

Identifying Skills Building Students

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Background

- Chancellor's Office has begun exploratory work on identifying 'skills building' students.
- Students that take a course or courses to expand their career or occupational skillset. Not generally captured & reported as a 'traditional' outcome
- Bahr & Booth (2012) paper uses cluster analysis to identify skills builders in a population of first time students.
- "The skills-builder group, which includes almost a third of all first-time students, took one or two courses a year over a couple of years with very high course success rates, but very low attainment of a degree, certificate or transfer."
(Bahr & Booth 2012)



Identifying Skill Builders

- Descriptive analysis of all students in a given term who had a education goal (informed or uninformed) of 'Advance in current job / career' (SB14 = 'H')
- Analyze characteristics of students that had the goal of 'skills building'. These characteristics could then be applied to overall population to identify broader set of skills builders without using student goal.



Identifying Skills Builders

- In Fall 2010 there were 67,800 enrollments with this goal (about 4% of total enrollment).
- Median age was 38
- Median units attempted in Fall 2010 was 4
- Median primary terms enrolled before Fall 2010 was 5 terms (median of about 6.5 units earned over this time)
- Course success rate for these students in Fall 2011 was 70% (same as overall enrollment population)
- About 33% attended some 4 year institution before Fall 2010
- 26% had earned some type of award in the community college system
- 28% reported having at least a Bachelor's Degree and about 10% reported having an Associate Degree (about 8% & 4% in the overall fall 2010 population)



Courses and Programs

- 62% of the courses taken were in Fall 2010 were SAM A, B, C. (Some type classified as occupational)
- Largest course enrollments by TOP code was in Administration of Justice, Policy Academy, Fire Technology, Fire Academy, Mathematics, Office Technology, Petroleum Technology, English and Child Development.
- Colleges with the highest concentration included Canyons, Santa Ana, Taft, San Francisco, American River, Hartnell, Gavilan , Palomar and East L.A.



Courses and Programs

- 77% success rate for vocational courses
- Course disciplines with the highest success rates (>90%) included:
 - Petroleum Technology
 - Police Academy
 - Parks & Outdoor Rec.
 - Heavy Equipment Operation
 - Probation & Parole
 - Environmental Tech.
 - Admin. Of Justice
 - Fire Tech.



Goal 'H' Student Wages

- Median Wages
(all students in Fall 2010 with Goal H)
 - 2 Years before Fall 2010 (2008-09) — \$49,800
 - Fall 2010 Academic Year —\$49,000
 - 1 Year after Fall 2010 (2011-12)—\$54,600



Goal 'H' Students, Median before & after Fall 2010 wages by total units earned

Units	2 years Before	1 Year After	Pct. Diff
0	\$45,142	\$45,546	0.9%
1 to 3	74,753	76,774	2.7%
3.1 to 6	64,798	68,366	5.5%
6.1 to 9	50,212	52,567	4.7%
> 9	39,167	44,531	13.7%



Courses taken in Fall 2010 that were associated w/ largest median wage change after one year

Course Discipline	median 2010-11	median 2011-12	Difference
Dental Laboratory Technician	\$7,193	\$ 52,080	\$44,887
Plastics and Composites	30,029	65,067	35,038
Respiratory Care/Therapy	16,605	44,067	27,462
Physicians Assistant	9,915	30,049	20,133
Electrical Systems and Power Transmission	84,984	104,591	19,607
Radiologic Technology	26,734	46,245	19,511
Animation	18,964	37,708	18,743
Mill and Cabinet Work	24,061	41,405	17,344
Industrial Electronics	11,651	28,432	16,781



Courses taken in Fall 2010 associated w/ largest median wage change after 1 year, by College

Course Discipline	College	One Year change
Police Academy	HARTNELL	\$69,197
Film Production	ALLAN HANCOCK	40,808
Web Administration	FOOTHILL	32,794
Drafting Technology	DE ANZA	31,941
Software Applications	GLENDALE	30,583
Environmental Control Technology	LANEY	28,246
Computer Networking	OHLONE	22,831
Paramedic	EL CAMINO	21,282
Computer Graphics and Digital Imagery	BERKELEY CITY	21,083
Plumbing, Pipefitting and Steamfitting	FOOTHILL	20,546



