

Implementation and Early Training Outcomes of the High Growth Job Training Initiative: Final Report

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ABSTRACT

The High Growth Job Training Initiative (HGJTI) was a national grant program administered by the U.S. Department of Labor (DOL), Employment and Training Administration (ETA). Between 2001 and 2007, more than 160 grants were awarded to establish industry-focused job training and related projects designed to meet the industry's workforce challenges. This report is the third and final in a series from the national evaluation of the HGJTI conducted by the Urban Institute, the Institute for Policy Studies at Johns Hopkins University, and Capital Research Corporation. This report documents the national initiative, describes the structure and implementation of projects by selected grantees, and provides nonexperimental analysis of the early impacts of job training in selected HGJTI-funded programs. The analysis relies on a review of grant applications and quarterly reports; visits to nine selected grantee sites; data collected from grantee training programs; quarterly earnings data from state unemployment insurance wage records; and administrative data from state and local public workforce system agencies.

EXECUTIVE SUMMARY

The High Growth Job Training Initiative (HGJTI) was a national grant program administered by the U.S. Department of Labor's (DOL) Employment and Training Administration (ETA). Between 2001 and 2007, more than 160 grants were awarded to establish industry-focused job training and related projects. This report is the third and final in a series from the national evaluation of the HGJTI conducted by the Urban Institute, the Institute for Policy Studies at Johns Hopkins University, and Capital Research Corporation. It documents the national initiative, describes the structure and implementation of projects by selected grantees, and provides nonexperimental analysis of the early impacts of job training on individuals for selected HGJTI-funded programs. The information presented is based on a review of grantee applications and quarterly reports submitted to ETA; site visits to nine grantees purposively selected to represent a variety of organizations, industry sectors, and geographic regions; and nonexperimental statistical analysis of the impacts of training on individual participants at five grantee sites.

The National Initiative

- Between 2001 and 2007, 161 grants were awarded. Of those, 55 percent were still active at the beginning of 2008, while the remaining 45 percent had ended.
- The HGJTI grantees implemented training and capacity-building activities serving the needs of a range of high-growth industries. Of the 161 grantees, 24 percent were in the health care sector, 21 percent in advanced manufacturing, 10 percent in biotechnology, and the remainder (45 percent) in other sectors (aerospace, automotive, construction, energy, financial services, geospatial technology, hospitality, information technology, retail, and transportation) or in non-sector-specific areas (such as Gulf Coast hurricane recovery occupations in demand).
- The average grant award was nearly \$1.8 million. Nearly all grantees leveraged the grant funds with other funds and in-kind resources from businesses or other partners. The reported leveraged contributions ranged from \$7,615 to \$29 million, with a median of about \$795,000.
- About 30 percent of the grantees carried out their HGJTI-funded efforts on a nationwide scale, which meant that workers and businesses in every state had access to activities funded by multiple grantees.
- Grantees could focus their HGJTI-funded project on training efforts, capacity-building efforts, or both. Over 75 percent of the grantees' efforts involved both training and capacity-building activities.
- All grantees reported using the grant funds to operate some form of job training, the most common types of which were apprenticeships or pre-apprenticeships (18 percent) and internships (16 percent).

- Grantees targeted their activities to one or more populations, most commonly youth and incumbent workers (38 percent each), dislocated workers (22 percent), and entry-level workers (26 percent). Thirty-four percent of the grantees reported focusing on other populations such as ethnic minorities, veterans, or survivors of Hurricanes Katrina and Rita.
- Nearly all grantees reported incorporating some capacity-building activities into their initiatives. Capacity-building activities within the context of HGJTI were strategies designed to expand the quality and quantity of training and education programs in order to increase the number of skilled workers in the targeted industries. The broad range of activities included developing new curricula, creating career ladder or training models, developing and carrying out recruitment efforts, establishing occupational skill certifications, and introducing various instructional methods (such as distance learning).
- Grantees submitted quarterly reports to ETA that included summaries of activities carried out, the number of participants trained, and progress toward their stated goals. These reports were generally based on the activities and milestones described in the grantees' statement of work for which goals and intended outcomes were stated qualitatively. Given the differences in reporting across grantees, it was not possible to report activity levels or outcomes at a national aggregate level.

Structure and Implementation of Projects by Selected Grantees

- Structured fieldwork was conducted in 2007 and 2008 with the following nine grantees:
 - Carpenters Joint Apprenticeship Program (St. Louis, Missouri)
 - Chicago Women in Trades (Illinois)
 - Columbia Gorge Community College (The Dalles, Oregon)
 - Community Learning Center (Ft. Worth, Texas)
 - JobPath, Inc. (Tucson, Arizona)
 - Louisiana Department of Labor
 - Lower Rio Grande Valley Workforce Development Board/South Texas College (McAllen, Texas)
 - Miami-Dade College (Florida)
 - Oklahoma Department of Career and Technology Education/High Plains Technology Center (Woodward, Oklahoma)
- These grantees focused on three main workforce challenges: (1) insufficient numbers of skilled workers for certain industries; (2) poor employment opportunities for low-skilled and disadvantaged workers; and (3) lack of educational or training programs for certain jobs.

- The creation and implementation of a variety of training activities were a high priority for these grantees. Six of the nine grantees also focused on retention (on the job and in training), and eight emphasized improving the capacity of the education and training system. Eight specifically intended to find and attract new pools of workers—including low-income individuals, women, dislocated workers, and the unemployed or underemployed.
- Eight of the nine grantees offered more than one job training component. Fifty-two separate training projects were funded with HGJTI funding across these nine sites, 26 of which were contracted under the Louisiana Department of Labor grant.
- Seven of the nine HGJTI grantees provided some type of long-term training (often at a community college or through registered apprenticeship), but six grantees also offered training that was short-term (80 hours or less). Shorter-term training was often aimed to elicit workers’ interest in a particular field (most often for youth) or to provide training on basic skills or safety procedures to facilitate entry into a high-growth field or advancement for incumbent workers. Longer-term training could take four years or more to complete because participants attended training only part-time and sometimes had to transfer to a four-year university to complete their degree program.
- All nine grantees engaged in multiple capacity-building efforts, defined as strategies designed to expand the number and quality of training and education programs for workers and to increase the capacity of the workforce in occupations in the targeted sectors. Across the grantees, the following types of capacity building efforts were carried out:
 - development of outreach materials;
 - design and development of program curricula and instructional materials;
 - creation of career ladder and competency models;
 - development or improvement of credentials, certifications, or degree programs;
 - design or use of new instructional techniques and technologies (e.g., Web-based learning);
 - expansion of the number of training program “slots”;
 - expansion of the number of certified instructors for particular programs; and
 - expansion of training alternatives to access new or untapped labor pools.
- Most grantees identified multiple challenges in implementing their initiatives, including difficulties recruiting training participants, lack of experience in managing federal grants, turf issues, and problems securing active cooperation by employers, Workforce Investment Boards, and other organizations.

- Key lessons from the grantees’ perspective included the following:
 - Employers were important partners in implementing an industry-driven project. Overwhelmingly, these grantees said that employers were essential to success by helping secure additional resources, advising and providing feedback on curriculum and designing training programs, recruiting participants, developing career awareness, hiring trainees, and providing on-the-job training or internships. The earlier employers were engaged in project activities, the more invested they became in the project.
 - New training technologies such as distance learning and simulated work laboratories could be used to improve the quality of training and expand access to training by potential trainees (e.g., in rural areas).
 - Hiring and retaining instructors and staff with knowledge of the industry and of federal grants made implementation easier. Instructors from industry were needed, but they could be difficult to retain. Some grantees were able to entice experienced workers and supervisors to become instructors, but others had difficulty hiring enough instructors because the wages provided in the industry were much higher than the training programs or colleges could offer.
 - Projects needed to be flexible to respond to changes in the external environment, including rising unemployment rate or delays in firms relocating to a particular labor market or in expected hiring of new workers.
 - Resource and cash contributions, especially from employers, were difficult to secure. Grantees often had to seek other sources when some partners that promised cash and in-kind contributions were unable to meet their commitment.
 - Hands-on training components were important to replicating actual work experience. Many grantees said that their on-the-job training, internships, and simulation training were important to the success of their training programs.

Early Training Outcomes and Impacts

- A subset of the grantees visited was included in statistical analysis of the impacts of job training on individual trainees’ earnings:
 - Carpenters Joint Apprenticeship Program (CJAP) in Missouri
 - Chicago Women in Trades (CWIT) in Illinois
 - Columbia Gorge Community College (CGCC) in Oregon
 - Community Learning Center (CLC) in Texas
 - Lower Rio Grande Workforce Development Board/South Texas College (STC) in Texas
- Nonexperimental analytic methods—propensity score matching (PSM) and regression discontinuity design (RDD) methods—were used to estimate the early impacts of the training on earnings outcomes for trainees.

- Several challenges in implementing the impact evaluation emerged:
 - The nonexperimental impact evaluation was added after the grants were implemented.
 - The number of participants in each site was fixed, and for the most part, the numbers enrolled were too small to provide adequate sample sizes to assure reasonable statistical power.
 - The creation of comparison groups after the fact also proved a challenge because the comparison groups selected were not ideal but the best available under the circumstances.
 - Data on program participants and comparison groups were not collected consistently across sites, and too few variables for participants and comparison group members were available to ensure that the participants and comparison group members could be matched on all the variables likely to affect participation and earnings.
 - Only the early training impacts, most often for two post-program quarters, could be examined, which did not allow any longer-term follow-up on which to evaluate the training.

- There were three key implications for the findings of the HGJTI impact analysis:
 - The findings provided no consistent evidence of the impacts of HGJTI-funded training. However, most of the HGJTI training programs descriptively showed increases in employment and earnings from the pre- to post-program periods.
 - Continued and more rigorous experimentation with industry-focused training approaches should be considered to better understand the impacts of these approaches.
 - While it was possible to examine the impacts of HGJTI-funded training on participants' earnings, the impacts of the capacity-building activities were not considered in this evaluation. Studying these larger industry and community impacts would be even more challenging than studying the impacts on individuals, but they should be considered for future evaluations.

Conclusions

- From the national initiative as a whole, three conclusions could be drawn:
 - The grants were issued to applicants proposing to target sectors identified by ETA as having high demand for skilled workers currently and in the future; health care and advanced manufacturing were the most common sectors.
 - In addition to implementing training programs, capacity building was an important objective of the grants. Several capacity-building efforts appeared promising and may warrant further evaluation, including the development of distance learning

- projects, career ladders, occupational competency criteria, and virtual and simulated work experiences.
- While procedures and requirements for the federal grant reporting system on the grantees' performance improved over the life of the initiative, the data were not collected consistently enough throughout the entire HGJTI period to use for evaluation purposes.
- Key conclusions from the implementation analysis of the nine selected grantees included:
 - Occupational training was generally considered to be critical by employers and administrators in the various partnering organizations, but establishing such training was not easy and required careful attention to cultivating partnerships with businesses. Unless employers believed that the training was of high quality and met their needs, they were reluctant to participate in these efforts in any substantive way.
 - In meeting the future labor needs of high-demand industries, it was important to consider formerly untapped labor sources. Emphasizing recruitment of particular populations, such as high school students, women interested in non-traditional jobs, and less skilled incumbent workers, could help to meet employers' needs. Such workers may need targeted training.
 - Focusing on particular sectors could be challenging for the workforce investment system when trying to engage employers, education and training providers, and other partners. Cross-system collaboration requires carefully identifying partnership challenges early and reconciling differences of opinion regarding the training design and curriculum prior to program implementation.
 - The HGJTI funds provided grantees an opportunity to help promote and expand awareness of employer training needs and expand the capacity of some training providers and systems.
 - The main conclusions from the statistical analysis of impacts of training projects were:
 - To better understand the impacts of the HGJTI-funded training, five sites were selected to conduct a nonexperimental impact analysis. It was not possible to design an experimental evaluation of the net impacts of job training provided under the HGJTI because the grants had already been awarded and projects were operational and subject to short timeframes.
 - The findings provided no consistent evidence of the impacts of HGJTI-funded training. However, descriptively, all of the five sites show small to modest improvements in employment and earnings from the two years prior to entering into the program to the time of in-program measurement (most often, six months after program entry). The nonexperimental analysis results showed some consistency in the direction of the earnings impact (positive or negative) within sites but were often characterized by poor matches, lack of statistical significance in part due to small sample sizes, or a wide dispersion in the estimates.

- It was anticipated that future evaluations of grant programs similar to HGJTI would account for the challenges and lessons learned in designing and implementing an impact evaluation. The key implication was that evaluation should be embedded in any demonstration or pilot program to ensure that there was greater enrollment of participants into programs or make it more appropriate to pool observations across sites; the most appropriate comparison groups could be developed; and there was a centralized and consistent data system for the grant program.
- Evaluations of new demonstrations and pilots could also include an analysis of the impacts of the grant activities on the communities and industries served. This may involve developing community and industry indicators, conducting cost-benefit analyses, and examining return on investment.

I. INTRODUCTION

The High Growth Job Training Initiative (HGJTI) is a major national effort to encourage market-driven strategic partnerships among the private business sector, educational institutions, and the workforce investment system. This report is third in a series of reports from the national evaluation of the HGJTI conducted by the Urban Institute, Johns Hopkins University, and Capital Research Corporation. There are three purposes of this report: to document the national initiative; to describe the structure and implementation of projects across nine grantees; and to provide estimates of early outcomes and impacts of the job training provided by five grantees.

A. Overview of the HGJTI Initiative

The HGJTI is one of three grant programs developed by the U.S. Department of Labor (DOL), Employment and Training Administration (ETA) that encourage market-driven, demand-focused partnerships between the private business sector and the public sector, including the workforce investment system, community colleges, and economic development agencies.¹ From 2001-2007, ETA awarded 161 HGJTI grants to support development of industry-driven solutions to meet workforce challenges identified by employers. The grantee efforts provide a rich source of information about industry-focused training and capacity-building models and approaches that can be used to meet a key national goal of expanding the skilled workforce needed by high-growth and high-demand economic sectors. As of December 31, 2007, a little more than half of the 161 grants were still in operation.

B. The HGJTI Evaluation: Status and Future Components

The Urban Institute, with its partners Johns Hopkins University and Capital Research Corporation, conducted the national evaluation of HGJTI. This evaluation included two major components: (1) an implementation analysis; and (2) an analysis of early outcomes and impacts of training in five grant programs. The first report on the implementation of 20 early HGJTI grants was released in June 2007. A second report, released in 2008, presented a more in-depth implementation analysis based on site visits to six grantees. This report updates the findings from the earlier implementation reports based on site visits to three more grantees and provides results of an analysis of the early outcomes and impacts of job training in five grant-funded programs.²

The information presented in this report is based on a review of grantee applications and quarterly reports submitted to ETA; field-based site visits to nine grantees purposively selected to represent a range of grantee organizations, industry sectors, and geographic regions; and program data collected from five programs and state unemployment insurance quarterly earnings

¹ ETA developed two other grant programs—Community-Based Job Training Grants (CBJTG) and Workforce Innovation in Regional Economic Development (WIRED). More information can be found at www.doleta.gov.

²The first two reports from this evaluation are: John Trutko, Carolyn O'Brien, Pamela Holcomb, and Demetra Smith Nightingale, *Implementation and Sustainability: Emerging Lessons from the Early High Growth Job Training Initiative Grants* (Washington, DC: The Urban Institute, 2007); and Demetra Smith Nightingale, Lauren Eyster, John Trutko, Carolyn O'Brien, and Kate Chambers, *The Structure and Implementation of High Growth Job Training Initiatives (HGJTI) Grant-Funded Programs* (Washington: The Urban Institute, May 2008).

records and Workforce Investment Act administrative data. Chapter II provides an overview of the national HGJTI and a summary of the general characteristics and funding of all grantees, based on ETA reporting data as of December 31, 2007. Chapter III describes the nine selected grantees where formal site visits were conducted, by the types of projects and activities they developed with grant funds, the partnerships involved, and the job training and capacity-building efforts in which they engaged. Chapter IV reports the findings from nonexperimental analyses of job training projects in five of the grantees studied. Finally, Chapter V draws conclusions about the implementation and early effects of the HGJTI grants and suggests future directions for similar grant programs.

II. THE NATIONAL INITIATIVE

This section provides an overview of the national HGJTI and a description of the key characteristics of the grants funded as of December 31, 2007.

A. Overview of the National Initiative

From 2001-2007, 161 HGJTI grants, ranging from \$95,000 to \$12 million, were awarded by ETA to support the development of industry-driven solutions to workforce challenges identified by employers and industries. The grantee efforts provided a rich source of information about various models and approaches that can be used to meet a key national goal of expanding the skilled workforce for high-growth and high-demand economic sectors. While the earliest grants awarded ended, many HGJTI grants were still active as of the end of 2007.^{3,4}

Grantees could use the funds to perform various job training and capacity-building activities including developing apprenticeship or internship opportunities, creating new curricula and materials for training workers for high-demand occupations, increasing the number of appropriately qualified instructors, or using new technology (e.g., Web-based learning) to improve knowledge about industry and occupational demand. Of the 161 grantees, over 75 percent provided both training and capacity-building activities with 16 percent conducting only capacity-building efforts and six percent conducting only training.

Each grantee was required to submit quarterly progress reports to ETA summarizing the status of grant-funded efforts, including both training and capacity-building activities. This section profiles the HGJTI grantees and their projects, based on the grantees' initial grant applications and their quarterly progress reports to ETA. The grantees were described in terms of industry sector, funding levels, organization type, duration, and geographic region. The different training and capacity-building activities conducted by grantees and the target populations for these activities are also summarized. The section concludes with a discussion of the program goals and outcomes reported by grantees.

B. Grantee Characteristics

Grantee organizations were awarded HGJTI grants because they intended to focus their job training and capacity-building efforts on targeted high-growth industry sectors. This section summarizes the number, timing, and general characteristics of all the grants awarded from 2001 through 2007.

³ Eleven additional grants in the energy sector were awarded in summer 2008. At the time of this report, data were not available for these grants.

⁴ For more information on early implementation experiences of the HGJTI grants, see John Trutko, Carolyn O'Brien, Pamela Holcomb, and Demetra Smith Nightingale, *Implementation and Sustainability: Emerging Lessons from the Early High Growth Job Training Initiative (HGJTI) Grants* (Washington, DC: The Urban Institute, 2007), available at http://wdr.doleta.gov/research/keyword.cfm?fuseaction=dsp_resultDetails&pub_id=2344&mp=y.

Industry Distribution

As of December 31, 2007, 161 grants had been awarded.⁵ Of those, 55 percent were still active at the end of 2007, while the remaining 45 percent had ended. The number of grants funded peaked in 2004, as shown in Chart 2.1, when 64 grants were awarded, accounting for 40 percent of all grants awarded.

A majority of grantees focused their activities on three industries: health care, advanced manufacturing, and biotechnology. As shown in Table 2.1, these three industries accounted for 54 percent of all grantees (24, 21, and 10 percent, respectively). Awards in the automotive, energy, and those industries that were non-sector

specific each made up seven percent of the grants, and the construction industry accounted for six percent. Each of the remaining industries represented less than five percent of the grants.

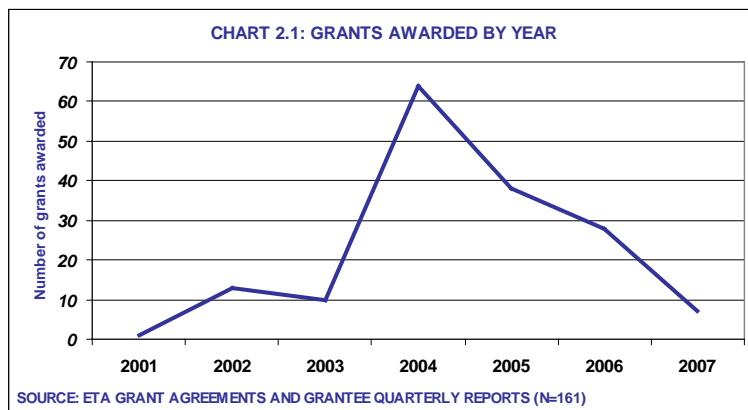


TABLE 2.1: INDUSTRY DISTRIBUTION OF HGJTI GRANTEES

Industry	Number of Grantees	Percent of Grantees
Advanced manufacturing	33	21
Aerospace	7	4
Automotive	11	7
Biotechnology	16	10
Construction	9	6
Energy	11	7
Financial services	5	3
Geospatial technology	6	4
Health care	38	24
Hospitality	4	2
Information technology	3	2
Non-sector specific	12	7
Retail trade	2	1
Transportation	4	2
Total	161	100

SOURCES: ETA GRANT AGREEMENTS AND GRANTEE QUARTERLY REPORTS.

Table 2.2 displays the proportion of grants awarded each year by industry focus. The earliest grant was in the aerospace sector in 2001, and the most recent awards in 2007 were in health care and transportation. Of the grants awarded in 2002, 31 percent were in the health

⁵ In two instances, ETA awarded multiple grants under a particular initiative. These two cases are (1) the Health Corporation of America Cares, in which four grants were awarded to the Colorado Department of Labor and Employment, the Florida Agency for Workforce Innovation, the Georgia Department of Labor, and the Texas Workforce Commission; and (2) the National Center for Integrated Systems Technology, in which two grants were awarded to the Illinois Department of Employment Security and the Ohio Department of Job and Family Services. Each grant award was considered a separate case in this analysis.

industry and 31 percent were non-sector specific. In 2003, the grants were more evenly distributed among nine industries, while in 2004, 31 percent of grants awarded were in the health care industry, 16 percent in advanced manufacturing, 14 percent in automotive, and 14 percent in biotechnology.

TABLE 2.2: HGJTI GRANTS AWARDED BY YEAR AND BY INDUSTRY

Industry	Percent of Grantees						
	2001	2002	2003	2004	2005	2006	2007
Advanced manufacturing	0	23	10	16	16	46	0
Aerospace	100	0	10	6	3	0	0
Automotive	0	8	0	14	3	0	0
Biotechnology	0	0	10	14	16	0	0
Construction	0	0	0	11	3	4	0
Energy	0	0	20	0	5	25	0
Financial services	0	0	0	0	0	18	0
Geospatial technology	0	0	10	5	5	0	0
Health care	0	31	10	31	18	0	86
Hospitality	0	8	0	0	8	0	0
Information technology	0	0	10	0	5	0	0
Non-sector specific	0	31	10	3	13	0	0
Retail trade	0	0	10	0	3	0	0
Transportation	0	0	0	0	3	7	14
Percent of Grants in Each Year	1	8	6	40	24	17	4
All Industries	1	13	10	64	38	28	7

SOURCES: ETA GRANT AGREEMENTS AND GRANTEE QUARTERLY REPORTS.

In 2005, the grants were spread over 13 industries, with the health care industry receiving 18 percent of all grants and the biotechnology and advanced manufacturing industries each receiving 16 percent. In 2006, 46 percent of all grants awarded were in the advanced manufacturing industry. In 2007, 86 percent of all grants awarded were in the health care industry, while the transportation industry comprised 14 percent of grants awarded.

Funding

Grants awarded by ETA ranged from \$95,000 to \$12 million, with the average grantee receiving nearly \$1.8 million. Chart 2.2 shows the proportion of grantees that fall within different ranges of grant amounts. The highest proportion of grantees (32 percent) were in the range of \$1 million and \$2 million awarded, with 25 percent receiving between \$2 million and \$4 million and nine percent of grantees receiving \$4 million or more. Nineteen percent of grantees had a grant award of less than \$500,000.

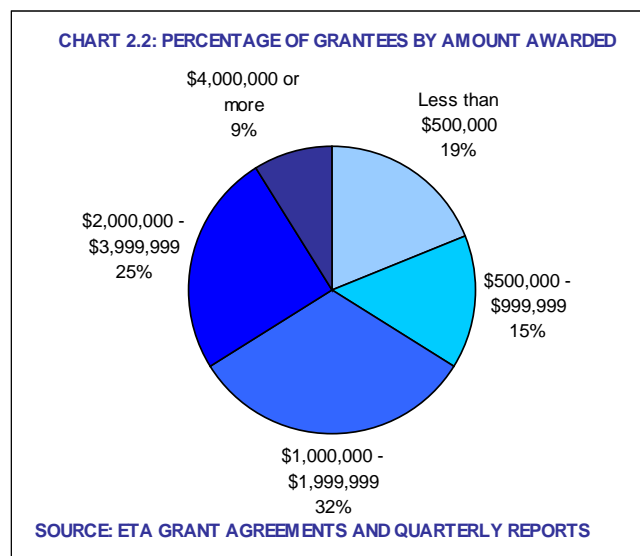


Table 2.3 displays grant amounts by industry. Half or more of the grants awarded to the construction, energy, information technology, non-sector specific, retail trade, and transportation industries were over \$2 million. Half or more of the awards in the automotive, geospatial technology, health care, hospitality, and retail trade industries were less than \$1 million.

