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John E. Lederer

PROMOTING LIFELONG LEARNING:
AN ANALYSIS OF COMMUNITY COLLEGE
DELIVERY OF EMPLOYER-FOCUSED
EDUCATION AND TRAINING

John E. Lederer

A dissertation submitted in partial fulfillment of the
requirements for the degree of

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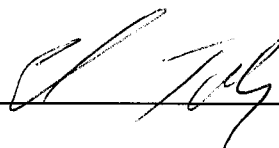
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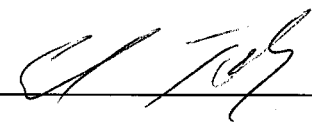
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ABSTRACT

PROMOTING LIFELONG LEARNING:
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John E. Lederer

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The role and mission of two-year colleges in U.S. higher education has expanded throughout their 100-year history. Community colleges began as junior colleges focusing on the first two years of post-secondary education. Over time, community (and technical) colleges have evolved to take on the additional mandates of professional-technical education, adult basic education, continuing education, worker retraining/job training, community service, and more recently, employer-focused education and training for newly-hired and incumbent (currently employed) workers.

This study investigates this latest addition to the role that community colleges are expected to fill, looking at the structural changes in the economy and labor markets that have placed greater emphasis on the periodic (and sometimes continuous) upgrading of worker skills. How have community colleges responded to this economic demand? What has been the response of community and technical colleges in Washington State to the employer demand for skill upgrade education and training? What federal and state policies can better enable community colleges to meet the demand for skill upgrade training and education?

This study of employer-focused contract supported education at Washington State community colleges found it to be a growing enterprise, in both relative and absolute terms, with regard to enrollments and expenditures. There was evidence indicating that employer-focused education and training is a dynamic enterprise responding to changes in the economy and employer demand. Finally, a high level of contract activity is currently focused on the academic subject

areas, and the recent growth of employer-focused education was in this area and in vocational preparatory (entry level) training.

The study concludes with policy and program recommendations, based on the study results, for colleges, Washington State, and the federal government to follow which promote the development of employer-focused contract supported education. These include the expansion of state resources targeting employer-focused education for small and medium sized firms, and certain non-credit course offerings, as well as a new formula-funded federal program that would support sector or cluster-based workforce development planning activities in labor market areas nationwide.

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DEDICATION

To my wife and daughters—Mary Beth, Sophia, and Maya. I love you.

Chapter 1

INTRODUCTION

Background of the Problem

One of the core missions of higher education is to prepare students for rewarding careers in the field of their choice. There is great debate over the importance of this mission vis-à-vis others—such as cultivating leadership, expanding knowledge and understanding, and providing students with the tools for citizenship and community engagement—but this study will not address that ongoing debate directly. Increasingly, career preparation has evolved into career development—a continuous process of lifelong learning, rather than a discreet endeavor occurring only at the beginning of one’s working life.

Community colleges are focused on the career development mission, but as institutions traditionally geared toward training for entry-level jobs, they struggle with how to address the ongoing, lifelong training needs of workers and address higher-level skill development. The traditional emphasis of community and technical colleges on offering survey courses and other foundation skills typically found in the first two years of post-secondary education is expanding. As education researcher, W. Norton Grubb observed, “Modern community colleges have a major responsibility for preparing the nation’s current and future mid-skilled workforce, which accounts for three-fourths of all employees in the United States” (Grubb 1996).

Community colleges are responding to this challenge by becoming more responsive to changing labor-market demand, including the increasing business need for the continuous development and upgrading of worker skills. Meeting the ongoing training needs of incumbent workers requires close relationships with employers. The labor market responsive community college has leadership committed to the college mission of meeting employer demand for skills, internal response mechanisms that are capable of rapidly developing curriculum, partnerships with industry and other organizations to identify and develop appropriate training, and close ties with the local community (Harmon and MacAllum 2003).

In 2000, the European Commission (EC) issued a *Memorandum on Lifelong Learning* that defined lifelong learning broadly as, “all learning activity undertaken throughout life, with the aim of improving knowledge, skills and competencies within a personal, civic, social and/or employment-related perspective (European Commission 2002). Extending this definition to the U.S. context, skill upgrade training to improve work-related skills and knowledge would be considered a key component of lifelong learning—a long-standing mission of community colleges. Other components include continuing education for hobby, general interest and work-related instruction purposes. However, most often when people think about the concept of lifelong learning, they put it in its economic or workforce development context, focusing on the need for each individual to keep their work-related skills updated in order to maintain employment or advance their careers.

Washington State is an excellent laboratory for studying the role of community and technical colleges in delivering skill upgrade training and education. The state system is large relative to the state’s population and data systems are statewide and comprehensive. A review of trends in Washington State can help identify some of the incentives and barriers for community college engagement in the delivery of employer-focused education and training, as well as issues for further national-level study. However, some of these characteristics, and others, differentiate Washington from other states, it is important to be cautious when generalizing to the rest of the nation based on the state’s experiences.

Statement of the Problem

The essence of the problem facing community colleges is one of balance in the face of competing or contradictory demands. Colleges want to be responsive to the career development needs of their students. These needs are changing as labor markets restructure and employee-employer relations change, placing greater emphasis on the worker’s personal responsibility to develop and update skills to advance their career. Colleges also want to be responsive to the needs of employers, especially those in their service districts. These needs are not consistent from industry to industry and among large and small enterprises. Firms struggle to understand what their future skill requirements will be in a rapidly changing globally-competitive environment.

The tensions and challenges explored in this study that community colleges are seeking to balance include:

- Firms are seeking higher-level skills (critical thinking, analytical, and technological skills) while simultaneously seeking a flexible and adaptable skill mix. The development of skills requires time but flexibility implies that skill needs are changing and the time to recoup investments in skill development is short.
- Employers want the right mix of skills to address firm-specific needs, employees want general skills and portable credentials that will qualify them for employment with another firm, should they decide to (or be forced to) move on.
- Community colleges have traditionally focused on education for entry-level employment, but firms increasingly need to upgrade the skills of their current workers as market conditions change. A labor market responsive college must be able to provide instruction to meet higher-level skill needs. Developing customized training for businesses requires resources that many colleges lack, since most states provide limited direct support for non-degree credit instruction.
- Small firms lack the capacity to identify future skill needs or invest in skill development, yet these firms employ much of the workforce. Colleges also find it more efficient to work with larger firms on large-scale projects. Thus, workers at small companies are less likely to have access to the necessary training and development resources needed to ensure their companies remain competitive.
- To be responsive to local labor market needs, colleges need effective systems and strategies for communicating directly with employers. In most states, there is no system in place for accomplishing this, and methods used in the past (such as program advisory committees) are inadequate.
- Government customized training programs often seek to promote job creation by providing new and expanding firms with state-subsidized training services for their workers. They also try to address the even greater need to invest in training that enables firms to retain a competitive position. Policymakers want to make sure that public dollars leverage, but do not supplant, private investment. These tensions push

public job training programs toward large-scale projects that promise new job creation, at the expense of skill upgrade training of incumbent workers that helps improve firm competitiveness and retain existing jobs.

This study will explore these tensions. Their analysis will provide the basis for public policy recommendations that can better enable colleges to balance these vise-like pressures. An economy that is putting greater value on skills and that is requiring workers to continuously upgrade and update their skills, needs a system for ensuring that this is possible. Community colleges are well-positioned to fill this role, but not without adequate resources and public support.

Purpose of the Study

This study intends to improve our understanding of why colleges are increasing their capacity to develop customized training and education programs that meet the needs of industry, how and why colleges are working more closely with businesses to develop and update their professional-technical programs and employer-focused education and training services, and what government can do to better enable community colleges to meet this challenge. The study will explore what labor market and economic changes are driving employer skill development needs, and what some leading colleges are doing to be more responsive to those needs.

This research will focus on Washington State as a case study. In many ways Washington is an excellent state to focus on because of the success and relatively large size of its community and technical college system. With 34 publicly-funded two-year colleges, Washington has a relatively large system capacity and ranks sixth among states in Associate Degrees earned per 1,000 residents, ages 20-34 years old (Washington Higher Education Coordinating Board, 2003, p.14). The state has a comprehensive database of information on students in all colleges in the system, making research feasible. However, in other important ways, Washington is different than many other states. Washington community and technical colleges receive most of the federal adult education and literacy funding that comes to the state. They also receive a relatively large share of the federal vocational education funds. This puts the colleges in a

strong position (in relation to school districts and community-based organizations) with regard to the provision of job preparatory training and education.

Research Questions

This study focuses on the role of community and technical colleges in providing skill upgrade training and education to incumbent workers and firms. It will identify the arguments for and against greater emphasis on incumbent worker training. In making the case for community and technical college engagement in this activity, the gaps and constraints on resources and capacity of Washington State colleges to deliver this service will be identified.

The community college movement in the United States created unprecedented access to higher education. These institutions now serve a diverse constituency and offer a multitude of services and programs. In particular, community and technical colleges promote skill development and upgrade, worker training, life-long learning and the development of college/industry partnerships among many other roles.

The research will address the following questions:

1. How have structural changes in the economy and restructuring labor markets increased the demand for post-secondary education, and skill upgrade training in particular? What are the implications of these changes for the development of systems of lifelong learning?
2. What are the major resource and institutional incentives and barriers for community colleges to engage in incumbent worker and firm-specific training and education?
3. What are the primary means community colleges use to determine the training and education needs of incumbent workers and their employers? What are the attributes of labor-market responsive community colleges?
4. How is incumbent worker training provided in the state of Washington by community and technical colleges? What trends exist regarding who is seeking incumbent worker

training in this state, what type of training is being sought? What causal factors may underlie these trends?

5. What are the stated Washington State public policy goals and objectives regarding the promotion of incumbent worker training and lifelong learning, and the role of community and technical colleges in their promotion and delivery? What modifications to state policy and programs are derived from the analysis to increase the ability and effectiveness of community colleges to deliver services that upgrade the skills of incumbent workers? What federal policies could best promote the delivery of skill upgrade training to incumbent workers by community colleges?

Importance of the Study

This research will summarize many of the economic arguments encouraging community and technical colleges to provide employer-focused education and training. It will help provide baseline data on the current state of incumbent worker and firm-specific training and education provided by the Washington community college system.

Moreover, it will weigh the policy arguments for and against greater community college emphasis on skill upgrade training. This study will help Washington and other states identify a rationale and policy tools to fill the public policy void left by scant federal policy and resources to promote skill upgrade training and education. National politics and fiscal constraints make it unlikely that there will be any substantial program expansion in this important economic and regional development policy area. States will need to make informed decisions as they move forward to improve the skills of their workforce and enhance the economic benefits of higher education investments.

Definition of Terms

Without making the case for lifelong learning (that is reserved for Chapter 2), it is important to define the term lifelong learning and differentiate it from other forms of training and education. The simplest definition of *lifelong learning* is all learning that occurs from cradle to grave, but it typically refers to formal education and training of young people and adults,

including continuing education (encompassing general interest, hobby, and work-related instruction), vocational skill development, or developing new areas of knowledge for the individual.

The European Commission's commitment to lifelong learning is clearly stated in its proclamation that "preparation for life in tomorrow's world cannot be satisfied by a once-and-for-all acquisition of knowledge and know-how...All measures must therefore necessarily be based on the concept of developing, generalizing and systematizing lifelong learning and continuing training. (EC 1994:16, 136 cited in Field 2002).

As the definitions suggest, the objective of lifelong learning can be either upgrading skills for economic competitiveness, career development, or simply mental stimulation. Tuijnman points out that the concept of lifelong learning is inherently value laden, "based on the beliefs that everyone is able to learn, that all must become motivated to learn, and should be actively encouraged to do so throughout the lifespan, whether this occurs in formal institutions of education and training or informally, at home, at work, or in the wider community (Tuijnman 2002).

The word *training* will be used to refer to short-term instruction (often comprised of non-credit courses) whose primary purpose is to impart skills and knowledge that can be used on the job. Training programs typically do not lead to a college degree or certificate (other than a certificate of completion). Employers are typically directly involved in determining the content of training programs. The word *education* will be used to refer to programs that often lead to a college degree or certificate and are comprised of courses taken for college credit that may be transferable to other institutions. The objective of skill upgrade education is primarily personal professional development, so its content is more occupation-specific than industry or company-specific. An example would be an information technology worker in any industry taking a continuing education course to secure a recognized certification such as Oracle Database Administrator (DBA) or Certified Internet Webmaster (CIW)

Incumbent worker training and education is often used interchangeably with lifelong learning, but really is a subset, representing only learning that is work-related, predominantly skill (as opposed to knowledge) focused, and short-term. It is often motivated by an emerging business need for skills, and may or may not contribute to broader personal career development. Employers may engage their workers in skill upgrade training to reduce process waste or develop new products or services. In such instances, these business-focused objectives may help the company stay in business without providing any direct career development advantage to the trainee. Incumbent worker training may involve a variety of modes of instruction including classroom instruction, distance learning, and on-the-job training. The mode, intensity, and timing of instruction is usually determined by the employer, not the individual learner.

Throughout this paper and the research it describes, there are references to *community colleges*. In fact, unless specifically indicating otherwise, this term refers to any public institution that confers a post-secondary Associates Degree, including technical colleges and a few four-year institutions.

In order to understand how and why community colleges are engaging in employer-focused education and training, it is important to understand the institutional and economic context for the demand by firms for this service. In Chapter 2, there is an exploration of economic and labor market structural changes that support the demand for these services, along with an analysis of best practices colleges have implemented to become more labor market responsive. Chapter 3 is a methodological discussion for the analysis of empirical data on employer-focused education trends in Washington State that follows in Chapter 4. The final chapter, Chapter 5, draws conclusions and federal and state policy recommendations based on the preceding analysis.

Chapter 2

LITERATURE REVIEW

There are four distinct research areas that this study draws upon. The first two are well-established, exploring the expanding role of community colleges in U.S. higher education and the economic context for U.S. higher education and lifelong learning. The third area looks at public policy, institutional practice, and the community college role in providing incumbent worker training. The final research area is sparsely covered, by comparison, focusing on how colleges track and respond to changes in labor market conditions and the demand for skills. The first two areas are more theoretical in nature although based on analysis of national trend data, the last two areas focus on local implementation of state and national policy, relying on case study, survey, and data trend analysis. In this study, particular emphasis will be placed on Washington State, and state data resources and reports.

Each of these four areas of the relevant literature is explored below, describing the sources that inform this study, and providing the basis for its approach and analysis.

The Expanding Role of Community Colleges

Understanding how the role of community colleges has evolved over their 100-year history helps explain the relevance of the research topic, and context for understanding its importance. Community colleges have moved well beyond their initial role of providing junior division instruction to prepare student for transfer to baccalaureate institutions. Many community colleges are now focusing as much on providing industry-responsive skill upgrade training as on preparing workers for entry-level employment, or preparing students for transfer to four-year institutions.

A good starting point for this body of literature is Cohen and Brawer's *The American Community College* (third edition, 1996), which defines the functions and historical evolution of community colleges from their start as junior colleges in 1901 in Joliet, Illinois to their current ubiquity on the U.S. higher education landscape. Several other works supplement this basic text with a

look back at the path community colleges have taken, and include additional analysis and critique. These include Brint and Karabel's *The Diverted Dream: Community Colleges and the Promise of Educational Opportunity in America* (1989) and a recent paper released by the Educational Testing Service of Princeton, New Jersey entitled, *The American Community College Turns 100: A Look at Its Students, Programs, and Prospects*.

What these works tell us is that community colleges have expanded tremendously—in terms of their number, scope, mission and outcomes (Coley 2000). There are currently about 1,200 2-year colleges in the United States, most of them public community and technical colleges, serving about 10.4 million students (split roughly evenly between students taking credit and non-credit courses). About 44 percent of all undergraduate students in the United States (and nearly half of all first-time freshmen) are attending community and technical colleges (American Association of Community Colleges 2004). Over the last 45 years, community colleges have been the fastest-growing sector of post-secondary education (Grubb and Lazerson, 2004, p. 88). The greatest period of growth in community colleges came in the 1960's and early 1970's when the number of public institutions more than doubled from about 400 in 1960 to over 1,000 in 1975 (Cohen and Brawer 1996). Factors contributing to this growth spurt were the relatively low-cost and convenience of community college attendance, rapid economic growth, and the creation of federal student aid programs enabling students to attend. Another factor was an increasing earnings premium for those workers with some post-secondary education or a post-secondary degree or certificate.

Common Curricular Functions of Community Colleges

What distinguishes community and technical colleges from other higher education institutions is their singular emphasis on teaching and student learning. Four-year colleges and universities place additional emphasis on research and publishing in academic disciplines. Another major distinction is the open admissions policies of public community and technical colleges, including enrollment of students who, in some cases, do not have a high school diploma or GED. Finally, unlike other institutions of higher education, the community colleges' highest

degree is typically the Associates degree, roughly equating to the first two years (junior division) of a four-year Bachelor's degree.¹

According to Cohen and Brower, the most common curricular functions of a community or technical college can be grouped into the following major areas:

- Academic transfer;
- Professional-technical education;
- Continuing education;
- Basic Skills/Developmental Education;
- Community service

These are not mutually exclusive delineations, and increasingly colleges are engaging in more and more activities that stretch across two or more of these functions. The **academic transfer** function has remained the primary function of community colleges overall, although to a lesser degree than in the past as other functions have grown. The purpose of this function is to prepare students for transfer to four-year institutions or award of a terminal academic (Associates) degree.