Top 10 Most Common Industries of Employment

Industry
Executive and Legislative Offices
Elementary & Secondary Schools
Temporary Help Services
General Medical & Surgical Hospitals
Junior Colleges
Full-Service Restaurants
Colleges, Universities, & Professional Schools
Offices of Physicians
Fire Protection
Child Day Care Services



Industries of Employment with Largest Change in Earnings (pre-post)

Industries	2 years Before	1 year after	Difference
Semiconductor Machinery Manufacturing	18,524	97,007	78,483
Guided Missile and Space Vehicle Manufacturing	49,163	101,120	51,957
Electronic Computer Manufacturing	41,160	90,161	49,001
Aircraft Manufacturing	26,139	74,517	48,378
Power & Communication Line Construction	21,447	65,165	43,718
Support Activities for Forestry	45,184	88,187	43,002
Bus and Other Motor Vehicle Transit Systems	18,245	60,918	42,673
Plumbing & Heating Equip. and Supplies Wholesalers	12,579	53,392	40,813
Automobile & Other Motor Vehicle Wholesalers	30,232	69,740	39,508



Industries of Employment By College with Largest Change in % Employed

College	Industry	2 Before	1 After	Difference
TAFT	Support Activities for Oil and Gas Operations	12.8	16.3	3.5
FOLSOM LAKE	Administration of Human Resource Programs	6.6	9.9	3.3
L.A. CITY	General Medical and Surgical Hospitals	5.3	8.2	2.9
CANYONS	Executive and Legislative Offices	58.2	60.7	2.5
TAFT	Oil and Gas Pipeline and Related Structures Construction	2.2	4.5	2.3
L.A. MISSION	Child Day Care Services	3.3	5.2	1.9
SAN JOSE CITY	Child Day Care Services	3.9	5.6	1.7
TAFT	Drilling Oil and Gas Wells	2.1	3.7	1.6
DE ANZA	Temporary Help Services	3.6	5.1	1.5
CANYONS	Security Guards and Patrol Services	2.3	3.7	1.4



What we learned

- Skills building students are a difficult group to identify. Even these 'career skill upgrade' students had a very complex pattern of enrollment & course taking.
- These were primarily older students (median age 38) but many had prior experience in higher education (both CCC and 4 year institutions). Slightly over a quarter reported having at least a Bachelor Degree.
- While many were taking vocational courses, there were a number of students taking non-vocational courses as well.
- Course success rates similar to overall population. Very high success rates for select vocational disciplines.



What we learned

- Overall wages fairly stable for ‘Goal H’ students used in this analysis. Likely already working in career field.
- Working in occupations covering a wide variety of industries.
- Comparison of pre-post wages show a significant boost for some industries these skills upgrade students were employed in (large gains for manufacturing)



Future Research

- We will continue work using the attribute of the 'Skills Builders Goal' students to help identify all skills builder students in the enrollment population



Kathy Booth, WestEd

The Missing Piece: Quantifying Non-Completion Pathways to Success

Two research approaches

CTE Employment Outcomes Survey

- **Field-driven** by CTE Deans
- **“Scaled up”** to statewide survey, with nearly a third of California Community Colleges participating
- Goal: obtain **data and information not available** elsewhere on:
 - Are students finding jobs?
 - Are the jobs in the fields for which they trained?
 - Do they see a wage increase?

Peter Bahr’s Research

- **Researcher-driven** by a former Chancellor’s Office employee
- **Exploratory research** that has since been expanded with input from practitioners
- Goal: understand **what students actually do in community colleges**, by examining:
 - Course-taking patterns
 - Course-success
 - Completion of credentials or transfer

Sources of information

CTE Employment Outcomes Survey

- **Surveys** conducted through email, US mail, and by phone.
- Responses **paired with student information** available through a statewide system database

Peter Bahr's Research

- Using the Chancellor's Office statewide database, Bahr conducted a **cluster analysis of course-taking behaviors**, with the surprise finding that a large number of students were taking only one or two courses, succeeding in these classes, but not getting a credential or transferring.
- Further analysis refined a skills-builder cohort for further study, **mapped common course topics, and linked course-taking with wage data** from the state unemployment database.