TABLE 2.3: GRANT AMOUNTS BY INDUSTRY

Industry	Percent of Grantees					All Grants
	Less than \$500,000	\$500,000–\$999,999	\$1,000,000–\$1,999,999	\$2,000,000–\$3,999,999	\$4,000,000 or more	
Advanced manufacturing	3	3	52	30	12	100
Aerospace	29	0	57	14	0	100
Automotive	45	27	9	9	9	100
Biotechnology	19	25	25	25	6	100
Construction	11	0	11	33	44	100
Energy	9	9	9	64	9	100
Financial services	20	20	40	20	0	100
Geospatial technology	17	33	33	17	0	100
Health care	24	26	37	8	5	100
Hospitality	25	25	50	0	0	100
Information technology	0	0	33	67	0	100
Non-sector specific	33	9	9	42	8	100
Retail trade	50	0	0	50	0	100
Transportation	0	0	50	50	0	100
All Industries	19	15	32	25	9	100

SOURCES: ETA GRANT AGREEMENTS AND GRANTEE QUARTERLY REPORTS.

Grantees were encouraged to use the federal funds to leverage other public and private resources to address workforce challenges, and almost all grantees reported some leveraged resources. Approximately 90 percent of grantees reported that they would bring together leveraged resources, ranging from \$7,615 to \$29 million, with the average amount slightly over \$2 million. The median amount grantees planned to leverage was about \$795,000, which was over \$1 million less than the average because nearly 20 percent of grantees indicated in their plans that they did not expect to have any leveraged resources. Contributing to the average leveraged amount were four grants that planned to leverage over \$10 million each. Table 2.4 displays leveraged grant amounts that grantees proposed, by industry. The transportation industry grantees were more likely to plan for leveraged resources of \$4 million or more, and a majority of the grantees in transportation, information technology, and retail trade industries had planned to leverage amounts of \$2 million or more. The leveraged amounts were most often \$0 or less than \$500,000 for grantees in financial services, biotechnology, geospatial technology, hospitality, and non-sector specific industries.

The data from the grantee statements of work indicate that grantees' sources of the planned leveraged funds included educational institutions, businesses and employers, foundations, governments, industry associations, nonprofit organizations, and the grantees themselves. Leveraged resources were to be provided by grantees or their partners in the form of either cash donations or in-kind contributions (e.g., equipment, training facilities, instructors). However, many grantees did not provide specific information on the planned level of support by source or whether planned resources were expected to be in the form of cash or in-kind donations; therefore, such information cannot be systematically reported in this report.

TABLE 2.4: GRANTEES' PLANNED AMOUNTS OF LEVERAGED RESOURCES, BY INDUSTRY

Industry	Percent of Grantees						
	\$0	\$1- \$500,000	\$500,000- \$999,999	\$1,000,000- \$1,999,999	\$2,000,000- \$3,999,999	\$4,000,000 or more	All Grantees
Advanced manufacturing	3	6	9	33	21	27	100
Aerospace	0	43	29	29	0	0	100
Automotive	0	45	0	18	27	9	100
Biotechnology	6	45	25	13	0	6	100
Construction	22	0	33	22	11	11	100
Energy	9	9	36	9	27	9	100
Financial services	0	40	60	0	0	0	100
Geospatial technology	0	50	17	17	0	17	100
Health care	8	26	34	18	8	5	100
Hospitality	0	25	25	25	0	25	100
Information technology	0	33	0	0	67	0	100
Non-sector specific	66	17	8	0	8	0	100
Retail trade	0	50	0	0	0	50	100
Transportation	0	0	0	0	25	75	100
All Industries	10	24	22	18	13	13	100

SOURCES: ETA GRANT AGREEMENTS AND GRANTEE QUARTERLY REPORTS.

Organization Type

Table 2.5 presents information on the types of organizations represented among the HGJTI grantees. Nearly one-fifth (19 percent) of all grantees were industry groups or associations, followed by community colleges (17 percent), nonprofit training providers (12 percent), and state workforce agencies (10 percent). Organization types that accounted for less than 10 percent of the grantees each included economic development agencies (five percent), employers (four percent), foundations (two percent), national nonprofit organizations (four percent), state workforce investment boards (WIBs) (two percent), and universities (nine percent). There was one grantee that was a faith-based organization and one that was a union. Nearly all of the grantees were nonprofit organizations (53 percent) or public/government agencies (42 percent); only five percent were for-profit entities.

TABLE 2.5: ORGANIZATION TYPE OF HGJTI GRANTEES

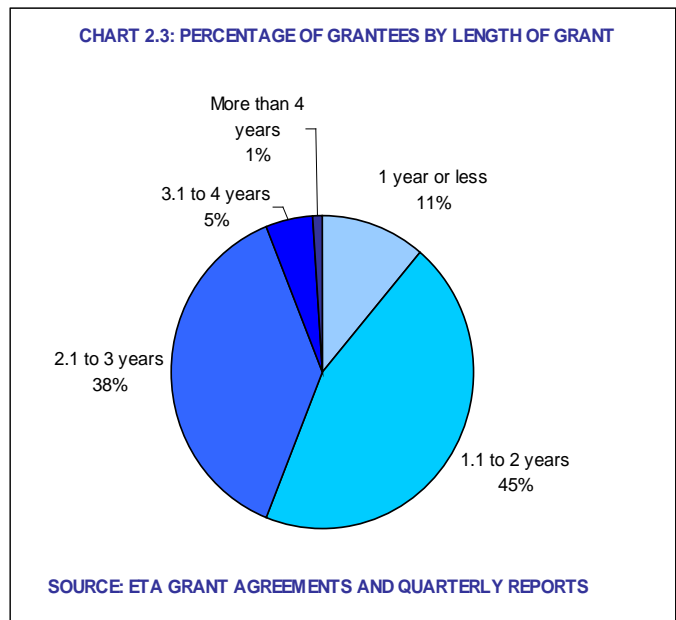
Organizational Type	Number of Grantees	Percent of Grantees
Community college	27	17
Economic development agency	8	5
Employer	7	4
Faith-based organization	1	1
Foundation	4	2
Industry group/association	30	19
Local workforce investment board	16	10
National nonprofit organization	6	4
Nonprofit training provider	20	12
Other government agency	7	4
State workforce investment board	4	2
State workforce agency	16	10
Union	1	1
University	14	9
Total	161	100

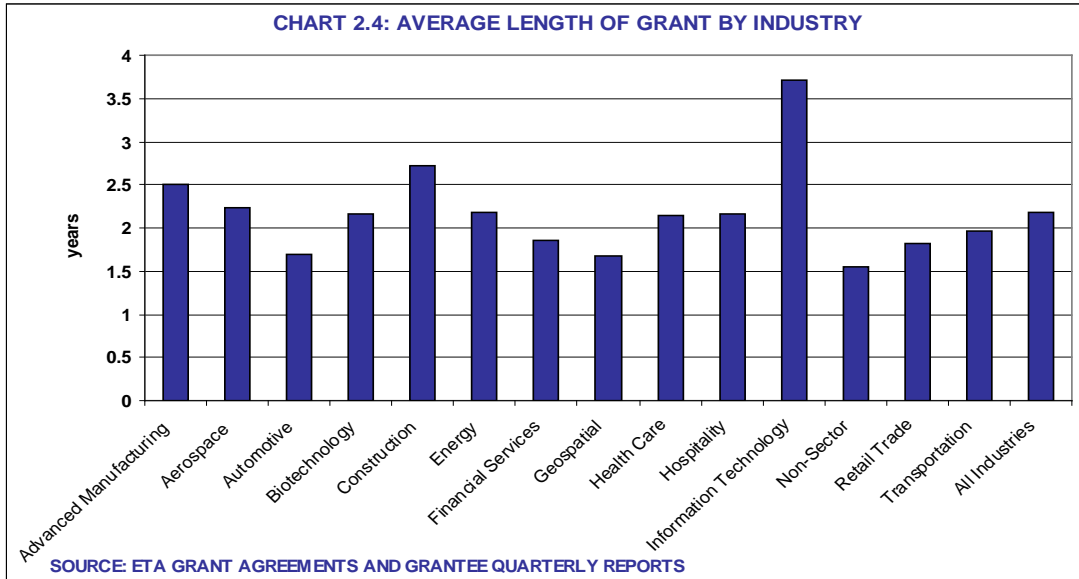
SOURCES: ETA GRANT AGREEMENTS AND GRANTEE QUARTERLY REPORTS.

Duration of Grant

The grants were initially expected to last between six months and five years, although nearly half of grantees were eventually given extensions to their period of performances. Chart 2.3 displays the proportion of grantees by planned duration of the grant. The median length of a grant was two years. Forty-five percent of grantees had grants ranging from 1.1 to two years. Thirty-eight percent of grantees had grants for 2.1 to three years, while 11 percent of grantees had grants lasting a year or less. About five percent of grantees had grants covering 3.1 to four years in duration, and less than one percent of grantees had a grant lasting more than four years.

Chart 2.4 displays the average length of grant by industry. The information technology industry had the longest average grant length at 3.7 years, while non-sector specific grantees had the shortest grant period at 1.5 years. The average length of grant across all industries was 2.2 years.



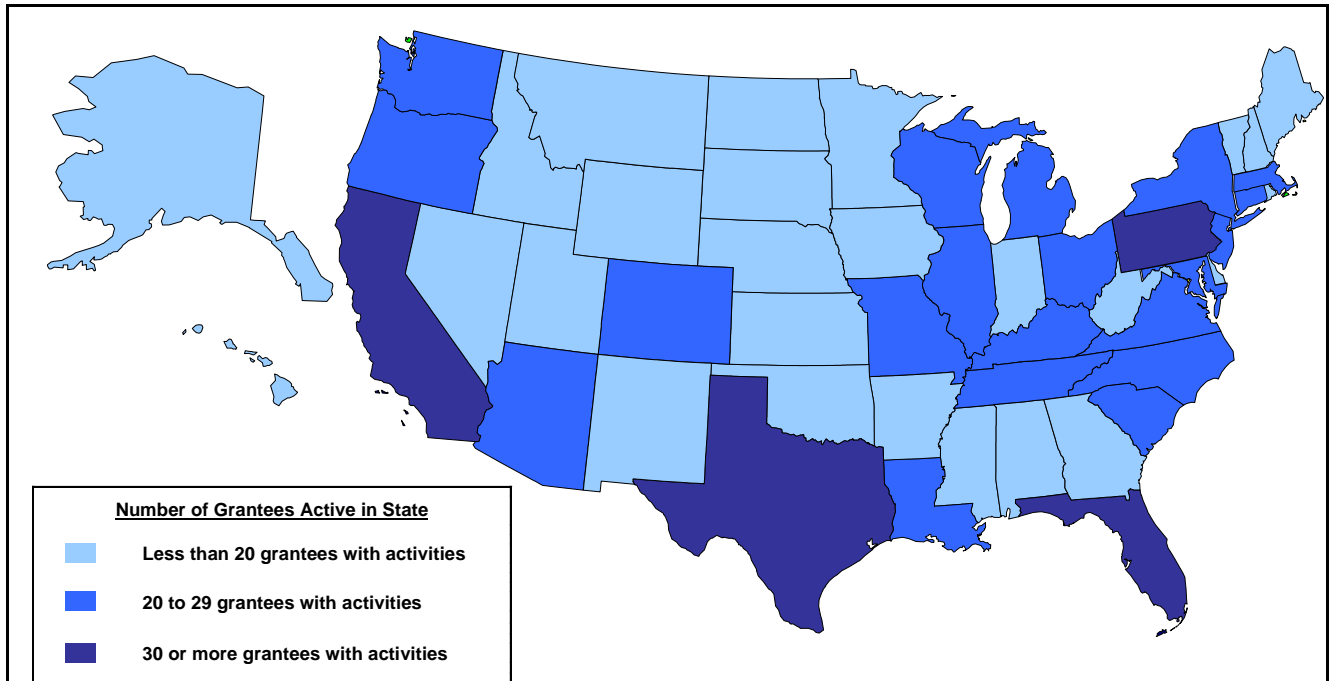


Geographic Distribution

While some grantees focused on specific communities, others operated in multiple communities within a state, and several operated in more than one state. Grantees reported that the number of states involved in their grant activities ranged from one to 51 (including the District of Columbia). In fact, 30 percent of all grantees had activities that occurred in more than one state or nationwide. The regional and cross-state scope of many grantees might, for example, have reflected an industry or a labor-market focus, where labor markets cross state lines. The majority of the programs that reported operating nationwide did so through Web site information, public education, and outreach, to which users in all states had access. Of those grantees that reported activities in all 50 states and the District of Columbia, 25 percent were in the automobile industry, while the remainder was spread across the advanced manufacturing, construction, energy, hospitality, non-sector specific, retail, and transportation industries.

Since many grantees had a national focus, every state, including the District of Columbia, had at least 16 grantees with some level of operations in their state. Twenty-six states had activities of fewer than 20 grantees in their state. Twenty states had 20-29 grantees operating and four states—California, Texas, Pennsylvania, and Florida—saw activities of 30 or more grantees within their borders. Again, note that these activities often included the use of national Web sites to garner exposure for employment and training opportunities in the industry of focus of the grant. Chart 2.5 displays the number of grantees making some activities available to workers, computer users, or businesses in all states and the District of Columbia.

CHART 2.5: NUMBER OF HGJTI GRANTEES OPERATING BY STATE



C. Grantee Activities

As noted earlier, grantees could use the HGJTI funds for a range of activities. Consistent with the ETA guidelines, these activities included planning and implementing capacity-building and training efforts. Later chapters describe how selected grantees define capacity building and training and document the specific operational implementation of these different activities. This section provides a general overview of all HGJTI grantee activities developed with grant funds.

Training Activities and Targeted Populations

In their quarterly reports to ETA, all grantees reported using grant funds to provide some form of job training, the most common types of which were apprenticeships and internships. Table 2.7 shows that 18 percent of all grantees reported that they offered an apprenticeship program. Grantees in the advanced manufacturing, construction, health care, and transportation industries reported apprenticeship programs more often than other industries. Twenty-six grantees (16 percent) reported offering internships, with grantees in the automotive, biotechnology, and information technology industries more likely to offer internships than other industries.

TABLE 2.7: INTERNSHIPS AND APPRENTICESHIPS OFFERED BY HGJTI GRANTEES, BY INDUSTRY

Industry	Percent of Grantees	
	Offers Apprenticeships	Offers Internships
Advanced manufacturing	24	15
Aerospace	0	0
Automotive	0	36
Biotechnology	6	50
Construction	44	0
Energy	18	18
Financial services	0	0
Geospatial technology	17	17
Health care	18	10
Hospitality	0	25
Information technology	67	33
Non-sector specific	0	0
Retail trade	0	0
Transportation	80	0
Percent of All Grantees	17	16
Number of All Grantees	28	26

SOURCES: ETA GRANT AGREEMENTS AND GRANTEE QUARTERLY REPORTS.

Grantees also identified specific populations they planned to recruit and serve in their HGJTI-funded programs. As shown in Table 2.8, 38 percent of all grantees provided training for youth, and 38 percent served incumbent workers. Grantees in the financial services industry were more likely than other sectors to focus training on youth, while grantees in the hospitality industry were much more likely than other sectors to serve entry-level workers (50 percent). Thirty-four percent of grantees reported that they targeted special populations, other than dislocated, entry-level, or incumbent workers or youth. This wide-ranging category includes ethnic minorities (e.g., Hispanics), hurricane survivors, and war veterans.

TABLE 2.8: POPULATIONS TARGETED BY HGJTI GRANTEES, BY INDUSTRY

Industry	Percent of Grantees				
	Dislocated Workers	Entry-level Workers	Incumbent Workers	Special Populations	Youth
Advanced manufacturing	21	21	42	17	45
Aerospace	29	29	57	43	43
Automotive	9	0	36	50	55
Biotechnology	31	31	38	20	38
Construction	33	33	33	22	56
Energy	18	27	36	45	27
Financial services	20	20	40	40	60
Geospatial technology	33	0	0	33	33
Health care	23	41	46	34	31
Hospitality	0	50	50	75	50
Information technology	33	0	33	50	0
Non-sector specific	20	10	10	57	30
Retail trade	0	0	0	0	0
Transportation	40	40	40	60	20
All Industries	22	26	38	34	38

SOURCES: ETA GRANT AGREEMENTS AND GRANTEE QUARTERLY REPORTS.

Capacity-Building Activities

In their quarterly reports to ETA, grantees also summarized the different activities they were implementing. Ninety-one percent of grantees reported implementing some form of capacity building, regardless of industry. Grantees in the financial services and non-sector specific industries were somewhat less likely than those in other sectors to conduct capacity-building activities (20 and 58 percent, respectively). Table 2.9 displays the different capacity-building activities being implemented or operated by industry. A majority of grantees (60 percent) were developing curriculum. Thirty-nine percent of grantees were designing career ladders, 35 percent were undertaking recruitment efforts, and 31 percent were developing occupational skill certifications. Twenty percent of grantees were developing distance learning programs.

TABLE 2.9: CAPACITY-BUILDING ACTIVITIES AMONG HGJTI GRANTEES, BY INDUSTRY

Industry	Percent of Grantees						
	Certification Development	Career Ladders	Curriculum Development	Distance Learning	Recruitment	Train the Trainer	Web Site Development
Advanced manufacturing	42	45	82	21	30	30	24
Aerospace	29	29	29	29	57	14	29
Automotive	36	27	55	18	36	18	45
Biotechnology	38	63	69	19	25	38	25
Construction	0	22	78	11	44	33	22
Energy	36	27	64	9	18	9	18
Financial services	20	0	40	0	0	0	0
Geospatial technology	17	33	67	50	17	50	33
Health care	26	44	51	26	54	28	21
Hospitality	25	0	50	0	25	25	25
Information technology	67	33	33	33	67	33	0
Non-sector specific	20	30	20	0	0	0	0
Retail trade	0	67	100	0	67	67	0
Transportation	60	60	60	40	40	0	40
All industries	31	39	60	20	35	25	22

SOURCES: ETA GRANT AGREEMENTS AND GRANTEE QUARTERLY REPORTS.

D. Goals and Outcomes

Grantees also submitted in their quarterly reports to ETA summaries of the activities carried out, the number of participants trained, and progress toward their stated goals. A review of the quarterly reports indicates that grantees did not consistently define their goals, activities, or outcomes. These reports were generally based on the activities and milestones described in the grantees’ statements of work. Several data items were not reported by many grantees. In addition, some grantees reported quantitative goals and accomplishments, while others reported on their goals and activities more qualitatively. For example, of all programs that had capacity-building goals, only 40 percent quantitatively described the type of result they hoped to achieve. One grantee described a capacity-building goal in a quantitative sense by stating that it would “develop six competency-based apprenticeship programs.” In contrast, another grantee stated

that the activity would “enhance the existing integrated systems technology apprenticeship model.” These differences in reporting across grantees made it difficult to report activity levels or outcomes at a national aggregate level. Still, it was useful to summarize what the grantees had reported about their goals and accomplishments to obtain a general sense of activities to date.

Training was the most commonly specified goal for which grantees reported activity levels and outcomes. Of all grantees, 91 percent had specified some type of training goal as at least one objective for their grant effort. Of those, 98 percent had reported a goal for the number of participants they expected to train, with the number ranging across grantees from five to 13,160 trainees. Completion and placement rates were reported in a number of ways, though, with considerable variation across grantees. Of the grantees that specified a training goal, about 38 percent reported their training and/or placement outcomes, but various calculations and definitions were used. For example, training activity might be calculated as “number of persons completing training/number of trainees” or “number of trainees/goal.” Placements might be reported as “number of participants placed in jobs or higher education/number of participants enrolled,” but some grantees reported the number or percentage of participants they anticipated completing the program or the number or percentage of participants that the grantee predicted would be placed in jobs within a specified period. Some grantees also reported additional activity information about their services provided to particular types of participants they had targeted to enroll in their programs.

E. Summary of Findings

As summarized in this chapter, the national HGJTI grant program covered a wide range of grantees, industries, and activities. Activities were carried out in all states. They ranged from primarily online provision of industry or skills information for occupational exploration to more traditional job training. Nearly all grantees reported that they were using the grant for training and capacity building. The inconsistency in reporting to ETA did not allow researchers to calculate the level of activities in either category, although the types of activities offered were fairly clear. The most common types of training activities reported were apprenticeships and internships. Grantees were also targeting a wide range of population groups, most frequently youth and incumbent workers. The most prevalent types of capacity-building efforts involved developing curricula and designing career ladders.

The following chapter provides more detail on the types of activities implemented by grantees and the lessons they have learned based. The chapter is based on this evaluation team’s site visits to nine grantees.

III. STRUCTURE AND IMPLEMENTATION OF SELECTED GRANTEE PROJECTS

Structured fieldwork was conducted in 2007 and early 2008 in nine grant sites representing a range of grant activities, industries, and geographic regions with the goal of documenting and assessing the implementation of the HGJTI. The nine grantees selected for the site visits represented a mix of grantees in terms of organizations, industries of focus, and regions of the country. The purpose of the site visits was to describe more fully the activities supported with the grant funds, the specific objectives that guide them, the products developed, and the partnerships involved. During the visits to the nine sites, field researchers collected data on the structure and implementation of the selected HGJTI grantees to identify common patterns and themes across all sectors and implementation trends, considerations, and issues specific to certain sectors or types of grantees. Findings from the first report for this study of the HGJTI, which examined early implementation experiences of 20 selected grantees, were also incorporated into this chapter.⁶

There were two additional purposes to the site visits conducted with the nine grantees. The fieldwork allowed the evaluation team to consider appropriate rigorous evaluation designs to measure impacts and effectiveness of various activities funded by the grants. In addition, the site visits were used to identify at least five sites with sufficient numbers of individuals enrolled in HGJTI-funded training to support analysis of the impacts of training on individual participants, which is the subject of Chapter IV.

The first section of this chapter provides a summary of the characteristics of the selected grantees and their program design. The subsequent sections describe the types of job training and capacity-building activities implemented by the grantees. Finally, the overall status of implementation of these grants as of mid-2008 is discussed, including the partnerships established, changes introduced, and plans for post-grant sustainability.

A. Grantee Characteristics and Design of Grant-Funded Programs

This section provides a summary description of the nine organizations that received HGJTI grants, the workforce challenges their grants addressed, their goals and priorities, the industries and occupations of focus, the levels of funding received and leveraged, and the partnerships and collaborations built and maintained during the grant period.

Grantee Organizations

The nine grantees, located in eight states, included post-secondary educational institutions, community-based nonprofit organizations, unions, and government agencies. They were:

- **Carpenters Joint Apprenticeship Program**—A union operating the state’s largest apprenticeship program covering a five-county metropolitan St. Louis region
- **Miami-Dade College (MDC)**—A post-secondary educational institution in the Miami metropolitan region

⁶ See Trutko et al. (2007).

- **Columbia Gorge Community College (CGCC)**—A post-secondary educational institution in a rural region of Oregon
- **Community Learning Center (CLC)**— A community-based nonprofit organization in the Dallas-Fort Worth metropolitan area
- **Chicago Women in Trades (CWIT)**—A community-based nonprofit organization in the Chicago region
- **JobPath Inc.**—A community-based nonprofit organization in Tucson, Arizona
- **Louisiana Department of Labor (LDOL)**—A state workforce agency
- **Lower Rio Grande Valley Workforce Development Board/South Texas College (STC)**⁷—A community college serving a rapidly growing four-county region along the United States and Mexican border near McAllen, Texas
- **Oklahoma Department of Career and Technology Education (ODCTE)/High Plains Technology Center (HPTC)**⁸—A training and technology center in collaboration with a state career and technology education agency

Details on the selected grantee organizations are presented in Table 3.1. Some of these grantees were small organizations—such as CLC, CWIT, and JobPath—with limited numbers of staff and overall operating budgets, while the state agencies had thousands of employees and hundreds of millions of dollars in annual operating budgets. Some grantees had prior experience providing direct education and training to individuals—the educational institutions and HPTC—while others oversaw extensive training activities in post-secondary education systems but did not directly provide training.

⁷ For this site, STC is the organization of reference. STC led all of the training and capacity-building efforts and the Lower Rio Grande Valley Workforce Development Board served as grantee and fiscal intermediary. The board also served as a key partner in the grant activities.

⁸ For this site, HPTC was the organization of reference. While HPTC received the first HGJTI grant for this project, the ODCTE, the umbrella agency of HPTC and 28 other technology centers, received the second grant. HPTC, however, conducted the training and capacity-building activities for this project, while ODCTE served as the administrator of the second grant and was not involved in training or other direct activities.