Professional-technical education is the predominant technical college function, and is the college function that has grown the most in the last twenty years, to the point that nearly half of all community college degree students (and most technical college students) are in professional-technical programs. While the majority of professional-technical students are seeking a terminal degree and plan to work upon completion, an increasing number of students and colleges are articulating their professional-technical programs to four-year programs at partner institutions, allowing students to transfer and get an applied Bachelor's degree (usually a Bachelors of Science). For example, a student might seek an Associates degree in computer information systems and then transfer to a computer science program at a four-year institution. This is one of the ways in which the lines between the major functional areas are becoming blurred.

¹ Although it is worth noting that there is a significant movement to change this and allow community and

Continuing education courses are not for academic credit and provide students with skill upgrade training, hobby or personal interest courses. In most states, continuing education courses receive limited or no state-support, and students are charged tuition that covers the full (unsubsidized) cost of instruction. Course completers typically receive a certificate of completion, and many colleges offer continuing education credits which, in accordance with college policy, can be turned into academic credit at a later time at that institution, should the student wish to do so. Continuing education programs are increasingly offering rigorous industry certifications for skill upgrade training and professional development, often in collaboration with professional associations and private vendors. This is most typical in the information technology field where students can take courses to prepare themselves for vendor certifications offered by companies like Oracle and Microsoft. Carnevale notes that “programs that prepare students for national certification exams give them access to an additional credential and provide community colleges with a convenient measure against which to benchmark their programs (Carnevale, 2001).” Finally, continuing education divisions contract with local companies to provide customized training for their employees.

Adult Basic Education and Developmental Education are increasingly important and growing areas of the community and technical college mandate due to the large share of students who enroll in college courses that do not have college-level English and math skills. A recent study in Washington State found that 29 percent of the state’s high school graduates in 2002 (about 18,000 students) enrolled in one of the state’s 34 community or technical colleges the following academic year (Washington State Board for Community and Technical Colleges 2003a). Fifty-seven percent of those new high school graduates enrolled in remedial or developmental English or mathematics classes in 2002-2003, their freshman year at college, indicating that despite the fact they had just received a high school diploma, their college placement test results indicated they were not ready for college-level English and math classes (Washington State Board for Community and Technical Colleges 2003a).

technical colleges to also offer a Bachelor’s Degree, especially in technical degree fields.

Adult Basic Education includes English-as-a-Second-Language (ESL) instruction, GED preparation (primarily remedial math and English), and basic literacy and numeracy courses. Once basic literacy is achieved, developmental education takes over (although there is some overlap) to get the student to the college level. Developmental education provides high school level instruction in study skills, reading comprehension, critical thinking, and composition. Developmental education also covers pre-college level mathematics instruction, including subjects like geometry and elementary and intermediate-level algebra. Developmental education may be integrated administratively with adult basic education, but more typically it is administered separately from adult basic education, under the academic divisions of the college.

The final curricular function of the community or technical college is **community service**. This function is especially important in rural areas where the college may be the only higher education institution (and therefore an important public gathering place) in the region. It is generally less critical in areas that are more densely populated and have other resources in the community. Community programs include cultural events such as drama and music, lecture series, sports events and recreational activities. Summer camps for kids and special instructional programs for senior citizens are also common (Cohen and Brawer, 1996).

Cross-Functional Activities

Drawing from all of the literature, it is possible to begin to develop a typology of activities in which community colleges are increasingly engaged that cut across these more established functions, especially with regard to activities focused on workforce and economic development. To the extent that the college is administratively structured in a manner consistent with the major functions (and most colleges are), the cross-functional activities are challenging to the existing patterns and practices of the college institution. They often require the collaboration and cooperation of different divisions or functional units of the institution to plan and administer. In addition, they often require the added complication of combining different sources of funding including state formula-funded FTE support, public and private grants, employer or public agency contracts, and federal funding (often from multiple funding streams administered by different federal departments and state and local agencies).

One of the major cross-functional areas of many colleges is job training which typically focuses on short-term (less than one year) programs that combine professional-technical education with adult basic (literacy and ESL) or developmental education. College job training programs typically target low-income and dislocated workers, out-of-school youth, immigrants and refugees. Depending on the funding source, there may be a requirement to also provide participants with outreach and recruitment services, retention, human/social services, and job placement services. These additional services may require coordination with outside agencies (typically state and local human services agencies and community-based organizations).

One of the challenges of job training programs in the college environment is to develop a program model that strikes the right balance between integration of the trainee into the student population and training and support systems that are focused on the workers targeted for service. Many trainees are unlikely to walk onto a college campus on their own because they are not academically ready for college attendance, and they know it. But creating totally separate programs and support systems for job trainees increases program costs, and can create a sense of isolation from the rest of the campus. Trainees might end up attending a community college training program without ever experiencing what it would be like to be a student enrolled in a regular college program, and this decreases the likelihood they will continue their education at the college once training is completed.

Another major cross-functional area is customized contract training, which includes elements of academic or professional-technical education (with regard to content), and continuing education (with regard to the target audience—incumbent workers—and its non-credit status). Occasionally, ESL and developmental education are a focus of contract training. With customized contract training, the business or organization defines the skill competencies to be addressed by the training, and the college assembles or develops the curriculum to meet the business need. Contract training is a completely entrepreneurial activity undertaken by the community college. The majority of colleges house this function in their continuing education divisions, but there is considerable differentiation in how contract training is administered and structured. Other colleges may put the responsibility for contract training development in the

office of the Dean for Professional-Technical Education, or they may tap the dean of each academic division.

Another phenomenon that has challenged the traditional curricular functions has been the growth of working part-time students. More and more students are coming back to college to take a few courses, leaving school to deal with family or work issues, and then come back. The traditional two-year, continuously attending full-time student is no longer the norm. According to information posted on the American Association of Community Colleges website, 63 percent of community college students attend part-time, and more than 80 percent of all community college students work (full-time or part-time) while attending college (American Association of Community College 2004).

So it is clear that the mission of community colleges continues to expand and evolve. Thirty years ago, community colleges were primarily focused on transfer education and technical colleges were almost exclusively providing technical training and education for careers. Now both provide expansive adult and developmental education, and nationally, the percentage of community college students enrolled in professional-technical certificate and degree programs equals the combined percentage of undeclared students and students enrolled in academic degree programs (Bailey, *et. al.*, 2004).

Furthermore, there has been expansion in the job training and customized training activity at most colleges across the country—activities that integrate elements of several functional areas of the institution. Unfortunately, most of the information supporting this expansion is anecdotal and there is no reliable national-level time series data that zeros in on contract training by community and technical colleges. A look at NCES IPEDS data on community college revenues from private gifts, grants, and contracts shows an increase in this category of funding from \$220 million nationwide in 1995-1996 to \$376 million in 2000-2001 (Snyder, *et. al.*, 2004). Of course, it's not possible to know if that increase was attributable to private contracts or to gifts and grants, but it supports the general contention that community colleges are increasingly focusing on private resources for revenue.

The Rise of Vocationalism in the Community College

One way to understand and interpret the evolution of the community college's role and mandate is to put it in the context of the general rise in vocationalism in education in the United States. Grubb and Lazerson do an excellent job summarizing the debate over vocationalism and the tensions it creates within community colleges and other higher education institutions. They define vocationalism as the gradual evolution of the economic purpose of education toward preparation for *vocations*—not just jobs, but occupations as careers that provide employment, personal meaning, economic benefits, and social status that are continually developed over the course of a life. Contrary to systems in Europe, the American version of vocationalism emphasizes formal schooling to prepare workers, rather than other institutions such as work-based apprenticeships. Also unlike Europe, comprehensive education institutions are tasked with this job, rather than concentrating work preparation in vocational high schools, technical schools and specialized universities (Grubb and Lazerson, 2004, p. 3).

Vocationalism has led to a shift in our thinking about education in market-like terms. The growth of vocational and professional-technical education at the high school and community college level has, according to Grubb and Lazerson, “helped shift the purpose of education from collective goals—the maintenance of democracy, the preparation of moral leaders—to private goals like access to valued occupations (p. 150).”

The rise of vocationalism has led to a series of problems and dilemmas for community colleges. The first is one of low status within higher education that has made it difficult for community colleges to compete for public and private funding. Preparation for the elite professions—doctors, lawyers, business executives, scientists and engineers—remains the exclusive province of four-year institutions and universities, leaving community college with the lower-status professions and technical training responsibilities. Furthermore, as open door enrollment institutions, there is no selectivity, making it more difficult for community colleges to be seen by legislators and employers as institutions of higher learning. The end result is lower annual spending per FTE student (based on NCES data released in 2002)—\$7,665 in community colleges compared to \$11,345 in public universities granting Master's Degrees,

\$17,780 in public doctoral institutions, and \$32,512 in research universities (Grubb and Lazerson, 2004, p. 73).

A second problem centers on whether community colleges are serving a “cooling out” function, channeling under-prepared students into low-status occupational programs, and away from academically-focused baccalaureate degree programs (Clark, 1960). The expansion of community college professional-technical programs has helped to make this possible. To the extent that “cooling out” occurs, it ensures that students who might be able to achieve a baccalaureate degree with some support, encouragement, academic assistance and remediation, are instead guided toward vocationally-focused programs leading to lower paying, entry-level jobs with little or no career advancement opportunities.²

Vocationalism has occasionally led to divisions within the community college between the academic transfer faculty and the professional-technical faculty regarding the nature and purpose of the institution and the role of work-focused education. The fact that the academic transfer faculty often has advanced degrees and professional-technical instructors are typically recruited from industry means that the two groups often come to the institution with different professional experiences and perspectives. Sometimes the opportunity cost for professional-technical faculty to pursue teaching, when they are coming from industry, can be higher than for other academic faculty. Combine this with the fact that professional-technical instruction often requires state-of-the-art facilities and expensive equipment, and its no wonder that disagreements and resentment in both directions can arise.

Grubb and Lazerson identify something they call the work-family-schooling dilemma as the biggest problem facing community colleges, induced in part by the growth of vocationalism, since professional-technical programs tend to attract working students. Community college completion rates are low (about 16 percent of students seeking an Associates degree actually earn one within six years, and nearly half earning no credential at all) and they seem to be even

² Clark observed patterns regarding which students are most likely to experience cooling out, noting that students from minority racial and ethnic and low socio-economic status backgrounds tend to get “cooled out” more often than other students.

lower for first-generation students, as compared to selective four-year colleges. The numbers, however, are comparable to second-tier four-year institutions (which have less selective admissions requirements) which are in the 20-30 percent range (Grubb and Lazerson, 2004, p. 98). Grubb and Lazerson contend that the reason community college students have low completion rates is that they are more likely to have difficulty juggling work and family obligations that interrupt and require time off from their studies. This is not the case for the typical middle class, full-time student attending a selective four-year institution.

The Economic Context for Higher Education and Lifelong Learning

Many of the changing demands being placed on community and technical colleges are a result of changing economic conditions. Understanding this economic restructuring and its effect on labor markets and the employer demand for skills is essential for placing the role and function of the community college in its proper context. Based on the discussion above, it is clear that one of the essential tasks for community colleges is to develop demand-based programs that incorporate new and more effective ways to combine work and learning—to enable work while learning and acknowledge learning that occurs while working. Figuring this out is essential to the promotion of lifelong learning. It is also critical to developing closer working relationships between community colleges and industry.

Higher Education and Increasing Returns to Skills

Several analysts have identified some of the most prominent political and economic factors influencing community colleges, and higher education institutions generally, including:

- Globalization of economic systems;
- Rapid development of communications technologies that revolutionize the way we do things and our contact with people across the globe;
- Changing patterns of work and employment (including increased flexibility and mobility);
- Growing economic and social inequalities within and between nations;
- The funding and political economy of higher education (its social and economic role and function);

- The reconfiguration of knowledge within and between traditional fields of scholarship; and
- The increasingly interventionist tendencies of government, the professions and employers (Bradley 1997:1 and Reid 1997:1 cited in King 2002, p. 128).

These factors have profound implications for the skills workers need to have to ensure their employers remain competitive in a global marketplace. These factors have affected the timing, mode, and scope of education and training solutions. They are affecting the way education and training is developed and delivered. Most importantly, these political and economic factors are helping to place a premium on skills—but not just any skills—those that enable rapid innovation, critical thinking, and analytical ability. These skills are essential to the development of so-called *knowledge capital* (discussed below).

In the most recent period, the economic returns to education credentials have increased. Overall, sixty percent of all prime-age U.S. workers have some college education, as compared to twenty percent in 1959. More than two-thirds of workers in growing, good-paying occupations have some post-secondary education, as compared to one-third of workers in declining, low-paying occupations (Carnevale and Desrochers, 2001, p. 45). This suggests that economic growth is happening in the skill/degree intensive occupations.

Table 2.1 below shows the increase in the earnings ratio of college graduates, as compared to high school graduates, between 1977 and 1996. The increase in the ratios over time indicates the extent to which a high school graduate's ability to earn more is increasingly reliant on getting a college education.

Table 2.1: Earnings Ratio for Education Levels (1997 and 1996), Male and Female

Earnings Ratio	Male		Female	
	1977	1996	1977	1996
Baccalaureate/High School	1.476	1.685	1.411	1.752
Some College/High School	1.010	1.136	1.039	1.167

Source: Grubb, 1999. Ratios are calculated from an analysis of the Current Population Survey, Table 1, p. 64.

Of course, this data fails to isolate the unique effect of education credentials on earnings, since other social and economic factors may also vary between those that graduate high school and those that go on to get higher degree. Studies that do, in fact, isolate the effect of education using regression analysis (accounting for other differences between groups) also show a high earnings return for a post-secondary degree (as compared to a high school diploma), in the range of 20 to 40 percent for a four-year degree, and 20-30 percent for an associate degree (Grubb 1999, p. 14).

But even if workers do not engage in education or training for the purpose of getting a post-secondary degree, there is still some economic value in work-related skill upgrade training. A recent study tracked the employment and wage impacts of short-term skill upgrade and new hire training in California. Thousands of workers receiving skill upgrade training experienced 97 percent employment retention and an average earnings increase of \$3,080 in the year following upgrade training (Duscha, 2002, p. 2). Although there was no control group in the study, it is reasonable to assume that these impressive numbers may have been at least partially attributable to the short-term training.

Osterman explains the increased corporate demand for skills with reference to three overriding structural shifts:

- Globalization and intensified competition from new entrants into deregulated industries;
- The spread of computer technologies; and

- The spread of new work systems (Osterman 2001)

Osterman notes that knowledge is critical in industries where technology is changing rapidly, leaving companies to decide whether to retrain incumbent workers, recruit a new (higher skilled) workforce, acquire new companies with the required knowledge, or form strategic alliances and joint ventures. Many companies have chosen to lay off older workers who lack the required skills favoring the acquisition/merger/alliance options with companies that have the necessary skills (and often a younger workforce).

The new work systems are knowledge-based. They give employees more say in how to do their jobs and encourage teamwork, flexibility, and problem solving. Managers are transformed into coaches or facilitators, participating in problem-solving groups that address production techniques, quality issues, and health and safety issues. Osterman found that in 1997, 71 percent of surveyed firms were engaged in two or more high performance work practices (such as job rotation or self-managed work teams) that involved more than half of their core employees, up from 26 percent five years earlier (Osterman 2001, p.102).

The objective of the new work systems is to transform the enterprise into a “learning organization.” These organizations have the capacity to “generate, capture, store, share and use learning at the systems level in order to create innovative products and services (Marsick and Watkins 2002, p. 41).” To the extent that knowledge can be turned into an economic asset, it has the characteristics of capital, and is sometimes referred to as “knowledge capital.” Knowledge capital resides in the people that do the work, and it walks out the door each evening, possibly never to return. Its essence is the accumulated insight into “how things work here.” Every layoff or retirement is not just a cost reduction; it is a deadweight loss of knowledge capital.

The continuously shifting skill requirements and changing work systems that emphasize creativity, innovation, and team skills heighten the need for continuous training or lifelong learning. The worker’s skill set needs to evolve with the changing needs of the industry they work in. Lifelong learning has a greater impact on non-degree credential and certification

programs than degreed programs. Learning is less linear, as workers seek “blocks” of skills at different times in their careers, and need evidence of their skill sets when changing jobs. The growth of vendor certification programs in the IT industry is an example of how new and shifting skill requirements have driven a market response by higher education institutions and other training organizations (Carnevale and Desrochers, 2001, p. 28).

The Changing Structure of Labor Markets

Osterman (Osterman, 2001 and 1999) provides us with insights into how the structure of labor markets have changed and what the implications of these structural changes are for employer demand for worker skills and knowledge. The post-War business-labor compact had been marked by unionization of key industries and the development of essentially two-tiered labor markets. The first tier of primarily non-union, white-collar jobs was relatively small and comprised of professional and managerial occupations. Job tenure was high and workers stayed with firms and in their same job and occupation for many years. Profits were shared with employees (in the form of pay and benefit increases) to retain those workers who had firm-specific skills and were costly to replace. The larger second tier was much lower skilled, rarely requiring post-secondary education, and was volatile—subject to business cycles. These jobs were more often unionized and the periodic layoffs were tied to business cycles and often followed by callbacks based on seniority. Most of these jobs were lower-paying, but many of the unionized industries offered family-wage (middle class) employment.

The primary workforce intermediary (provider of services designed to improve labor market operations) that existed in this era was the Employment Service, providing labor exchange services (matching job seekers with employers seeking workers) and authorized under the federal Wagner-Peyser Act of 1933. It focused on the second tier jobs, and was marginally effective, primarily because core firms (large, unionized, industry-leading firms) who often hired through their unions did not use it. There was little use of private staffing agencies.

What has changed? For one thing, job tenure, especially for white collar men. In 1983, 62 percent of men age 50-54 had worked for their current employer for ten or more years. By 2000, that number had slowly declined to 52 percent (and was even lower for women). Also,

white-collar workers were, for the first time, bearing the brunt of the layoffs. In the late 1990's salaried jobs accounted for 40 percent of employment and 60 percent of all job cuts (Osterman, 2004, pp. 159-160).

