recent work scan, general education is a desirable and necessary component of preparing an individual to be occupationally competent. Associate of Applied Science degree programs are required to contain a minimum of 15 semester credit hours of general education coursework. Well-trained and highly-skilled workers will be best positioned to secure high-wage jobs, thereby fueling American prosperity. Occupations requiring higher educational attainment are projected to grow much faster than those with lower education requirements. Growth among occupations that require an associate's degree or a post-secondary vocational award is projected to be slightly faster than occupations requiring a bachelor's degree or more. An executive for a retailer said workers in the future would need

---

10 E-mail exchange of September 3, 2009 between Dr. Peggy Kennedy, Vice President for Academic and Student Affairs, at Saint Paul College and Dr. Neala Schleuning, Director of Academic Programs.

11 Is Job Training Zero Sum Game? in the September 11, 2009 issue of Inside Higher Ed

12 Minnesota Future Work Scan of September 4, 2009 at http://www.mnceme.org/minnesota-future-work-scan/

even more interpersonal skills and a deeper understanding of budget, finance and technology. The executive felt that the Minnesota State Colleges and Universities should focus on producing graduates with a broader span of knowledge. 

In visiting 352 Minnesota businesses, the presidents and system leaders of the Minnesota State Colleges and Universities learned about the unique characteristics of these companies and how education and training for current and future employees could benefit them. Business leaders frequently pointed to the intellectual capital of the workforce as a key to their competitive advantage. One energy company executive said the company’s success lay with the skills of its employees. But the executive added that employees’ values and attitudes are so important that in the future the company would hire for attitude and train for skills.

Business leaders overwhelmingly identified an insufficient supply of educated and skilled workers as the primary barrier to growth. Manufacturing companies specifically noted the shortage of qualified employees with skills in blueprint reading, computerized numerical control manufacturing, welding and basic math. [emphasis added]

When asked about the skills employers sought in new employees, three themes emerged. Business leaders spoke overwhelmingly of the need for:

- Technology skills,
- Business-critical “soft” skills [emphasis added] and
- Skills necessary for emerging business practices and responding to global competition

Given the rapid pace of technology advances noted by many business leaders, it was evident they placed a premium on employees who were willing to adapt to changing business needs. It is also clear from these responses that a close intersection exists among verbal communication, interpersonal skills and the value employers place on customer relations.

James Jacobs, advisory board member of the Community College Research Center and president of Macomb Community College, outside of Detroit, said that “Programs that synthesize a number of skills together ... are of more value to students than narrow training programs.”

External Comparisons

Nationally, the number of sub-baccalaureate credentials awarded by Title IV eligible public two-year institutions from 1997 through 2006 increased steadily (40%) while those awarded by private for-profit 2-

---


15 *Workforce of the Future*. Sixty-two percent of the visits were conducted with Greater Minnesota businesses, either in rural areas or midsize cities. The remaining visits were in the Twin Cities metropolitan area. These locations reflect the geographic distribution of the 32 Minnesota State Colleges and Universities.

16 Ibid., pages 4 and 7.

17 Ibid., p. 6.

18 *Is Job Training Zero Sum Game?* in the September 11, 2009 issue of *Inside Higher Ed*
year institutions increased significantly (60%) between 2000 and 2006. The same data source indicates that while career and “academic” (in all likelihood defined narrowly as the Associate in Arts) education awards increased in roughly the same proportion, the “academic” awards grew at a significantly greater rate at the associate degree level.

Regionally, since 2002-2003, the Wisconsin Technical College System has experienced annual declines in the technical diplomas and vocational-adult categories with the exception of 2005-2006 when growth was minimal (less than 1% headcount growth).

Data from the Association for Career and Technical Education shows that as recently as 2007 Minnesota ranked first in the region for both actual secondary and post-secondary career and technical education enrollments. When controlled for population size (CTE Enrollments per 100 State population) in the region, Minnesota ranked first for post-secondary and second for all career and technical education.

Extending the analysis to include thirteen other states, some with very extensive career and technical education institutional capacity, Minnesota continues to rank first in post-secondary career and technical education enrollments and second in overall career and technical education enrollments when controlled for population size.

**Customized Training**

The preceding discussion has described for-credit offerings in career and technical education within the Minnesota State Colleges and Universities system. Customized training is individually tailored to organizations and may be for-credit or for non-credit.

The Minnesota State Colleges and Universities system is the leading training provider in Minnesota; each year, the colleges and universities serve about 6,000 employees and train more than 150,000 workers.

An examination of the data (see Figure 2) indicates a steady increase in customized training headcounts between 2002 and 2009.