TABLE 3.1: CHARACTERISTICS OF SELECTED GRANTEE ORGANIZATIONS

Grantee Organization	Type of Organization	Service Area	Most Recent Annual Operating Budget	Staff Size	Description of Organization's Overall Activities
Carpenters Joint Apprenticeship Program (CJAP)	Union	Southeastern Missouri, with particular focus on St. Louis metropolitan area and three-county area surrounding and including Cape Girardeau	N/A	N/A	Operated by the Carpenters' District Council of Greater Saint Louis and Vicinity; serves as Missouri's largest apprenticeship program at three training facilities located in St. Louis (MO), Cape Girardeau (MO), and Bellville (IL); trained 1,900 apprentices to become journeymen in the construction trades.
Chicago Women in Trades (CWIT)	Community-based nonprofit organization	Chicago metropolitan area (Illinois)	\$1,192,898	~10 staff	Serves as a pre-apprenticeship program to get women into the construction trades.
Columbia Gorge Community College (CGCC)	Post-secondary educational institution (two-year)	Mid-Columbia region (north central Oregon)	\$46,187,074	~100 employees	Offers two-year associate's degrees in criminal justice and health care, as well as other programs.
Community Learning Center (CLC)	Community-based nonprofit organization	Dallas-Ft. Worth metropolitan area (North Central Texas)	\$3,000,000 (approx.)	30 staff	Provides job seekers with educational, training and employment services that lead to career-progressive jobs through partnerships with industry, labor, education, workforce investment boards, government and community and faith-based organizations.
JobPath Inc.	Community-based nonprofit organization	Tucson metropolitan area (southern Arizona)	\$511,616	7 staff	Operates and supports job training programs for low-income individuals.
Louisiana Department of Labor (LDOL)	State workforce agency	State of Louisiana	\$258,608,416	Not available	Operates the state's workforce system.
South Texas College (STC)	Post-secondary educational institution (two-year)	Four-county area surrounding McAllen, Texas	N/A	1,700 faculty/staff	Offers two-year associate's degrees and non-credit continuing education/training programs.
Miami-Dade College (MDC)	Post-secondary educational institution (four-year)	Miami-Dade metropolitan area (southern Florida)	\$694,585,686	5,000+ employees	Provides mostly two-year associate's degree programs and some four-year bachelor's degree programs.
High Plains Technology Center (HPTC)	Secondary and post-secondary training provider	Oklahoma, eastern Colorado, Kansas, Western Arkansas, and much of Texas	Not available	Not available	Serves as a technical college and training provider.

SOURCES: ETA GRANT AGREEMENTS, GRANTEE QUARTERLY REPORTS, AND 2007-08 SITE VISITS.

Workforce Challenges Addressed by Grants

All nine grantees focused on both job training and capacity-building objectives, but each had specific workforce challenges unique to the industry it was serving and its state or locality. The three main workforce challenges grantee staff said their grants sought to address are: (1) insufficient number of skilled workers for high-growth industries and occupations; (2) poor opportunities for low-wage workers to move up in the job market; and (3) a lack of education and training programs for particular industries or occupations. Grantee staff explained that they identified these goals in various ways, using data, surveys, and discussions with industry partners.

1) Insufficient number of skilled workers for a growing industry. A common workforce challenge for employers in some industries was that they had difficulty finding enough appropriately skilled workers for certain jobs. This was particularly true for health care, construction, aerospace, and biotechnology sectors. According to the grantees, the challenge for workforce agencies to meet the demand for skilled workers was especially difficult in less populated regions with few job training resources.

In planning for the HGJTI-funded activities, staff in many of the nine grantee sites reported that they had examined local workforce needs for the industry on which they wanted to focus.⁹ For example, CGCC surveyed regional health care providers to determine the specific number of certified nursing assistants, licensed practical nurses, and registered nurses needed. Similarly, MDC surveyed biotechnology companies to forecast how many industrial pharmaceutical manufacturing technicians were needed in the coming years. CJAP and CWIT were in constant contact with building trades employers regarding the types of workers and skills needed (see Box 3.1).

Box 3.1

Carpenters Joint Apprenticeship Program Workforce Challenge: Obtain Up-to-Date Information on the Types of Workers and Skills Needed Locally

Manufacturing employers played an extensive role in the CJAP initiative through Regional Industrial Training Groups (RITG). Prior to receipt of the grant, a group of about 20 employers formed an RITG in Cape Girardeau. This group, which met monthly, was supported by the HGJTI grant, provided critical feedback to identify types of incumbent worker training needed and guided curriculum development for other types of training mounted under the HGJTI grant. With the help of HGJTI funding, the University of Missouri at St. Louis led an effort to establish its own RITG for the St. Louis metropolitan area. As of March 2007, eight employers joined this group, and the grantee had a goal of having a total of 15 employers before December 2008. To encourage employers to join, CJAP waived the membership fee for the first six months; thereafter, the annual fee was set at \$1,500-\$4,000, depending upon the size of the firm.

⁹ In most cases, grantees had to conduct an industry scan as a part of their application for an HGJTI grant.

Other grantees used official labor market information in planning projects. For example, HPTC examined employment and wage data in the oil and gas industry, including projections of future growth, to define possible career paths for entry-level workers such as floor hands.¹⁰

2) Poor employment opportunities for low-wage and other disadvantaged workers.

Some grantees decided to target high-skills training to lower-wage workers and other disadvantaged populations. For JobPath, serving low-income individuals was part of its overall mission, and attracting and training these individuals for biotechnology jobs, which provide a living wage and more, fit with the organization's broader purpose (see Box 3.2). Louisiana DOL was simultaneously facing high unemployment, business disruption, and increasing demand for workers after Hurricanes Katrina and Rita. The state's grant was used to improve employment opportunities statewide through cross-sectoral training strategies for particular high-growth industries critical to the recovery effort, such as construction, health care, and shipping. CWIT targeted low-income women, mostly African American, to encourage them to enter the construction trades where high-paying jobs were available. MDC also saw an opportunity to train low-income Miami-Dade residents for employment and promotion in the biotechnology industry.

Box 3.2

JobPath Workforce Challenge: Finding Meaningful Employment for Low-Income Residents

JobPath, Inc., a nonprofit workforce development program, sponsored underemployed, under-skilled, or unemployed adults in obtaining long-term training, career counseling, and mentorships for “good jobs” with benefits in Pima County, Arizona. Before receipt of the grant, JobPath was providing recruitment, evaluation, and enrollment services for programs in several sectors (e.g., early childhood education, trades, aviation) as part of its organizational mission. Its service model addressed the needs of the low-income population through such activities as training plan development; peer support meetings; counseling; financial assistance for tuition, books, fees, supplies and emergencies; and referrals to other agencies. A similar program for biotechnology was added in response to statewide interest in focusing on new opportunities for growth in the biotechnology sector.

3) Lack of educational or training programs for jobs in an industry. All HGJTI grantees visited realized that there were not enough training or education programs in their local areas for particular high-growth jobs. To increase the number of skilled workers, staff reported that they first had to increase the availability of training. For example, CGCC saw an opportunity to train and keep residents in their rural region by developing a health occupations program that can operate locally. The closest health education programs were at least two hours away, so that many residents had to move away from the community to receive training. This meant that

¹⁰ Floor hands—also referred to as rotary-driller helpers, roughnecks, roustabouts, or general laborers—guide the lower ends of pipe to well openings, connect pipe joints and drill bits, and do general oil field maintenance and construction work.

many residents ended up with jobs in the labor market where they received training and did not return to the mid-Columbia region. Thus, its health occupations program was intended to train and employ workers without them having to leave the region.

CLC was another grantee responding to a lack of local educational and training programs. In response to a projected shortage of qualified workers for the region's aerospace employers, CLC developed a collaborative partnership among industry leaders, organized labor, higher education and the public and private sectors to create a new aircraft assembler training program, specifically designed to meet the needs of these employers in the Dallas-Fort Worth area. Focused on dislocated workers, this training program was viewed as a strategy for keeping the jobs in the region and preventing the need to outsource the work.

Other grantees responded to their own local needs in developing education and training programs. JobPath staff saw the grant as a way to expand post-secondary training for the local community college's biotechnology program. Project staff worked with Pima Community College to develop an introduction to biotechnology course as a prerequisite to the program and offer internships with local biotechnology employers for credit. MDC and HPTC developed new training programs to address the training needs of new and incumbent workers in the biotechnology and oil and gas industries, respectively. Finally, South Texas College's apprenticeship program sought to build skills of incumbent workers at about 20 of the region's manufacturing firms by providing three- to four-year registered apprenticeship programs in four areas: industrial maintenance, tool and die, machining, and plastics processes.

Grantee Goals and Priorities

Grantee staff in all nine sites discussed their goals for their HGJTI-funded projects. In general, the goals encompassed both the training and capacity-building activities proposed and defined in their grant applications. The grantees' goals for their projects changed minimally, if at all, during their grant period. Table 3.2 summarizes the goals.

All grantees visited focused primarily on providing training to new, dislocated, and incumbent workers. However, six grantees also emphasized the challenge for employers to retain their workers. For example, CGCC staff noted that retaining employees was a workforce challenge for local health care facilities and that locally trained workers may be more likely to stay in the area and with their local employers. Retention for incumbent workers was also a focus of the MDC grant and one of the outcomes routinely monitored by grantee staff. Upgrading job-related skills to help incumbent workers move to higher-paying jobs, as well as improving employee productivity and job retention, were key objectives of STC's incumbent worker training program.

Building the education and skill level of the workforce and fostering partnerships were other common goals for the grantees. Developing and improving education and training capacity, particularly by partnering with employers, was a major goal for all grantees visited except LDOL, which focused more on immediate employment needs in the hurricane-affected recovery area. Eight of the nine grantees planned to develop new or expand existing partnerships with area employers through their grant activities. For example, HPTC and the CJAP wanted to develop partnerships with a large number of employers, while grantees such as CLC, MDC, and

JobPath wanted to cultivate partnerships with a few highly involved businesses. Six grantees placed a priority on developing career ladders or planned paths to job promotion within an industry, either directly (CGCC, STC, CJAP, and HPTC) or by creating another “rung” in the career ladder (JobPath and MDC). LDOL’s top goal was to rebuild its workforce and the economy after the 2005 hurricanes.

TABLE 3.2: TRAINING AND CAPACITY-BUILDING GOALS OF SELECTED GRANTEE ORGANIZATIONS

HGJTI grantee	Training Goals		Capacity-Building Goals				
	Train New and Incumbent Workers	Increase Retention	Build or Improve Education and Training Capacity	Access New Labor Pools	Develop or Expand Partnerships	Create a Career Ladder	Rebuild Workforce and Economy
Carpenters Joint Apprenticeship Program (CJAP)	✓		✓	✓	✓	✓	✓
Chicago Women in Trades (CWIT)	✓		✓	✓	✓		
Columbia Gorge Community College (CGCC)	✓	✓	✓	✓	✓	✓	
Community Learning Center (CLC)	✓	✓	✓	✓	✓		✓
High Plains Technology Center (HPTC)	✓	✓	✓		✓	✓	
JobPath, Inc.	✓	✓	✓	✓	✓	✓	
Louisiana Department of Labor (LDOL)	✓			✓			✓
Miami-Dade College (MDC)	✓	✓	✓	✓	✓	✓	
South Texas College (STC)	✓	✓	✓	✓	✓	✓	✓

SOURCES: ETA GRANT AGREEMENTS, GRANTEE QUARTERLY REPORTS, AND 2007-08 SITE VISITS.

In addition to expanding training options, many grantees also intended to concentrate on attracting new workers to the focus industry. Eight of nine grantees also wanted to find and attract new pools of workers—including low-income individuals, women, dislocated workers, and the unemployed or underemployed. JobPath, MDC, STC, and CJAP worked with local high schools to attract youth to these industries.

The first report on 20 early HGJTI implementers found that most grantees (13 of 20) had similar goals to the grantees selected for site visits.¹¹ The types of training and capacity-building activities they described included: developing new training and education curricula and materials; establishing new partnerships and networks among businesses, public systems, training educators, and deliverers of training; using new communication mechanisms such as the

¹¹ See exhibit 1 in Trutko et al. (2007).

Internet to deliver information and training; and expanding the number and quality of training programs for the targeted sectors.

Industry and Occupational Focus of the HGJTI Grantees

The nine grantees focused on different high-growth industries—health care, biotechnology, energy, construction, aerospace, advanced manufacturing, and non-sector specific—based on their initial labor market assessments and identification of workforce challenges conducted to develop the grant statement of work. While the industries were different, the main reason grantee staff gave for selecting them was that they believed the industry had potential for career paths, leading to higher-paying jobs for workers and at the same time meeting employers’ demand for more skilled workers. The 20 grantees, described in the first HGJTI report from this evaluation, focused initiatives on several of the same and additional high-growth industry sectors, including advanced manufacturing, health care, biotechnology, automotive, aerospace, energy, construction, geospatial, retail, and cross-sector.

Health care. CGCC was one of 34 HGJTI grantees (21 percent of all grantees) that focus on the health care sector. The training program developed by CGCC prepared students for occupations in demand as defined by the local hospitals and long-term care facilities in the region, including registered nurses, licensed practical nurses, certified nursing assistants, certified medical assistants, emergency medical technicians, and emergency first responders. With hospitals and facilities located along the Oregon and Washington border, CGCC conducted a survey of the region’s health care employers to quantify their workforce needs. As there was no post-secondary education institution in the region with a health occupations program, CGCC staff reported that they would serve both the employers and the residents of the mid-Columbia region by providing good jobs and expanding the supply of qualified workers. The health care jobs in the region paid a starting salary of approximately \$20,000 a year for a certified nursing assistant and upwards of \$70,000 a year for a registered nurse with a bachelor’s of science in nursing.

Biotechnology. Both JobPath and MDC used their HGJTI grants to focus on the biotechnology sector. They were two of 16 HGJTI biotechnology grantees. For JobPath, targeting the Tucson area’s growing biotechnology sector fit its mission of helping low-income individuals find gainful employment with a combination of training and supportive services. Grantee staff described Tucson as a “low-wage town” with a “20-percent poverty rate.” Similar growth in the biosciences industry was projected for the Miami-Dade region, leading MDC to initiate a biotechnology associate’s degree and certificate program using a U.S. Department of Education grant awarded at the same time it applied for the HGJTI grant. The HGJTI grant was used to fund incumbent worker training for local industrial pharmaceutical manufacturers to complement its for-credit college program.

Energy. The HPTC project was funded through two HGJTI grants, which represented two of the 11 grants awarded in the energy sector. The focus of this grant effort was the upstream oil and gas industry, which included drilling, servicing, and production of oil and gas. The Oklahoma region was poised for growth in the industry as gas consumption was rising nationwide, and the area had no federal restrictions on new drilling. While the number of jobs was not predicted to grow, this was an industry plagued with high turnover and increasing

retirements, and training of new and current employees to retain and promote was imperative. Thus, training developed under the grants focused on new employees with little or no previous experience in the oil and gas field and on current employees in the industry interested in upgrading their skills, which typically meant moving up from a floor hand to a derrick hand.¹²

Construction. CWIT and CJAP focused on bringing new workers into the construction trades, including residential, commercial, and industrial construction sectors. Prior to receiving its HGJTI grant, CWIT concentrated on training low-income women to enter better-paying jobs in the construction trades, a male-dominated industry. CWIT used its HGJTI grant to expand its existing pre-apprenticeship program to areas farther outside Chicago. At the time of the grant application, predictions were that 38,000 new construction jobs would be added in the Chicago region over the next 10 years. While job growth slowed considerably in the local labor market, CWIT continued to conduct outreach to inform women about the wide variety of jobs available within the construction industry and provided a pre-apprenticeship training program to improve math skills and help prepare participants for entry into a range of building trades apprenticeship programs.

CJAP also aimed to bring new workers into the construction and advanced manufacturing sectors. CJAP used grant funds to implement or support several new initiatives to increase the flow of youth into the building trades, including a pre-apprenticeship program to prepare high school juniors and seniors for entry into the floor laying apprenticeship program and a nine-week program to prepare disadvantaged youth for highway construction jobs, other entry-level construction jobs, and apprenticeship programs. CJAP also implemented the Pathways program, a six- to eight-week training program for recent high school graduates, entry-level workers, and recently unemployed adults to prepare them to enter advanced entry-level manufacturing or construction jobs. The Pathways program included a basic skills component (e.g., covering work readiness, reading comprehension, computer and Internet skills, industrial math), as well as classroom instruction in basic mechanical knowledge, precision measurement, blueprint reading, industrial safety, forklift operation, and basic welding.

Aerospace. CLC received two of the seven HGJTI grants awarded in the aerospace industry. Under the first grant, CLC established an industry-led consortium of employers, unions, higher education and public and private agencies to address shortages of skilled workers in the aerospace industries of Tarrant County, Texas. The Aerospace Industry Training Project (AITP) consortium initially designed and implemented a training program for dislocated workers to fill entry-level aircraft assembler positions. Instruction was provided by both industry-trained classroom teachers and “hands-on” union mentors retired from the aerospace industry in a “virtual factory” training site designed to simulate an actual factory environment. Participants who successfully completed the training component and who were awarded a “Certificate of Achievement” qualified for a preferential interview with one of the key employer partners. Under the second grant, the original AITP was enhanced and renamed the AITP Technically Advanced Proficiency Program (AITP-TAPP). Although the program continued to prepare

¹² Floor hands are usually entry-level workers who handle the drill pipe on the platform floor of an oil rig and work with several other floor hands at a time. General equipment maintenance may also be part of the job. Derrick hands—also referred to as derrick operators—work on small platforms high on rigs to help run pipe in and out of well holes and operate the pumps that circulate mud through the pipe.

dislocated workers for aircraft assembly jobs, the content of the training was revised and refocused when a new employer became the primary hiring source for program graduates. In addition, AITP-TAPP also provided incumbent worker training for four aerospace employers in industry-related skill areas such as electrical assembly, wire stripping and crimping, hand and machine soldering, and blueprint reading and layout.

Advanced Manufacturing. The South Texas College grant addressed workforce needs in the advanced manufacturing sector with a particular emphasis on precision machining, tool and die, industrial maintenance, and plastics. STC's training programs began before the grant but were expanded and enhanced using the HGJTI funding. The training for two of STC's three programs (the apprenticeship program and the pre-apprenticeship/skills enhancement program) was aimed exclusively at incumbent workers. All workers enrolled in these two components were referred by companies that belong to the local manufacturing association for training to upgrade skills within advanced manufacturing (including apprenticeship training for industrial maintenance technicians, tool and die workers, machinists, and plastics process technicians). The third program component—the Career Pathway Program—targeted high school juniors and seniors from six area school districts to get them interested in and moving along the pathway toward a job in the advanced manufacturing sector. In addition, CJAP's grant changed its industry focus to include advanced manufacturing instead of only construction due to changing economic conditions in the regions served.

Non-Sector. LDOL was one of 12 grantees that did not focus on one particular industry sector. When the grant was awarded, Louisiana was recovering from the economic devastation following Hurricanes Katrina and Rita. The state was developing a large initiative to rebuild its workforce by training residents for available jobs in various sectors including hospitality, construction, and health care, where most of the jobs were at the time. The initiative leveraged the HGJTI grant with National Emergency Grants (NEGs), Base Realignment and Closure (BRAC) grants, and Workforce Investment Act (WIA) formula funds to address the workforce needs during the recovery period.¹³

Funding Levels and Matching/Leveraged Funds

Grantees received HGJTI funding for training and capacity building for a particular high-growth industry. Most of the grantees studied received amounts in the \$1–3 million range, as shown in Table 3.3. JobPath received the smallest grant, approximately \$275,000. LDOL received the highest single grant award of \$3 million, which was part of the federal response to Hurricanes Katrina and Rita. Both CLC and HPTC received two HGJTI grants each, totaling approximately \$4 million for each grantee.¹⁴

Matching and leveraging funds were a major part of HGJTI, as described in many of the grant solicitation announcements. Six grantees (CJAP, CWIT, CGCC, JobPath, MDC, and STC) were required to provide matching funds that were either cash or in-kind contributions. Some of

¹³ The funds leveraged through NEG, BRAC, and WIA were not considered “matching” funds. No matching requirements existed for this HGJTI grant, and LDOL did not record these other grants as matching.

¹⁴ Although the first CLC grant was awarded under the Skills Shortage II Incumbent and Dislocated Worker Demonstration Program in 2001, ETA categorized it as an HGJTI grant.

TABLE 3.3: FUNDING AND DURATION OF GRANTS

HGJTI grantee	Type of Grant		Project Duration		Project Funding	
	Training	Capacity-Building	Start Date	End Date	HGJTI Funding	Matching/ Leveraged Funding
Carpenters' Joint Apprenticeship Program (CJAP)	✓	✓	12/01/04	11/30/07 (Extended to 12/27/08)	\$2,187,107	\$685,532
Chicago Women in Trades (CWIT)	✓	✓	12/1/05	11/30/07	\$2,092,343	\$1,172,398
Columbia Gorge Community College (CGCC)	✓	✓	4/1/04	8/31/07	\$1,250,000	\$1,367,000 (including funds from its college foundation, tuition, and the U.S. Dept. of Education)
Community Learning Center (CLC)	✓	✓	6/29/01	6/30/03 (Extended to 12/31/03)	\$2,860,000	\$2,289,196
			9/02/03	9/30/05 (Extended to 5/31/06)	\$1,168,400	\$1,168,080
High Plains Technology Center (HPTC)	✓	✓	6/1/03	3/30/06	\$1,546,463	\$528,683
			12/01/05	11/30/07	\$2,383,538	\$831,568 (all in-kind)
JobPath, Inc.	✓	✓	7/1/05	6/30/07 Extended to 12/31/07	\$276,393	\$185,710 (plus city and county government funds)
Louisiana Department of Labor (LDOL)	✓	✓	9/6/05	9/5/06	\$3,000,000	BRAC and NEG grants and WIA formula funds
Miami-Dade College (MDC)	✓	✓	6/15/05	6/30/07 Extended to 6/30/08	\$1,000,000	\$1,370,000 (plus grants from the U.S. Dept. of Education and Florida Dept. of Education)
South Texas College (STC)	✓	✓	1/01/05	12/31/06 Extended to 8/30/08	\$2,000,000	\$2,000,000

SOURCES: ETA GRANT AGREEMENTS, GRANTEE QUARTERLY REPORTS, AND 2007-08 SITE VISITS.

the grant solicitations required a match of 50 percent of the grant amount requested, and 50 percent of that match had to be in cash from one or more employer partners. Neither prior investments nor federal resources counted as matching funds but were viewed as “leveraged” funds by the grantees. This matching requirement did not apply to either the HPTC or the CLC grants, but both grantees provided very significant leveraged funding, mostly in-kind

contributions. LDOL also did not have a match requirement but the grant was part of a larger recovery initiative, leveraging funds mainly from NEG and BRAC.

The grantees that had cash-matching requirements usually solicited financial support from employers. For example, CGCC garnered pledges from eight business partners, and three employers committed funds to MDC's project. However, as was often the case with pledges, some grantees had difficulty collecting these contributions, and some had to find new sources to meet the match requirement. (This issue is discussed under "Implementation Challenges.") STC had one of the largest matches (\$2 million, an exact match of the HGJTI grant), which was supplied mostly by about 20 employers in wages paid to apprentices for the on-the-job training (OJT). STC reported that it had had little difficulty in generating the needed match because, typically, individuals completing their apprenticeships then received 6,000 (under three-year programs) to 8,000 hours (under four-year programs) of employer-paid, on-the-job training.

Some HGJTI grantees reported that they had secured significant amounts of leveraged funding by using the HGJTI grant to build or improve current initiatives or by blending HGJTI funds with other funds for sometimes multiple new initiatives. LDOL, with much of the agency's activities focusing on post-hurricane recovery efforts, reported the greatest amount of leveraged funding, with at least \$62 million from an NEG, a BRAC grant, and WIA formula funds. Other grantees also leveraged other funding sources, especially other federal and state grants. MDC received a \$3.5 million U.S. Department of Education grant and a \$500,000 state education grant to develop the new biotechnology degree program. JobPath was leveraging grants from the City of Tucson (\$500,000) and Pima County (\$380,000) to help support participants enrolled in the training program. CLC obtained funding from Workforce Solutions of Tarrant County, the local workforce investment board, to operate three additional aircraft assembly training sessions after the HGJTI grant ended. The grantee also received Wagner-Peyser funds through the Texas Workforce Commission to design and operate a new program, modeled after its AITP-TAPP project, to train dislocated and incumbent workers in composite bonding skills for the aerospace industry. Of the 20 early HGJTI implementers discussed in the first report, 19 had a wide range of matching and leveraged funds, from under \$100,000 (in two grantees) to more than \$10 million (in three grantees).¹⁵

Partnerships and Collaborations

A key goal of the HGJTI was to create meaningful and long-term partnerships with the workforce development system, local community colleges and other training institutions, employers, and a range of other organizations within a locality or region. Grantees had a wide array of partners, as highlighted in Table 3.4.

Employers. All nine grantees engaged employers and industry associations as key partners in their HGJTI-funded activities. As already noted, employer partnerships were considered especially important to ensure that the workforce challenges were accurately defined and the strategies selected met the current and immediate needs of the sector. Employers played

¹⁵ See exhibit 1 in Trutko et al. (2007).

TABLE 3.4: GRANTEE PARTNERS

HGJTI Grantee	Grantee Partners					
	K-12 Schools	Post-Secondary Schools	Local WIBs/ One-Stop Career Centers	Employers	Unions	Economic Development
Carpenters Joint Apprenticeship Program (CJAP)	✓	✓	✓	✓		
Chicago Women in Trades (CWIT)		✓	✓	✓	✓	
Columbia Gorge Community College (CGCC)		✓	✓	✓		
Community Learning Center (CLC)		✓	✓	✓	✓	
High Plains Technology Center (HPTC)		✓	✓	✓		✓
JobPath, Inc.	✓	✓	✓	✓		
Louisiana Department of Labor (LDL)		✓	✓	✓	✓	✓
Miami-Dade College (MDC)	✓			✓	✓	
South Texas College (STC)	✓	✓	✓	✓		✓

SOURCES: ETA GRANT AGREEMENTS, GRANTEE QUARTERLY REPORTS, AND 2007-08 SITE VISITS.

a particularly critical role in seven sites (CJAP, CLC, HPTC, MDC, CGCC, LDOL, and STC). For example, several local hospitals and long-term care facilities gave in-kind and cash contributions to support health career training for the CGCC project. They also provided preceptors (mentors and clinical instructors) who delivered hands-on instruction to nursing trainees. Similarly, employee partners in the CLC and HPTC projects contributed equipment, tools, and materials and supplies for training.