Also the nature of work changed. The new jobs of the 1990s were knowledge jobs, and not based on production or natural resources. Educational upgrading occurred across all occupations. The percentage of 30-59 year old workers who did not complete high school fell from 30 percent in 1973 to 10 percent in 2000. White collar office jobs and jobs in hospitals and classrooms made up 55 percent of all U.S. jobs in 2000, while factory jobs have declined to 17 percent of the U.S. job base (Carnevale and Desrochers, 2004, p. 175).

Another series of changes occurred in employee compensation and income distribution. As discussed above, those with the most education have received increasingly greater earnings gains. After controlling for other factors that vary between college and high school graduates, the wage premium attributable to receiving a college degree increased between 1979 and 1999 from 20 to 42 percent for men and from 27 to 48 percent for women. What is most remarkable about this increased wage premium is that it occurred at the same time that the supply of college graduates increased by 60 percent, indicating that employer demand for college graduates greatly exceeded the substantial growth in supply (Carnevale and Desrochers, 2004, p. 176).

But the biggest change to labor markets might be in the terms of the social contract between workers and employers. Both employers and some workers are seeking looser and more free-flowing ties. The reality and the expectation of extended job tenure with a single company has passed. In fact, through contingent labor arrangements, workers may not even work for the company they work at, but for an intermediary staffing agency. On the other side of the equation, two-parent, two-income households have become more common, and they are demanding from employers and sometimes getting more flexible work arrangements (including part-time and flex-time jobs) to accommodate the competing demands of work and family.

Osterman contends that the primary driver in this refashioning of the social contract has come from the employer side. Companies are now facing

- increased global competition accelerated by free trade and deregulation which eliminated many low-skilled jobs in the U.S. economy;
- new and rapidly changing technology (especially information technology) and more transferable (less firm-specific) technology-related skills;
- institutional investment policies and new financial expectations focused on maximizing short-term profits and reducing the ability of companies to share profits with employees when productivity is increased; and
- increased focus on core competencies, leading to higher levels of outsourcing of secondary and ancillary business processes (Osterman, 2004, pp. 156-157).

All of these business factors have led to the higher wage premium on skills and less job security (more turnover) as firms struggle to be “fast,” high performing work organizations. Firms need flexibility to compete, which means their skill requirements are constantly changing. In fact, firms in the 1990s were seen laying off and hiring workers at the same time. During the decade, firms engaged in laying off workers were, in fact, adding net jobs by an average of six percent (Osterman, 2004, p. 158).

Table 2.2: Summary of Labor Market Restructuring Factors

Factor	Old Labor Market Structure	New Labor Market Structure
Internal Labor Market	First tier jobs were small in number, stable, white collar, firm-specific skills, profits shared through salaries.	First tier jobs are growing in number, unstable, subject to layoffs, transferable skills, salaries rise slower, profits not shared, growth in contingent, part-time, consulting.
External Labor Market	Second tier jobs were large in number, unstable, unionized, periodic layoffs with callbacks common--based on seniority	Second tier jobs are shrinking in number, unstable, less unionized, layoffs seem less connected to business cycles and fewer callbacks.
Credentialing	Thirty percent of labor force age 30-59 had less than a high school diploma in 1973, and 23 percent of the population over age 25 had attended college or had a college degree.	Ten percent of labor force age 30-59 has less than a high school diploma in 2000, and 46 percent of the population over age 25 had attended college or had a college degree.
Industrial Mix	Largest share of jobs are on factory floor.	Seventeen percent of jobs are factory jobs in 2000.
Returns to Education	College: high school wage premium is 20% for men and 27% for women in 1979	College: high school wage premium is 42% for men and 48% for women in 1999

Source: Summarized from material presented in Osterman, 2004 and Carnevale and Desrochers, 2004.

All of these changes set up a core tension that cannot be easily resolved. Employers want employees with higher level skills, but they also want the flexibility they need to change that skill mix at a moment's notice. Skill development requires time, but flexibility means you do not have much. Labor markets need to be smoothed so that as skill demand changes, the workers with that new set of skills can be found and put to work on the job. This requires better communication between employers and educators regarding emerging skill needs, better credentialing systems so that workers with skill sets can be recognized by employers, improved ability to employ workers that don't reside where the jobs are (telecommuting, virtual networking), and improved systems for skill upgrade training of incumbent workers (so workers can retain employment by modifying their skill set to match their employer's changing needs).

Employers are seeking a higher level of skills across the board, not just in response to technology and competitive challenges. To become high performance work organizations (capable of quickly adapting to changing market conditions and customer needs), employers want their employees to make more judgment calls—requiring information gathering, analysis, and critical thinking skills. They want their employees to work in teams and understand how their individual roles fit into the big picture of adding value and creating profit. They want their employees to be able to recognize business processes that add value and ones that do not. They want to establish problem-solving groups to focus on new product development, quality issues, or health and safety issues. Research has shown that transformed work organizations require higher-level skills and engage in more training. The level of training in high performance work organizations is 35 percent higher than firms that have not modernized their work practices (Osterman, 2004, p. 162).

The higher skills/flexibility dilemma is exacerbated by the declining growth rate of the emerging workforce. The General Accounting Office estimates that annual labor force growth, which has ranged between 1.0 and 2.5 percent over the last 50 years, will stay below 1.0 percent (hitting a low of 0.2 percent in 2015) for the next 50 years (U.S. GAO, 2004, p. 5). The decline in the supply of highly skilled workers will be equally dramatic. Between 1980 and 2000, the percentage of workers with some college education rose 20 percentage points. Between 2000 and 2020 the percentage is estimated to rise only four points more. When the estimated supply of workers is compared to the estimated demand in 2020, a shortage results of 20 million workers, two-thirds of which will be in high paid, high skilled jobs (Carnevale and Desrochers, 2004, p. 181).

One result of industry's desire to have a more skilled but more flexible workforce is what Grubb and Lazerson identify as overschooling. They point to 1991 figures showing that 66 percent of workers with some college and 85 percent of workers with a high school diploma believe that the level of schooling they attained was unnecessary to perform adequately on the job (Grubb and Lazerson, 2004, p. 205). Poor labor market information about job skill requirements and worker skill levels, and high competition for the available jobs leads to credential inflation. This results in workers with more formal schooling than is required by

their jobs. However, this “inefficiency” of overschooling may work to the advantage of employers and is not necessarily a deadweight loss to the economy, since employers gain flexibility to respond to market changes with the ability to shift worker job responsibilities or to promote workers (increase their responsibilities) without having to upgrade their skills.

Grubb and Lazerson do not dispute the economic and structural changes described above. They agree that they are real, but that the pace of change is not as fast as has been suggested by other researchers. They caution against the increasing vocationalism in higher education at the expense of its other public purposes of citizenship, socialization, and personal growth and development. They worry that inequitable access to education, and the economy’s increasing reliance on education to provide access to family wage jobs, is increasing social inequality. They advocate the establishment of the “Foundational State” that will promote a more equitable form of education vocationalism than the one that is currently evolving.

Grubb and Lazerson propose this concept of the Foundational State as a more politically viable and sustainable alternative to the welfare state. The Foundational State focuses on the development of the necessary conditions for American liberal democracy to thrive. Among these being monetary and fiscal policy, regulatory policy (including the regulation of financial markets), international trade, the legal system, and regulation of the political system, national defense, and security/social order. With regard to education, the Foundational State presumes the objective of equality of opportunity through access to education. This leads the authors toward a three-pronged agenda: correcting inequitable education practices (including the elimination of tracking in secondary education and promoting merit-based access to the best colleges), creating strong markets in education, and correcting differences in family resources.

Implications of the Economic and Labor Market Restructuring for Lifelong Learning

How lifelong learning systems are structured and organized is also evolving. Formal education models assume that a person can learn what they need to know to be successful in their working life early on. Formal education is seen as a launching pad into the working world. However the economic and structural changes discussed above suggest that the launching pad concept is insufficient today to ensure that a worker’s skill set remains relevant and responsive

to changing industry needs. Colleges have responded by offering vocationally-focused, short-term skill upgrade training in modularized “blocks.” But even this model of government organized, managed, and financed skill upgrade training is (especially in Europe) beginning to evolve in favor of continuing vocational training and on-the-job training in enterprises.

Tuijnman writes, “the notion that work ought to be alternated on sporadic basis with formal education has been replaced by strategies to promote learning while working and working while learning.” National policy increasingly relies on the responsibility of employers and workers to determine when and how skill upgrade training should take place. Policies promoting paid study leave are proposed, but are not being implemented. The principles of accountability and choice drive the replacement of “social demand” with “individual demand” and provide the driving force behind lifelong learning policies and programs. This evolution in lifelong learning policy shows that the concept is not static, but evolves in accordance with the economic, political, social and cultural context (Tuijnman 2002, p. 14).

Several researchers have speculated on how the combining of work and learning will affect the way colleges deliver training and education services. Reid foresees a blurring of distinctions between continuing (non-credit) education, distance learning, and on-campus programs and a focus on “resource based learning and flexible timetabling” (Reid 1997:1 cited in King 2002, p. 138). Ford foresees a flexible system in which students become independent, active learners, learning how, when, and where they want. He sees a greater emphasis on distance learning and an expansion of Internet-based resource materials comprising a “more diverse, richer information environment” (Ford et. al. 1996:15 cited in King 2002, p. 138). Pedagogically, the implication is a learning environment in which the teacher plays less of a role in mediating the student’s learning experience.

Lifelong Learning and Regional Economic Development

Lifelong learning, especially the learning most directly linked to business needs that we sometimes refer to as incumbent worker training, can have a direct impact on the competitiveness of an economic region. This is difficult to prove empirically because it is difficult to trace a region’s competitive position to a single factor, policy or program, but it

appears to be common knowledge. What is easier to show is that there is evidence that vocationally-focused post-secondary education, especially programs that lead to a degree or certification and provide high placement wages, has public and private net benefits and yields positive, sustainable increases in earnings (Institute for Higher Education Policy, 2005). These increases in earnings and reduced public expenditures may support regional development, but the causal linkage has been difficult to establish empirically.

Europe's stake in promoting lifelong learning is justified in economic terms and is linked directly to its employment policies and programs. A recent EC report stated, "lifelong learning, therefore, has a key role to play in developing a coordinated strategy for employment and particularly for promoting a skilled, trained and adaptable workforce. This means removing barriers that prevent people from entering the labor market and limit progression within it" (European Commission 2002, p.7). The report goes on to cite a recent OECD study linking learning and human capital investment with increased GDP, increased civic participation, higher reported well-being and lower crime rates (Healy and Côté 2001).

Studies in the United States have focused on the employment and earnings effects of post-secondary education generally, but there is very little data on the employment and earnings effects of skill upgrade training. Increasing employment and earnings stimulates economic expansion in a region through increased tax revenues (and public investment) and intra-regional consumption spending. The results tell us that the employment and earnings effects of post-secondary education vary by the degree attained and the type of professional-technical education and training received. The type of training is particularly important when no training or certificate is received (Grubb 1999, p. 17).

Washington State regularly assesses the net impact of its community and technical college professional-technical education programs, comparing changes in wages and employment of job preparatory program participants with the wage and employment profile of a similar group of non-students. Using UI wage record data, the state found a 7.6 percent increase in the percentage of workers reporting employment in the third quarter following training (as

compared to the comparable group of non-students), and a \$2.59 increase in hourly wages (Washington Workforce Training and Education Coordinating Board, 2002, p. 22).

Table 2.3: Benefits and Costs of Job Preparatory Training at Washington Community and Technical Colleges

	First 2.5 Years after Program		Forecast to Age 65	
	Participant	Public	Participant	Public
Earnings	\$4,275		\$96,263	
Employee Benefits	\$855		\$19,253	
Taxes	-\$1,075	\$1,075	-\$24,210	\$24,210
UI Benefits	-\$7	\$7	-\$1,767	\$1,767
TANF*	-\$469	\$469	-\$905	\$905
Food Stamps	-\$20	\$20	-\$217	\$217
Medical Benefits	-\$39	\$39	-\$141	\$141
Foregone Earnings	-\$1,375		-\$1,375	
Program Costs**	-\$3,118	-\$6,916	-\$3,118	-\$6,916
TOTAL	-\$973	-\$5,306	\$84,216	\$19,890

*TANF benefits reflect the value of cash grants, childcare, and other client support services.

**Participant program costs refer to tuition.

Source: Washington Workforce Training and Education Coordinating Board, 2002.

Table 2.3, above, shows the state's 2002 analysis of the longer-term public and private benefits and costs of professional-technical education at Washington's 34 community and technical colleges. The analysis shows that it takes several years for net benefits to accrue to the participant and the public, but over the full length of the student's working life, the benefits are considerable, over \$84,000. Public benefits of almost \$19,000 accrue, mostly in the form of increased tax receipts and reduced public assistance.

Table 2.4 below shows the wage impact of student participation in professional-technical education, with differentiation by high, middle and low placement wages for program graduates.

Table 2.4: Job Preparatory Students Relationship of Pre-College Wages to Post-College Wages by Higher, Middle, and Lower Wage Occupational Groups in Washington State

	Median Wage in \$ 1997			% Gain	Median Credits Taken	
	Pre- College	Post- College	Gain		Vocational	Total
Higher Wage						
Graduates	\$10.22	\$13.70	\$ 3.48	34%	82	105
Leavers	\$11.20	\$12.50	\$ 1.30	12%	39	44
Early Leavers	\$10.17	\$11.46	\$ 1.29	13%	7	10
Middle Wage						
Graduates	\$ 9.11	\$10.57	\$ 1.46	16%	74	102
Leavers	\$ 8.89	\$10.37	\$ 1.48	17%	38	48
Early Leavers	\$ 9.55	\$10.79	\$ 1.24	13%	5	10
Lower Wage						
Graduates	\$ 7.50	\$ 8.74	\$ 1.24	17%	67	88
Leavers	\$ 7.89	\$ 8.84	\$ 0.95	12%	36	42
50+ Voc Credits	\$ 7.91	\$ 9.11	\$ 1.20	15%	75	86
30- 49 Voc Credits	\$ 7.68	\$ 8.65	\$ 0.97	13%	38	45
10- 29 Voc Credits	\$ 7.93	\$ 8.77	\$ 0.84	11%	18	22
Early Leavers	\$ 7.70	\$ 8.84	\$ 1.14	15%	6	10
Early Leavers	\$ 8.99	\$10.18	\$ 1.19	13%	6	10
No Credits Earned	\$ 8.11	\$ 9.50	\$ 1.39	17%	12	15

Source: Loretta Seppanen, Washington State Board for Community and Technical Colleges, informal communication, as presented in Grubb, 1999, p. 95.

The data shows that training in high wage fields such as nursing, certain allied health positions, or dental hygienist, leading to a certificate or degree has the greatest immediate wage impact, 34 percent shortly following graduation. Training that does not lead to a degree or certificate has a more modest immediate impact on wages. Interestingly, the pre-college earnings of students entering high and middle wage programs is higher than the pre-college earnings of students training in low-wage programs. This suggests that self-selection by low-wage earners into low-wage training programs may be occurring, and that low-wage earners might benefit from counseling and support in selecting higher wage occupations where the wage impacts of training are the greatest. However, satisfaction of program prerequisites and program waiting lists may also comprise significant entry barriers for many low wage earners.

In the United States, the linkage between incumbent worker training and economic development is made very clear to businesses, politicians and the general public by the significant and growing investment states are making each year in customized, employer-focused training. The stated purpose of these programs is to attract, grow and retain businesses and jobs. The subsidies go directly to businesses or to state higher education institutions working closely with businesses to develop customized training programs. A recent survey found that 47 states had customized, employer-focused training programs (Ellison, 2003). Funding for these programs in 2002-2003 came to \$834 million, up from \$575 million in 1998 (National Governors' Association, 1999). Note that these increases occurred during a period in which states were facing deficits and under fiscal pressure to hold down expenditures.

It is important to note that state governments are not the only ones doing the investing in incumbent worker training. Corporations themselves have invested heavily in training, and are expected to increase training investment by 24 percent in real terms between 1991 and 2005 (Carnevale and Desrochers 1999). If we include all the indirect costs to businesses of training, such as wages and benefits during training and lost productivity, we can reach expenditures as high as \$373 billion annually in corporate training costs. Direct procurement of outsourced corporate training in the United States totaled \$19.3 billion in 2000 (National Alliance of Business, 2001 as cited in Harmon and MacAllum, 2003, p. 4). One has to ask, why would corporations be investing this kind of money in training if they didn't think it would help them get and keep customers and yield returns to their bottom line? Even if it is difficult to link specific training investments to regional economic growth and development, public and private expenditure patterns suggest that the link is assumed to exist and is motivating considerable investment.

Public Policy, Institutional Practice, and the Community College Role in Providing Employer-Focused Training

Community colleges play an important role in the delivery of employer-focused training through their continuing education programs, professional-technical programs, and

customized contract training. As noted above, all of these activities have expanded rapidly in the last decade. Over 90 percent of all community colleges now engage in contract training with businesses and government. A 1995 study estimated that 17 percent of all U.S. community college enrollments (credit and non-credit) were attributable to contract training (Dougherty and Bakia 2000). The same study found that 20 percent of the colleges surveyed were grossing over \$500,000 annually on contract training, not including the equipment purchased to deliver the training that remains the property of the college upon completion. These numbers tell us that contract training is becoming an important function and revenue source for community and technical colleges, and that it is growing in response to increased demand for this service from employers and other public agencies.