---

19 Table P74, U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), Completions and Institutional Characteristics (IC) data files, various years (e.g., report year 2006 uses IC 2006–07 and Completions 2005–06).

20 Table P79, U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), Completions and Institutional Characteristics (IC) data files, various years (e.g., report year 2006 uses IC 2006–07 and Completions 2005–06).

21 Wisconsin Technical College System *WTCS Factbook, 2009 Madison, WI*

22 Region defined as Minnesota, Iowa, Wisconsin and North and South Dakota. From Association for Career and Technical Education CTE Information and Research page on their Web-site based on U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), 2001–02 and Integrated Postsecondary Education Data System (IPEDS), 2001–02; and a review by the state directors of career and technical education. See also Appendix A 2006-2007 CTE Enrollment, State Comparisons.

23 Ibid.
Figure 2. Customized Training Headcount
<table>
<thead>
<tr>
<th>STATE</th>
<th>Secondary CTE Enrollments</th>
<th>Post-secondary CTE Enrollments</th>
<th>Total CTE Enrollments</th>
<th>2007 Population Estimate</th>
<th>CTE Enrollments per 100 State pop</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Secondary: Rank - Region</td>
<td>Post-secondary: Rank - Region</td>
<td>Total Rank - Region</td>
<td>Rank - sample</td>
<td>ps CTE only rank</td>
</tr>
<tr>
<td>MN</td>
<td>29</td>
<td>388,598</td>
<td>142,996</td>
<td>531,594</td>
<td>1</td>
</tr>
<tr>
<td>IA</td>
<td>1</td>
<td>364,044</td>
<td>58,315</td>
<td>422,359</td>
<td>2</td>
</tr>
<tr>
<td>WI</td>
<td>14</td>
<td>49,104</td>
<td>126,779</td>
<td>175,883</td>
<td>3</td>
</tr>
<tr>
<td>SD</td>
<td>5</td>
<td>40,039</td>
<td>4,132</td>
<td>44,171</td>
<td>17</td>
</tr>
<tr>
<td>ND</td>
<td>7</td>
<td>35,833</td>
<td>9,145</td>
<td>44,978</td>
<td>18</td>
</tr>
<tr>
<td>IL</td>
<td>26</td>
<td>421,089</td>
<td>252,299</td>
<td>673,388</td>
<td>5</td>
</tr>
<tr>
<td>PA</td>
<td>81</td>
<td>112,933</td>
<td>78,987</td>
<td>191,920</td>
<td>12</td>
</tr>
<tr>
<td>OH</td>
<td>59</td>
<td>153,227</td>
<td>188,004</td>
<td>341,231</td>
<td>6</td>
</tr>
<tr>
<td>MI</td>
<td>62</td>
<td>165,079</td>
<td>224,383</td>
<td>389,462</td>
<td>10</td>
</tr>
<tr>
<td>NC</td>
<td>9</td>
<td>421,775</td>
<td>131,187</td>
<td>552,962</td>
<td>5</td>
</tr>
<tr>
<td>VA</td>
<td>49</td>
<td>313,810</td>
<td>81,635</td>
<td>395,445</td>
<td>5</td>
</tr>
<tr>
<td>AZ</td>
<td>11</td>
<td>142,480</td>
<td>137,611</td>
<td>280,091</td>
<td>8</td>
</tr>
<tr>
<td>IN</td>
<td>29</td>
<td>82,960</td>
<td>52,921</td>
<td>135,881</td>
<td>15</td>
</tr>
<tr>
<td>TN</td>
<td>24</td>
<td>240,036</td>
<td>15,331</td>
<td>255,367</td>
<td>10</td>
</tr>
<tr>
<td>SC</td>
<td>40</td>
<td>213,860</td>
<td>63,019</td>
<td>276,879</td>
<td>9</td>
</tr>
<tr>
<td>KY</td>
<td>68</td>
<td>177,537</td>
<td>29,617</td>
<td>207,151</td>
<td>11</td>
</tr>
<tr>
<td>OK</td>
<td>54</td>
<td>125,783</td>
<td>20,383</td>
<td>146,166</td>
<td>14</td>
</tr>
<tr>
<td>KS</td>
<td>1</td>
<td>22,723</td>
<td>18,717</td>
<td>41,440</td>
<td>18</td>
</tr>
</tbody>
</table>

Note: From Association for Career and Technical Education CTE Information and Research page on their Web-site
Sample states chosen on "reputation" of career/technical education programming and
U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), 2001–02 and Integrated
Postsecondary Education Data System (IPEDS), 2001–02; and a review by the state directors of career and technical education