In addition to contributing money and equipment and hiring training graduates, employers engaged with grantees in other ways, including, in some sites, paying their employees for time spent in training and, as noted above, providing input to program design and curricula. For example, about 30 oil and gas companies helped to design the HPTC project, which led to training that was customized to meet their needs. Some of these employers integrated training activities funded by the grant into their new employee orientation, and others conditioned hiring on successfully completing an introductory session offered by the project. CLC’s aerospace industry partners played a similar role with Lockheed Martin Aeronautics Company (LMAC), for example, providing the services of a company trainer to adapt their in-house training curriculum for use in the AITP. The University of Arizona’s BIO5 Institute sponsored a majority of JobPath’s biotechnology internships, and BIO5 faculty and researchers served as guest speakers, hosted lab tours, and reviewed curricula. Under the LDOL grant, HGJTI funds were used to address the training and hiring needs of five businesses in the wake of Hurricanes Katrina and Rita, helping to speed up the reestablishment of their businesses by supplying trained workers. Finally, hospital and long-term care facility staff promoted the CGCC projects in the community and identified potential candidates for training.

Industry groups and trade associations served as key partners in three sites (HPTC, MDC, and STC). Several oil and gas trade associations actively participated in the HPTC initiative by providing input on training and curriculum, job needs and vacancies and advertising the program to employers. The Biosciences Job Growth Initiative in Miami-Dade County maintained a working relationship with the South Florida Manufacturing Association. Although not as

actively involved or prominent as associations were in other sites, a representative from a local biotechnology trade association served on JobPath’s advisory board. As discussed in Box 3.3, STC received extensive support from a local association of manufacturers.

Box 3.3

South Texas College: Employer Association Plays Critical Role in Initiative

The South Texas Manufacturers Association (STMA), a key partner with STC under the HGJTI grant, was formed in the early 1990s in part because manufacturing firms found it difficult to recruit skilled manufacturing technicians and workers from the local population. STMA was initially instrumental in identifying the shortage of skilled manufacturing workers and then advocating for strategies that would enhance the skills of the local workforce—particularly production workers at area manufacturing firms. In addition, STMA recognized the need for better informing high school teachers and students about the many higher-wage jobs available in manufacturing and then advocating for building a link between high schools and STC in the form of the Career Pathway Program. STMA provided support in efforts to obtain federal, state, and local funding for education and training of machinist and other advanced manufacturing skilled occupations. With regard to the HGJTI grant, STMA helped with outreach efforts to notify firms about the initiatives, persuaded firms to participate by sponsoring apprenticeships, and provided input with regard to the curriculum. Program administrators indicated that such active involvement was paramount to the overall success of the initiative and keeping the training relevant to employer needs.

Local Workforce Investment Boards and One-Stop Career Centers. Most HGJTI grantees had partnerships of some type with local workforce investment boards (WIBs) and One-Stop Career Centers, but four of the HGJTI grantees (CGCC, CLC, JobPath, and LDOL) had more extensive partnerships with the workforce system than the other five (CJAP, CWIT, HPTC, MDC, and STC).¹⁶ In Tucson, JobPath had a longstanding relationship with the Pima County WIB. JobPath referred WIA-eligible participants to the WIB and co-enrolled them. In addition, One-Stop staff provided assistance in recruiting students for the JobPath Biotechnology Summer Institute and a college biotechnology program. A One-Stop representative also served on the project’s advisory board. In another site, CGCC trainees could receive WIA funding to offset tuition costs and benefit from referrals to support services. Furthermore, as in JobPath, One-Stop staff referred many individuals to CGCC training.

Local WIBs also played a major role as subgrantees for the LDOL initiative. For example, the Jefferson Parish WIB (JPWIB) served as the fiscal agent for \$1 million in grant funds to serve eight Gulf region parishes. In this role, JPWIB staff conducted outreach and recruitment for funded projects, helped complete paperwork and entered client data, tracked training completion and job placement, and reviewed and processed invoices. However, HGJTI participants were not co-enrolled in WIA and did not receive WIA-funded support services.

¹⁶ All grantees indicated in their grant applications that the workforce system would have some role in the proposed HGJTI activities.

The primary recruitment and referral source for CLC's AITP was initially Workforce Solutions for Tarrant County (the Tarrant County WIB); however, over the course of the project, the collaboration expanded to include two other WIBs, North Central Texas WorkForce and WorkSource of Dallas County. A representative of Workforce Solutions for Tarrant County was a founding member of the AITP consortium and served on its steering committee.

Other HGJTI grantees were less actively engaged with the workforce investment system. In several CWIT counties, WIBs and One-Stop Career Centers provided some assistance with outreach and recruitment for the training program but, typically, training participants did not enroll in WIA. In addition, the CWIT program was not an approved eligible training provider for WIA participants so WIA funding could not be used for this training. Similarly, HPTC did not collaborate extensively with the region's WIB (the Northwest Workforce Development Council), and no Memorandum of Understanding was in place. The local One-Stop Career Centers distributed brochures about and provided referrals to the program but training participants were not enrolled in WIA. HPTC staff also said that the training program had direct ties to employers so employment services from the local One-Stop Career Center were not needed. MDC also had a more limited partnership with local WIBs. Although a WIB representative served on the MDC's biotechnology advisory board, the WIB did not officially partner with MDC. In South Texas College's initiative, the WIB served as the grantee, passing through HGJTI funds to STC to operate the program. The role of the Lower Rio Grande Valley Workforce Development Board was primarily to serve as a fiscal intermediary, providing oversight, submitting progress reports and invoices to ETA, and reimbursing the subgrantee (i.e., STC).

While CJAP initially planned to partner with five One-Stop Career Centers serving the St. Louis area, particularly with regard to assisting with recruitment of adults and dislocated workers for its various HGJTI-sponsored training initiatives, close links with the One-Stops did not materialize, and few referrals were received. CJAP offered several possible explanations for the lack of One-Stop involvement in recruiting training candidates for CJAP: (1) many of those served by One-Stops were either not interested in or did not have the math skills required for the advanced manufacturing/construction training; (2) some of those served by the One-Stops lived too far from the locations where training was being provided; and (3) One-Stop staff tended to place individuals in need of training into WIA training or programs offered by other training institutions first. It was also possible that some individuals heard about the training offered by the HGJTI grant through the One-Stop Career Centers, but CJAP did not track the WIB as the source of referrals.

Educational Institutions, Nonprofit Organizations, Government Agencies, and Unions. HGJTI grantees also partnered with various other organizations, including post-secondary institutions, local high schools, area nonprofits, government agencies, and labor unions. Pima Community College played a key role in both curriculum development and instruction for the JobPath initiative. Four community colleges in Illinois actively recruited and provided support services for the CWIT project. As part of the LDOL project, Delgado Community College received HGJTI funding to provide fire safety training for the maritime offshore oil and gas industry. The Oregon Health Sciences University shared experiences and modules from its simulation lab with CGCC. Tarrant County College was a partner in CLC's AITP project, with

responsibility for drafting the first training curriculum and for providing instructors for the classroom training components.

Four grantees collaborated with local schools to recruit high school students for their programs. MDC worked with the Miami-Dade Public Schools to recruit minority youth through career days and other presentations to high school students. Similarly, JobPath partnered with area high schools to help recruit high school students for JobPath's Summer Institute. Six school districts partnered with STC on its HGJTI-funded Career Pathway Program component, helping with recruitment and coordinating attendance of high school juniors and seniors. STC's Career Pathway Program was intended to build a direct pipeline from local high schools into STC's Precision Machine Technician Associate's degree program. Similarly, CJAP used a portion of its HGJTI grant to fund the Bayless High School Pre-Apprenticeship program, which targeted juniors and seniors at a local high school and provided three hours per day of instruction on floor laying.

HGJTI grantees also partnered with other local service providers to support job training activities. A nonprofit substance abuse treatment facility received HGJTI funds from LDOL to train workers in furniture repair and rehabilitation in association with a business. La Clinica, a community-based health services organization based in Hood River, Oregon, helped with the development of outreach materials in English and Spanish and provides clinical setting opportunities for students as a partner to the CGCC grant activities.

Some HGJTI grantees also worked closely with state and federal agencies. Several Illinois state agencies provided matching funds for the CWIT initiative. Illinois Department of Employment Security staff encouraged local WIBs and One-Stop Career Centers to assist CWIT with recruitment, and the Chicago region's Apprenticeship Information Centers work with CWIT to disseminate program information. Oklahoma's Bureau of Indian Affairs, the VA, and the criminal justice system provided some outreach efforts and referrals for the HPTC initiative.¹⁷

HGJTI grantees also partnered with local economic development agencies and unions. For example, local economic development agencies assisted HPTC's efforts and provided opportunities to present information about the initiative to employers. Members of a local consortium of organizations and businesses, interested in promoting the development of the biosciences in southern Florida, worked with MDC to help shape its curricula and promote MDC's incumbent worker and associate's degree programs in biotechnology. The McAllen Economic Development Corporation was supportive of STC efforts under HGJTI. This agency's Business Retention and Expansion Unit met regularly with companies to learn about issues, growth projections, staffing needs, and training requirements. With regard to the HGJTI grant, the economic development agency helped with recruitment of firms to participate in the apprenticeship programs and provided ongoing input on the eligibility criteria for participants and the types of skills needed by new firms moving into the area.

In addition, three projects established partnerships with unions (CWIT, CLC and LDOL). Two unions, the International Association of Machinist & Aerospace Workers (IAM&AW) and

¹⁷ For additional details about partnerships, see Trutko et al. (2007), pages 9–12.

the United Automotive, Aerospace, Agricultural Implement Workers of America (UAW), were important partners in CLC’s AITP Consortium, providing valuable technical assistance and input on curriculum development as well as retired union members as mentors. Approximately 30 unions contributed to the CWIT initiative by sponsoring hands-on instruction and assisting with outreach efforts.

B. Job Training Strategies

As envisioned by ETA, the HGJTI was “a strategic effort to prepare workers to take advantage of new and increasing job opportunities in high-growth, high-demand and economically vital sectors of the American economy.” The job training activities undertaken by HGJTI grantees focused on the following goals:

- developing a pipeline of young workers;
- building competency models, career ladders, and career lattices for new and incumbent workers;
- expanding post-secondary training alternatives including apprenticeships and community colleges’ workforce development programs;
- accessing new and/or untapped labor pools;
- transitioning workers from declining industries;
- developing strategies for retaining incumbent workers and updating their skills; and
- engaging small businesses.¹⁸

The job training models implemented by the nine HGJTI sites focused on a variety of these goals. This section describes the key aspects of the training approaches at each of the sites, including the number of training programs initiated; types of occupations trained, the goals of the training programs, training duration, training methods employed; and whether training resulted in a degree or certification. Table 3.5 provides an overview of key dimensions of the training programs initiated at the sites, with full details on the training components in the grantee profiles in Appendix A.

Number, Types, and Goals of Training Programs

Eight of the nine sites (all except CWIT) offered more than one training program, as shown in Table 3.5. A total of 52 separate training programs were funded with HGJTI grants across these nine sites—about half (26) of which were contracted under the LDOL HGJTI grant.¹⁹ Across

¹⁸ Background on the job training goals under the HGJTI is from the ETA Web site, <http://www.doleta.gov/BRG/JobTrainInitiative/>.

¹⁹ Table 3.5 shows details on six of the 26 training initiatives begun under the HGJTI in Louisiana as they were the training programs visited or discussed during the site visit.

TABLE 3.5: GRANTEE TRAINING PROGRAMS

HGJTI Grantee	Sector	Type of Training	Duration of Training	Type of Instruction			Results in Degree or Certification
				Class-room	On-the-job Training Contract with Employer	Internship/ Hands-on Experience	
Carpenters Joint Apprenticeship Program (CJAP)	Construction (floor laying)	Pre-apprenticeship training (for entry to building trades apprenticeship programs)	Two years (three hours per day in junior/senior years of high school)	✓		✓	✓
	Construction	Pre-apprenticeship training (for entry to building trades apprenticeship programs or entry level highway construction jobs)	360 hours	✓		✓	✓
	Advanced manufacturing and construction	Adult/dislocated worker training	360 hours	✓		✓	✓
	Advanced manufacturing and construction	Incumbent worker training	Varies from four hours to two-three years	✓		✓	✓
Chicago Women in Trades (CWIT)	Construction	Pre-apprenticeship training (for entry to building trades apprenticeship programs)	170 hours	✓		✓	
Columbia Gorge Community College (CGCC)	Health care	Associate's degree in nursing (RN)	Two years	✓		✓	✓ (Associate's degree)
	Health care	Certified nursing assistant (CNA)	160 hours	✓		✓	✓ (CNA certification)
	Health care	Certified medication assistant (CMA)	80 hours	✓		✓	✓ (CMA certification)
	Health care	Emergency medical technician (EMT)	160 hours	✓		✓	✓ (EMT certification)
	Health care	First responder	44 hours	✓		✓	✓ (First responder certification)

TABLE 3.5: GRANTEE TRAINING PROGRAMS

HGJTI Grantee	Sector	Type of Training	Duration of Training	Type of Instruction			Results in Degree or Certification
				Class-room	On-the-job Training Contract with Employer	Internship/ Hands-on Experience	
Community Learning Center (CLC)	Aerospace	Aircraft assembler	Five weeks (200 hours)	✓		✓	✓ (Certificate of achievement)
	Aerospace	Electrical assembly	Varied by employer sponsor	✓	✓	✓	✓
	Aerospace	Wire stripping and crimping	Eight hours	✓		✓	✓
	Aerospace	Hand and machine soldering	Varied by employer sponsor	✓		✓	✓
	Aerospace	Blueprint reading and layout	Varied by employer sponsor	✓		✓	✓
High Plains Technology Center (HPTC)	Oil & gas	Floor hand (for oil and gas drilling)	40 hours	✓		✓	✓
	Oil & gas	Floor hand (for well servicing)	40 hours	✓		✓	
	Oil & gas	Derrick hand (for oil and gas drilling)	40 hours	✓		✓	
JobPath, Inc.	Biotechnology	Biotechnology technology upgrade training	400+ hours	✓		✓	✓ (Certificate in biotechnology)
	Biotechnology	Summer institute for high school youth	90 hours	✓		✓	
Louisiana Department of Labor (LDOL)	Shipbuilding (contract with shipyard)	OJT for entry-level pipe fitters, ship fitters, and welders	640 hours	✓	✓	✓	
	Shipbuilding (contract with shipyard)	OJT for entry-level workers	240 hours	✓	✓	✓	
	Health care (contract with hospital)	Certified nursing assistant	Up to six months	✓		✓	✓ (CNA certification)
	Health care (contract with Our Lady of Lakes)	Registered nurse	Two years	✓		✓	✓ (Associate's degree)
	Construction (contract with Odyssey House)	Carpentry skills and furniture repair	Four months (Eight hours a day)	✓		✓	

TABLE 3.5: GRANTEE TRAINING PROGRAMS

HGJTI Grantee	Sector	Type of Training	Duration of Training	Type of Instruction			Results in Degree or Certification
				Class-room	On-the-job Training Contract with Employer	Internship/ Hands-on Experience	
	Energy (contract with Delgado Community College)	Safety training for offshore oil and gas platform workers	12 to 40 hours	✓		✓	✓ (Certificate of completion)
Miami-Dade College (MDC)	Biotechnology	Good manufacturing and documentation practices	Eight hours	✓			✓ (Certificate of completion)
	Biotechnology	Adult education and workplace skills	Variable	✓			
	Biotechnology	Performance evaluations and project management for managers	Several hours	✓			✓ (Certificate of completion)
	Biotechnology	Contamination control	Two hours	✓			✓ (Certificate of completion)
South Texas College (STC)	Advanced manufacturing (apprenticeship program)	Apprenticeships offered in: industrial maintenance, tool and die, machinist, plastics process technician	Three or four years (624 to 800 hours of classroom and 6,000-8000 of OJT)	✓	✓	✓	✓ (DOL-approved journeymen's certificate)
	Advanced manufacturing (pre-apprenticeship and skills enhancement)	Non-credit classroom instruction to build math skills; customized classes to improve skills of incumbent workers	48 to 96 hours, depending on training	✓		✓	✓ (Certificate of completion and continuing education credits)
	Advanced manufacturing (career pathway program)	Vocational preparation for high school juniors and seniors to facilitate entry into machining careers	800 to 1,000 hours of classroom instruction over two years	✓		✓	✓ (Up to 39 hours of academic credit toward associate's degree at STC)

SOURCES: ETA GRANT AGREEMENTS, GRANTEE QUARTERLY REPORTS, AND 2007-08 SITE VISITS.

these sites, the training provided was in seven high-growth industry sectors: health care, energy (including oil and gas), construction/building trades/shipbuilding, biotechnology, aerospace, advanced manufacturing, and hospitality. Eight of the nine HGJTI projects focused on training

workers for a single industry sector. The training sponsored by the LDOL aimed more broadly to assist workers and businesses across four industry sectors key to the economic recovery from the devastation of Hurricanes Katrina and Rita. Much of the \$3 million in HGJTI funding to LDOL was subcontracted through 26 local WIBs, community colleges, and other training providers to support training efforts in the health care, energy, hospitality, and shipbuilding/construction industry sectors. CJAP, while primarily focused on construction, also provided training for the advanced manufacturing sector.

Several grantees focused on expanding the “pipeline” of workers into and through a given industry sector. The CWIT program, for example, sought to expand the supply of women entering a wide variety of occupations within the building trades. CWIT offered a pre-apprenticeship program to bring an untapped supply of workers (i.e., women) to an industry sector that had experienced large growth in recent years. To increase awareness within the targeted population of the many high-paying opportunities within the building trades sector, CWIT developed an extensive public relations campaign. The grantee also encouraged interested and qualified women completing its pre-apprenticeship training projects to consider the three- to five-year apprenticeship programs in building trades occupations (e.g., carpentry, plumbing, iron working, sheet metal).

Under its HGJTI grant, CJAP and its partners also worked to expand pipelines of workers. This grantee offered four main training programs in the construction and advanced manufacturing sectors. Across the four programs, a combination of approaches were developed to expand the pipeline of needed workers, including providing workers with nationally-recognized credentials and community college credit whenever possible to increase the attractiveness of the program. To ensure the quality of the training, employers provided input into the curriculum and core competencies, and potential trainees were assessed using Work Keys to confirm their appropriateness for the program.

The CGCC training programs also aimed to increase the “pipeline” of workers, in this case, in the health care sector, by creating a credential ladder and locating the courses in the local communities to increase the chances that trainees remain in the region after training. CGCC’s HGJTI grant was focused on reducing shortages of registered nurses (RNs), licensed practical nurses (LPNs), certified nursing assistants (CNAs), certified medical assistants (CMAs), emergency medical technicians (EMTs), and first responders within its rural region (see Box 3.4).

JobPath and MDC, which both offered training in biotechnology, used different approaches to expand the pipeline of workers. The JobPath program focused on encouraging youth to consider careers in biotechnology (through the Biotechnology Summer Institute), then supporting efforts to provide two years of substantive training. The Biotechnology Summer Institute provided selected high school students the opportunity to take an Introduction to Biotechnology Course at Pima Community College. This 90-hour summer school course included hands-on lab experience, class lectures, guest lectures from employers, field trips to employers, small group work experiences, and instruction in critical thinking skills. JobPath also provided support for students in classes leading to a certificate in biotechnology. The certificate in biotechnology was designed to complement an Associate or Bachelor degree. Hands-on lab experience was provided through three core biotechnology courses (totaling nine credits),

followed by cooperative work/paid internships (320 hours, for three credits) with biotechnology employers in industry or research, primarily the University of Arizona.

Box 3.4

Columbia Gorge Community College: Developing a Health Care Career Ladder in Rural Areas

An important goal under the HGJTI grant was to expand the college's health care offerings into a career ladder program. To accomplish this goal, CGCC created a health career occupations ladder with an integrated pathway from CNA to CNA-2 to CMA to LPN to RN. This career ladder offered multiple entry points, smooth transitions between steps, and the opportunity to exit with an Associate degree in nursing, with the potential for enrollment in a Bachelor degree program in nursing. Additional goals for CGCC were to bring in new workers into the health care industry at varying levels and to encourage these skilled workers to stay in the region rather than moving to Portland or other metropolitan areas.

MDC's approach was to upgrade the skills of incumbent workers to fill the pipeline of workers needed in skilled occupations. MDC offered four workshops aimed at upgrading skills of workers already working within the biotechnology industry, as detailed in Box 3.5. Training modules for each workshop were created with the assistance of two outside training consultants and the input of the employers. The goal was to train incumbent industrial pharmaceutical manufacturing (IPM) technicians and related biotechnology workers, as well as to increase retention of these workers.

With its two HGJTI grants, CLC provided training for positions in the aerospace industry for both dislocated and incumbent workers. The Aircraft Structural Assembly Training Program, a five-week, 200-hour course that included both classroom and hands-on instruction, was primarily focused on dislocated workers. Upgrade training on a variety of skills, including electrical assembly, wire stripping and crimping, hand and machine soldering and blueprint reading and layout, was conducted for other regional aerospace employers.

Finally, South Texas College STC and its partners offered three training projects aimed at increasing the pipeline for skilled manufacturing workers: (1) the Apprenticeship Program, (2) the Pre-Apprenticeship/Skills Enhancement Program, and (3) the Career Pathway Program. The classroom training was provided at the STC campus, though small numbers of individuals living in outlying areas attended the classroom training remotely via video conferencing at other college campuses (at Texas State Technical College and the University of Texas-Brownsville). The OJT component of the apprenticeship program occurred at the employer (as part of the regular workday of the apprentice).

Box 3.5

Miami-Dade College: Supporting the Biotechnology Industry through Incumbent Worker Training

MDC focused on upgrading technical skills of technicians already within the biotechnology sector by providing the following training components, in addition to adult education and English as a Second Language instruction:

- **Good manufacturing and documentation practices.** The Good Documentation Practices (GDP) curriculum provided technicians with eight hours of instruction on the methodology for keeping good notes/records of their work in the lab. MDC's Virtual College videotaped lessons for each module and produced an online course with lessons, examples, practice tests, and tests to complete the module. The training could be conducted by an employee in his or her office or workstation during the scheduled training times.
 - **Basics of contamination control.** This 12-hour workshop on contamination control was provided to biotechnology workers at one large biotech firm regulated by the Food and Drug Administration. To date, the six-session workshop was held over two days for 244 employees, who received a certificate of completion.
 - **Performance management.** Performance management classes were held to enhance the management feedback, interaction, and overall employee appraisal system. Eighteen managers (at two firms) attended this workshop.
-

Training Methods and Duration

All grantees used their HGJTI grant to implement training, but training varied greatly in method and duration. These training methods included classroom-based instruction and experiential learning. The duration of training also varied; grantees developed both shorter- and longer-term training.

As shown earlier in Table 3.5, all the grantee training programs offered some form of classroom instruction with experiential learning. For some training programs, particularly the longer-term ones (such as the Associate degree of nursing program offered by CGCC and the two-year histology and medical technician training offered by JobPath), classroom instruction was an essential method, especially early on in the program. CGCC's ADN program provided an example of the type of longer-term training sponsored under HGJTI. The program supplemented classroom training with innovative training methods, such as using a simulation laboratory, and internships at area health care facilities. CLC also supplemented its classroom instruction with hands-on, "real-life" training in its "virtual factory" training facility.

At the other end of the training spectrum, some grantees developed more traditional OJT initiatives such as those mounted with HGJTI funding from LDOL, which provided subsidies to employers to cover a portion of the wages paid to workers while they received mostly hands-on instruction from supervisors and fellow workers. Still, the OJT was typically complemented by

several hours of classroom training. A good example of this type of training was provided through a contract from the JPWIB to a local shipbuilder (see Box 3.6).

Box 3.6

Louisiana Department of Labor: On-the-Job Training to Rebuild the Workforce

Several of the 26 subcontracts under this HGJTI grant were for on-the-job training to bring workers quickly into entry-level jobs and to support employer efforts to upgrade workers' job-related skills after the 2005 hurricanes. For example, one OJT contract by the JPWIB was with a major shipbuilder in the Gulf region to provide training for entry-level pipe fitters, ship fitters, and welders. The OJT contracts were for a total of 640 hours, with the wage initially reimbursed at 100 percent, then decreasing to 80 percent, 60 percent, and finally 50 percent over the length of the contract. During the OJT period, the firm paid workers biweekly at an hourly rate ranging from \$9.24 to \$10.95. Training was mostly on the job but also included classroom training two nights each week. About 50 percent of participants completed the 640 hours of training; about 40 percent remained with the firm after the OJT was completed. Supervisors identified many reasons for the attrition. Because there was an immediate need for workers, some of the regular screening for entry into the training (which may have screened out individuals not likely to remain in the job) was relaxed. Some trainees soon realized shipyard work was not appropriate for them or that they did not like working outside in sometimes hazardous situations, and some trainees felt they needed to be closer to their families who had moved elsewhere or were still trying to resettle after the hurricanes.