At the same time that colleges are eager to pursue and develop contract-training classes, businesses who might otherwise hire private consultants and equipment vendors for their training, have many good reasons for looking to community colleges, including (Dougherty and Bakia, 2000):

- Firms need to identify a steady source of skilled workers to replace their aging baby-boomer workforce, and contract training is a great first step in establishing a relationship with a college that can be a potential “supplier”.
- As mentioned above, companies already make significant investments in training; so leveraging the state investment in professional-technical education at the community colleges is a good way to make public and private training dollars go further.
- It can be less expensive and more responsive to contract out for training services than to provide all training in-house. Typically, community colleges are less expensive than private training providers, consultants, and four-year institutions.
- Community colleges are usually capable of responding quicker to emerging skill needs (and occasionally more interested in responding) than four-year institutions.
- Community colleges are more academic than private vocational schools and can better focus on general education and critical thinking learning objectives. They can also

provide college credit for some contract classes, and tend to be more reliable and established in the community.

Despite all these good reasons why businesses and community colleges might form strategic partnerships, the community college share of the customized training market remains small compared to other public and private providers. Nationally, about 30 percent of business establishments with over 20 employees currently use community colleges as one of their training providers (Dougherty 2003, p. 63). More importantly, use of community colleges is uneven, favored more by larger businesses (utilization rates approaching 60 percent for businesses with over 500 employees). Manufacturing, FIRE and services industries show community college utilization rates in the forties, with little use by retailers—less than 10 percent (Dougherty 2003, pp. 68, 74). Access to customized training services is geographically uneven, with urban colleges must more likely to provide these services than rural ones.

A 1998 study of Washington State employers found that of the 63 percent of all employers who provided job-specific skills training to their employees, only 14 percent engaged the state's community colleges to provide the training (Workforce Training and Education Coordinating Board, 1998).

One explanation for the difficulty colleges and businesses have working together on skill upgrade training has to do with the second-class nature of non-credit education and training in the community college financial structure. More than half the states provide no FTE or other state funding in support of non-credit community college courses and contract training. Those states that do provide community colleges with FTE funding for non-credit classes, typically fund them at 50-75 percent of the state FTE rate for credit-bearing classes (Warford, 2002). In most states, non-credit contract training is entirely a self-support operation. This means that unlike credit classes, the costs of administration, program development, and overhead must be passed on to the student or included in the contract price.

Government Programs Supporting Incumbent Worker Training

There have been several studies of state programs to train or retrain incumbent workers, most using survey research methods. These include studies by Regional Technology Strategies for

the National Governors' Association, a study by the Research Division of the Texas Legislative Council, and a study by the National Economic Development and Law Center in Oakland, California. In addition, there have been several recent evaluations of specific state programs.

State governments have created workforce development programs to promote economic growth by leveraging private investment in incumbent worker training and linking that activity to their community and technical college systems. At last count, 47 of 50 states had one or more programs designed to assist companies in developing training for their workers. Most of these state programs (30 states) are administered by the state department of commerce or economic development. Eleven states administer their programs through the state department of education or the community college system to make sure that the colleges are involved in this activity (Regional Technology Strategies, 1999, p. 6). These programs have a range of strategic goals and objectives that include:

- Promoting economic development by encouraging firms to create new jobs or expand in the state by providing free or subsidized customized training;
- Leveraging private investment in incumbent worker training to enhance workforce skills and improve the competitive position of firms in the state;
- Developing a job ladder by encouraging firms to invest in upgrading the skills of entry-level workers in order to have them advance and create entry-level vacancies that can be filled by new employees;
- Promoting workplace literacy;
- Promoting the involvement of state-assisted community and technical colleges in customized training to help keep their credit-bearing programs current and up to date;
- Providing new-hire training to create employment opportunities for dislocated workers.

Total state investment in incumbent worker training programs across the country is approaching \$1 billion annually. However, the major emphasis is on new or expanding companies that are increasing employment, with 74 percent of the funding nationwide going

to new or expanding firms (achieving the first objective listed above). The remaining 26 percent was left for companies that sought to enhance the skills of their existing workers, and were not promising to increase employment in return for the state training subsidies. However, when we count workers instead of dollars, we find that the state programs are spending more than twice the amount per worker for training the workers at new or expanding companies than for skill upgrade training of incumbent workers. The 74 percent of the funding that goes to training new employees accounts for 42 percent of all workers served (Regional Technology Strategies, 1999).

By far the state with the highest program funding level (currently at \$117 million) is California and their Employment and Training Panel. However, despite the relatively high level of funding, the state ranks sixth in per capita funding behind nation-leading Iowa, Rhode Island, Alaska, and others. Washington State ranks near the bottom in per-capita funding (second to last in the 1999 study cited above, but that ranking may have improved slightly due to some recent increases in funding).

The federal government has moved in fits and starts to get involved in incumbent worker training, and so far they have very little to show for it. The U.S. Department of Labor has commissioned studies and made several proposals over the last 15 years, but so far little has developed in the form of legislation. The Department has recently initiated a new program to develop “demand driven” training solutions under its Workforce Investment Act research and demonstration funding, and Congress in 2004 approved a new \$250 million program for community colleges (called the *Community-Based Job Training Initiative*) to develop similar sector or cluster-based education and training initiatives with industry, but the funding will not be available until 2005. Regardless, these federal initiatives fail to come close to matching the investment that states collectively are putting into employer-focused customized training.

Responsiveness of Community Colleges to Emerging Training Needs

The biggest barrier to community and technical colleges providing employer-focused education and training services is their ability to identify and respond to the changing demand for skills in a way that meets customer needs. Education and training services can be delivered

in many different ways, including contract training with employers or groups of employers (associations), continuing education, new-hire job training, and professional-technical education. Each of these options offers different types of credentials from a certificate of completion, to continuing education credit (essentially credit recognized only by the institution), vendor certifications, and college certificates and degrees (which will often be recognized for transfer credit by other institutions). Under each of these options, courses can be delivered at the business site, on the college campus, at satellite locations, or at home or work through distance learning.

Given the broad range of options, how do colleges decide what to offer and how to offer it? If there is increased demand for Internet security professionals, should the college offer a new one-year certificate? A new two-year degree program? A series of courses? Should the courses be offered for academic credit, continuing education credit, or no credit? Should the courses be linked to a vendor certification? Should they be classroom instruction, distance learning, or hybrid classes? Should the courses be offered during the weekday, in intensive full-day “chunks”, or evenings and weekends? How will the courses be staffed and supported in an cost-efficient and effective manner?

Common Community College Mechanisms for Market Responsiveness

There are as many ways colleges are deciding these questions as there are colleges. But the common thread is that colleges are not deciding these questions in a vacuum but, like all good sales and marketing agents, they are seeking ways to probe their customers for information and conducting environmental scans (which include determining who else is out there meeting the customer need and what are they providing). As noted earlier, corporations are spending hundreds of billions of dollars each year on training for their employees, individuals are funding their own career development training, and government is putting money on the stump as well. As a result, a competitive market has developed for the training dollar. No training provider can put out a new product or service without making sure that it is in demand—including public community and technical colleges.

College faculty and administrators employ a variety of strategies to connect with the local employers in their area and determine their arising skill needs. Some of these include:

- Old fashioned networking—attending meetings of the local chamber of commerce, Rotary Club, HR committees of the local chapters of industry associations, etc.
- Relying on their Boards of Trustees to provide them with information. Most boards of colleges are comprised primarily of local area industry and education leaders.
- Conducting surveys of employers and area residents. This is expensive and therefore less common, and it is sometimes difficult to get a high enough response rate to receive meaningful results.
- Developing and supporting advisory committees for major college program areas comprised of local area business representatives. This is probably the most common tool available to colleges, but its effectiveness can be spotty (see below).
- Analyzing economic, industry, and labor market information. Some of the larger and more forward thinking colleges have staff devoted to environmental scanning who are continuously looking at Census data, state labor market information, periodicals, and other readily available resources to identify emerging skill needs.
- Community outreach. College staff participating on community boards and committees focused on human resources and workforce development including local federally-authorized workforce boards and economic development agencies.

Program advisory committees are the most prevalent and most consistent method colleges use to link a professional-technical education program to local employer demand. Colleges invite local employers (usually human resource directors) to meet with program faculty and administrators to discuss emerging skill needs, the college curriculum, and how program graduates are doing the workplace. The employers help the college identify areas where curriculum needs to be improved, or more applied training methods need to be developed to give students hands-on experience. Program advisory committee members may also assist the college in developing internship opportunities and securing needed equipment and supplies. These advisory committees typically meet 2-4 times per year, but some committees meet more often.

Herein lies the problem with program advisory committees—their effectiveness is limited by the amount of effort that goes into them, from both the faculty-staff side and from the employer side. Faculty and staff need to think through what they need from the committee and how to structure meeting time to get the best possible result. Employers need to spend the time to read the background materials they receive, understand the program curriculum and course content, and determine its consistency with their company's skill needs. At the very least, they need to show up at meetings and engage. Since many colleges require professional-technical programs to have advisory committees, sometimes the process can degenerate into an exercise in compliance, rather than a wholehearted attempt at continuous quality improvement. As a result, the effectiveness of program advisory committees is often inconsistent, with colleges having some very engaged and productive committees and others that meet infrequently, have poor attendance, and provide little added value. Intense fiscal pressure to reduce staffing and the limited time full time faculty have to take on duties outside of the classroom, make it increasingly difficult for colleges to focus more attention on the low-performing advisory committees.

A Model for Labor Market Responsiveness

In 2004, the U.S. Department of Education released a major three-volume study of community college labor market responsiveness based on an analysis of policy, structure, pattern and practice at 30 leading edge colleges nationwide. The study's authors defined a labor market responsive college as one that "delivers programs and services that align with and seek to anticipate the changing dynamics of the labor market it serves. These programs and services address the educational and workforce development needs of both employers and students as part of the college's overall contribution to the social and economic vitality of its community" (U.S. Department of Education, 2004, p. 5).

The study identified four common characteristics of the institutions studied that were essential to their ability to respond to changing labor market conditions— leadership, internal response mechanisms, partnerships, and community ties.

Leadership. Market responsive colleges have leadership that is dedicated to developing a market responsive approach, and a president with a plan for developing and maintaining market-responsive initiatives at the college. This includes the full support of the Board of Trustees or other governing body. Specifically, the leadership of these colleges will often:

- allocate resources to develop and deliver training programs for employers;
- improve recruitment and retention in programs key to the economy;
- institute aggressive programs to bring in contract training dollars from local businesses;
- encourage the expansion of the curricula to include more employer focused programs;
- keep current on effective practices of labor market responsive colleges; and
- incorporate market responsiveness into the college's mission (Harmon and MacAllum, 2003, pp. 6-7).

Internal Response Mechanisms. Another characteristic of labor-market responsive community colleges is internal response mechanisms capable of quickly developing and delivering training based on the changing needs of the local economy. This requires strong connections and engagement with the local economy, internal procedures that enable a fast response, and a culture of customer service. These response mechanisms typically take the form of:

- being able to quickly modify or adapt curriculum to respond to changing conditions and training needs;
- developing expertise in curriculum modification/adaptation;
- creating an internal division tasked with responding to employer training needs;
- integrating non-credit elements into for-credit programs; and
- making extensive use of distance learning for credit and non-credit programs (Harmon and MacAllum, 2003, pp. 8-9).

Business Partnerships and Other Collaborations. In order to offer the right mix of programs linked to local employment opportunities, community colleges must develop and sustain partnerships and collaborations with outside organizations. The objective of these institutional-business relationships is to:

- collaborate with local businesses on curricula development;
- seek employer input on industry or occupation-focused curricula;
- recruit adjunct faculty from among local business contacts;
- partner with other local education agencies to expand capacity and meet employer needs/expectations; and
- collaborate between college departments and divisions to develop employer-responsive training (Harmon and MacAllum, 2003, pp. 10-12)

Connection to the Local Economy. Developing close ties to individual businesses and local business organizations is essential for keeping up with changes in the local labor market. It also provides opportunities for collaboration in the development of responses to emerging needs. Colleges with good connections to the local economy are:

- able to anticipate local changes by tracking regional and national trends;
- able to detect sudden shifts in local training needs; and
- capable of offering targeted and contract training (Harmon and MacAllum, 2003, pp. 12-13).

Based on these common characteristics, it is clear that a labor market-responsive college must simultaneously develop and align several key factors: leadership and governance, organizational structure and staffing, organizational culture, resources and funding, information and data, relationship building, and strategic partnerships. Institutional alignment is required at all levels and there is no single path or final destination, but an ongoing process of improvement.

Market Responsiveness in Washington State

A comprehensive survey of employers in Washington State by Cheryl Reed Consulting conducted for the State Board for Community and Technical Colleges suggested that the state's community colleges are generally not following these "rules of the road" in their outreach to employers (Reed, 2003). The Reed Report was highly critical of the college system, documenting widespread employer dissatisfaction with its ability to meet their skill development needs. The report offered specific suggestions on how to improve community college responsiveness to emerging employer skill needs.

The report concludes with a series of recommendations from employers to community and technical colleges on how to serve them better. It outlines some of the needs and expectations employers have of community and technical colleges. Employers in Washington want:

- to be able to use college faculty as a resource;
- colleges to do more than offer brokering capacity (selling adjunct continuing education trainers under the college umbrella rather than full time faculty and other training and education services);
- help developing good employee learning experiences (pedagogical and instructional expertise);
- the college to be a clearinghouse for local and regional workforce information and innovation;
- a knowledgeable single point of contact at the college who has decision-making authority;
- colleges to quickly adapt to workplace and industry needs;
- a long-term relationship with the college;
- shared risk and shared control;
- the college to look and act like a business;
- to learn how to measure and express how and to what degree an investment in training results in improved productivity and increased profitability for an employer; and,
- community colleges, as part of their portfolio of services, to be a resource to examine business and industry structures, systems, and work processes in order to improve the company's competitiveness in the market (Reed and Heg, 2003, pp. 35-38).

Washington State has made some recent progress with the creation in 2003 of the Centers of Excellence program. The new program provides state funding to colleges with demonstrated expertise in serving the needs of an industry, sector, or cluster of firms. Centers of Excellence provide a one-stop resource for firms seeking training and education support, but also provide technical assistance to the other community and technical colleges in the state on serving the targeted industry. The state has established Centers of Excellence for manufacturing, marine

science, information technology, homeland security (first responders), health services, and other industries.

The Emerging Workforce Intermediary Model

A promising approach to identifying employer skill demands is for the college to become or link to a sector or cluster-focused workforce intermediary, in a manner similar to the Washington Centers of Excellence initiative. Workforce intermediaries are institutions that bring together the relevant partners in a labor market to develop pathways of career advancement, especially for lower-skilled workers. The creation of these pathways may include development of industry skill standards, assessment and certification systems, new professional-technical education programs, customized skill upgrade training, distance learning initiatives, skill gap analysis, work-based learning systems, labor exchange services, and other workforce development strategies.

It is important to find the right organization to serve as the intermediary and the catalyst for bringing the local area partners to the table. There may be many options in any labor market, but community colleges are an obvious choice in many areas. Community and technical colleges need the information and organizational connections that sector-focused strategies can provide, and they have many of the core institutional competencies needed to organize long-term industry planning processes. In areas where community colleges are not the logical choice, they can link their employer outreach activities to the organization serving as a workforce intermediary in their area.

Workforce intermediaries organize their activities in different ways. Some focus on a single industry, others on an industrial sector or group of related industries such as construction or health services. More recently, intermediaries have organized industry “clusters” that are tied together in different ways, not just by producing similar products or services but also linked by supplier networks, common sources of labor supply, and outsourced business functions. Industry clusters stretch across industrial sectors but are limited geographically to a local community. Workforce intermediaries focus on developing strategies that are capable of

reaching small and medium-sized employers, not just the largest employers who are typically least in need of assistance (but are often first in line due to their political clout and visibility).

Community and technical colleges are in a good position to assume the role of workforce intermediaries, especially in the program areas they deem most critical to their employer customers and regional economic development. Compared to many other publicly funded employment and training organizations, they have a good track record of serving the needs of small and medium-sized employers. Many colleges support small business incubators and entrepreneurial education programs on their campuses.

Although it is important for community colleges to provide core and fundamental skills in a wide range of occupational areas and disciplines, there are real advantages to the institution and to the community in specialization. Specialization allows colleges to assemble the resources and expertise to achieve excellence. It promotes stronger and deeper ties to the community and area businesses and leverages additional private investment in the institution. Those stronger ties lead to better information on industry trends, emerging needs, benchmark practices, and new technologies. Also, most colleges have a good reputation in the community in which they reside and have the clout needed to convene the planning activities required to function as a workforce intermediary. In assuming the role of workforce intermediaries, Rosenfeld identifies the following principles that community colleges need to adhere to:

- Be demand, not politically driven—focus on the needs of firms that are most likely to survive and grow and offer high wage employment to the community. This can be very difficult for public colleges to do since the largest share of their funding comes from state appropriations and local bonds and tax levies, creating a political need to provide comprehensive services to all industries and students, and providing a disincentive for program specialization based on economic demand.
- Act collaboratively and connect externally—become a broker of area resources and establish relationships with related local organizations with related missions and national/international networks.

- Serve as a catalyst for economic development—develop strategies that lead to employment retention and growth, and demonstrate the commitment and ability to react to changing market demands, even if that challenges the traditional structure and operations of the college
- Stay focused on social and economic missions—develop strategies that engage lower skilled workers on a career pathway in the targeted industry and measure performance outcomes of intermediary strategies and services (Rosenfeld, et.al., 2003).