Student profiles

CTE Employment Outcomes Survey

35 colleges participated; 47,436 students were surveyed, 24% (**11,595**) responded. Students met the following criteria:

- certificate/vocational degree earners
- students who completed 9 or more CTE units and did not enroll in the following year

Skills-builders are a sub-set of about half of respondents, defined as non-completers who did not transfer to a 4-year institution

Peter Bahr's Research

174,864 students who met the following criteria:

- first-time students
- between the age of 18 and 50
- took six or fewer credits per term
- achieving a unit success rate of at least 70%
- did not secure a community college credential or transfer to a four-year college

Timeframe

CTE Employment Outcomes Survey

- Research was conducted in the first half of 2013, for students who met the criteria during the **2010-2011** school year.

Peter Bahr's Research

- Course-taking behavior and academic outcomes were observed for six years, covering students who began taking courses between **fall 2002 and summer 2006** .
- Wage data tracked students from eight quarters prior to their college entry through the **fourth quarter of 2012**.

Skills-builder attributes

CTE Employment Outcomes Survey

Experienced:

- 27% have earned a BA/BS or higher
- 11% self-employed
- Posted higher pre-and post-wages compared to other groups in the survey

Skills-oriented:

- 26% had ed goal of update job skills/renew license or permit
- 13% had ed goal of self-enrichment

Non-traditional:

- 37 years old

Peter Bahr's Research

Successful:

- 98% unit success rate
- 71% earned GPA of 3.0 or higher (compared to 28%)

Fast:

Three-fifths stayed just one semester, and most left after two terms

Non-traditional:

- 47% white, 33% Latino, 7% African American, and 7% Asian American
- 51% male
- 37 years old

Programs of study

CTE Employment Outcomes Survey

Unknown, as they did not complete a program of study

Peter Bahr's Research

About three-fifths (58%) of skills-builder students **enrolled initially in CTE fields** such as:

- engineering and industrial technologies
- business and management
- public and protective services
- family and consumer sciences
- information technology

Earnings gains

CTE Employment Outcomes Survey

- **22%** increase in hourly wages from prior to coursework/training to approximately 1.5 years post coursework/training

Peter Bahr's Research

16 of the 24 course clusters yielded significant inflation-adjusted earnings gains, usually in the range of **2-15% for just six credits:**

- administration of justice – 9%
- electronics and electric technology – 8%
- computer infrastructure and support – 5%
- child development & early care education – 3%

The **more credits** non-completers took, the **more their wages increased.**

Other benefits

CTE Employment Outcomes Survey

Numerous employment outcomes:

- 16% report they learned skills to stay in their current job
- 31% obtained an industry certification/licensure
- 67% report their current job is “very close” or “close” to their field of study

Peter Bahr’s Research

Unknown, as the unemployment insurance data doesn’t tell us

Key messages

- Skills-builder students are **not just anecdotes**.
- These students appear to upgrading **work-related competencies** and securing significant wage gains.
- Common success metrics count these students as **failures**.
- Few colleges have **access** to employment, wage, and external certification data needed to demonstrate their successes.

Implications

- 1) **Metrics are needed** to capture community college workforce development goals. Some measures that may prove helpful include:
 - Course success
 - Employment
 - Job retention
 - Wage gain
 - Industry certifications and state licenses

Implications

2) Looking at employment outcomes **can help colleges determine** whether they are offering students a fair return on investment and a chance at a family-sustaining wage.

Implications

3) Colleges could leverage information on skills-builder students to inform **program improvement efforts**.

Find out more

CTE Employment Outcomes Survey:

www.rpggroup.org/projects/CTE-Employment-Outcomes-Survey

Peter Bahr's research on skills-builders, plus practitioner-friends guides to support conversations on the research:

www.wested.org/project/quantifying-non-completion-pathways-to-success

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