While some HGJTI grantees offered long-term training as described above, others sponsored classroom training that was much shorter (40 hours or less). These shorter-term training efforts were in some instances meant to get workers interested in a particular field and to provide a basic level of skills and knowledge that facilitated entry into a high-growth field. The 170-hour pre-apprenticeship workshop offered by CWIT and the 40-hour workshops (for floor hands in the oil and gas industry) offered by HPTC were examples of this type of short-term training that typically combined classroom and some type of hands-on experience. The shortest programs were industry orientation training workshops offered by MDC, including an eight-hour workshop (via distance learning) that focused on good manufacturing and documentation practices and a two-hour workshop on contamination control. Working with employers, CLC also designed and provided short-term employer-specific training for incumbent workers on specific skills. For example, CLC collaborated with one employer to develop an eight-hour wire stripping and crimping course for 50 of its employees.

In the report on 20 early implementers, grantees emphasized that training for high-skilled, high-demand occupations required highly trained instructors, up-to-date equipment, and flexibility. Several staff noted that the training provided under their HGJTI grant was, for the most part, innovative and aimed at specific industry sectors—such as the advanced manufacturing, aerospace, automotive, biotechnology, and geospatial sectors—that experienced rapid infusion of new technologies and production processes in recent years. According to the

grantees, to prepare workers for emerging technologies and production processes, instructors had to be well-versed in the use of the latest technologies, state-of-the-art equipment, and new production methods.²⁰

Overall, it was difficult to generalize about training hours and program duration for the HGJTI grants. Some grantees funded training through a community college degree program, requiring up to two academic years. In some instances, because participants attend training only part time, training could take four years or longer to complete. The short-term training programs (sometimes resulting in certification, but other times only providing upgraded skills) ranged from several hours or days to several weeks or months. Typically, training for incumbent workers, as seen in the MDC biotechnology programs and HPTC's oil and gas programs, was generally shorter (40 hours or less) and more narrowly focused on specific skills or work activities than programs for unemployed or underemployed workers were. Pre-apprenticeship programs in construction such as the CWIT and CJAP programs were 170-360 hours of training, and the CLC program in aircraft assembly had 200 hours of training. Training provided for health care occupations could be short- or long-term, depending on whether a participant decided to continue on the credential ladder after completing a step such as in the CGCC program. Training could also be short- or long-term for youth programs such as those in the biotechnology (over one summer for JobPath) and advanced manufacturing (throughout the junior and senior high school years for CJAP and STC). The longest training (three to four years) occurred for degree and apprenticeship programs such as the CGCC nursing program and the STC apprenticeship programs.

Training Enrollment and Outcomes

Discussions with grantee staff, along with grantee information and the quarterly reports submitted to ETA, provided some preliminary information about the level of training. All the grantees visited were tracking information on training activities, but there were some differences in what information grantees collected and how it was reported.²¹ Nonetheless, in addition to the data collected during the fieldwork, the grantee quarterly reports provided useful information on the levels of training provided by selected HGJTI grantees.

At the time of the site visits, eight sites (CJAP, CGCC, CLC, HPTC, JobPath, LDOL, MDC, and STC) had exceeded their enrollment goals (see Table 3.6). Some, such as MDC, CGCC, and HPTC, found that they were able to increase the number of individuals trained using the current HGJTI funds and the cash and in-kind support of employer partners. MDC also received an extension of time for its grant to train more incumbent workers. CGCC's training numbers were sometimes duplicate counts so it was difficult to know from the aggregate reports how many people had been trained, as some followed the career ladder from a certified nursing assistant (CNA) to an Associate Degree Nurse (licensed as a registered nurse), while others participated in just a single program. However, CGCC exceeded its training goals.

²⁰ For additional details about types of training offered by the 20 early implementers and lessons learned about providing training, see Trutko et al. (2007), pages 14–15.

²¹ A more detailed analysis on the outcomes and impacts of training activities for five of the nine grantees is provided in Section IV.

TABLE 3.6: TRAINING OUTCOMES (AS OF 6/30/07 UNLESS OTHERWISE NOTED)

HGJTI Grantee	Enrollment and Training Goal	Number Enrolled in Training	Percent Completing Training	Percent Placed in Jobs	Percent Retained in Jobs	Comments
Carpenters Joint Apprenticeship Program	274 youth (and 24 high school faculty); 130 adult and dislocated workers; 120 incumbent workers	512 youth (and 20 faculty); 291 adults/dislocated workers; and 9,346 "trainings" for incumbent workers, as of 3/2008	N/A	N/A	N/A	It was estimated that about 10,000 training sessions have been provided (over 80 percent of which was OSHA training).
Chicago Women in Trades	450 (modified from 950)	593 (as of 10/2009)	68% (225 as of 8/21/07)	49%	N/A	The goal for average wage at placement (\$13 an hour) has been exceeded (\$17.62 an hour), and wages were expected to increase as participants completed apprenticeships.
Columbia Gorge Community College	200	767 (duplicated count)	91% (696 completed)	N/A	N/A	Nearly all RNs and CNAs complete training, pass exams, and enter employment.
Community Learning Center	1,570 (dislocated workers only)	1,098 (as of 10/2009)	86%	81% (55% in the first quarter after completion)	78%	Full-time entry-level aircraft assembler positions started at \$10 per hour with full benefits at time of hiring with one employer.
High Plains Technology Center	1,303	2,162	Nearly 100%	74%	N/A	Participants typically earn \$14–\$18 an hour as floor hands and \$26 an hour as derrick hands.
JobPath, Inc.	30 (biotech) 50 (summer youth)	34 75	24%	100%	N/A	Those who completed the biotech certificate are earning \$37,000–\$42,000.
Louisiana Department of Labor	1,124	1,191	72%	56%	N/A	
Miami-Dade College	800	918	Nearly 100%	N/A	99%	Average hourly earnings of trainees are \$37.23.
South Texas College	638	753	N/A	N/A	N/A	Wage rates for apprentices typically began at a minimum of \$7 and escalated to in excess of \$14 – however, many employers were already paying their employees who entered these programs in excess of the minimum required salary.

SOURCES: ETA GRANT AGREEMENTS, GRANTEE QUARTERLY REPORTS, AND 2007-08 SITE VISITS.

The completion rates for grantees providing shorter-term training were higher than for those providing longer training. Grantees discussed two explanations for this outcome. First, because the grant durations were two to three years, those in short-term training had enough time

to complete programs by the end of the grant compared to those in long-term training. Second, it was more challenging for participants in long-term training to remain in the program because of the time commitment and other barriers they may have. For example, HPTC, which provided 40 hours of training for new and current floor hands and derrick hands, had few dropouts. The same was true for MDC's trainees, who received short-term training usually conducted during work hours at the work site. LDOL used mostly on-the-job training rather than classroom training, and trainees received wages during their training time, which may contribute to the relatively high completion rate of about 72 percent. On the other hand, JobPath's completion rates for its biotechnology, histology, and phlebotomy students were low because it took at least two years to complete these programs and many were still in training by the end of the grant. Grantees' ability to meet enrollment goals and completion rates were also challenged by the downturn in the economy during the grant period. CWIT, which also had mainly longer-term training (170 hours), had to modify its training goal—from 950 to 450 trained—because of the slowdown of hiring in the construction industry and was on track to meet the revised training goal (see Box 3.7).

Box 3.7

Chicago Women in Trades: Responding to a Slowdown in the Construction Sector

The original training goal of CWIT was to enroll 950 individuals in training, but because of slackening demand for new construction apprentices, CWIT modified its enrollment goal to 450 individuals. As of the August 2007 site visit, CWIT had enrolled 333 women in the pre-apprenticeship program. This represented 75 percent of its revised enrollment goal. CWIT also anticipated that 70 percent of enrollees would complete training, and, as of the site visit, 225 had done so (68 percent). The goal was for 300 participants to be accepted in apprenticeship programs or gain employment directly in the construction industry. Currently, there was a lag between completion of the coursework and entry into apprenticeship programs (sometimes a year or longer), so about half of the graduates were still waiting for their acceptance into apprenticeship programs. The placement rate was expected to increase over time as some of those who had completed training were just applying to apprenticeship programs or were on waiting lists with some chance that they would be accepted in the future.

Five of the nine grantees—CWIT, CLC, HPTC, JobPath, and LDOL—tracked job placement rates. According to their own tracking data, almost all JobPath graduates found gainful employment in the biotechnology sector and were earning \$37,000–\$42,000 a year. HPTC estimated that nearly 75 percent of its trainees were placed in jobs if they were not already employed. As described above in Box 3.7, CWIT graduates, who had a 49-percent placement rate, often waited a long time to be accepted into apprenticeship programs. LDOL reported a 56-percent job placement rate, below its original goal of 75 percent, but administrators indicated that placement was particularly successful in the health care sector and for participants that received on-the-job training.

MDC trained only incumbent workers, so data collection on job placement was not necessary. However, they tracked retention of the training completers. As of June 30, 2007, a year after training started, the retention rate for MDC trainees was 99 percent. This outcome was somewhat expected as the industrial pharmaceutical manufacturing industry had low turnover rates. MDC was tracking promotions within companies of individuals who received training but did not have the numbers as of the site visit.

C. Capacity-Building Strategies

An important purpose of the HGJTI was to expand the capacity of the training and workforce development systems. This section describes the capacity-building efforts implemented by the grantees studied.

Types of Capacity-Building Activities

Capacity-building activities within the context of HGJTI were strategies designed to expand the quality and quantity of training and education programs in order to increase the number of skilled workers in the targeted sectors. As shown in Table 3.7, all nine grantees visited implemented capacity-building efforts. While not necessarily representative of all the HGJTI initiatives, these grantees provided many examples of the range of capacity-building approaches implemented under the HGJTI initiative. These included: developing outreach materials; designing and developing program curricula and instructional materials (e.g., brochures, Web sites); developing career ladder and competency models; developing or improving credentials, certifications or degree programs; designing or using new instructional techniques and/or technologies (e.g., Web-based learning); expanding the number of training program “slots”; expanding the number of certified instructors for particular training or education programs; and expanding training alternatives for new or untapped labor pools.

Development of outreach materials. As shown in Table 3.7, eight of the nine grantees developed some type of outreach materials designed to provide potential employees with information about education and training programs and new employment opportunities in the targeted sector. These included, for example, brochures, posters, flyers, DVDs, CDs, new or upgraded Web sites, presentations to various audiences (e.g., high school career days), newspaper advertisements, and radio and television public service announcements. Several grantees made materials available in both English and Spanish. For example, like most grantees, CWIT combined multiple outreach strategies, including presentations, a Web site, a video, and printed materials, as part of its overall effort to provide information to women about job opportunities in the construction/building trades sector. HPTC generated interest in its training program for incumbent workers by distributing program brochures and posters at One-Stop Career Centers, Bureau of Indian Affairs offices, the criminal justice centers and the VA, and by maintaining an informational Web site (www.hptc.net), which included a downloadable program application.

TABLE 3.7: CAPACITY-BUILDING ACTIVITIES FOR INDUSTRY TRAINING PROGRAM DEVELOPMENT

HGJTI Grantee	Developed Outreach Materials	Developed Curricula/ Instructional Materials	Created Career Ladders/ Competency Models	Developed New/Improved Credentials/ Certifications/ Degrees	Designed/ Used New Instructional Techniques/ Technologies	Expanded Number of Training Program Slots	Increased Number of Certified Instructors	Expanded Training Alternatives to Access New/Untapped Labor Pools
Carpenters Joint Apprenticeship Program	✓	✓	✓		✓	✓	✓	✓
Chicago Women in Trades	✓	✓			✓			✓
Columbia Gorge Community College	✓	✓	✓	✓	✓	✓		✓
Community Learning Center	✓	✓		✓	✓	✓	✓	✓
High Plains Technology Center	✓	✓	✓		✓	✓		
JobPath, Inc.	✓	✓	✓	✓		✓		✓
Louisiana Department of Labor	✓	✓	✓	✓	✓	✓	✓	✓
Miami-Dade College	✓	✓		✓		✓	✓	✓
South Texas College		✓	✓	✓	✓	✓		✓

SOURCES: ETA GRANT AGREEMENTS, GRANTEE QUARTERLY REPORTS, AND 2007-08 SITE VISITS.

Development of program curricula or instructional materials. All nine grantees used grant funds to either develop new curricula or update existing program curricula. For example, HPTC developed training curricula and manuals for each of the three types of training offered, designed with guidance from four six-member industry advisory committees. Direct, ongoing input from employers was sought to ensure that training was tailored to the needs of the employer community. CWIT developed and refined a “modular” four-component curriculum used by instructors to guide its 170-hour, 12-week pre-apprenticeship program. The Technical Opportunities Program (TOP) was designed to prepare women for union apprenticeship entry exams and interviews. CWIT in-house staff collaborated with building trades’ union representatives and reviewed requirements and testing standards for entry into union apprenticeship programs in the development of its curriculum.

Employing a slightly different strategy, MDC identified and hired two training consultants who collaborated with local biotechnology employers to develop curricula on specific employer-requested topics (e.g., basics of contamination control) for incumbent workers.

Project staff noted that these curricula could be restructured and customized to meet the needs of other employers in the field. MDC's Virtual College for distance learning also worked closely with an employer's in-house trainer to develop an online curriculum and training course on good documentation practices for biotechnology employees. CLC provided its community college partner with grant funds to develop a new curriculum for its AITP. When the employer partners expressed concerns about some of the curriculum's content, CLC replaced it with a new curriculum developed by one of the key employer partners. JobPath provided financial support to Pima Community College for developing an introduction to biotechnology curriculum, created initially for a summer program designed to expose interested high school students to careers in the field. Future plans called for this curriculum to be offered at the college as an introductory course for the biotechnology certificate program.

Creation of career ladders or competency models. Six grantees either developed new career ladder and/or competency models or enhanced models already in some stage of development. CGCC created a career ladder program for employees in nursing (see Box 3.8). JobPath also worked to create a career ladder for high school students interested in biotechnology. Although the biotechnology certificate program at Pima Community College was in place before the award of the HGJTI grant, JobPath provided funds to the college to establish an initial introductory program for high school students to start on a career ladder in biotechnology.

Box 3.8

Columbia Gorge Community College: Developing a Career Ladder Model with Multiple Entry Points

One aspect of the CGCC grant effort was the development of a health and nursing career ladder with multiple entry points. Interested students were able to progress from certified nursing assistant (CNA) to a Bachelor of Science in nursing (BSN)/registered nurse (RN), mostly within the CGCC's own degree programs. This was accomplished by building the CNA→certified medical assistant (CMA)→LPN→ADN pathway through its own course offerings and creating a partnership with the state university so that ADN's could easily transfer to the four-year BSN program. In addition, CGCC established partnerships with employers to enable graduates to find jobs more easily in the local region.

Development of credentials, certifications, or degree programs. Six of the nine grantees developed new credentials, certifications, or degrees associated with their HGJTI training programs or contributed to the improvement of credentials or programs already in place. For example, CGCC developed and supported five training programs in health occupations, including a two-year training program for RNs, which culminated in an Associate degree in nursing. Other programs developed and supported by CGCC's grant included CNAs, CMAs, EMTs, and first responders and resulted in a certification for participants who successfully completed the program requirements. Delgado Community College, as part of the LDOL grant, provided safety training for incumbent offshore oil and gas rig workers that included both

classroom and hands-on instruction. Participants who completed the training received a certification that, in some cases, could result in higher pay. As noted above, Pima Community College’s certificate in biotechnology program was developed before this grant. However, JobPath’s support of the students and the program was credited with keeping the students enrolled as well as establishing the program, raising awareness in the community about the certificate, and helping increase enrollment.

Design or use of new instructional techniques or technologies. Seven of the nine grantees either created their own instructional techniques or technologies or used ones they had not used before. CGCC staff developed a new simulation laboratory or “sim center” intended to replicate clinical settings for nursing students. Similarly, HPTC provided both classroom training and hands-on instruction on an oil and gas drilling simulator, set up with the assistance of local employers. Using another form of new technology, MDC grantee staff worked with the college’s Virtual College team and an employer partner’s in-house trainer to develop online training courses on good documentation practices for incumbent IPM technicians (see Box 3.9).

Box 3.9

Miami-Dade College: Going “Virtual” for Incumbent Worker Training

MDC worked closely with one employer and its training director to create an online course on good documentation practices for industrial pharmaceutical manufacturing (IPM) technicians. The employer had several locations across the country and decided that online training would be convenient for its employees because they could take the courses any time during their workday and stagger the different modules. The training design also allowed for consistency in the instruction provided and the standards for passing the course as everyone took the same training, which included videotaped presentations, lessons, examples, practice tests, and exams. Employees could access the online training at their office or workstation.

On a somewhat smaller scale, other grantees used new technology both for instructional purposes and to provide information about job opportunities. As described above, CWIT staff participated in Web seminars to share information about new opportunities for women in the construction trades in general and, more specifically, about their pre-apprenticeship program. CLC created a “virtual factory” for training purposes that was an exact replica of the factory floor of a key employer, including placement of workstations, tools and even a functioning time clock.

Expansion of number of training program slots in existing programs. According to administrators, grant-funded activities implemented by eight grantees resulted in an increase in the overall number of available slots or openings in training programs in the target industry in most sites visited, although the precise number across all grantees could not be accurately determined. For example, subcontracts awarded through the LDOL HGJTI grant funded new on-the-job training slots that had not been available before in the Gulf Coast region to move workers quickly into entry-level jobs as pipe fitters, ship fitters, and welders. CLC’s two HGJTI grants created over 200 annual training slots for aircraft assemblers. HPTC provided new slots

for both classroom training and hands-on instruction in oil and gas drilling, which continued at a satellite site at a community college.

Increased number of certified instructors. Most grantees reported difficulties with identifying and retaining appropriately qualified instructors for their training components, and some (less than half of the grantees visited) focused on alleviating these shortages by pursuing efforts to expand the number of certified instructors in their targeted industry. MDC worked closely with an employer partner's training instructor to develop an online training program curriculum and then trained that instructor to become an adjunct faculty member of the Virtual College. Plans were also under way to train other MDC faculty members in the Virtual College online instructional program. One of CLC's key employer partners, LMAC, loaned its trainer to conduct train-the-trainer sessions for their aircraft assembler training program.

Expansion of training alternatives to access new or untapped labor pools. Eight of the nine grantees pursued efforts to expand post-secondary training alternatives to include apprenticeship and community college workforce development programs to reach new or untapped labor pools. JobPath used grant monies to partner with a local community college in developing a summer program to expose high school students to career opportunities in the growing biotechnology sector. CWIT's HGJTI project focused on efforts to educate women about employment opportunities in the construction trades and to prepare them for entry into union-sponsored apprenticeship programs, an area in which they were underrepresented. CGCC developed outreach materials in Spanish and collaborated with La Clinica, a local community-based organization, in an effort to attract local Hispanics into its training programs.

Results of Capacity-Building Activities

The outcomes of the capacity-building efforts were not being measured in any quantifiable way, but some observations about the results or, in some cases, products of these activities were possible. The site visits revealed that grantees saw the results of capacity-building activities both as tangible products and as more fully developed relationships with partners. Among the nine grantees, some activities resulted in products that could be shared with and replicated by other organizations, often through technical assistance. All grantees submitted their products and curricula to DOL for posting on the website. A secondary institutional effect of some of the capacity-building efforts was the establishment of new or stronger partnerships among key training providers, including employers, unions, WIBs, and educational institutions. Thus, the cross-system collaboration to create new products, curricula, marketing materials, or staff/instructor manuals may have enhanced the knowledge among the participating entities of the various partners. Table 3.8 summarizes outcomes and results of capacity-building activities for the nine grantees.

TABLE 3.8: OUTCOMES AND PRODUCTS FROM CAPACITY-BUILDING ACTIVITIES

HGJTI Grantee	Tangible/Transferable Products				New/Improved Partnerships		
	Outreach Materials	New/Revised Curricula and/or Other Training Materials	New Training Equipment/Facilities	Evaluation Reports	New Partnerships with Employers and Unions	New Partnerships with WIBs	New Partnerships with Educational Entities
Carpenters Joint Apprenticeship Program	✓	✓			✓		✓
Chicago Women in Trades	✓	✓		✓	✓	✓	✓
Columbia Gorge Community College	✓	✓	✓		✓		
Community Learning Center	✓	✓	✓	✓	✓	✓	
High Plains Technology Center	✓	✓	✓		✓		
JobPath, Inc.	✓	✓		✓	✓		✓
Louisiana Department of Labor	✓	✓			✓	✓	
Miami-Dade College	✓	✓			✓		
South Texas College		✓	✓		✓		✓

SOURCES: ETA GRANT AGREEMENTS, GRANTEE QUARTERLY REPORTS, AND 2007-08 SITE VISITS.

Tangible/transferable products. Eight of nine grantees developed at least one tangible product as a result of the capacity-building activities implemented as part of the grant. Examples included outreach materials (e.g., DVDs, CDs, brochures, posters, flyers, informational Web sites, PowerPoint presentations), training curricula or other instructional materials (e.g., training manuals), training equipment or facilities (e.g., simulation training laboratories), or summary reports completed by local evaluators.²² Products could be modified and reused by the grantee in future industry-focused workforce development initiatives and shared with other organizations interested in replicating or adapting particular projects or products. For example, JobPath’s introduction to biotechnology curriculum was to be used in both a summer program for high school students and an introductory course for the biotechnology certificate program offered through a community college. Both programs were expected to continue after the grant period ended and sparked interest from other educational institutions, which considered implementing similar efforts and could utilize these materials. JobPath also secured the services of an evaluator who was providing ongoing feedback on outcomes for participants in the summer program. The findings from the periodic reports were being used to refine recruitment and instructional strategies.

New or improved partnerships with key training providers. A second type of outcome of capacity-building activities was the creation or expansion of relationships among training providers, including employers and/or unions, WIBs and One-Stop Career Centers, and educational institutions such as community colleges or local school districts, as shown in Table

²² These grantees used HGJTI grant funds to purchase equipment or build new facilities. They were able to use funding that was leveraged from other sources (e.g., other government grants, employer or industry contributions) to contribute to the overall capacity-building effort.

3.8. In some cases, these partnerships resulted in expanded training alternatives in the community. In many cases, these relationships were in place before this grant, while in some cases they were developed specifically for grant-funded activities. CWIT, for example, worked closely with a number of WIBs, employers, and unions for a number of years prior to the start of this grant. However, new relationships were developed with additional WIBs, unions, and community colleges in suburban areas as part of HGJTI grant activities. All nine grantees developed partnerships with new employers in designing and carrying out capacity-building activities.

D. Implementation Issues and Lessons from the Field

Any program that involves establishing complex training and capacity-building projects that involve multiple organizations encounters implementation challenges. Some challenges are encountered early in the design and implementation phase, and others emerge once the projects are operational. This section summarizes, from the perspectives of the grantees visited, some key challenges and how grantees have addressed them, plans for sustaining the initiatives after the grant ends, and lessons for future implementation of similar efforts.

Implementation Challenges

When asked about major implementation challenges, all nine HGJTI grantees reported one or more issues that had to be addressed, including a lack of federal grants management experience, finding and keeping qualified instructors and staff, difficulties recruiting and retaining training participants, tight schedules for completion of grant activities, and difficulties securing active cooperation from other organizations. Most of the challenges identified in the first report from this evaluation that examined early grantees were also identified by the nine grantees.²³ Table 3.9 and the following sections summarize some of the main implementation issues that HGJTI grantees had to overcome during startup and ongoing operation of their projects, how issues were resolved, and lessons learned from the perspective of grantees.

²³ For more details on implementation experiences and lessons, see Trutko et al. (2007), Section III.