Serving these economic purposes can sometimes set up internal and external conflicts over the role and mission of the institution. Any time a college tips in favor of one aspect of their mission, they can be called to account for neglecting others. Is the college a catalyst for local economic development or a gateway of opportunity for those members of the community that have educational needs and limited resources? Is the primary customer of the college local businesses or local residents? Can establishing strategic partnerships with area businesses distort the purpose and mission of the college? Obviously, these are false dichotomies, and the issue is one of balance. They seem real when various parts of the institution are competing for the available limited resources. Colleges do not have to choose between these multiple missions, and they are not mutually exclusive. They need to organize their business processes to serve multiple external customers and take advantage of every opportunity to align college activities and service strategies with their customers' interests.

Chapter 3

DESIGN AND METHODOLOGY OF SECONDARY DATA ANALYSIS

Framework for the Analysis

The analysis of the Washington State case requires a secondary analysis of primary data using the state's community and technical college data warehouse system. This requires collection of time series data (where comparable data is available), trend analysis and calculating indicators of central tendency. Trends and descriptive statistics are charted, plotted, and organized in tables for presentation.

Information will be presented for 1998-1999 and 2003-2004 on private contract training enrollments by SIP group, the instructional intent of private contract training enrollments, growth in contract training versus state and student supported instruction over time, and the work status of private contract training students. The results will be analyzed to uncover employer-focused training trends in Washington State, identify possible public policy changes that could promote additional activity in the state, and identify opportunities for further national-level research, based on the Washington State analysis.

Setting and Subjects

The study provides an analysis of employer-focused contract training activity at Washington State community and technical colleges. Washington has 34 community and technical colleges that provide a full range of services, including ESL/adult basic education instruction (unlike many other states). Washington ranks high among states in community college capacity and Associate degrees conferred. Like many other states, its colleges are linked by a state coordinating board but have independent boards of trustees appointed by the Governor. The size of the system and its typical configuration make it a good study subject. Another advantage of studying Washington State is the comprehensive statewide data that is collected and available for research.

Secondary Analysis of Primary Data

Description of Data Set

The main source of data on Washington State community and technical college incumbent worker and contract training activity is the SBCTC Data Warehouse, derived primarily from the data collected by the 2-year Public Community and Technical College Management Information System. The Data Warehouse includes student, course, personnel, facilities and equipment, financial aid, transcript and completion data collected since 1986. Related data is also collected from GED testing centers, universities, community based organizations and other state agencies. The SBCTC Data Warehouse is a SQL Server production database that is used for executive policymaking and decision support for funding and enrollment allocation, enrollment forecasting, research, performance and outcomes assessment, and mandated studies by statute. The SBCTC Data Warehouse is a primary source for college and local research efforts.

Limitations of the Data Set

The secondary data analysis involved developing an appropriate data set from the SBCTC data warehouse regarding students enrolled in workforce programs coded for skill upgrade and funded under contract. It is necessary to eliminate the many students that are so-coded that are receiving military and Department of Corrections training because these projects involve specialized purposes and populations not relevant to this study. Once this is done, students/enrollments engaged in employer-focused training can be isolated and analyzed.

Coding practices have not been consistent over time making time series analysis difficult. For example, the state's welfare-to-work program has moved from class-size instruction to the development of individualized training plans supported by state contract funding. Although these students may be sitting in state-supported classes, both the student and the enrollment are considered contract supported. Despite attempts to screen welfare-related contracts out of the analysis, there were 942 unemployed TANF recipients in the analysis of students (in 2003-04, or 2.2 percent of the employer-focused training total for that year) that were probably attributable to the growth of the individualized training plans (the number of unemployed TANF recipients in the 1998-1999 employer-focused contract training group was only 62).

Similarly, high school tech-prep students taking classes for community college credit can also find their way into the employer-focused, contract supported group and are difficult to isolate and remove from the analysis. In 1998-99, the number of students receiving employer-focused contract training whose prior education was listed as “tech-prep” was 424 or 1.2 percent of the total. In 2003-2004, this number rose to 3,852 or 8.8 percent of the total. It is unlikely that this increase is attributable to growth in the program, and is more likely attributable to changes in coding practices. Since tech-prep students tend to be younger and more racially diverse than other student populations, the potential error in the 2003-2004 student demographics could be substantial, especially with regard to age and race.

It is important to note that the information presented in the analysis concerning enrollments is more reliable because instead of counting students, whose status and educational purpose may change throughout the year (or change from year to year for re-entering students with regard to data concerning previous education levels or work status at entry), the analysis focuses on seats in particular classes. Information about a seat in a class is quarter specific, while information about students may be many quarters old and may never get updated from quarter to quarter or year to year. All of this assumes that all colleges follow procedures and correctly code students and enrollments in accordance with SBCTC guidance.

All contract supported enrollments in the state are coded as such. Conveniently, very few contract supported students also take student-funded or state supported classes in the same academic year, so student headcounts by funding category contain few duplicate counts. Figure 3.1 below shows a pie chart of some of the major targeted programs that are contract supported. Identifying enrollments and students that are contract supported requires eliminating those attributable to targeted population programs, such as military contracts, corrections contracts, and international education. The remainder, for purposes of this analysis, is deemed employer-focused contract supported activity. From the pie chart, it is clear that employer-focused education and training comprises slightly less than half of the contract-supported activity (70,555 students received contract supported education in 2003-2004).

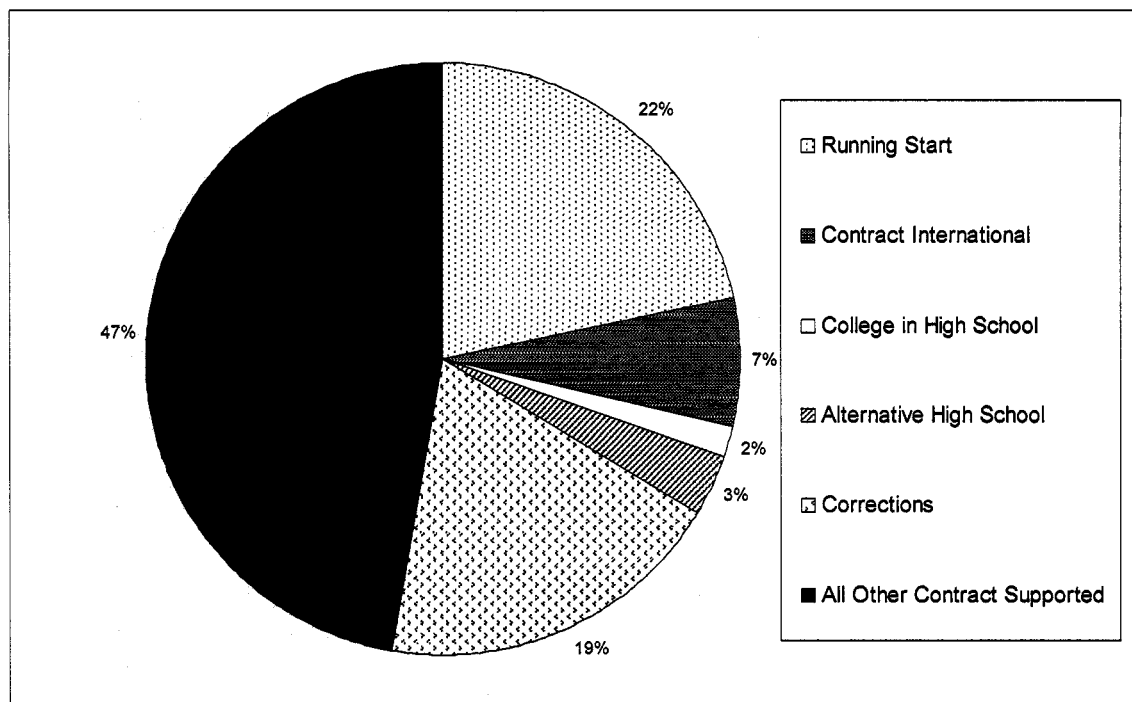


Figure 3.1: Contract Supported Students by Targeted Programs, 2003-2004 Academic Year, Washington Community and Technical Colleges

Source: Washington State Board for Community and Technical College, *Academic Year Report, 2003-2004*, p. 27.

Methodology

The STUDENT, CLASS, and STUCLASS tables were accessed to generate the information presented in the analysis. A series of Microsoft ACCESS queries were conducted to generate output tables. Five sets of data runs were conducted, each for two separate academic years—1998-1999, and 2003-2004. For each of these runs, the first step was to isolate the employer-focused contract supported information. Then other manipulations were conducted to reduce duplicate counting of records or select information from the last record in the table for a particular student or class (in case the information changed from quarter to quarter). This is necessary because the CLASS and STUCLASS tables contain records for each quarter. For example, in the CLASS table, there would be a separate record for each section of a class for each quarter it was taught in the academic year. Similarly, there is a separate record in the

STUCLASS table for each time the student occupied a seat in a class throughout the academic year.

Enrollments by Classification of Instructional Programs (CIP) Cluster

The first run was enrollments by CIP cluster. This run was conducted using two cascading queries, the first isolating employer-focused enrollments and the second generating the CIP cluster data by year. To isolate employer-focused contract supported enrollments, the CLASS and STUCLASS tables were linked and the following criteria were used:

- Fund source enrollment (STUCLASS) = C (includes all contract supported enrollments)
- Section (CLASS) <> T#P (excludes tech-prep enrollments)
- Year (STUCLASS) = 989 or A34 (excludes all data for years other than 1989-1999 or 2003-2004)
- Fee Pay Status (STUCLASS) <> 9, 60, or 61 (excludes military personnel, state and local welfare to work pre-employment training students)
- Kind of Enrollment = 39 (excludes Running Start, International Contract, Alternative High School, College in the High School, and Dept. of Corrections enrollments)

The SQL language for the runs is below:

Contract Enrollment Selection Query:

```
SELECT STUCLASS.DW_KEY, STUCLASS.YEAR, STUCLASS.QUARTER,
STUCLASS.COLLEGE, STUCLASS.ITEM, CLASS.CIP_CLUSTER,
CLASS.INSTIT_INT
FROM STUCLASS INNER JOIN CLASS ON (STUCLASS.RECORD_CODE =
CLASS.RECORD_CODE) AND (STUCLASS.ITEM = CLASS.ITEM) AND
(STUCLASS.COLLEGE = CLASS.COLLEGE) AND (STUCLASS.QUARTER =
CLASS.QUARTER) AND (STUCLASS.YEAR = CLASS.YEAR)
WHERE (((CLASS.SECTION) <> "T#P") AND
((STUCLASS.FUND_SOURCE_ENROLLMENT) = "C") AND
((STUCLASS.YEAR) = "A34" Or (STUCLASS.YEAR) = "989" AND
((STUCLASS.FEE_PAY_STATUS) <> "09" And
(STUCLASS.FEE_PAY_STATUS) <> "60" And
```

```
(STUCLASS.FEE_PAY_STATUS)<>"61") AND
((STUCLASS.KIND_OF_ENROLLMENT)="39"))
GROUP BY STUCLASS.DW_KEY, STUCLASS.YEAR, STUCLASS.QUARTER,
STUCLASS.COLLEGE, STUCLASS.ITEM, CLASS.CIP_CLUSTER,
CLASS.INSTIT_INT;
```

CIP Cluster, 2:

```
TRANSFORM Count([1: Contract Enrollment Selection].DW_KEY) AS
CountOfDW_KEY
SELECT [1: Contract Enrollment Selection].YEAR
FROM [1: Contract Enrollment Selection]
GROUP BY [1: Contract Enrollment Selection].YEAR
PIVOT [1: Contract Enrollment Selection].CIP_CLUSTER;
```

Institutional Intent

The second run was to generate data by academic year on enrollments by institutional intent code. It also was a set of two cascading queries with the first query being the *Contract Enrollment Selection* query used previously. The second query generated the output table of institutional intent by year and the query language is below.

Institutional Intent: 2

```
TRANSFORM Count([1: Contract Enrollment Selection].DW_KEY) AS
CountOfDW_KEY
SELECT [1: Contract Enrollment Selection].YEAR
FROM [1: Contract Enrollment Selection]
GROUP BY [1: Contract Enrollment Selection].YEAR
PIVOT [1: Contract Enrollment Selection].INSTIT_INT;
```

CIP-Institutional Intent Cross-tab

The next run was to combine the previous two runs in a cross tabulation to generate information about enrollments by CIP cluster for each of the four institutional intent categories. The methodology used was identical to the previous runs only this time the second cascading query was a cross-tab query.

CIP/Intent Cross-Tab: 2

```
TRANSFORM Count([1: Contract Enrollment Selection].DW_KEY) AS
CountOfDW_KEY
SELECT [1: Contract Enrollment Selection].CIP_CLUSTER, [1: Contract Enrollment
Selection].YEAR
FROM [1: Contract Enrollment Selection]
```

```
GROUP BY [1: Contract Enrollment Selection].CIP_CLUSTER, [1: Contract
Enrollment Selection].YEAR
PIVOT [1: Contract Enrollment Selection].INSTIT_INT;
```

Demographics Cross-Tab

The next run was considerably more complicated and sought to generate a cross-tabulation table of employer-focused contract supported students (unduplicated headcount) by race, gender, and age. This was a cascading series of four queries—the first query isolating the employer-focused contract supported students, the second query eliminating duplicate records for the same student in the academic year (selecting the last quarter enrolled), the third query selecting the demographics from the last record for the student, and the final query generating the cross-tabulated output. A separate run was conducted for each year of the analysis changing the “Year” criterion in the first query.

Contract Student Selection

```
SELECT STUCLASS.DW_KEY
FROM STUCLASS
WHERE (((STUCLASS.FUND_SOURCE_ENROLLMENT)="C") AND
((STUCLASS.YEAR)="A34") AND ((STUCLASS.FEE_PAY_STATUS)<>"09" And
(STUCLASS.FEE_PAY_STATUS)<>"60" And
(STUCLASS.FEE_PAY_STATUS)<>"61") AND
((STUCLASS.KIND_OF_ENROLLMENT)="39"))
GROUP BY STUCLASS.DW_KEY;
```

Last Quarter Only: 2

```
SELECT STUDENT.DW_KEY, STUDENT.YEAR, Max(STUDENT.QUARTER) AS
MaxOfQUARTER
FROM [1: Contract Student Selection] INNER JOIN STUDENT ON [1: Contract
Student Selection].DW_KEY = STUDENT.DW_KEY
GROUP BY STUDENT.DW_KEY, STUDENT.YEAR;
```

Last Demographics: 3

```
SELECT STUDENT.DW_KEY, Last(STUDENT.AGE_GRP_PRIMARY) AS
LastOfAGE_GRP_PRIMARY, Last(STUDENT.SEX) AS LastOfSEX,
Last(STUDENT.RACE_CODE) AS LastOfRACE_CODE
FROM STUDENT INNER JOIN [2: last quarter only] ON (STUDENT.DW_KEY =
[2: last quarter only].DW_KEY) AND (STUDENT.YEAR = [2: last quarter
only].YEAR) AND (STUDENT.QUARTER = [2: last quarter only].MaxOfQUARTER)
GROUP BY STUDENT.DW_KEY;
```

Race, Gender, Sex Crosstab: 4

```

TRANSFORM Count([3: last demographics].DW_KEY) AS CountOfDW_KEY
SELECT [3: last demographics].LastOfAGE_GRP_PRIMARY, [3: last
demographics].LastOfSEX
FROM [3: last demographics]
GROUP BY [3: last demographics].LastOfAGE_GRP_PRIMARY, [3: last
demographics].LastOfSEX
PIVOT [3: last demographics].LastOfRACE_CODE;

```

Prior Education/Work Status

The final run generated a cross-tabulation table of the prior education and work status of the employer-focused contract supported students. The methodology was similar to the previous run with the first two queries being identical. The last two queries isolated the work and education data and then generated the cross-tabulation output table.

Last Work, Education: 3

```

SELECT STUDENT.DW_KEY, Last(STUDENT.WORK_ATTND) AS
LastOfWORK_ATTND, Last(STUDENT.PRIOR_EDUC) AS LastOfPRIOR_EDUC
FROM STUDENT INNER JOIN [2: last quarter only] ON (STUDENT.QUARTER =
[2: last quarter only].MaxOfQUARTER) AND (STUDENT.YEAR = [2: last quarter
only].YEAR) AND (STUDENT.DW_KEY = [2: last quarter only].DW_KEY)
GROUP BY STUDENT.DW_KEY; Analysis of Data

```

Education-Work Crosstab

```

TRANSFORM Count([3a: last work, prior education].DW_KEY) AS
CountOfDW_KEY
SELECT [3a: last work, prior education].LastOfPRIOR_EDUC
FROM [3a: last work, prior education]
GROUP BY [3a: last work, prior education].LastOfPRIOR_EDUC
PIVOT [3a: last work, prior education].LastOfWORK_ATTND;

```

Following completion of the runs, some post-processing of the data was performed to generate tables and graphs for presentation. The data output was loaded onto Microsoft Excel spreadsheets and manipulated to yield the tables and charts that are presented in Chapter 4.

Scope and Limitations of the Research

This study combines an analysis of national-level research with a state-specific case study to better understand the community college role in the design and delivery of skill upgrade training and education for incumbent workers. This mixture of national and state-specific

information has both advantages and limitations. Washington State has an excellent data system that allows for observations about national trends to be tested. However, only 34 of the nation's 1,200 community and technical colleges are in Washington State, and their colleges operate in a single statewide regulatory environment. Extrapolating trends in Washington State to the national level is problematic. At best, the Washington State case can suggest areas where further research is needed to confirm if the Washington State case is consistent with or contravening national trends. Where further research is needed, the best available methodology may be to replicate the Washington State analysis in other states where the data coverage is sufficient to permit replication. The lack of consistent national level data on college activities such as contract training activity (amount, industry occupation), non-credit enrollments by subject or educational purpose, and the like, limits the use of more direct methods of analysis on the national level.