TABLE 3.9: MAJOR IMPLEMENTATION CHALLENGES AMONG HGJTI GRANTEES

HGJTI Grantee	Major Implementation Challenges
Carpenters Joint Apprenticeship Program	<p>Lack of WIB Involvement in Recruitment of Training Candidates. A principal challenge in several of the training components (particularly the Pathways program) was that it had been anticipated that local WIBs would be an important recruitment source. This never materialized for several reasons, and the Carpenters Union was left with the responsibility of recruiting both training candidates and employers for the project.</p> <p>NIMS/IST Certified Training Did Not Come to Fruition. Originally, the grantee was going to try to emphasize NIMS/IST certified training, but this did not get off the ground; employers and training vendors found NIMS to be too complicated and did not know/understand IST.</p> <p>Resistance by Partners to be Held Accountable for Participant Employment Outcomes. The grantee struggled to come to agreement with the partnering community colleges to hold them accountable for job placements/retentions; college staff believed it was their job to teach, but did not want to be held responsible for these outcomes.</p>
Chicago Women in Trades	<p>Adverse Economic Conditions. The pace of construction industry hiring slowed just when grant funds were received and remained far below expectations going into this project, resulting in fewer openings in building trades apprenticeship programs. As a result, CWIT reduced its goal for individuals trained from 950 to 450 and lengthened the grant period of performance by one year.</p> <p>Recruitment into Nontraditional Employment. CWIT had to overcome a lot of skepticism and stereotypes concerning women entering and being successful within the building trades. CWIT also had to overcome a lack of awareness among women of the opportunities available in the building trades. At the start of the program, CWIT lacked good promotional materials, so it had to develop new outreach materials to engage the target population.</p> <p>Engaging with Workforce Investment System. Engaging WIBs and One-Stop Career Centers was sometimes difficult (though some partnered enthusiastically), so CWIT had to take the initiative to make these partnerships happen. Some WIBs/One-Stop Career Centers feared women would find it tough to find and keep employment in construction. The state did not identify the construction trades as a critical skills shortage field, so WIBs were focusing more on other critical shortage occupations.</p> <p>Rigidity of For-Credit Educational System. The community college system tends to focus on for-credit rather than non-credit instruction. To partner on this effort, some community colleges had to overcome bureaucratic barriers to providing non-credit instruction.</p>
Columbia Gorge Community College	<p>Securing Clinical Slots. Finding clinical slots at area hospitals and health care facilities was challenging and limited the number of RNs that could be trained. The RN training component could not be expanded beyond 24 slots without additional clinical training available in local health facilities for on-the-job training. To further complicate matters, one partnering hospital was considering hiring only RNs with four-year nursing degrees (versus associate's degree RNs); this proposed change would be difficult for the CGCC nursing program, resulting in loss of clinical preceptor slots, cash/in-kind contributions from the hospital, and a potential workplace for graduating RNs.</p> <p>Insufficient Supply of Nursing Faculty. Attracting and keeping nursing faculty was a major challenge. Faculty members can often earn more working as practicing nurses, so it could be difficult to hold onto faculty.</p> <p>Inability to Collect on Pledges of Support. Several health care facilities that originally made annual pledges of cash contributions to support the health careers training programs at CGCC ran into financial constraints and so had not fully met original pledges, necessitating use of CGCC general operating funds to offset the cost of training.</p> <p>Lack of Procurement and Federal Grant Expertise. CGCC lacked on-staff expertise to set up systems to meet federal grant requirements and to effectively procure expensive equipment for the nursing simulation training laboratory. CGCC brought on a staff person to fill these roles and was able to tighten up procedures in these two important areas.</p>

TABLE 3.9: MAJOR IMPLEMENTATION CHALLENGES AMONG HGJTI GRANTEES

HGJTI Grantee	Major Implementation Challenges
Community Learning Center	<p>Change in Hiring Needs of Employers. Under the initial grant, CLC planned to provide incumbent worker training for a key employer partner but this need disappeared after the grant award. The project focus then shifted to providing aircraft assembly training for dislocated workers. Under the second grant, the employer expected to hire most of the program's graduates experienced a workforce downturn but another major employer stepped in to hire many of the newly trained workers.</p> <p>Overwhelming response to availability of training. CLC and local WIB staff were flooded with over 14,000 applications for 1,250 dislocated worker training slots after an announcement in the local press. Team members quickly developed more efficient screening procedures and selection strategies for identifying appropriate referrals to the program.</p> <p>Addressing turf issues and lack of trust among partners. As part of the development of this consortium, employers, union leaders and other partners who had not previously collaborated worked on developing mutual trust and sharing training materials and curriculum in the pursuit of common goals.</p>
High Plains Technology Center	<p>Insufficient Supply of Instructors. Finding and keeping instructors with practical experience in the oil and gas industry proved a key challenge because they could secure higher salaries at firms in the industry. In the course of the grant, five instructors left for jobs in the industry and had to be replaced.</p>
JobPath, Inc.	<p>Project Staff Turnover. Changes in key personnel at Pima Community College slowed initial progress. A lead staff person involved in the development of the biotechnology certificate program moved to another position, which resulted in the loss of some of the institutional knowledge and momentum.</p> <p>Recruitment. Enrollment in the biotechnology program was lower than expected; the college inadvertently omitted descriptions of the courses in one version of the course catalog, and the courses were scheduled during the day as opposed to evening hours, making it difficult for many students to attend. Since enrollment in these classes was low, the grant scope of work was modified to include support for students in histology and medical laboratory technician programs.</p> <p>Employer Links. JobPath expected to receive cash for internship stipends and in-kind support from TGEN, a biotechnology employer. However, because TGEN is headquartered in Phoenix, students were unwilling or unable to travel that distance for internships and, as a result, the employer support did not materialize.</p>
Louisiana Department of Labor	<p>Adverse Environmental Conditions. Hurricanes Katrina and Rita destroyed much of the infrastructure and many businesses in Louisiana's Gulf Coast region. Lack of infrastructure and slow pace of rebuilding and recovery complicated efforts to implement a wide range of training programs. Displacement of families and loss of housing contributed to difficulties in recruiting participants and at times led to attrition in training programs.</p> <p>Lost Documentation. Local contracted grantees and WIBs indicated that it was sometimes difficult to meet basic documentation requirements for enrolling individuals in training since some individuals lost identification documents as a result of the hurricanes.</p> <p>Data System Problems. Getting information into the state's data system for tracking purposes proved a burden for some contractors. For example, Delgado Community College (DCC) provided safety training for 30 to 40 offshore oil and gas workers under a contract, but could not charge it to the grant because they had not been entered into the state's system before receiving the training. This was the result of delays in getting the One-Stop Career Center staff to gather client data and enter it into the state system (i.e., DCC could not do this on its own).</p>
Miami-Dade College	<p>Securing Employer Support. The two employers tapped for major partnerships for the grant experienced situations that held up their involvement. One major partner experienced a merger at the start of the grant and was unable to move ahead with the partnership and cash contribution right away. The other expected partner had difficulties completing its facility on time, and the move was delayed. Once one partner was able to move forward and a new employer partner was recruited, activities on the grant began.</p> <p>Hiring Key Project Staff. Hiring a program manager for the grant took almost a year; grant activities moved quickly once he started.</p>

TABLE 3.9: MAJOR IMPLEMENTATION CHALLENGES AMONG HGJTI GRANTEES

HGJTI Grantee	Major Implementation Challenges
South Texas College	<p>Recruitment Challenges. It was not easy to recruit firms and their employees into the apprenticeship component - manufacturers tended to be small and mid-sized firms, which meant that it was necessary to recruit small numbers of workers from 15 to 20 local firms to meet enrollment goals. About half of those interested and nominated by firms were unable to pass the math test required for program entry.</p> <p>High Attrition. The apprenticeship component suffered from attrition rates estimated at in excess of 50-60 percent. Most attrition occurred because of company actions—layoffs; a shift to production that meant the companies could not afford for individuals to be involved in OJT-type activities; a lack of willingness to monitor OJTs or the range of work/equipment needed to meet program requirements; or promotions to management positions. Some attrition occurred due to workers losing interest in the program or being unable to attend classes because of family commitments (or other reasons); apprentices not having the math skills needed to successfully complete the latter stages of training (generally the 3rd and 4th year curriculum); and apprentices leaving their jobs.</p> <p>High Per-Participant Costs of Apprenticeship. Because class size was generally small (5 or 6 apprentices) and classes were conducted over a lengthy period it was relatively expensive to operate such programs.</p> <p>OJT Skill Requirements Not Always Easy to Meet in Apprenticeships. Because most employers in the region were small or mid-sized, the production process and equipment available did not always lend itself to apprentices gaining all skill competencies required to be well-rounded within their trade.</p> <p>Firm/Workers Increasingly Favored Customized Training Over Apprenticeships. As the initiative progressed, manufacturing firms appeared generally less interested in the longer-term commitment entailed in apprenticeship programs and more interested in sending workers to short-term, competency-based, and customized training.</p>

SOURCES: ETA GRANT AGREEMENTS, GRANTEE QUARTERLY REPORTS, AND 2007-08 SITE VISITS.

Lack of experience in federal grants management. One challenge encountered by several grantees arose because of their lack of experience managing federal grants. Some grantees found that it was more complicated than anticipated to meet federal government requirements. In addition, because of pressure to get HGJTI grants implemented quickly, staff had to proceed despite their lack of knowledge on how to manage the grant. Some grantees were confused about requirements, made mistakes early on, and in some instances, had to bring in new staff with prior federal grants management experience to ensure that they were in compliance. For example, the development of the nursing and health occupations program was “a big leap” for a small college, according to the CGCC staff. Startup was “painful at times” as the college did not have the necessary infrastructure or personnel needed to manage a federal grant of this size. Several early grantees expressed the same frustration, as noted in the first report from this evaluation. A number of the early grantees noted that ETA staff provided valuable guidance and support to HGJTI grantees during the implementation period, but also noted that they needed more technical assistance on grants management sooner.²⁴

Difficulties recruiting or retaining appropriate staff. Effective and timely implementation of HGJTI grants depended to a great extent on grantees’ ability to recruit and retain appropriate staff for the period of performance of the grant (in most cases, about two years). Several grantee administrators noted that they had difficulties recruiting and assembling staff with the expertise needed. For example, at the time of the site visit, CGCC was actively recruiting for two nursing faculty positions but was finding it difficult to find instructors who both met the college’s hiring requirements and were willing to accept a salary that was less than what they would likely earn as a practicing RN at an area hospital or nursing home. Other grantees discussed difficulties retaining staff, particularly instructors (see Box 3.10), and it was especially difficult to retain

²⁴ For additional discussion, see Trutko et al. (2007), pages 19–20.

staff as the end of the grant period approached. Continuity of staff was critical, and difficulty in hiring or retaining staff could be a particular problem when it affected leadership positions (especially a project director). For example, at MDC, hiring a program manager for the grant took almost a year; but once the project manager was hired, project startup and recruitment activities moved quickly.

Box 3.10

High Plains Technology Center: Finding and Retaining Training Instructors

The High Plains Technology Center—part of a statewide network of training centers responsible for providing instruction under this grant—indicated that its main challenge in administering its HGJTI grant was difficulty finding and keeping instructors with hands-on experience in the oil and gas industry. Since instructors could secure competitive salaries at firms in the industry (often with opportunities for much overtime to increase earnings), it was difficult to find and retain good instructors with the hands-on experience needed to provide effective instruction. During the course of the grant, five instructors had to be replaced after leaving for high-paying jobs within the oil and gas industry.

Difficulties recruiting or retaining participants in HGJTI training programs. Training programs were targeted to widely varying subpopulations across grantees. For example, some grantees targeted entry-level workers, while others recruited incumbent workers or unemployed/dislocated workers, and most recruited individuals interested in entering a specific industry. CWIT targeted women exclusively as new workers in jobs traditionally held by men. HPTC focused on bringing new workers into the oil and gas industry. At the time of the site visits, eight of nine sites reached or exceeded their goals for recruitment into training, and the ninth site (CWIT) appeared on its way to meeting its revised goal for training.

Some grantees met their enrollment goals with little difficulty. For example, CLC had experienced no problems recruiting participants for its aircraft assembler program, receiving more than 14,000 applications and accepting approximately 1,250 dislocated workers for training. Nevertheless, several grantees struggled with recruitment even if they eventually met their goals. In some places, it was difficult to generate interest from the targeted population; in others, staff learned that the pool of individuals targeted was relatively small. For example, as shown in Box 3.11, CWIT struggled to meet its enrollment goals because of inherent difficulties in overcoming lack of awareness and interest of women in a nontraditional field (such as construction), as well as a downturn in the construction industry. South Texas College experienced some challenges recruiting sufficient numbers of individuals into its apprenticeship component, partly because nominations came from local manufacturers, which tended to be small and mid-sized firms. This meant that STC could only recruit small numbers of workers from each of the firms (usually one or two workers) to fill incoming apprenticeship classes. As a result, STC needed to identify 15 to 20 local manufacturing firms to meet enrollment goals. A further complication for STC was that about half of those interested and nominated by firms for the apprenticeship training were unable to pass the math test required for program entry.

Box 3.11

Chicago Women in Trades: Addressing Challenges in Recruiting Participants

The main challenge CWIT faced was that recruitment and entry into its TOP pre-apprenticeship training program lagged behind the original schedule. The pace of construction industry hiring had slowed and was below expectations going into this project. This resulted in fewer openings in apprenticeship programs. CWIT, as a result, reduced its goals for numbers to be trained under the initiative—from 950 to 450—and lengthened the grant period of performance by one year (through a no-cost extension). In addition, in its recruitment efforts, as well as efforts to move those who completed training into apprenticeship programs, CWIT had to overcome skepticism and stereotypes concerning women entering and being successful within the building trades. CWIT also had to overcome a lack of awareness among the women of the opportunities available in the building trades (e.g., good employment prospects, high wages, fringe benefits, training, interesting/rewarding work). To address these issues, CWIT devoted significant time and resources to an extensive public relations campaign to get the word out about the construction trades.

As noted earlier, several HGJTI grantees reported difficulties retaining participants once they were enrolled in training.²⁵ Administrators and instructors noted the importance of careful early assessment to determine each candidate’s capabilities and appropriateness for training, as well as his or her inherent interests in pursuing the career at hand. For example, CWIT initiated a three-part assessment process to ensure that women who were accepted into the program were truly interested in entering the building trades and had the level of commitment needed to withstand the lengthy (up to five years) apprenticeship training process. In addition, they needed to have the physical stamina and resolve to stay in the construction trades over the long term, especially in the face of potential harassment on construction sites from other workers. To guard against attrition, CWIT made sure the women “knew what they were getting into” when deciding to enter into this field.

Tight schedule for grant completion. Most grantees worked under the constraints of having to complete the grant-funded projects within about a two-year period. As evidenced by the fact that five of nine grantees visited requested and received extensions to their grant periods of performance, the original grant periods were short considering the broad grant objectives and the often lengthy list of tasks and activities to be performed. Several administrators indicated that this time constraint was very challenging in terms of recruiting staff and participants, providing training or developing capacity-building tools, tracking participants for a reasonable

²⁵ As shown earlier in table 3.6, while over 90 percent of those enrolled in training activities completed training in three sites (CGCC, HPTC, and MDC), 86 percent completed CLC’s training, 72 percent completed training under the LDOL grant, 68 percent (through August 2007) completed training under the CWIT grant, and about 25 percent completed training under the JobPath, Inc. project. Activities were still underway at CWIT and JobPath at the time of the site visits so retention rates were likely to change.

period after training completion, and making a concerted effort to secure new resources to sustain projects once grant funds were exhausted.

Complexities of partnering with employers and other organizations. A fundamental goal of the HGJTI was to spur the formation of meaningful long-term partnerships among the workforce investment system, local community colleges and other training institutions, employers, and a range of other organizations. The discussions of the various projects in this section (and more detailed profiles in Appendix A) clearly indicate a wide range of partnering arrangements. These partnerships helped the projects by leveraging additional resources, expanding the range of training and other services, and, in some places, helping to assure sustainability after HGJTI grant resources had been expended.

At the same time, grant administrators explained that there were complexities and costs associated with collaboration. Grantees cited a number of obstacles to coordination and ongoing costs to such partnerships. Several reported difficulties engaging some area employers, either for providing hands-on training experience (e.g., through internships) or for obtaining promised cash or in-kind contributions (see Box 3.12). All grantees visited had some interaction with the workforce investment system, mainly WIBs. However, the intensity of WIB participation in grant activities varied among grantees. CWIT had mixed results in its efforts to engage the 11 WIBs and 19 One-Stop Career Centers in and surrounding Chicago for several reasons. First, WIBs and One-Stop Career Centers were not required to partner in this effort. Adding to the difficulties was the fact that the state had not identified the construction trades as one of the high-skill/high-demand sectors. In addition, CWIT was not on the eligible training provider list, and its TOP training was not offered for credit and did not lead to certification, which further complicated efforts to partner with the workforce investment system. Despite these challenges, CWIT was able to engage WIBs (and the One-Stops Career Centers) in three of the 11 counties. Similarly, CJAP reported difficulties engaging WIBs in its initiatives in the St. Louis metropolitan area and Cape Girardeau, particularly regarding referral of candidates for training for building trades and advanced manufacturing occupations.

Complexities of administering program across large geographic regions, including rural areas. Grantees were encouraged to bring together partners and initiate activities over expansive geographic regions. While some grantees limited activities to a single local workforce area (such as the HGJTI projects mounted by JobPath, Inc. and MDC), others expanded regionally. For example, CGCC served individuals across a seven-county area in Washington and Oregon, and the HPTC recruited individuals for training for entry-level floor hand jobs in the oil and gas industry across a four-state area that included all of Oklahoma, southwest Kansas, the Texas Panhandle, and western Arkansas. Staff reported that it was difficult and costly to bring together partnering organizations across large geographic areas or in remote, rural areas. In addition, multisite initiatives encountered different challenges between urban and rural areas regarding addressing transportation issues for instructors and trainees, locating training facilities in convenient areas, and recruiting and assessing potential trainees.

Box 3.12

Columbia Gorge Community College and JobPath, Inc.: Securing Matching Funds and Leveraging Resources

CGCC was able to leverage significant amounts of funding through in-kind and cash contributions from hospitals and other health care facilities. However, three health care facilities that originally pledged cash contributions to support training under the HGJTI ran into financial difficulties and were not able to meet their original pledges. Several area hospitals and nursing homes provided essential clinical internship slots for the RN and CNA training programs. One area hospital, however, recently considered hiring only RNs with four-year degrees (BSNs), which could be a blow to the Associate degree of nursing program funded (in part) under the HGJTI grant. If this key employer partner limited hiring to nurses with BSNs, the RN training program would lose sizeable numbers of clinical internships for, as well as a place where program graduates have sought employment. At the time the grant application was written, JobPath expected to receive cash for internship stipends and in-kind support from one biotechnology employer. However, because the employer was headquartered in Phoenix, students were unwilling or unable to travel that distance for internships, and that support did not materialize.

Plans for Sustainability

At the time of the site visits, all nine grant programs were still in operation, so analysis of the post-grant activities was not possible. However, all nine grantees had plans to sustain either all or part of their programs by finding new or expanding existing sources of funding and maintaining partnerships.²⁶

Development of new or expanding current funding sources. HGJTI grantees were mainly concerned with finding new or continuing existing funding sources for their programs. CGCC secured funds for the 2007–2008 academic year from foundations and area health care facilities. MDC also expected to continue its incumbent worker training program after the end of the grant with employer payments and in-kind contributions of space for training and instructors. HPTC expected to approach local employers and industry associations about providing financial support to continue the training project. Because CLC obtained certification for its aircraft assembler program from the Texas Workforce Commission Eligible Training Provider System, eligible participants were able to use ITAs for training. In addition, while CLC continued to identify other funding sources for its training programs, some employers were paying for instruction for their incumbent workers. Some training programs started by LDOL also continued with employer funding of training at the community colleges.

Other grantees were working with their state legislatures and city government to secure funding for program continuation. CWIT received \$650,000 from a newly funded \$6.2 million training program passed by the state legislature. HPTC wrote a \$768,000 proposal to the state

²⁶ See Trutko et al. (2007), pages 21–27.

legislature to continue the program after the end of the grant in November 2007. JobPath receives \$500,000 in annual funding for its training programs, and staff anticipated this would continue to support the biotechnology program. JobPath staff were also in discussions with the state workforce agency about securing additional funding.

Maintaining partnerships developed through the grant activities. According to some administrators, the HGJTI grant allowed them to build a reputation and strengthen partnerships among employers, community colleges, and the workforce investment system, which could facilitate the sustainability of the grantee or training program into the future. For example, MDC was able to build a strong reputation with local industrial pharmaceutical manufacturers as the local trainer for the industry and continued to do so with its degree program. According to employers interviewed, CGCC maintained strong working relationships with employers because the community college was able to help them hire and retain skilled health care workers that graduated from its program.

Grantees also developed important and sustainable partnerships. LDOL was able to help create new partnerships that would likely continue beyond the grant. Before the grant, community colleges and the WIA systems in Louisiana were not very involved with each other. Now, with the HGJTI grant and other grants received since the 2005 hurricanes, extensive collaboration between the two systems occurred and partnerships grew. CWIT also created partnerships with area community colleges and sought accreditation for the training program developed under the HGJTI grant.

Accomplishments and Lessons

Administrators and staff in the nine HGJTI grantees visited shared their perspectives about accomplishments and lessons from their experience. The accomplishments they highlighted included both the training and capacity-building efforts for their HGJTI projects. Their main lessons involved development of partnerships, new methods for training, staffing, curriculum development, leveraging of resources, and adaptation to changing economic conditions.

Grantee accomplishments. All grantees cited more than one accomplishment of their HGJTI project, as summarized in Table 3.10.²⁷ Some grantees indicated that one key accomplishment was the number of people they trained. CGCC provided training to more than 600 individuals to help alleviate nursing and first responder/EMT shortages within the region. MDC exceeded its goal of 918 individuals completing its incumbent worker programs and continued to expand the number of participants as the grant continued.

Other grantees indicated that the level of success experienced by their training graduates was a major accomplishment. CWIT trainees who secured an apprenticeship after completing the pre-apprenticeship program were able to raise their hourly wage to an average of \$17.62, which it was anticipated to increase as they progressed through their apprenticeship training. HPTC trainees were able to improve their employment prospects in the upstream oil and gas

²⁷ This section is based on grantee interviews and quarterly reports to ETA and provides a summary of the grantees' accounts of their accomplishments. See Section IV for results of statistical analysis of the impacts of training on individuals in selected grantee projects.

industry. For example, floor hands were able to earn \$14–\$18 an hour and could be promoted to derrick hands who earned around \$26 an hour.

While the training accomplishments could be measured by the number of individuals completing training, job placement, and wages, capacity-building accomplishments named by the grantees were often less tangible. CWIT staff said that they were able to expand the knowledge of building trades among the target population, low-income women, as well as increase awareness among workforce investment professionals that women were an untapped source of potential workers for apprenticed jobs in the construction industry. HPTC staff noted that they brought new workers into the upstream oil and gas industry, and employers gave positive feedback about the trainees they hired.

Grantees often cited the partnerships they established as major accomplishments. For example, LDOL indicated that the HGJTI grant enabled the local WIBs to work closely with both employers and the community college system. MDC staff also indicated that they were able to develop strong partnerships with employers in an emerging industry that would keep the incumbent worker training program operating in the future.

Other capacity-building accomplishments were more concrete, such as curriculum development and the establishment of career ladders and training programs. Three grantees (CGCC, HPTC, and MDC) named curriculum development as one of their major accomplishments. Three grantees (CGCC, CLC, and MDC) also mentioned their ability to use new technologies to deliver the training curricula as an accomplishment. In addition, two of the grantees (CGCC and JobPath) indicated they were able to create new career ladders in their industry of focus.

TABLE 3.10: HGJTI GRANTEES' VIEWS ON KEY ACCOMPLISHMENTS

HGJTI Grantee	Perceptions of Key Accomplishments by Type of Activity	
	Training	Capacity Building
Carpenters Joint Apprenticeship Program	<ul style="list-style-type: none"> • Various training components prepared skilled workers to meet staffing needs of area employers to help retain high-tech manufacturing, engineering, and construction businesses and to support expansion and new business development in these sectors • This effort provided participants with portable credentials and linked training efforts to community colleges so that individuals receiving training also received some academic credit towards achieving an Associate degree • Emphasis was placed on incorporating Work Keys into the training, so that workers could verify attainment of basic skills competencies in math, reading, and other areas 	<ul style="list-style-type: none"> • Expanded involvement of employers in recruitment of workers for training and in terms of gaining input for training curriculum through formation of Regional Industrial Training Groups • "Project Lead the Way" train-the-trainer initiative improved teaching capabilities of high school teachers from eight school districts in St. Louis so that they could better prepare students for entry into apprenticeship and other post-secondary education programs
Chicago Women in Trades	<ul style="list-style-type: none"> • Success of those completing the program in passing apprenticeship entrance tests and securing an apprenticeship • Increased the hourly wage of trainees who enter into apprenticeship to an average of \$17.62 	<ul style="list-style-type: none"> • Expanded knowledge of the building trades of low-income women • Created much greater awareness within the workforce investment system of the job opportunities in construction and in apprenticeship
Columbia Gorge Community College	<ul style="list-style-type: none"> • Provision of high-quality training to more than 600 individuals 	<ul style="list-style-type: none"> • Alleviated shortages of RNs and CNAs within the region • Developed a local health care occupations program to train local residents for local jobs • Created a viable health care career ladder • Installed the simulation laboratory, which has become a recognized center for providing health care training in the region • Created and upgraded curriculum for its CNA, RN, and other health career training programs
Community Learning Center	<ul style="list-style-type: none"> • Because employers were involved in curriculum design and certification standards, employers had confidence in skill levels of graduates • Training provided participants with specific knowledge not only about occupational skills but also about work habits, punctuality, and attendance 	<ul style="list-style-type: none"> • Developed and demonstrated success of industry-driven workforce development collaboration of employers, organized labor, higher education and public and private agencies for reducing shortages of qualified workers • Developed a new employer-focused training curriculum specifically designed to meet the needs of area aerospace employers • Created a simulated factory training site that replicates the "real-world" factory environment
High Plains Technology Center	<ul style="list-style-type: none"> • Good employment prospects for those trained 	<ul style="list-style-type: none"> • Brought new workers into the oil and gas industry • Received positive feedback and support from employers on the program • Developed curriculum and other materials that are being replicated in other locations

TABLE 3.10: HGJTI GRANTEES' VIEWS ON KEY ACCOMPLISHMENTS

HGJTI Grantee	Perceptions of Key Accomplishments by Type of Activity	
	Training	Capacity Building
JobPath, Inc.	<ul style="list-style-type: none"> Success of current graduates in job placement and receipt of higher wages 	<ul style="list-style-type: none"> Has been very successful in interesting youth in biotechnology Developed a career ladder in the biosciences
Louisiana Department of Labor	<ul style="list-style-type: none"> Initiated training programs through 26 contracts in high-demand occupations critical to supplying manpower to recovering businesses 	<ul style="list-style-type: none"> Helped area businesses address the immediate needs for workers and avoid closing down Enabled WIBs to work closely with both employers and the community college system
Miami-Dade College	<ul style="list-style-type: none"> Exceeded its goal of 918 completers and will continue to expand the number over the next year 	<ul style="list-style-type: none"> Developed partnerships with employers and industry in an emerging industry Created new curricula and was able to customize them to employer needs Used new technology to deliver training Success of the training program has helped to build the credibility of the grantee
South Texas College	<ul style="list-style-type: none"> Exceeded enrollment goals on three training components Those completing apprenticeships were largely successful in boosting wages and moving to highly skilled positions Employer shortages of machinists, equipment maintenance technicians, and plastic processing technicians were eased HGJTI grant helped in gaining a WIRED grant, and the focus under the WIRED grant remained on building skills of incumbent workers in manufacturing firms and bringing new pools of workers into high wage/high skills jobs in manufacturing 	<ul style="list-style-type: none"> Created new curricula and was able to customize them to employer needs New equipment was acquired for STC's machine shop Career Pathway program and other efforts to publicize careers in advanced manufacturing in recent years have helped to build up enrollment in the STC's Precision Manufacturing Technician (PMT) associate degree program; enrollment in that program has increased six-fold (from 20 to 120 students) since 2000.

SOURCES: ETA GRANT AGREEMENTS, GRANTEE QUARTERLY REPORTS, AND 2007-08 SITE VISITS.

Lessons from HGJTI grantees. The nine grantees were asked to share the lessons they learned through their implementation experiences. These lessons were somewhat similar to those reported by the early implementer grantees interviewed in June 2006.²⁸

- Employers were important partners in implementing all aspects of an industry-driven project.** Overwhelmingly, grantees indicated that employers were the key to the success of these projects. Employers played a critical role in securing funding and other resources; providing advice and feedback on curriculum and training program design; developing career awareness in a particular industry; providing on-the-job training or internships; helping recruit or provide employees as instructors; and hiring trainees after completion of training. In addition, grantees indicated that

²⁸ For example, while they similarly mentioned similar lessons learned regarding to forging partnerships and project startup and design issues, unlike those grantees interviewed for the early implementers study, the nine grantees did not experience challenges in reaching and recruiting trainees or on meeting federal requirements. See Trutko et al. (2007), pages 9–20.

the earlier employers were engaged in project activities, the more invested they became.

- **New training technologies should be explored and used to provide better training delivery mechanisms.** Some grantees used new technology to deliver training. For example, CLC developed a virtual factory training facility for contextual hands-on instruction that replicated the LMAC factory floor, with actual workstations and time clocks as well as tools, equipment, and supplies, mostly donated by employers. CGCC project staff developed and built and designed scenarios for a simulation laboratory that provided clinical experiences for students. MDC used its Virtual College to develop online training for good documentation practices in biomanufacturing so that the instructor could reach more trainees without having to leave his office.
- **Implementing a project from scratch required a longer start-up period.** Grantees that had elements of their program in place had a smoother and quicker start-up period than those that created totally new programs. Slower implementation of HGJTI programs usually occurred because new training tools such as curricula took time to develop and refine, recruitment procedures were untested and had to be adjusted, and garnering support from new business and other partners was labor-intensive and affected by economic cycles. Of the grantees that had new programs (CGCC, CLC, JobPath, and MDC), all had to spend a significant amount of time building relationships with employers and other partners. New curricula and recruitment tactics also took time to refine.
- **Hiring key project staff with knowledge of the industry and of federal grants made implementation easier.** Several grantees indicated that having the right staff in place made the project run more smoothly. For CGCC, their key project staff included two former nurses as instructors that knew both the health care industry and the standards to which the curriculum would be held by state boards. MDC was able to move quickly on its grant activity startup once it hired a project director who had operated similar government-funded training programs. CLC hired retired union members with recent experience in the aerospace industry to act as mentors for the hands-on instruction components of their training program.
- **Instructors from the industry were needed, but could be difficult to retain.** Two grantees reported that instructors currently or formerly employed in the industry of focus were necessary, but that they were often lured away for higher wages. Many HPTC instructors with experience as floor hands and derrick hands were enticed by employers to work for them for better wages. CGCC had difficulty hiring enough instructors because the wages provided by employers were much higher than the college could offer.
- **Projects needed to be flexible to respond to changes in the external environment.** MDC and CWIT had to respond to changing conditions to ensure that their projects would be relevant. Prior to the grant award, MDC secured an employer partner that was moving to the area and needed workers. However, the employer's move was

delayed and new employers had to be recruited to participate in the incumbent worker training program to keep the project going. CWIT faced a downturn in the regional construction industry and found it necessary to reduce its training goals, but it then intensified the preparation of the trainees to ensure that they were able to pass their exams to obtain the “harder to come by” apprenticeship slots.

- **Resource and cash contributions, especially from employers, were difficult to collect, even though there was a commitment in place.** Several grantees reported having to adapt their funding strategies when partners that promised cash and in-kind contributions as a part of their required match in the grant application were then not able to fully live up to that commitment. Grantees found that employers were often not able to fulfill their financial commitments due to changing economic conditions or changes in organizational structure and priorities. For example, MDC, JobPath, and CGCC recruited new employer contributors to the project or relied more heavily on current contributors to make up the difference.
- **Providing hands-on training components was important to replicating the actual work experience.** Many grantees indicated that their on-the-job training, internships, and simulation training contributed substantially to the success of their training programs. The simulation laboratory developed by CGCC helped to provide the required training for the nursing program that assisted students to gain hands-on experience prior to entering the clinical setting. According to the grantee staff, the internships provided to JobPath’s biotechnology students were imperative to earning their certificate and providing necessary work experience for their resume. CLC’s staff indicated that the virtual factory was also a key component of their training program because it simulated the actual work experience.

IV. EARLY IMPACTS OF JOB TRAINING ACTIVITIES

The previous chapter described the nine grantees included in the implementation analysis and the types of activities they carried out with HGJTI funds, including both capacity-building efforts and job training. This chapter presents results of analyses of the impacts of job training on individual trainees' earnings in a subset (five) of these grantees:

- Carpenters Joint Apprenticeship Program (CJAP) in Missouri
- Chicago Women in Trades (CWIT) in Illinois
- Columbia Gorge Community College (CGCC) in Oregon
- Community Learning Center (CLC) in Texas
- Lower Rio Grande Workforce Development Board/South Texas College (STC) in Texas

The analytic question addressed by the impact analysis was: what short-term effect does HGJTI grant-funded job training have on participants' earnings relative to a comparison group of workers who did not receive the HGJTI training? Short-term is defined as two quarters (and longer when data are available) after enrolling in training.²⁹ To answer the research question, nonexperimental analytic methods—propensity score matching (PSM) and regression discontinuity design (RDD) methods—were used. Nonexperimental methods were used because the evaluation was being conducted retrospectively; all grant-funded projects were operational before the start of the evaluation, and no provisions for randomly assigning individuals to treatment or control groups were made in the planning process. This strategy required the creation of comparison groups established after the fact to estimate program impacts.

The five training projects included in this analysis were selected based on criteria necessary to conduct the nonexperimental analysis. These requirements were:

- Programs must provide occupational training that is directly related to a job in a specific industry because then a causal link between the treatment and intended short-term employment and earnings outcomes can be theoretically made;
- Programs must enroll an adequate number of participants to obtain statistically significant impact estimates of program effectiveness;
- Evaluators must be able to identify a pool of individuals who do not receive the training that can be reasonably compared to the training participants; and
- Reliable individual-level data reflecting the demographic and socioeconomic characteristics expected to affect participation in training programs and earnings for training participants and individuals in the comparison group must be available.

²⁹ A quarter is defined as three months of a calendar year. For several of the sites, the longest follow-up period that can be analyzed is two quarters after program entry, given the timing of the projects and the schedule for the evaluation.

Identifying HGJTI grantees that have job training projects that met all of these requirements was a challenge for a number of reasons. As discussed in earlier chapters, some grantees used the funds to design and develop new curricula or instructional models, to focus on increasing the pipeline of individuals who might pursue a particular occupation, or to implement other capacity-building activities. Thus, not all grantees provided occupational job training. For those that had training, the number of participants who received it varied greatly, and many grantees did not have an adequate number of trainees to obtain statistically reliable estimates of outcomes (i.e., more than 300).³⁰ Finally, not all grantees provided training that was intended to increase employment and training outcomes in the near term. For example, the intended outcomes for the programs targeting youth were awareness and interest in the occupation and the development of preliminary skills to enter into occupational training.

While the five sites selected best met the requirements for the analytic methods used in this component of the study, the sample of sites was not ideal. In particular, it would have been preferable to include projects that operated at a larger scale because statistical findings are more precise when they are based on programs that serve a larger number of participants.

Two nonexperimental analytic approaches—propensity score matching (PSM) and regression discontinuity design (RDD)—were used to estimate the impact of training on individual earnings. In PSM, the program participants and individuals who did not receive the treatment of interest were pooled, and the probability of enrolling in the treatment (called the propensity score) was estimated as a function of the individuals’ characteristics such as age, education, sex, and prior earnings. The propensity score was then used to construct a comparison group from nonparticipants that was as similar as possible to the treatment group.

The second approach employed for this analysis was regression discontinuity design, which can be used when selection into a program is based on a particular screening variable, such as a test score in mathematics or reading. If there is a specific test score that has a substantial effect on program enrollment, then program impact can be estimated by comparing the outcome variable immediately above and below the cutoff score. In only one site, CLC, was RDD used to estimate training impacts.

Each grantee project was analyzed separately, using one or both of these analytic approaches, depending on the procedures used to enroll individuals into training, the type of comparison group that could be created, and the availability of data. The analytic design, rationale, and statistical modeling techniques used are described in detail in Appendix B (for the methodology) and Appendix C (for each of the site-specific analyses).

One of the most critical dimensions of nonexperimental analysis was how the appropriate comparison group was identified. In this study, the comparison groups consisted of either

³⁰ A sample of 300 trainees and 300 comparison group members would be able to provide statistically significant estimates of the impact on earnings of \$1,273 per year with 80 percent power using a one-tail test with a 10-percent significance level assuming a standard deviation of earnings of \$7,000. The earnings gains of \$1,273 are the size of earnings gains found in the National Job Training Partnership Act Study converted to 2009 dollars. For a discussion of these issues, see Howard S. Bloom (1995). “Minimum Detectable Effects: A Simple Way to Report the Statistical Power of Experimental Designs.” *Evaluation Review* 19:5, 547-556.

individuals who applied but did not participate in the projects or individuals who were enrolled in the local WIA programs at a One-Stop Career Center. In the sites where WIA enrollees constituted the comparison group, receipt of HGJTI training was compared to WIA services; in the sites where nonparticipants comprised the comparison group, receipt of HGJTI training was compared to no training or the services training applicants received or sought out when they did not enroll in the HGJTI program. Both approaches are appropriate, but they answered different evaluation questions. The separate analyses for each site and the comparison groups used are provided in detail in the appendices.

Table 4.1 lists the HGJTI grantees included in the impact analysis and the industry on which the grantees’ training project focused and indicates which of the two analytic methods was used for each project, and the types of comparison groups drawn for the analysis.

TABLE 4.1: HGJTI GRANTEES SELECTED FOR NONEXPERIMENTAL ANALYSIS BY ANALYTIC METHOD AND COMPARISON GROUP (PROPENSITY SCORE MATCHING AND REGRESSION DISCONTINUITY DESIGN)

Grantee	Industry	Analytic Method(s)	Comparison Group(s)
Carpenters Joint Apprenticeship Program	Construction/Advanced Manufacturing	PSM	WIA Participants
Chicago Women in Trades	Construction	PSM	Training Project Nonparticipants
Columbia Gorge Community College	Health Care	PSM	WIA Participants
Community Learning Center	Aerospace	PSM RDD	WIA Participants (PSM) Training Project Nonparticipants (RDD)
Lower Rio Grande Valley Workforce Development Board/ South Texas College	Advanced Manufacturing	PSM	WIA Participants

A. Descriptions of the Selected HGJTI Training Programs and Trainee Characteristics

The training projects sponsored or operated by the five grantees represent different types of training, industry focus, and target populations, as summarized in Table 4.2. One is a pre-apprenticeship program, one is a formal registered apprenticeship program, and three are vocational training programs in which participants earn a credential. The length of the programs ranges from less than 200 hours to over 6,000 hours. By far, the STC apprenticeship training for advanced manufacturing occupations is the longest of the five programs analyzed, taking three to four years for participants to complete.³¹ Three of the projects target their training on workers

³¹ In apprenticeship programs, the apprentices are employed and learn skills on the job and in related instruction (i.e., classroom training). Full details on the sites’ training activities are presented in Table 3.5 of this report.

new to the high-growth industry and on dislocated workers, CWIT recruits only women as participants, and STC recruits only incumbent workers.

TABLE 4.2: GENERAL CHARACTERISTICS OF HGJTI TRAINING PROGRAMS INCLUDED IN THE NONEXPERIMENTAL ANALYSIS

Grantee (and industry)	Training Program Analyzed	Length of Training	Area and Target Population	Training Project Years in Operation	2007 Unemployment Rate
Carpenters Joint Apprenticeship Program (Construction)	Training to earn credentials for occupations in the construction manufacturing trades	360 hours	Workers new to the industry and dislocated workers in the St. Louis and southeastern Missouri region	2006-2008	5.3% (St. Louis MSA) 4.4% (Cape Girardeau-Jackson, MO-IL MSA)
Chicago Women in Trades (Construction)	Pre-apprenticeship training in the construction trades	170 hours	Women in the Chicago metropolitan area	2003-2008	4.9% (Chicago MSA)
Columbia Gorge Community College (Health Care)	Certified nursing assistant training	160 hours	Workers new to the industry and dislocated workers in the Columbia Gorge region of Oregon and Washington	2004-2008	5% (Wasco County, OR)
Community Learning Center (Aerospace)	Training in aircraft assembly	200 hours	Workers new to the industry and dislocated workers in the Dallas-Ft. Worth metropolitan area	2001-2007	4.3% (Dallas-Ft. Worth-Arlington MSA)
Lower Rio Grande Valley WDB/South Texas College (Advanced Manufacturing)	Apprenticeship training in industrial maintenance, tool and die, machinist, and plastics process technician	624-800 classroom hours and 6,000-8,000 on-the-job training hours	Incumbent workers employed at manufacturing firms in the southwestern Texas region	2001-2008	6.6% (McAllen-Edinburg-Mission MSA) 6.0% (Brownsville-Harlingen MSA)

SOURCES: ETA GRANT AGREEMENTS, GRANTEE QUARTERLY REPORTS, 2007-08 SITE VISITS, AND BUREAU OF LABOR STATISTICS.

In addition, the training programs differ in terms of how long they have been in existence. Some programs began before the HGJTI grant was awarded, such as STC and CLC, while others started training more recently, such as CJAP. Finally, the projects are in different economic environments, with unemployment rates ranging from 4.3 to 6.6 percent in 2007, when evaluators visited the majority of the sites.

Each of the training programs included in the nonexperimental analysis generally meets the criteria necessary for the application of nonexperimental methods, as described above. It is important to note, however, that the five grantees implemented other training projects that are not included in the statistical analysis for various reasons. For example, the Certified Nursing Assistant (CNA) program in the CGCC site was selected for analysis because it had an adequate number of participants, but the Associate's Degree of Nursing (ADN) program cannot be included because there were too few participants. The ADN program also represents a higher

level of training, so it would be inappropriate to combine the ADN and CNA programs for analysis.

The characteristics of the individuals trained as part of the HGJTI are not similar across grantees. Data obtained from grantees (and is used in the analysis presented in the following sections) are presented in Table 4.3. CWIT only trained women, and a large majority of CGCC participants were female, while CJAP and STC served mostly or exclusively male participants. The average age tends to be in the early thirties for most programs but CLC trained older participants. There are also differences in the racial and ethnic make-up of the participants served by the programs. The majority of CJAP enrollees were of African American, CGCC had a white majority, CWIT and CLC served a mix of African American and Hispanic participants, and STC had only Hispanic participants. In the sites where education data were available, most participants had at least a high school diploma or general equivalency degree (GED).

TABLE 4.3: CHARACTERISTICS OF TRAINEES (AT ENROLLMENT) IN TRAINING PROGRAMS IN THE IMPACT ANALYSIS

Characteristics of Trainees	Grantee				
	Carpenters Joint Apprenticeship Program (St. Louis, MO)	Chicago Women in Trades (Chicago, IL)	Columbia Gorge Community College (The Dalles, OR)	Community Learning Center (Forth Worth, TX)	Lower Rio Grande Valley WDB/South Texas College (McAllen, TX)
Gender					
Female	11.2%	100.0%	87.7%	63.4%	0%
Male	87.8%	0.0%	12.3%	35.8%	100%
	Missing: 1.0%			Missing: 0.8%	
Median Age	33 years	32 years	31 years	42 years	Not available
Race/Ethnicity					
African American/Non Hispanic	74.7%	52.2%	0.9%	32.2%	0%
White/Non Hispanic	0.8%	20.6%	86.8%	12.9%	100%
Hispanic	21.0%	19.3%	4.6%	48.1%	0%
Other	4.4%	7.9%	4.6%	6.8%	0%
Education					
Less than High School	7.6%	14.1%	1.8%	No education data available	No education data available
High School Diploma or GED	38.7%	31.0%	98.2%		
Post-Secondary Education	13.4%	39.2%	(It is not known how many HS graduates had post-secondary education)		
Unknown	40.3%	15.7%			
Number Trained in HGJTI	367	524	219	951	270

SOURCES: ETA GRANT AGREEMENTS, GRANTEE QUARTERLY REPORTS, 2007-08 SITE VISITS, AND GRANTEE DATABASES.

Because these five programs varied significantly in terms of their target population and training models, a cross-site analysis (combining impacts across the five sites) was not appropriate. In the next section, the results of the statistical analyses of impacts are presented separately for each of the projects.

B. Findings from the Nonexperimental Analysis of HGJTI Earnings Impacts

This section summarizes the results of the nonexperimental analyses. (More detail on each of the analyses is provided in Appendix C.) As discussed above, all sites were analyzed using propensity score matching to estimate the impact of the HGJTI-funded program on training participants, and in one site, CLC, a regression discontinuity design was also used. Both analytical strategies are described in detail in Appendix B.

Propensity score matching was employed to create groups of individuals to compare to the treatment group (HGJTI-funded training participants) and estimate the impacts. PSM takes into account how the treatment and comparison groups differ on observable characteristics. The estimated probability of enrolling in the training program based on known characteristics, called the “propensity score,” was calculated for each case.³² This propensity score was then used in the impact analysis to account for the differences in observed characteristics between the treatment and comparison groups. Three different PSM strategies were used to create the comparison groups:

- ***Nearest neighbor matching.*** In this approach, each treatment case is matched with one or more comparison group cases based on the closeness of the propensity score. With one nearest neighbor, the comparison group member with the closest propensity score to the treatment group member is matched; with five nearest neighbors, the five comparison group members with the closest propensity scores to a treatment group member are matched to that treatment group member.³³
- ***Odds ratio weighting.*** This approach uses all members of the comparison group, but members of the comparison group are weighted differently, with a comparison group member’s weight calculated as the odds of the estimated probability of participating, $P/(1-P)$, where P is the estimated propensity score for the member.
- ***Kernel density matching.*** This is a more complex procedure than the others. For each treatment group member, for a region of propensity scores around his or her observation (called a bandwidth), the comparison group observations receive weights that depend on the proximity of the scores and the assumed shape of a probability density function (referred to as a kernel density function) for the likelihood of program participation.

As only one site, CLC, had a participant selection procedure that allowed for use of a regression discontinuity design to estimate the impacts, a short description of that method is provided in the CLC-specific analysis section below, and more detail is contained in Appendix B.

Three different approaches were used to determine the impact of each HGJTI-funded program on real (inflation-adjusted) earnings of participants,³⁴ compared to either a group of

³² Propensity scores were calculated by estimating a logistic regression model predicting treatment status, and controlling for the observable characteristics of the sample.

³³ The strategy used is called sampling with replacement. In sampling with replacement, the same individual in the comparison group pool may be matched to more than one member of the treatment group. The alternative, sampling without replacement, only permits a comparison group pool member to be matched to a single treatment group member.

³⁴ All earnings data are presented in 2008 dollars.

WIA core and/or intensive participants or a group of applicants to the program, in the case of CWIT and for one of the CLC analyses. These three estimation strategies were:

1. The difference in mean real earnings between the treatment group and the comparison group for two quarters furthest out from the quarter of program entry (or more, if possible);
2. The difference in differences between real mean earnings for two quarters furthest out from the quarter of program entry (or more, if possible) and the fifth and sixth quarters before entering training. That is, the earnings change for the treatment group from the fifth and sixth quarters prior to training to the quarters after training minus the earnings change for the comparison group for the same period; and
3. The difference in differences between real mean earnings for two quarters furthest out from the quarter of program entry and the seventh and eighth quarters before entering training.

In the first approach, the estimated treatment effect was simply the difference in earnings between the treatment and comparison groups in the two quarters following the quarter in which the training occurred.³⁵ The second and third approaches, using a “difference in differences” approach, were slightly more complex. In these estimations, the change in real earnings from a pre-program period to the post-program period was calculated for both the treatment and comparison groups; then, the change in earnings for the comparison group was subtracted from the change in earnings for the treatment group. Regression-adjusted earnings estimates were also provided.³⁶ Finally, impact estimates on the employment of the participants were calculated.³⁷

To assess if these propensity score strategies adequately corrected for the differences between the treatment and comparison groups, two balancing tests—a t-test and a standardized bias test—were used. The balancing tests provided evidence on whether the propensity score matching leads to treatment and comparison groups that were well matched. For results of these balancing tests on the three matching strategies and their variations, please refer to the tables in Appendix C.

The major findings from the analysis of each of the five programs are described in the sections below, and the detailed methodologies and statistical techniques used are provided in Appendix B. In addition, tables with the full results of the analysis for each training program are provided in Appendix C.

³⁵ The quarter in which individuals entered the program is excluded when estimating post-program earnings.

³⁶ The regression-adjusted estimation model controls for the observed characteristics included in the propensity score estimation. Standard errors are estimated with bootstrapping to account for the error introduced by estimating the initial propensity score.

³⁷ As the results of the employment models generally are used to identify patterns in the earnings estimates, the employment estimates are not reported in the text but can be found in the Appendix C.

Carpenters Joint Apprenticeship Program

The training component of the Carpenters Joint Apprenticeship Program (CJAP) provided recent high school graduates, entry-level workers, and recently unemployed adults in the St. Louis and Cape Girardeau regions of Missouri with portable credentials in construction and manufacturing. This eight-week training program, which operated in 2006-2008 with funding from the HGJTI grant, also linked trainees to community colleges so that they could receive academic credit towards an Associate's degree. (See Appendix A for a description of the training program.)

While CJAP had 367 participants in the training program, complete data, including social security numbers, start dates, and a sufficient number of quarters with earnings, were only available for 209 individuals. Thus, the analysis sample was limited to 209 observations. Based on descriptive data alone (shown in Table C.1 of Appendix C), the CJAP participants experienced an increase in employment levels from the pre-program period to the post-program period. Prior to the program, employment levels in each quarter ranged from 45.9 percent to 51.6 percent and increased to 62.6 percent to 64.5 percent in the two-quarter post-program period. This improvement in employment levels was matched by a similar increase in earnings. In the pre-program period, CJAP participants' average quarterly earnings ranged from \$1,286 to \$1,897. Average quarterly earnings increased to over \$2,400 in the two post-program quarters.

To determine whether CJAP training had an impact on participants, a comparison group was created from WIA participants in the St. Louis area. This sample was drawn from individuals who enrolled in the WIA Adult and Dislocated Worker programs at the local One-Stop Career Center in 2006-2008, but did not participate in any WIA job training.³⁸ Only males were selected from this WIA population, since nearly all CJAP participants were male.³⁹ Propensity score matching was used to weight the males in the WIA sample so that they were comparable to the CJAP sample on observed characteristics, including age, race, and pre-program employment and earnings history.⁴⁰

The WIA comparison group experienced employment trends that were comparable to the CJAP participants. (Detailed descriptive statistics on the unmatched comparison group are shown in Table C.1 in Appendix C.) In the eight-quarter pre-program period, employment rates ranged from 61.1 percent to 66.8 percent. Employment rates in the post-period were 77.3 and 72.7 percent in the first and second quarter, respectively. However, unlike the CJAP participants, no earnings growth was observed for the WIA comparison group. In the eight quarters prior to WIA participation, the average quarterly earnings of the comparison group ranged from \$3,429 to \$4,931. Earnings in the post-period remained within the boundaries of pre-period earnings, ranging from \$4,439 to \$4,601.

The impact estimates using PSM are presented in Table 4.4, and the full results using these estimators are provided in Appendix C, Figure C.1 and Tables C.8-C.14, comparing the CJAP trainees to the WIA comparison group.

³⁸ See more detail on the rationale for the development of the comparison groups in Appendix B.

³⁹ The few female participants in CJAP were dropped from the analysis.

⁴⁰ In the nearest neighbor approach, most members of the comparison group pool receive a weight of zero in the analyses as only the nearest neighbor(s) receive any weight.