Even within Washington State, which is one of the best places in the nation to conduct this research, there are real limits on the coverage and consistency of the data, especially with regard to non-credit programs. Because the state does not make payments to colleges for non-credit enrollments, limited staffing resources are often focused on getting the credit-bearing enrollments accurate, and non-credit data entry is a low priority. In addition, the lack of a data field for indicating employer-focused enrollments and classes within the contract supported data set means that only estimates of employer-focused training and education activity are possible. A workaround was devised by excluding non-employer focused activity, but the resulting employer focused contract supported enrollments and students contain noise (from the individualized welfare contracts and tech-prep students discussed above) that could have been avoided if the proper data field existed.

Finally, most of the discussion in the literature regarding the increased demand for training and education of incumbent workers is based on economic theories supported by national level data on current labor market skills and associated earnings, education and training capacity, and the skill requirements of new jobs that are being generated in the United States. But there is no consensus on how to best interpret these data trends, nor is there anything close to unanimity regarding their public policy implications. While this investigation will seek to

provide a “meta-analysis” of these theories and interpretations of national trends, and draw conclusions, there is clearly an element of subjectivity to this process. Clearly, it is worth noting that the focus of this inquiry is, to a degree, theory-based and value-laden.

*Chapter 4*EMPLOYER-FOCUSED CONTRACT SUPPORTED EDUCATION IN
WASHINGTON STATE**State Policy Milieu**

Compared to other states, Washington has a set of policies in place that make it somewhat difficult for community colleges to engage in employer-focused training. Washington is among the roughly half of all states that offer no direct state support to community colleges for non-credit continuing education. Instead, all continuing education programs are considered student supported instruction with tuition covering the full cost of instruction.

By comparison, Oregon, immediately to the south, provides colleges with the same level of state support for their non-credit continuing workforce education and health and safety courses as they do for credit-bearing degree programs³. The end result is that tuition is often higher in Washington State for many continuing education offerings, and classes are more often cancelled when class enrollment is not sufficient to break even and cover instructional costs.

A second area of deficiency (compared to other states) is the level of funding for the state's incumbent worker training support program, the *Washington Job Skills Program*. As noted in Chapter 2, most states provide employers or their education partners with discretionary grants for targeted new hire or skill upgrade training. Compared to other states, Washington's program is funded at a very low level, ranking next to last on a per capita basis in a 1999 National Governors' Association survey (Regional Technology Strategies, 1999). Since then, funding for the program has increased substantially (by about a factor of three), but there has been no nationwide comprehensive survey conducted to determine where the state stands *vis-*

³ Workforce courses eligible for state support include pre-college level literacy courses, world languages, life skills (parenting, college success, personal finance), technology (including computer courses) and other workforce-related instruction. Health and safety courses include fitness, first aid, driver education and safe operation of power tools (Oregon Dept. of Community Colleges and Workforce Development, 2004).

à-vis other states. However, given where the state started in the last assessment, it is likely the state's ranking remains in the bottom third.

One recent development has been the creation of a new state program (in 2003), funded by the Legislature and administered by the Washington State Board for Community and Technical Colleges, to support community college Centers of Excellence. These resources are targeted to colleges that have developed exceptionally good connections with employers in a particular industry and have state-of-the-art education and training programs in place to support the industry. For example, Pierce College has been designated a Center of Excellence in Homeland Security due to its excellent training programs for first-responders. Bellevue Community College, which supports an information technology industry group and has developed IT skills standards, is an IT Center of Excellence. The objective of the program is to document and replicate best practices in industry- and sector-focused workforce development across the state. The Centers are also tasked with being a broker or single point of contact for industry businesses seeking training and education services. Since the initiative is so new, it is too early to tell how effective it has been in achieving these objectives.

The remainder of this chapter provides a baseline of information about the content and growth of employer-focused education in Washington State. The analysis also investigates the market-responsiveness of this activity and demographic information about students and workers receiving employer-focused contract supported instruction at the state's community and technical colleges.

Research Results

Level of Employer-Focused Contract Supported Instruction

In Washington State, an enrollment in a class can be coded as either state supported, student funded, or contract supported. A student funded class is neither state nor contract supported, and is completely reliant on tuition and fees charges to cover the cost of instruction. State supported enrollments require additional student support through tuition and fees, except in those instances where tuition exemption has been granted to a student. Contract supported enrollments may or may not require student-funded tuition. Contract supported enrollments

include all instruction, credit-bearing or not for credit, that is funded in part or whole by contracts with employers, organizations, and public agencies. This not only includes contracts with employers, but also includes training for welfare recipients, local workforce investment boards (funded under the federal Workforce Investment Act), school districts (including high school completion, college-in-the-high school programs, and Running Start (dual credit) programs), military training, Department of Corrections training, and international education (contract education provided on campus or overseas with a foreign employer, industry association, education institution or government).

Over the last 10 years, contract supported students and enrollments have grown at a higher rate than other types of enrollments. Between 1993-1994 and 2003-2004, the number of students (unduplicated count) enrolled in state supported or student funded classes in Washington Community and Technical colleges rose 3.3 percent, while the number of students enrolled in contract supported classes increased by 60.5 percent.⁴ Looking at this from the financial side, academic year expenditures from grants and contracts rose 121 percent between 1993-1994 and 2003-2004 (in constant dollar terms). By comparison, expenditures from all other sources combined rose only 57 percent.⁵ Expenditures from grants and contracts have risen at more than twice the rate of other revenue sources rising to 16.4 percent of all college expenditures in 2003-2004. These increases in contract education activities allowed the percentage of students engaged in contract-funded instruction over the 10-year period to rise from 10.5 to 15.3 percent of all students served.⁶

As Figure 4.1 below indicates, this increase has been fairly steady over the last 10-year period.

⁴ State supported headcount increased 9.6 percent while student funded headcount decreased 15.4 percent for a net total combined increase of 3.3 percent over the period. Information based on December 2004 analysis of *Academic Year Reports—Enrollments and Student Demographic and Expenditures*, accessed on the Washington State Board for Community and Technical Colleges website at <http://www.sbctc.ctc.edu/data/data.asp>.

⁵ Since community colleges carry over very little in revenues from year to year and money that comes in goes out quickly, analyzing expenditures is a good proxy for identifying revenue sources.

⁶ Calculated from December 2004 analysis of *Academic Year Reports—Enrollments and Student Demographic and Expenditures*, accessed on the Washington State Board for Community and Technical Colleges website at <http://www.sbctc.ctc.edu/data/data.asp>

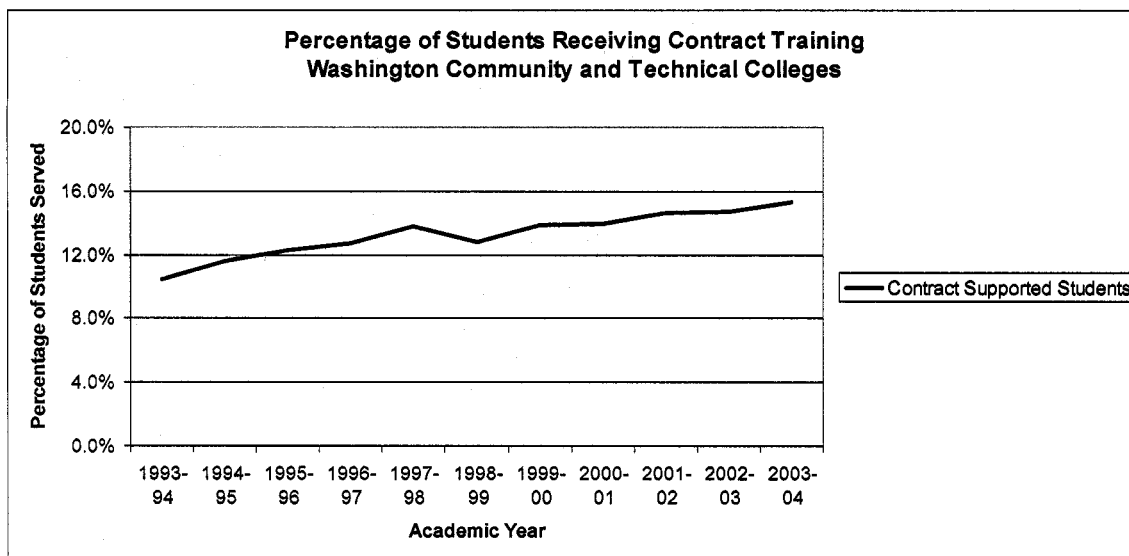


Figure 4.1: Percentage of Students Receiving Contract Supported Education, Academic Years 1993-94 to 2003-04, Washington Community and Technical Colleges

Source: Analysis of *Academic Year Reports*, Washington State Board for Community and Technical Colleges.

Figure 4.2 charts the headcount of students enrolled in contract-supported and student funded (continuing education) instruction. Student-funded students are entirely supported with student tuition and fees and receive no support from state FTEs or contracts with outside organizations. According to the State Board for Community and Technical Colleges report, very few students (only 3.5 percent of all students counted in 2003-2004) enroll in more than one college or funding type during an academic year and are double-counted in the funding type analysis. What is interesting is the steady and consistent rise in the number of contract supported students even during the recent economic downturn beginning in 2000-01. In fact, the number of contract supported students is approaching the number of continuing education students in the system. One possible explanation for the decline in the student-funded headcount is the significant reduction in continuing education IT enrollments that coincided with the loss of many dot.com businesses between 2000 and 2003.

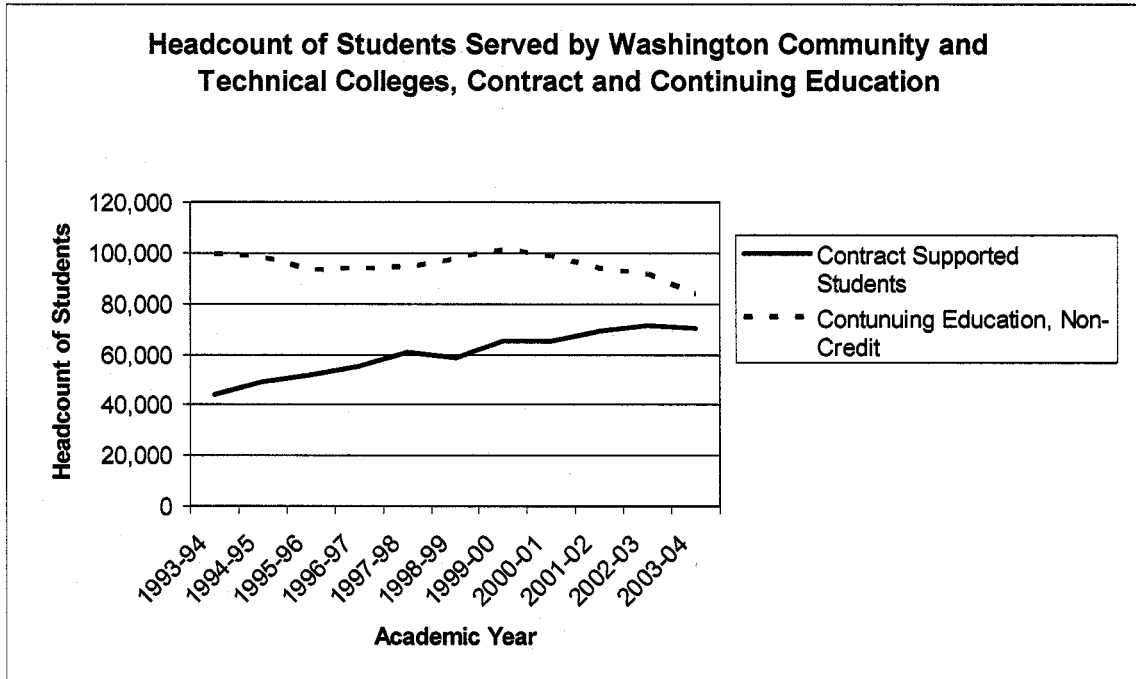


Figure 4.2: Headcount of Contract Supported and Continuing Education Students Served, Academic Years 1993-94 to 2003-04, Washington Community and Technical Colleges

Source: Analysis of *Academic Year Reports*, Washington State Board for Community and Technical Colleges.

However, the numbers presented so far include all forms of contract supported education, including contracts with government organizations and for public purposes such as recovery programs for out-of-school youth, Running Start (dual high school-college credit program) students, international education, welfare-to-work students, military training, and Department of Corrections programs. Unfortunately there is no mechanism in the state's record-keeping system for identifying contracts with private and/or public employers. The only way to zero in on this activity is to exclude all of the types of public contract training mentioned above. This is possible because there are fields that identify enrollments in classes that are for these public purposes. Once culled from the database, the remaining records should be primarily employer-focused training and education contracts.

This methodology was used to estimate the level and type of employer-focused training and education that is occurring in the state, and to look at trends over the most recent five year

period. Coding inconsistencies made it impractical to look back further for longer-term trends.

The Subject and Intent of Employer-Focused Contract Supported Instruction

Table 4.1 below looks at these employer-focused contract supported enrollments by Classification of Instructional Program (CIP) cluster. An enrollment is essentially a seat in a class. Each class is assigned a unique CIP code based on its content. If the class X is offered three quarters throughout the year and there are 24 students in the class each time, there would be 72 total enrollments during that academic year from the delivery of class X.

Table 4.1: Employer-focused Contract Supported Enrollments by CIP Cluster, Academic Years 1998-1999 and 2003-2004, Washington Community and Technical Colleges

Classification of Instructional Program Cluster	Academic Year		Percentage Change
	1998-1999	2003-2004	
Business Administration	679	665	-2.1%
Science	2,502	2,868	14.6%
Mathematics	1,283	1,166	-9.1%
Social Science	3,676	5,631	53.2%
Humanities	6,219	6,090	-2.1%
Health and Physical Educ.	687	698	1.6%
ABE/ESL	8,555	12,833	50.0%
Business and Commerce	8,144	10,593	30.1%
Data Processing	12,881	6,575	-49.0%
Health Sciences	1,494	5,855	291.9%
Mechanics and Engineering	4,435	4,090	-7.8%
Natural Science (inc. food service and parent educ.)	1,933	1,884	-2.5%
Public Support	4,201	4,117	-2.0%
Occupational Support	6,888	10,184	47.9%
Developmental Studies	8,456	8,366	-1.1%
TOTAL ENROLLMENTS	72,033	81,615	13.3%

Source: Analysis of Washington State Data Warehouse records using CLASS and STUCLASS tables, conducted December 2004-January 2005.

The definition of some of the CIP clusters in Table 4.1 is not intuitively obvious. Occupational Support includes subjects like workplace communications, stress management, career exploration, self-esteem, and industrial relations. Public Support is a catch-all category

that includes first-responder training, child development/childcare, teacher training, flagging/traffic control, social and human services counseling, and youth services. Developmental Studies is pre-college English and mathematics instruction that is above the adult literacy level. Data Processing should probably be called Information Technology, since it includes non-processing topics such as computer programming, digital media, technical writing, and Web management. Social science includes topics like sociology, political science and economics, and humanities includes college-level English literature and composition and world languages.

Table 4.1 shows an increase of 13.3 percent in contract supported enrollments between the 1998-1999 and 2003-2004 academic years. What is more interesting is the responsiveness of contract training to statewide economic trends. For example, reductions of contract training in mechanics and engineering coincided with significant reductions in manufacturing employment over the period.⁷

The shift from contract training in data processing to business and commerce coincides with the decline of the state's Internet-based businesses and the gradual transition toward integrated data management systems through business-to-business data systems. In other words, business need for "data processors" declined as information management became an integral part of business systems, and was incorporated into business and commerce instruction.

Table 4.1 also shows a large increase in health sciences contract supported enrollments that would include instruction in CNA and LPN training, phlebotomy, and health information systems. This increase corresponds to a 13 percent increase in employment in the health service sector statewide, between 1998 and 2003. With employment in manufacturing and

⁷ According to the Washington Employment Security Department's figures as posted on their website (<http://www.workforceexplorer.com>) manufacturing employment in the state declined by 35 percent over the period from 361,000 jobs in 1998 to 267,000 in 2003.

other industries declining, it is not surprising that so much new emphasis was put on a sector that was adding employment.⁸

Based on the data presented, it appears that Washington's contract supported instruction responds to changing economic and business needs. Just how responsive it is compared to other states, and whether it is sufficiently responsive, is a more complicated assessment. But the correlation between contract supported enrollments and major state economic trends is intriguing.

Figure 4.3 below takes a different cut at the content of contract supported enrollments using four institutional intent categories—academic, vocational preparatory, vocational supplemental, and vocational home and family life. Academic refers to liberal arts, adult basic and developmental instruction, which may or may not have a vocational purpose or objective. Vocational preparatory instruction targets entry-level skills that are clearly vocational and would include pre-apprenticeship training, assembly and machine operator training, Certified Nurse Assistant training, flagger training, *etc.*, and vocational supplemental focuses on higher level skills such as quality control/quality assurance, hazardous substance management, and computer programming. Skill upgrade training for incumbent workers is likely to be coded as vocational supplemental. Vocational home and family life includes child development and parenting instruction.

⁸ The figure cited is based on Washington Employment Security Department data, as posted on their website, (<http://www.workforceexplorer.com>).

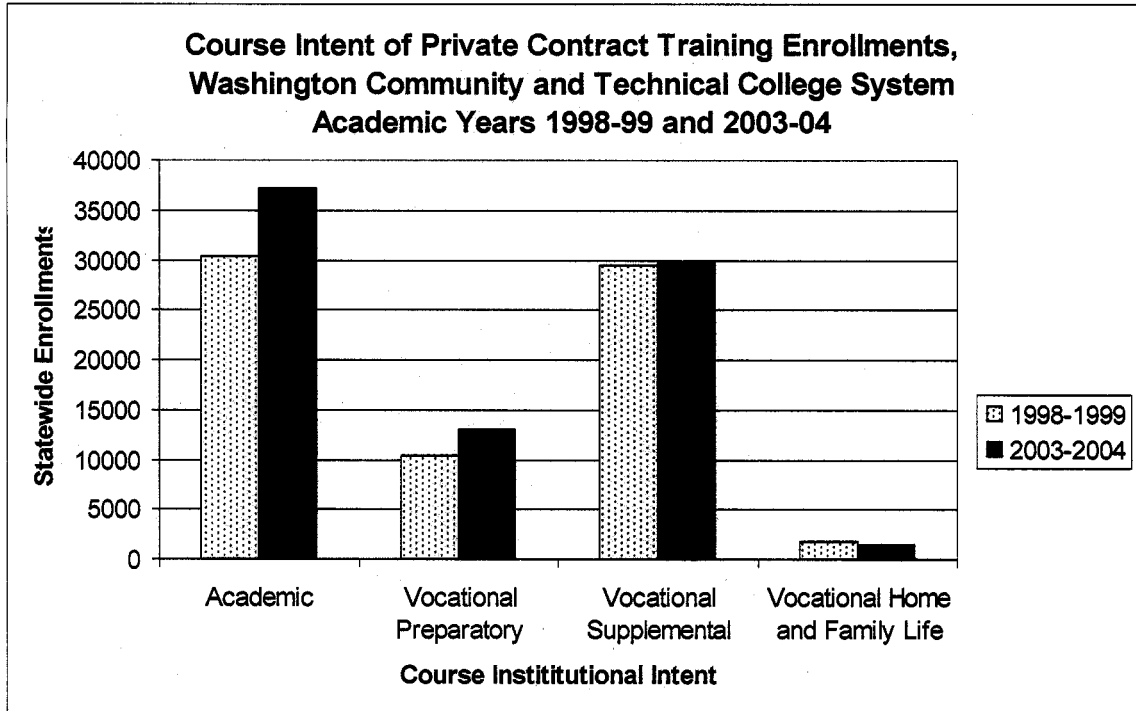


Figure 4.3: Course Intent of Employer-focused Contract Supported Enrollments, Academic Years 1993-94 to 2003-04, Washington Community and Technical Colleges.

Source: Analysis of Washington State Data Warehouse records using CLASS and STUCLASS tables, conducted December 2004-January 2005.

Not surprisingly, the majority of vocationally-focused employer-focused contract supported enrollments are for higher level skills, not just preparing workers for entry-level employment. But it is interesting to note that the level of vocational supplemental instruction remained constant over the period while vocational preparatory enrollment increased. A possible explanation could be the expansion of contract supported new-hire training projects, especially in the growing health service field, as businesses look to find entry-level workers with higher level skills. This hypothesis is supported by further analysis showing the health services vocational preparatory enrollments grew from 624 to 3,303 between 1998-1999 and 2003-2004.

The study period coincides with the transfer and expansion of the state's customized training program, the *Job Skills Program*, from administration under the Workforce Training and Education Coordinating Board to the State Board for Community and Technical Colleges.

This administrative change may have helped to encourage the development of more new-hire training projects, since colleges had easier access to these resources to develop business-focused training solutions.

The increase in academic enrollments could be explained by increased interest in workplace literacy and adult basic education/ESL instruction or by a need to develop higher level thinking skills. To explore this further, cross tabulations were done with the CIP and institutional intent fields allowing each institutional intent category to be broken down by CIP cluster. Figures 4.4a, b, and c show the results of this analysis for the Academic, Vocational Preparatory, and Vocational Supplemental employer-focused contract supported enrollments for the academic years 1998-99 and 2003-04.

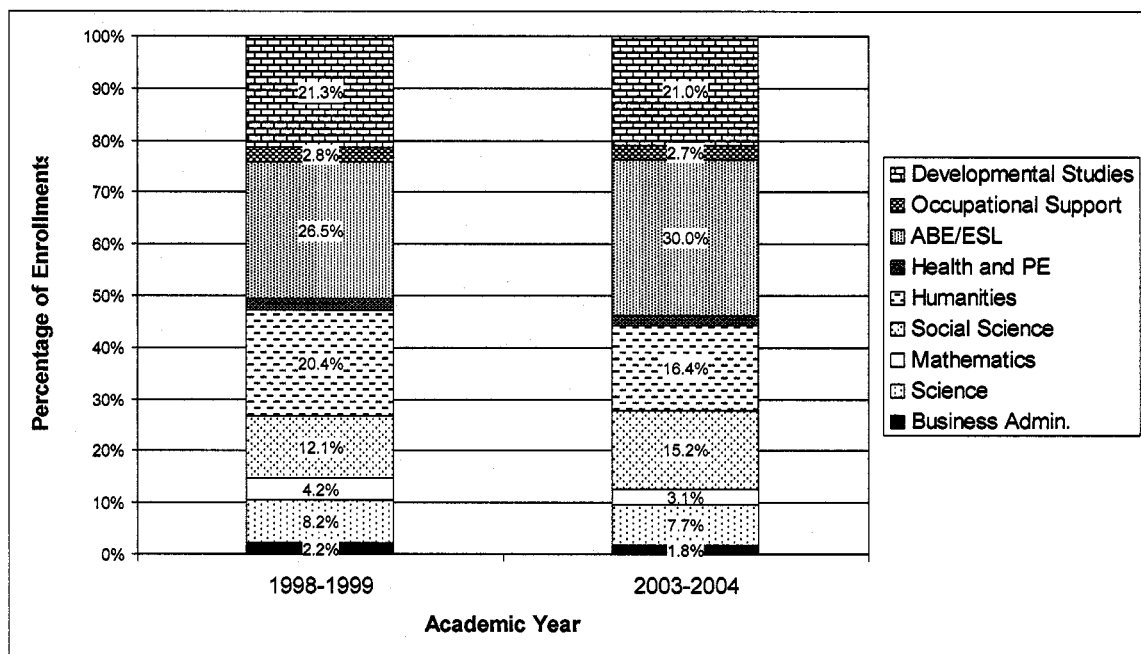


Figure 4.4a: Employer-focused Contract Training Enrollments with Academic Institutional Intent by CIP Cluster, Academic Years 1993-94 to 2003-04, Washington Community and Technical Colleges.

The Figure 4.4a above does not indicate any major shifts in the subject content of employer-focused contract supported enrollments over the period. There was some increased emphasis in ABE/ESL and science (chemistry, physics, biology) instruction and a relative decline in the

humanities, but the subject content of academic instruction was considerably more stable than the vocational categories indicated below.

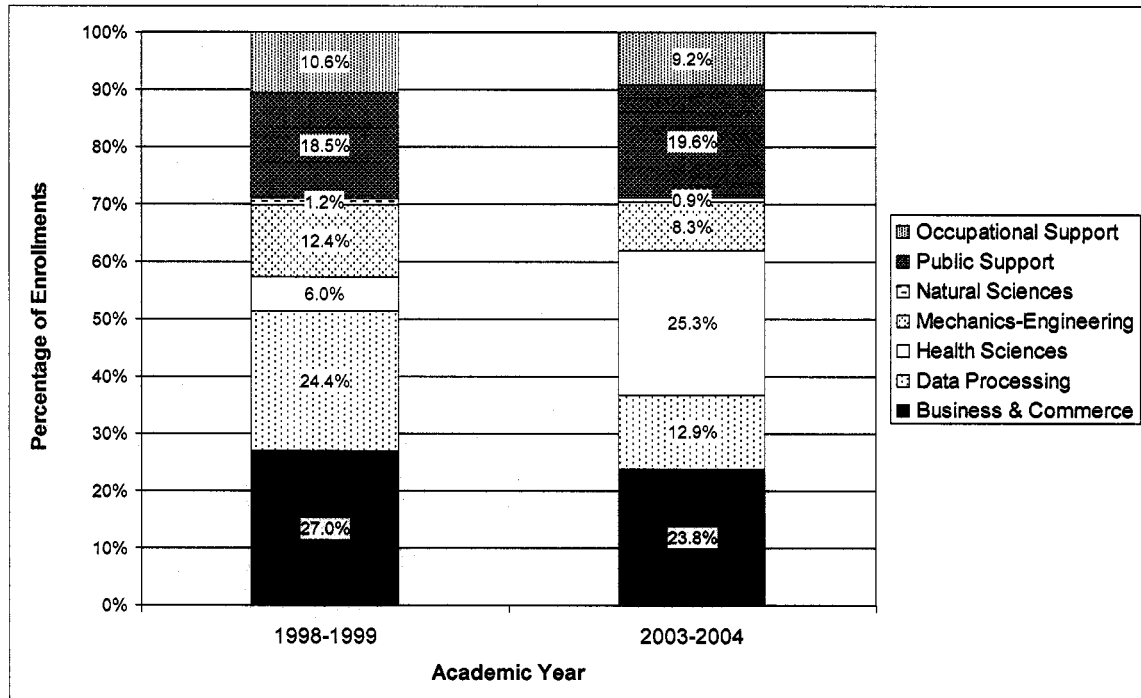


Figure 4.4b: Employer-focused Contract Supported Enrollments with Vocational Preparatory Institutional Intent by CIP Cluster, Academic Years 1993-94 to 2003-04, Washington Community and Technical Colleges.

Figure 4.4b shows the distribution of vocational preparatory enrollments by CIP code. Here the changes over the period were more dramatic with health sciences increasing from six to 25 percent of vocational preparatory enrollments and data processing declining from 24 to 13 percent. This pattern would be consistent with the observation noted above that colleges engaged in more business partnerships over this period to develop the health services career pathway with vocational preparatory instruction that qualified workers for entry-level health services jobs.

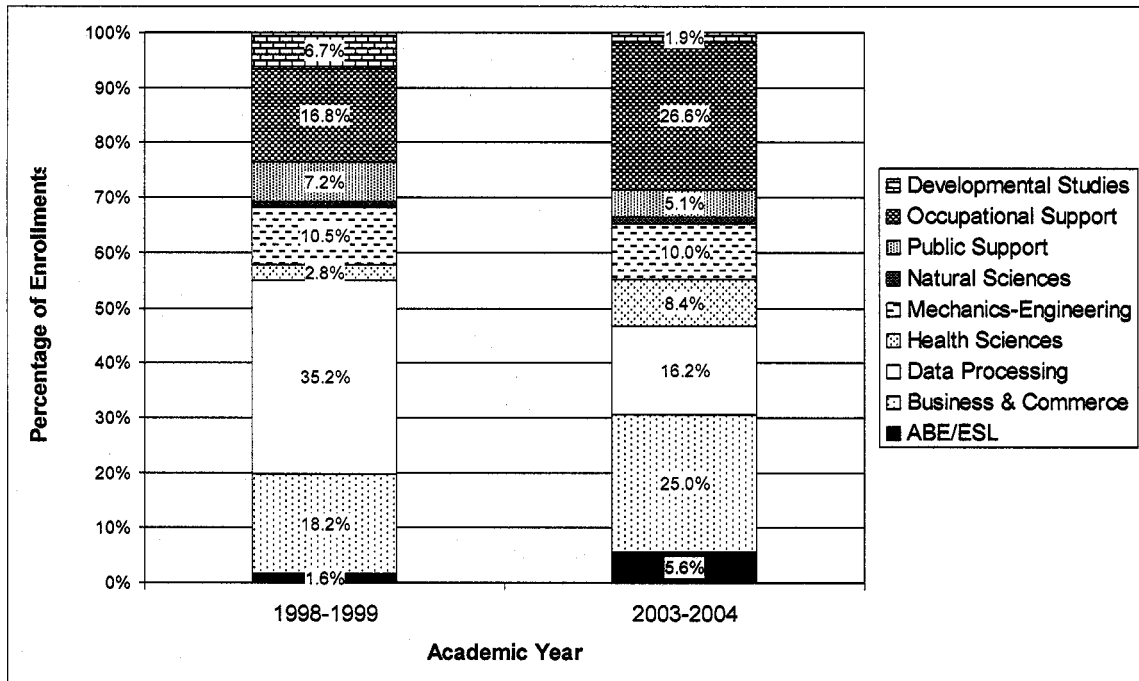


Figure 4.4c: Employer-focused Contract Supported Enrollments with Vocational Supplemental Institutional Intent by CIP Cluster, Academic Years 1993-94 to 2003-04, Washington Community and Technical Colleges

Figure 4.4c shows the CIP cluster distribution of employer-focused contract-supported vocational supplemental enrollments. Here again, there were dramatic shifts in the content of this higher level vocationally-focused instruction. Adult basic education/ESL, business and commerce, health sciences, and occupational support instruction rose considerably while data processing and developmental studies declined. This data is consistent with the hypothesis presented above that the colleges responded to the growth of integrated data management strategies by incorporating data processing instruction into business and commerce courses. The three-fold increase in the share of health sciences instruction is also consistent with the system's responsiveness to job growth in this sector. The occupational support category, which covers career planning, stress management, supervisory training and other related topics also grew considerably (from 4,941 to 7,985 enrollments), possibly as a result of increased business and employee concern over career and personnel management issues in the workplace.

Students Enrolled in Employer-focused Contract Supported Instruction

Information on the demographics of students enrolled in employer-focused contract supported instruction, as opposed to student headcounts and enrollments, is considerably less reliable than the information presented above. This is for several reasons:

- Colleges may be reluctant to capture personal information about students engaged in contract supported instruction, especially if it is delivered in the workplace.
- Students may attend many different classes during an academic year, some of which may be contract supported, others not.
- The methodology for developing demographic information from unduplicated counts of students is more complicated, increasing the potential for data analysis errors.

Nevertheless, an attempt was made to develop estimates of information on the age, gender, prior education, and work status of students attending contract supported instruction. The analysis was run for the 1998-99 and 2003-04 academic years.

The analysis shows a 22 percent increase in the total number of students (unduplicated count) receiving employer-focused contract supported education and training, rising from approximately 36,000 to 44,000 students between 1998-99 and 2003-04. Compare this 8,000 student increase in employer-focused contract supported students with the nearly 12,000 student increase in the total number of contract supported students in the system, and it is clear that most of the overall increase is a result of growth in employer-focused education and training (as opposed to contracts with public agencies and other education institutions).

With regard to gender, the percentage of female students engaged in contract supported instruction has increased from 48 percent to 51 percent between the 1998-99 and 2003-04 academic years. This could be explained by the absolute and relative increases in health services instruction over this period, which tends to attract more women than men. More analysis would be required to substantiate this link.

Table 4.2: Employer-focused Contract Supported Students by Age Cohort, Academic Years 1998-1999 and 2003-2004, Washington Community and Technical Colleges

Age Cohort	1998-1999		2003-2004	
	Number	Percent	Number	Percent
No data	2,170	6.1%	3,325	7.6%
Under 20	3,805	10.7%	9,274	21.2%
20-29	10,553	29.6%	12,488	28.5%
30-39	7,968	22.4%	8,162	18.7%
40+	11,101	31.2%	10,493	24.0%
Total	35,597	100.0%	43,742	100.0%

Source: Analysis of Washington State Data Warehouse records using STUDENT and STUCLASS tables, conducted December 2004-January 2005.

Table 4.2 above shows a marked decrease in the age of employer-focused contract supported students. The table reveals that the increase in the total number of employer-focused contract supported students served is mostly attributable to the more than doubling of students under the age of 20 that were served in 2003-04. In 1998-99, 31 percent of all students were age 40 or above, this declined to 24 percent by 2003-04. At the same time, the percentage of students under 20 nearly doubled from 11 percent to 21 percent. Further investigation is required to determine the cause of the increased level of service to teenagers, but it may be, in part, attributable to large increase in entry-level health services instruction documented above, that may have attracted younger students.

Table 4.3 below looks at the student-identified race/ethnicity of employer-focused contract supported students, and compares it to the race/ethnicity profile of state supported students for the academic year 2003-2004. Interestingly, with the exception of the Hispanic/Latino group, the contract students seem to be slightly more diverse than the traditional degree or certificate-focused students.

Table 4.3: Race/Ethnicity of Employer-focused Contract Supported and State Supported Students, Academic Year 2003-2004, Washington Community and Technical Colleges

	Contract	State Support
Latino/Hispanic	7.7%	11.6%
Asian/ Pacific Island	11.1%	9.4%
African American	7.8%	5.5%
Native American	3.0%	1.9%
Multiracial/Other	5.9%	2.5%
White	64.5%	69.1%
	<u>100.0%</u>	<u>100.0%</u>

Source: Analysis of Washington State Data Warehouse records using STUDENT and STUCLASS tables, conducted December 2004-January 2005.

Note: There was no race/ethnicity data available for three percent of the employer-focused contract supported students in the analysis, and these students are not reported in the table above.

Table 4.4 below looks at the prior education level by work status of employer-focused contract supported students. The differences in the education levels of working and unemployed students is striking.

Table 4.4: Prior Education of Employer-focused Contract Students by Employment Status, Academic Year 2003-2004, Washington Community and Technical Colleges

Prior Education	Employed Full Time	Employed Part-Time	Unemployed, Seeking Employment
No Data	0.9%	0.5%	0.7%
< 9th Grade	0.2%	0.3%	0.6%
< HS Grad.	6.6%	19.5%	32.6%
GED	4.3%	4.3%	7.7%
HS Grad.	25.9%	32.3%	26.3%
Some Post-HS Ed.	27.6%	19.4%	11.5%
Certificate (< 2 yrs)	6.5%	3.4%	4.0%
Associates Degree	8.5%	4.3%	3.5%
Bachelor's or above	14.0%	5.7%	4.9%
Tech Prep	0.3%	7.5%	4.4%
Other	5.1%	2.8%	3.7%
Total	100.0%	100.0%	100.0%

Source: Analysis of Washington State Data Warehouse records using STUDENT and STUCLASS tables, conducted December 2004-January 2005.

The data in Table 4.4 is consistent what we expect to find, based on the studies presented in Chapter 2 regarding the economic returns to education. Employer-focused contract supported

students who are working full time had higher levels of prior education, as compared to those working part time or those who are unemployed. For example, 14.0 percent of employer-focused contract supported students working full time had a Bachelor's Degree, as compared to just 5.7 percent of students working part time, and 4.9 percent of unemployed workers. The pattern is similar across each level of prior education. This finding is consistent with the national research observation that workers who have higher levels of education are more likely to be employed.

Conclusion

The data presented above confirms that the number of enrollments and students receiving contract supported education at Washington community and technical colleges is growing in both absolute and relative terms over the last ten years. Contract supported education is also growing as a source of college operating funds, exceeding 16 percent of college expenditures in the last academic year. Also of note is that the growth rate of this activity is exceeding the growth rates of state supported and student funded activities whether looking at expenditures or students. Approximately two-thirds of the growth in the number of contract supported students is attributable to employer-focused contracts (as opposed to public agency contracts).

The analysis of employer-focused contract supported education confirmed that this subset is also growing in total enrollments and total students over the last five years, in spite of the economic downturn. Analysis of instructional content reveals a dynamic enterprise showing changes in content and appears to coincide with changing economic conditions and market demand. This observation is based on the reduction in contract activity in subject areas logically corresponding to declining industries, and the observed increase in contract activity in subject areas corresponding to growing industries.

Most of the increases in contract supported enrollments in the last five year period were in academic and vocational preparatory (entry-level) instruction. Vocational supplemental enrollments (higher level professional-technical skills) were flat. This finding suggests that Washington's community and technical colleges remained specialized and focused on academic and entry-level vocational instruction. To the extent that employers are looking to

the state's community colleges to provide higher level vocational training, it has not led to higher enrollments in this type of contract instruction in the most recent period. The data suggests that employers are increasingly looking to community colleges to improve communications and basic skills (humanities, ABE/ESL, and developmental studies were the most frequently selected academic subject areas) and entry-level vocational skills. Skill upgrade training of a technical nature seems to be a different story.

This increase in academic and vocational preparatory enrollments over the last five-year period is also consistent with the finding that employer-focused contract supported instruction students were younger in 2003-2004 than they were in 1998-1999. Younger students are more likely to engage in ABE/ESL, developmental studies, and entry-level vocational training than older students.

Washington community and technical colleges have become increasingly reliant on contract supported education for their operating revenues, and a large share of that activity (about 60 percent based on the student headcount estimates reported above) is employer-focused instruction. Most of that recent growth has been attributable to increases in academic instruction, especially literacy, basic education and communications skills, and in entry-level vocational instruction. Washington colleges appear to be able to be market responsive with regard to the subject content of their contract education activity. Washington colleges need to enhance their efforts to expand contract training opportunities for higher level vocational skills instruction, where enrollment levels have been flat.

CONCLUSION: PUBLIC POLICY IMPLICATIONS OF THE RESEARCH

Summary

Professional-technical education has been a focus of community colleges for the last 40 years. During that period, labor markets and employee relations have changed dramatically, and what began as a need for education services focused on career preparation has evolved into a need for continuous career development. Over that period, the concept of lifelong learning has taken hold. This study has highlighted some of the challenges community colleges face in making lifelong learning a reality, or at least the component of lifelong learning that is focused on the continuous development of occupational skills.

A series of perplexing and difficult to resolve tensions facing community colleges were presented. These include the tension between the need for higher-order skills and the need for a flexible skill mix; the tension between firm-specific skill needs and workers seeking general skills and credentials; the tension between community colleges' traditional focus on entry-level skills and being responsive to business needs for skill upgrade training; the tension between needing to have closer ties with businesses to provide responsive training solutions, but not having the resources to develop those ties; and the tension between the dual economic development policy objectives—encouraging job growth through training subsidies for new jobs, and retaining employment through skill upgrade training—that promotes competition for scarce public dollars.

To explore these tensions, several research questions were posed and addressed. The first of these explored the historical and institutional context for community college engagement in employer-focused training. Here, it was noted that the mission and roles community colleges are playing in higher education are varied and expanding, ranging from career preparatory education, to transfer education, to short-term job training and basic skills remediation. Engaging in employer-focused education is, for many community colleges, a further expansion of their mission and scope of services.

Another critical element in the context for the analysis is the steady rise of vocationalism (as defined by Grubb and Lazerson, 2004) in American education, and especially in the community college context. Several problems stemming from this phenomenon were identified, including the relegation of low-status occupations to the purview of community colleges, and the difficulty community colleges have in being open door institutions that must admit all comers, no matter how limited their skills and abilities may be, but needing to maintain high standards for completion of professional-technical programs. Furthermore, vocationalism can lead to tension and divisions between faculty and staff on a college campus, depending on whether they are oriented toward preparation for work or academic preparation for transfer to a four-year institution.

A second research question focused on how structural changes in the economy, and particularly in labor markets, have increased the demand for higher level skills and skill upgrade training and education. Here it was found that the economic returns to an Associate degree, as compared to a high school diploma, are in the range of 20-30 percent higher annual earnings and have increased in the last twenty years (Grubb, 1999). There are also indications that employment and earnings increase when skills directly related to employment are enhanced (Duscha, 2002). Several dimensions of labor market structural change were explored, including changing employment relations in both the internal and external labor markets, increased emphasis on credentialing, a changing industrial mix, and increased pressure on companies to cut costs and increase flexibility to respond to changing technology and global competition (Osterman, 2004). This analysis concludes with an exploration of Grubb and Lazerson's concept of the "Foundational State," which would develop public policies to mediate the impact of some of these structural changes with the goal of ensuring access to educational opportunity.

A third research question was to identify the incentives and barriers for community colleges to engage in employer-focused contract training. Here it was found that most colleges engage in contract training, much of which is sponsored by employers and focused on preparatory or supplemental vocational skills (Dougherty and Bakia, 2000). Firms have many good reasons for contracting with community colleges for incumbent worker training, but the supply of this

type of training is uneven, favoring urban areas over rural ones, and certain industrial sectors over others (Dougherty, 2003). The lack of state funding for non-credit education in many states, including Washington, and the bias of state customized training programs toward job creation projects are two reasons why community colleges find it difficult to sustain and expand this service.

Next, there was an exploration of current methods community colleges use for determining labor market needs, and a discussion of best practices. The uneven quality of college program advisory committees, and the predominance of this approach, was identified as a factor limiting community college outreach efforts. The best practice model for a labor-market responsive community college was based on four critical factors—leadership that makes serving the employer customer an institutional priority, internal response mechanisms for quickly developing and delivering training, business partnerships and other collaborations, and strong institutional connections to the local economy. The emerging workforce intermediary model presented another approach for college engagement with employers. Sector, industry, or cluster-based workforce intermediaries engage employers to develop career ladders (or lattices) and associated training/education opportunities.

Chapter 4 looked at the Washington State trends regarding community and technical college provision of employer-focused contract training. The analysis of state data showed that the number of enrollments and students receiving contract supported education at Washington community and technical colleges is growing in both absolute and relative terms over the last ten years. Employer-focused contract supported education is a dynamic enterprise showing changes in content that appear to coincide with changing economic conditions and market demand. However, Washington's community and technical colleges remained specialized and focused on academic and entry-level vocational instruction. Students engaged in employer-focused contract education tend to be slightly younger and exhibit more racial/ethnic diversity than their fellow students in state-supported instructional programs.

Conclusions

There is every indication that the continued restructuring of labor markets, intense global competition, and rapid technological change will reinforce the pressure on community college to focus more on the needs of the employer customer, providing a broader range and higher level of professional-technical instruction that meets changing industry skill needs. The trend toward vocationalism is not likely to dissipate any time soon. The best known community colleges in the country, Central Piedmont, Maricopa County, Sinclair, Portland, Valencia, Moraine Valley, Macomb, and Cuyahoga, are most often renowned for their employer-focused education and training programs. They are all labor market responsive institutions with close strategic ties to local industry.

There are also clear examples of what colleges can do to become more labor market responsive. They need to establish systems and a culture that embraces the development of strategic partnerships with businesses, and focuses on developing programs that prepare workers with skills and knowledge that local industry needs. They also need to develop the capacity to assist local companies in developing the skills of their incumbent workers so the firms can stay competitive and their workers can advance their careers. They need flexible and adaptable curriculum systems and multi-mode delivery systems that are convenient and accessible to working students.

Making this happen will undoubtedly create stresses and require making difficult choices concerning the allocation of limited resources. Proper public policy can expand those resources where they are needed most and help to limit these impacts. Some of the most significant problem areas—that may require relinquishing power and control to outside entities or different parts of the college bureaucracy—for colleges seeking to expand their ability to deliver more employer-focused contract training include:

- Modularization of curriculum to make it easier and more efficient to develop customized training;
- Reworking of the system of college program-specific advisory committees so that sector/cluster-focused skill panels can make workforce development curriculum

content decisions on the labor market level for multiple colleges (especially in urban areas where several colleges operate in a single labor market).

- Expansion of distance learning courses and development of hybrid courses;
- More instruction in the evenings and on weekends;
- Development of professional-technical instruction at higher skill levels to provide skill upgrade training of incumbent workers;
- Dedicated college funds to support permanent staff focused on developing strategic partnerships and education/training programs with industry; and
- Development of an institutional culture in which employers are seen as college customers, in the same way that individual students are.

None of these changes should result in the diminution of other college programs and services. Expansion of employer-focused services does not have to come at the expense of transfer education or any other curricular function. However, they may, over time lead to more specialization of professional-technical offerings as a college shifts resources toward the programs where its ties to industry are the strongest, and where its reputation for quality programs excels. This can be very problematic for a rural college that is the sole provider of post-secondary education in the labor market, but not of great concern in an urban area where there are other providers that can provide services in program areas that are being de-emphasized. Slowly, urban and suburban colleges are beginning to realize that it is not essential for every college to have a nursing or a Computer Information Systems program.

The Washington analysis showed that the state is becoming more dependent, with regard to enrollments and revenues, on employer-focused contract supported education. This service appears to be a dynamic and responsive enterprise, adapting in content to changing market demand and industry needs. However, the analysis showed no growth in the provision of higher level (vocational supplemental) education, showing that the ability of the state's community colleges to deliver higher level instruction may be constrained. The capacity of Washington colleges to continue expanding employer-focused education and training may also be constrained by the limited resources, as compared to other states, available in the form of state support. Unlike many other states, Washington colleges receive no FTE funding from

the state for non-credit courses even when they are developed to meet specific industry needs, or are linked to industry skill standards or certifications, and state funding for subsidized customized training ranks among the lowest in the country on a per capita basis. For all of these reasons, there is cause to be concerned about the ability of Washington community and technical colleges to continue to expand their provision of employer-focused contract supported education and respond effectively to emerging industry skill needs.

Implications for Public Policy

This study has shown that community colleges are already deeply engaged in the provision of employer-focused contract supported education and training. As states continue to struggle to meet financial and political commitments to fund higher education, they should be looking at ways to expand this activity since it can help secure the state's public colleges in its role as a vital resource for the promotion of regional economic development. Employer-focused education and training can serve to promote regional development by increasing personal earnings and consumption, lowering the cost to businesses and consumers of staff recruitment and development, and supporting employment levels by helping firms meet competitive and technological challenges through skill upgrade training. In short, labor market responsive colleges can help make local labor markets more efficient and effective.

Washington State Policies and Programs

Employer-focused contract supported education has grown in the last five years, despite the absence of state-funded support and assistance to colleges to enable this growth. One would be hard-pressed to identify a state policy or initiative that could account for the 13.3 percent growth in enrollments, and 22 percent growth in the number of students receiving employer-focused contract supported education. The only explanation that is left is simply that colleges used whatever resources they had available to respond to this employer demand, and that employers were interested in engaging community colleges to provide these additional services.

There are many steps the state can take to enable further growth of this activity. Closer ties to area businesses that lead to the development of customized training could enable colleges to

keep their curriculum current and updated. Some of these policy/program enhancements include:

- Expansion of the state's customized training program, the *Job Skills Program*. This would enable smaller companies or groups of companies that could not otherwise afford to engage in training their workers to do so through matched state subsidies. Furthermore, a portion of the funds should be set aside for skill upgrade projects so these projects would no longer have to compete head-to-head with job creation projects for scarce resources.
- Provision of state FTE for non-credit courses that are based on industry skill standards, prepare students to take exams for industry certifications, or focus on occupational support (teamwork, supervisory skills, stress and conflict management, etc.) and workplace health and safety issues. The level of FTE funding need not be 100 percent of current state support for credit-bearing classes to have the effect of allowing Washington colleges to appropriately staff their business outreach and customized training activities. Doing so would help make colleges more employer-responsive and bring in more employer-focused contract education projects.
- Pass state legislation mandating the consolidation of program advisory committees in each federally-designated workforce development area of the state (there are 12) and integrate these consolidated bodies into existing industry *Skill Panels*, currently supported by grants from the Workforce Training and Education Coordinating Board, and college *Centers of Excellence*, supported by grants from the State Board for Community and Technical Colleges. A portion of the funding from these two programs, along with college Academic Administration resources, should be directed toward supporting these new consolidated bodies.

Federal Policies and Programs

The federal government has done very little to support skill upgrade training and education of incumbent workers. Current federal training dollars are focused almost exclusively on supporting job search assistance and labor exchange services, and a limited amount of short-term, preparatory skills training. The U.S. Department of Labor has two of new programs

targeted toward “high growth” industries— the *High Growth Job Training Initiative* (about \$150 million in grant awards since 2002) and *Community-Based Job Training Grants* (\$250 million in FY05, first grants will be awarded in fall 2005). The latter is exclusively focused on community college grantees. Both projects are designed to develop instruction that meets the skill needs of local employers or nationally-designated “high growth” industries in health care, information technology, biotechnology, geospatial technology, automotive, retail, advanced manufacturing, construction, transportation, hospitality, financial services and energy.

Providing time-limited, one-time grants is helpful for getting people together to focus on discreet activities, but it does little to sustain relationships that must be maintained and ongoing. These federal efforts would have a greater impact if a portion of the funding was used to provide renewable, formula-funded grant awards for sector/cluster-focused workforce development initiatives. The Labor Department has divided the country into about 650 state and local workforce investment boards, based on labor market areas and political boundaries. Each of these local labor markets has one or more key “growth pole” industries or industry clusters that are driving employment and local economic activity. It may be high technology or service-oriented—nanotechnology or tourism. Each labor market needs to have an ongoing group of business and education leaders focusing on its key industries and firms, developing career ladders, identifying emerging skill needs, and creating career development opportunity for the workers at these firms. While the industry or cluster may fade over time and others emerge, this is not a one-time short effort but an ongoing need to improve the competitive position of the local economy.

The solution is fairly simple and not very costly. It requires a federal formula allocation to states (possibly based on employment levels and gross state product) with a minimum allocation for small states. Each state would identify the number of local projects it would conduct with its allocation, and the sectors/clusters that would be targeted in each local area. Each state would fund at least one sector/cluster-focused project in each federal workforce area, so Washington would have a minimum of 12 projects. States would oversee and account for results and provide local grantees with technical assistance. The local grantees would provide the planning and oversight for all workforce development activities relating to their

targeted sector or industry cluster. The grantee could be a local workforce investment board, a college, a union, an economic development agency, a Chamber of Commerce, an industry association, a community organization—whomever was best able to link the targeted firms to the community education and training network in that local area.

It would cost \$130 million to fund 1,300 projects (an average of two per local area) at \$100,000 per year (a moderate average amount). Add another \$30 million for state activities and federal oversight, and the entire system costs only \$160 million or about two-thirds of what the Labor Department plans to spend this year on its Community-Based Job Training Grants. Such a program would go a long way to jump-start sector-focused workforce development initiatives across the country, and keep them going indefinitely with an ongoing source of support. These sector-focused planning projects would provide colleges with a ready-made forum that they did not have to convene or sustain for determining what training is needed by local industry and how it should best be provided. These federally-funded projects could make certain college program advisory committees redundant, and potentially provide a steadier source of financial support than state-funded initiatives like Washington's *Skills Panel* grant program.

Suggestions for Further Research

There are several areas where the research presented in this study was either slightly dated, was inconclusive, or contained noise that reduced confidence in the results. Each of these areas could benefit from further research and the development of more comprehensive and reliable data sources, including:

- More current national-level analysis of the amount and content of employer-focused contract supported education provided by community and technical colleges. Some of the analysis provided is based on 10 year old data, and it is the most current available.
- The Washington State Board for Community and Technical Colleges needs to institute a data field for contract supported education that is “employer-focused” so that it can track this activity directly and accurately, in the same way it can track other types of

contracts like Corrections or military training. This would significantly improve the state's analytical capabilities.

- Analysis of continuing education students who enroll in non-credit courses on their own for the purposes of upgrading their workplace skills, along with credit and non-credit enrollments paid for by corporate sponsors or reimbursed by corporations, to determine what these students are taking and the level of this activity. These analyses would be very difficult to conduct in Washington due to limited availability of comprehensive data, but could be attempted in other states where these limitations may not exist.

The financial, political, and institutional incentives for community colleges to continue to engage in employer-focused contract supported education will remain for the foreseeable future. The question is whether colleges will have the resources they need to meet the demand. Industry is beginning to understand that research universities are not the only type of higher education institutions that can directly support local economic development. There are other industry training and education needs that community colleges may actually be in a better position to address, that have similarly beneficial local impacts. Government policy can play a critical role to help ensure that this potential is realized.

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