TABLE 4.4: IMPACT ESTIMATES OF CJAP PROGRAM ON QUARTERLY EARNINGS, TWO CUMULATIVE QUARTERS AFTER THE QUARTER OF ENTRY INTO THE PROGRAM, COMPARED TO WIA NON-TRAINEES

Matching Strategy	Difference in Means		Difference in Difference (compared to 5 and 6 quarters preprogram earnings)		Difference in Difference (compared to 7 and 8 quarters preprogram earnings)	
	Unadjusted Treatment Effect	Regression-Adjusted Treatment Effect	Unadjusted Treatment Effect	Regression-Adjusted Treatment Effect	Unadjusted Treatment Effect	Regression-Adjusted Treatment Effect
Nearest Neighbor, 1	-\$1,491.47** †† (-2.2768)	-\$657.27 †† (-1.0553)	-\$1,262.64 †† (-1.5947)	-\$740.92 †† (-1.1787)	-\$999.19 †† (-1.2828)	-\$293.28 †† (-0.4343)
Nearest Neighbor, 5	-\$1,267.51** †† (-2.2539)	-\$535.00 †† (-1.0996)	-\$1,104.71* †† (-1.8284)	-\$597.21 †† (-1.2872)	-\$1,057.79* †† (-1.7693)	-\$395.54 †† (-0.74)
Kernel, 0.02 bandwidth	-\$1,464.75** †† (-2.0504)	-\$469.42 †† (-1.0535)	-\$1,114.35 †† (-1.4243)	-\$565.87 †† (-1.2142)	-\$1,027.93 †† (-1.3376)	-\$435.29 †† (-0.8838)
Kernel, 0.08 bandwidth	-\$2,242.57*** (-3.7269)	-\$446.06 (-0.9820)	-\$382.62 (-0.5888)	-\$513.78 (-1.0929)	-\$276.72 (-0.4338)	-\$345.93 (-0.6816)
Odds Ratio Weighting	-\$2,425.03*** (-7.3225)	-\$690.39 (-1.3541)	-\$1,642.93** (-4.0509)	-\$656.12 (-1.1690)	-\$1,562.26*** (-4.1875)	-\$440.95 (-0.7625)
t statistics noted in parentheses	*** statistically significant at the .01 level ** statistically significant at the .05 level * statistically significant at the .10 level		† Matching strategies passed the two-sample t-test (at the 0.10 level) †† Matching strategies passed both the t-test (at the 0.05 level) and standardized bias test (score of 20 or less).			

SOURCE: DATA FROM CJAP, UNIVERSITY OF MISSOURI AT COLUMBIA, AND MISSOURI DEPARTMENT OF LABOR AND INDUSTRIAL RELATIONS.

The analyses suggest that CJAP may lower trainee earnings in the first two quarters after training, relative to WIA non-trainee earnings. All impact estimates showed a negative impact on earnings, and roughly a third of these negative impacts were statistically significant.⁴¹ In the difference in means estimates (columns 2 and 3) provided by the matching strategies that passed the PSM balancing tests, the mean unadjusted impact of the CJAP program ranges from -\$1,491 to -\$1,267 in the two quarters after the quarter they enter the program, all of which were statistically significant. The regression-adjusted difference in means provides a less negative impact, ranging from -\$657 to -\$469, although none of these estimates are statistically significant.

The treatment effects for the two difference-in-differences frameworks (columns 4-7) for the successful matching strategies provide a similar range of estimates as the difference in means estimates. However, fewer of these estimates are statistically significant. When the difference in difference estimates are calculated using the fifth and sixth quarters before entering the program, the treatment effect ranged from -\$1,262 to -\$1,104, and -\$740 to -\$565 for the regression-adjusted models. When the difference in difference estimates are calculated using the seventh

⁴¹ Several of the statistically significant negative effects appear in models using matching strategies that passed both balancing tests (indicating a good propensity score match between the treatment and control group, approximating random assignment). Of all the matching strategies used, the nearest neighbor matches and the kernel matches with the narrowest bandwidth perform the best on the balancing tests.

and eighth quarters before entering the program, the effect ranges from -\$1,057 to -\$999 for the unadjusted estimates, and -\$435 to -\$293 for the regression-adjusted models. The only statistically significant impact estimate from these models was an impact of -\$1,057.⁴²

The analyses suggest that the impact of the CJAP program in the first two quarters after program entry may be negative. All matching strategies and estimators produced negative impact estimates, albeit with varying match qualities and statistical significance. No model showed that CJAP improves participant earnings relative to the matched WIA non-trainee comparison group. While the treatment sample was of moderate size (209 participants), the success of many of the matching strategies and the availability of statistically significant impact estimates indicates that increased sample size may provide more statistically precise estimates, but would not qualitatively change the results. However, using a longer-term follow-up period may yield different impacts for the CJAP program. In addition, there may be important unobserved differences between CJAP participants and WIA non-trainees that could not be held constant by a matching strategy dependent on observable characteristics, although the impact that these unobserved differences would have on the treatment effect was unclear.

Thus, there was some evidence from the nonexperimental analysis suggesting that CJAP participants had lower earnings in the period immediately following training, relative to a well-matched sample of WIA non-trainees. Even if the findings indicated the comparison group had higher earnings than the CJAP group, they did not necessarily mean that the CJAP program decreased earnings relative to no training, but rather relative to WIA non-training services; some in the comparison may have received training elsewhere, but that information was not known.

Chicago Women in Trades

From 2003-2008, Chicago Women in Trades (CWIT) operated a pre-apprenticeship program in the construction trades using the HGJTI grant. The program was intended to help women master the basic skills needed to enter traditionally male-dominated apprenticeship programs. The 12-week training program provided instruction in math, job readiness, and physical conditioning, as well as experiential learning at construction worksites. To be eligible for the program, the applicants were required to take the Test of Adult Basic Education (TABE), which measures basic math and reading skills; take a physical agility test that includes jumping jacks, sit-ups and tests of ability to lift and carry heavy weights; and participate in a 30-minute “discussion of interest” in-person interview led by a CWIT staff member and a representative of the industry (e.g., an employer or union representative). (See Appendix A for a description of the training program.)

CWIT collected data on all participants and applicants to the program, including Social Security Numbers, participant start dates, application dates, and demographics (race, age, and high school completion status). Program data and earnings data for a sufficient number of quarters were available for 941 individuals. Of these 941 applicants, 337 enrolled in training, while 604 applied but did not enroll. Over the ten-quarter period examined, the mean

⁴² Overall, the kernel density matching strategy and the odds ratio strategy provided results that are greater in magnitude and more statistically significant than the nearest neighbor estimates, but these matches are of lower quality.

employment rate for the 337 CWIT participants increased in subsequent quarters. (These descriptive statistics are shown in Table C.2 in Appendix C.) During the eight-quarter pre-program period, CWIT participant employment levels in each quarter ranged from 59.9 to 65.5 percent. In the post-program period, their employment levels were 64.7 percent in the first quarter and 73.6 percent in the second. Before enrolling, average quarterly earnings ranged from \$3,067 to \$3,545. In the two quarters after the CWIT program, average quarterly earnings were \$2,819 to \$3,395, respectively.

CWIT applicants who were not enrolled in training were used as a comparison group for the training participants. Since the applicants who did not enroll may be different from enrollees in important ways, propensity score matching was used to weight the comparison sample so that they were more comparable on observable characteristics to the enrollees.

The 604 CWIT applicants who did not enroll in training that were used as the comparison group had lower pre-enrollment employment and earnings compared with enrollees (as shown in Table C.2 in Appendix C).⁴³ Their employment levels increased from the range of 49.0 to 53.8 percent in the eight quarters in the pre-period to 59.3 and 58.9 percent in the first and second post-program quarter, respectively. Similar to the 337 CWIT enrollees, earnings remained stable during the study period despite the increasing employment levels. In the pre-program period, the comparison group's average quarterly earnings ranged from \$2,551 to \$2,703, while post-program earnings ranged from \$2,579 to \$2,644.

The earnings impact estimates from PSM are presented in Table 4.5, and the full results using these estimators are provided in Appendix C, Figure C.2 and Tables C.15-C.21.

⁴³ The initial plan of analysis for this site was to use a regression discontinuity design, as the CWIT staff used the TABE to screen for entry. However, it was discovered that the cutoff score was not strictly adhered to, and many applicants who entered the program scored below the cutoff. Thus, this analysis uses propensity score matching with the applicant nonparticipant group as the comparison group.

TABLE 4.5: IMPACT ESTIMATES OF CWIT PRE-APPRENTICESHIP PROGRAM ON QUARTERLY EARNINGS OVER THE TWO QUARTERS AFTER ENTRY INTO THE PROGRAM COMPARED TO ALL WIA NON-TRAINEES

Matching Strategy	Difference in Means		Difference in Difference (compared to 5 and 6 quarters preprogram earnings)		Difference in Difference (compared to 7 and 8 quarters preprogram earnings)	
	Unadjusted Treatment Effect	Regression- Adjusted Treatment Effect	Unadjusted Treatment Effect	Regression- Adjusted Treatment Effect	Unadjusted Treatment Effect	Regression- Adjusted Treatment Effect
Nearest Neighbor, 1	\$1,017.58 †† (1.4578)	\$655.55 †† (1.6588)	\$101.49 †† (0.1532)	\$989.93** †† (2.1191)	\$530.82 †† (0.7395)	\$377.18 †† (0.7279)
Nearest Neighbor, 5	\$457.27 †† (0.7880)	\$523.96 †† (1.3838)	\$480.78 †† (0.9491)	\$425.02 †† (1.0396)	\$351.39 †† (0.6520)	\$488.87 †† (1.0579)
Kernel, 0.02 bandwidth	\$564.41 †† (0.9851)	\$392.73 †† (1.1226)	\$293.00 †† (0.5509)	\$162.36 †† (0.3982)	\$602.64 †† (1.0974)	\$632.03 †† (1.2792)
Kernel, 0.08 bandwidth	\$663.32 (1.2391)	\$237.95 (0.6837)	-\$98.00 †† (-0.1967)	-\$1.54 †† (-0.0038)	\$79.72 †† (0.1559)	\$291.03 †† (0.6558)
Odds Ratio Weighting	\$4,499.97*** (14.7025)	\$309.48 (0.6053)	-\$32,241*** (-64.0627)	-\$2,957.09*** (-3.2620)	-\$9,028.87*** (-28.2976)	\$7.51 (0.0109)
t statistics noted in parentheses	*** statistically significant at the .01 level ** statistically significant at the .05 level * statistically significant at the .10 level			† Matching strategies passed the two-sample t-test (at the 0.10 level) †† Matching strategies passed both the t-test (at the 0.05 level) and standardized bias test (score of 20 or less).		

SOURCE: DATA FROM CWIT, CENTER FOR GOVERNMENTAL STUDIES AT NORTHERN ILLINOIS UNIVERSITY, AND THE ILLINOIS DEPARTMENT OF EMPLOYMENT SECURITY.

While the analyses mostly showed positive earnings impacts across all matching strategies, only one of the impact estimates was both statistically significant and well matched to the comparison group. The impact estimates provided by the successful matching strategies range from \$457 to \$1,017 for the difference-in-means models. The regression-adjusted difference in means estimates provide a similar range, but the impacts are somewhat lower (\$237 to \$655), and none of these is statistically significant.

When the difference in differences was calculated using the fifth and sixth quarters before program entry, the treatment effect ranges from -\$98 to \$480, and -\$1 to \$989 for the regression-adjusted models. When the difference in difference estimates are calculated using the seventh and eighth quarters before program entry, the effect ranges from \$79 to \$602 for the unadjusted estimates, and \$291 to \$632 for the regression-adjusted models. Most of these estimates are not statistically significant. The only treatment effect that is both statistically significant and derived from a model where the CWIT comparison group is well matched to CWIT enrollees is in the regression-adjusted difference in differences estimate using earnings in the fifth and sixth pre-program quarters, \$989. The odds ratio weighted models provided results that were statistically significant across all specifications of the dependent variable, but the sign and magnitude of the odds ratio treatment effects were erratic, and the odds ratio matching strategy did not provide a reasonable match between the treatment and control groups.

The CWIT models provided several positive treatment effect estimates from well-matched samples, but only one of these estimates was statistically significant. Although most of the estimates are positive, we cannot infer with any confidence that the CWIT treatment had an effect on earnings.

The CWIT models are unique among the program analyses reported in this chapter in that CWIT enrollees were matched to CWIT applicants who did not enroll. This introduced some advantages and some disadvantages. Matching CWIT applicants to other applicants allowed for a degree of similarity between the individuals in the treatment and comparison groups, which presumably had common backgrounds or labor force experiences as well as an interest in nontraditional well-paying jobs. At the same time, CWIT were likely to be qualitatively different from CWIT enrollees in their skill levels and motivation. CWIT applicants might not have enrolled because their skill levels did not meet eligibility requirements, or because they lacked the motivation to enter into training. Alternatively, some applicants may not have enrolled because they obtained other employment or decided to withdraw from the labor force.

While the nonexperimental analysis showed some small positive program impacts on earnings in the first two quarters after program entry and while most of these impacts were estimated using what could be considered a good match on observable characteristics, very few of the impact estimates were statistically significant.

Columbia Gorge Community College

Columbia Gorge Community College (CGCC) provided a three-month training program to become a certified nursing assistant (CNA) for 219 participants from the Columbia Gorge region, which included eight counties in Oregon and two in Washington. The college sought to address a need for skilled health care workers in the hospitals and long-term care facilities in the area and has operated this training program since 2004. Nearly all who enrolled in the training were women, so the impact analysis was restricted to women. Earnings data were only available for participants working in Oregon, so the analysis was restricted to earnings obtained in Oregon.⁴⁴ (See Appendix A for a description of the training program.)

Descriptively, the CGCC participants saw an increase in employment rates and earnings from the pre- to the post-program period. (Descriptive statistics are provided in Table C.3 in Appendix C.) In the two years prior to their entry into the CGCC CNA program, participants' employment levels in each quarter ranged from 45 to 51 percent. However, in the two quarters after entering the program, participants saw their employment jump to over 70 percent. Their earnings also increased after the program. In the two years prior to program entry, CGCC participants had average earnings of \$1,419-\$1,658 per quarter. After the program, the participants' quarterly earnings rose to over \$2,800, on average.

⁴⁴ Researchers were unable to obtain quarterly earnings data from the unemployment insurance wage reporting system from the state of Washington. It is possible that the impacts for this program are underestimated as some CGCC training participants found post-program employment in Washington facilities, as reported by the site.

The group of 180 women who entered the CNA program between 2004 and early 2008 served as the treatment group.⁴⁵ The comparison group was drawn from WIA Adult and Dislocated Worker program participants who were served by One-Stop Career Centers in rural areas in Oregon in 2004-2008. Because the Columbia Gorge region was too small to generate sufficient comparison group members for matching, the comparison group was drawn from the entire local workforce investment area (LWIA) that serves rural Oregon. Discussions with local WIA officials and review of Bureau of Labor Statistics data indicated that labor force characteristics and local economic conditions were similar throughout the rural parts of the state. For this analysis, WIA participants who received only core or intensive services and who had complete data, a total of 770 women, were included in the comparison group pool.⁴⁶ Overall, the WIA comparison group had higher pre-program earnings and was older on average.

The earnings impact estimates are presented in Table 4.6, and the full results using these estimators are provided in Appendix C, Figure C.3 and Tables C.22-C.28.

TABLE 4.6: IMPACT ESTIMATES OF CGCC CNA PROGRAM ON QUARTERLY EARNINGS OVER TWO QUARTERS AFTER ENTRY INTO THE PROGRAM COMPARED TO ALL WIA NON-TRAINEES

Matching Strategy	Difference in Means		Difference in Difference (compared to 5 and 6 quarters preprogram earnings)		Difference in Difference (compared to 7 and 8 quarters preprogram earnings)	
	Unadjusted Treatment Effect	Regression-Adjusted Treatment Effect	Unadjusted Treatment Effect	Regression-Adjusted Treatment Effect	Unadjusted Treatment Effect	Regression-Adjusted Treatment Effect
Nearest Neighbor, 1	-\$992.34* (-1.6710)	-\$999.04* (-1.7926)	-\$759.67 (-1.0360)	-\$1,164.88* (-1.9575)	-\$39.42 † (-0.0492)	-\$538.88 † (-0.9010)
Nearest Neighbor, 5	-\$632.70 †† (-1.3946)	-\$672.17* †† (-1.6535)	-\$617.44 †† (-1.1660)	-\$674.67 †† (-1.5722)	-\$450.62 †† (-0.8257)	-\$556.68 †† (-1.2281)
Kernel, 0.02 bandwidth	-\$623.28 †† (-1.4447)	-\$646.25* †† (-1.7527)	-\$607.18 †† (-1.1785)	-\$639.89 †† (1.6409)	-\$599.65 †† (-1.1432)	-\$671.15* †† (-1.6677)
Kernel, 0.08 bandwidth	-\$729.64* †† (-1.7601)	-\$662.96* †† (-1.7966)	-\$323.85 †† (-0.6700)	-\$584.47 †† (-1.5005)	-\$342.54 †† (-0.6909)	-\$613.94 †† (-1.5174)
Odds Ratio Weighting	-\$696.73 †† (-1.0873)	-\$752.52** †† (-2.0584)	-\$763.40* †† (-1.8394)	-\$765.42** †† (-1.9739)	-\$733.95* †† (-1.6736)	-\$762.65* †† (-1.9058)
t statistics noted in parentheses	*** statistically significant at the .01 level ** statistically significant at the .05 level * statistically significant at the .10 level			† Matching strategies passed the two-sample t-test (at the 0.10 level) †† Matching strategies passed both the t-test (at the 0.05 level) and standardized bias test (score of 20 or less).		

SOURCE: DATA FROM CGCC AND THE OREGON EMPLOYMENT DEPARTMENT.

⁴⁵ Male participants were dropped from the group. Typically, earnings estimates are calculated separately for men and women but there were too few men in the CGCC program to conduct separate analyses. See Appendix B for further explanation.

⁴⁶ WIA training participants were not included in the comparison group pool because they tended to be in training much longer than CGCC participants, so most were still enrolled in their training during the follow-up period analyzed and had no or low earnings; thus, these WIA participants would not have been an appropriate comparison group to the CGCC participants who completed training.

All matching strategies with the exception of one of the nearest neighbor models provided a good match between the treatment and comparison group on observable characteristics. Every analysis produced a negative treatment effect, although only one-third of the analyses have both a statistically significant negative treatment effect and a strong match between the treatment and control groups. The magnitude of the statistically significant treatment effects from the difference in means models for estimates that had balanced matches range from -\$646.25 to -\$752.52 per quarter.

The treatment effects estimated in the two difference-in-differences frameworks were similar. Of the 18 treatment effects that were produced from a model that provided a good match between the treatment and comparison group, only four had statistically significant negative results. While the program may have shown a negative impact on earnings, the large number of statistically insignificant treatment estimates suggests that the results should be interpreted cautiously as it is not a robust finding.

There are several potential explanations for these findings. First, employment and earnings of the program participants may have been underestimated in the absence of data for employment in Washington State. Program staff indicated that many participants were employed in hospitals and facilities in Washington as the region sits on the Oregon-Washington border. Another possibility was that a substantial number of trainees enrolled in subsequent education programs rather than entered employment. Administrators of the program reported that 32 of the CNA graduates during this period continued into the college's ADN program immediately after completion of the CNA program and may not have employment or earnings reported for another two years while in that program. In addition, the lack of statistical significance in many of the models may result from too small a sample or too short of a follow-up period. There may also be fundamental unobserved differences between the WIA non-trainees and the CGCC participants, despite the strong match on observable factors. Finally, the comparison group members were drawn from a larger geographic area than the treatment group and any differences across the region could affect the quality of the match or measured post-program earnings.

While the nonexperimental analysis showed several statistically significant negative impacts, the descriptive statistics showed improvement in the overall employment and earnings of the CGCC CNA participants. There was some evidence that CGCC participants were worse off in terms of earnings after having gone through the CNA training, compared to WIA participants in core and intensive services. However, given the sizeable portion of the sample that may have gone on to further training or been employed in Washington State, it was difficult to determine the true effect of the program.

Community Learning Center

Community Learning Center (CLC) is a nonprofit organization that was formed in 2000 to train aircraft assembly workers for the aerospace industry in the Fort Worth, Texas area. As a joint venture between industry and union representatives, CLC created a training program that provided aircraft assembly skills to dislocated workers and other adults. The curriculum was developed by one of the area's employers, an aircraft manufacturer, and had the support of the

other firms in the area. Graduates of the three-month program gained drilling and riveting skills as well as soft skills needed to work in an aircraft assembly job. These training activities were continued and expanded with the HGJTI grant awarded in 2003.⁴⁷ (See Appendix A for a description of the training program.)

This training program was different from those in the other four sites analyzed in this chapter in that CLC consistently used a set cutoff score on the TABE to screen its 950 applicants for entry into the program. In addition, the program collected demographic data on all applicants. These two conditions allowed for two nonexperimental methods—propensity score matching and regression discontinuity design—to be conducted to analyze the impact of this site’s training program on participants’ earnings. The following sections provide a summary of the results using these analytical techniques. It is important to note that the results from the two different CLC analytical approaches are not comparable due to the constraints of the data. More information on the methodology can be found in Appendix B, and detailed analyses of the site can be found in Tables C.4-C.6 and C.29-37 in Appendix C.

Propensity Score Matching Results

Under the HGJTI, 211 individuals entered into CLC’s training between 2004 and 2007. The descriptive statistics on the participants showed small increases in quarterly earnings for men and women in the seven quarters after entering the CLC program (as shown in Tables C.5 and C.6 in Appendix C).⁴⁸ In the two years prior to entry, the 150 male CLC participants had average earnings between \$4,000 and \$4,525 per quarter and employment rates ranging from 48.6 percent to 52 percent. In the quarter of entry into the CLC program, average earnings for men were \$4,213, meaning there was little loss of earnings due to program participation. In the seven quarters following entry, their average earnings ranged from \$4,387 to \$5,196 and employment rates from 58 percent to 70 percent. Similarly, there were small, but steady earnings gains for the 51 women who participated in the CLC program; however, the women’s pre-program earnings were slightly higher than the men’s were. The women’s average earnings in the eight quarters prior to program entry ranged from about \$4,900 to \$5,700 per quarter and employment rates from 54.9 percent to 72.5 percent. At the time of entry into the program, the average quarterly earnings for female participants were \$5,800, meaning many still had earnings while participating in the program. In the seven quarters after program entry, the female participants’ average quarterly earnings increased from \$5,150 to \$6,450 and their employment rates stayed within roughly the same range from 54.9 percent to 64.7 percent.

To see if the gains in earnings can be attributed to the CLC program, a comparison pool of WIA participants who did not participate in the CLC training was created. Specifically, the WIA sample comprised WIA Adult and Dislocated Worker participants (4,687 men and 6,270 women) who received core and/or intensive services through the local One-Stop Career Centers

⁴⁷ The CLC program operated under two separate HGJTI grants. Due to data limitations, only the training activities under the second grant are analyzed.

⁴⁸ Because there is an adequate number of male and female participants in the CLC program, the descriptive and propensity score matching analysis is shown by gender. If feasible, separate analyses by gender are standard for estimating impacts of programs on earnings because of the wage gap between men and women (see Methodology in Appendix B).

in the three workforce investment areas in the Fort Worth-Dallas region from 2004-2008. Similar to the other programs analyzed in this chapter, CLC participants received training that was short-term and thus it would not be appropriate to compare them to WIA training participants who often were in longer training programs. The CLC and WIA samples were matched on race, ethnicity, age, and preprogram employment and earnings to derive the earnings estimates. While the matching strategies mitigated the differences between the two groups on these covariates, it should be noted that CLC participant group had a greater proportion of higher earning, older white individuals than the WIA comparison group pool.

The quarterly earnings impact estimates for male CLC participants using propensity score matching are presented in Table 4.7, and the impact estimates for female CLC participants are presented in Table 4.8. The full results using these estimators are provided in Appendix C, Figure C.4 and C.5 and Tables C.29-C.36.

TABLE 4.7: IMPACT ESTIMATES OF COMMUNITY LEARNING CENTER TRAINING PROGRAM (SECOND COHORT) ON QUARTERLY EARNINGS FOR MALES OVER SEVEN QUARTERS AFTER ENTRY INTO THE PROGRAM

Matching Strategy	Difference in Means		Difference in Difference (compared to 5 and 6 quarters preprogram earnings)		Difference in Difference (compared to 7 and 8 quarters preprogram earnings)	
	Unadjusted Treatment Effect	Regression-Adjusted Treatment Effect	Unadjusted Treatment Effect	Regression-Adjusted Treatment Effect	Unadjusted Treatment Effect	Regression-Adjusted Treatment Effect
Nearest Neighbor, 1	\$1,213.16 (0.29)	-\$ 5,493.05* (-1.70)	-\$955.24 (-0.73)	-\$1,390.33 (-1.18)	-\$610.87 (-0.43)	-\$1,991.39 (-1.63)
Nearest Neighbor, 5	\$2,411.60† (0.72)	\$2,141.21 (1.07)	\$878.28† (1.14)	\$813.17** (1.97)	\$979.55† (1.16)	\$625.55 (0.76)
Kernel, 0.02 bandwidth	\$3,653.97† (1.15)	\$1,968.16 (1.26)	\$225.97† (0.35)	\$386.22 (0.66)	\$357.29† (0.50)	\$356.24 (0.52)
Kernel, 0.08 bandwidth	\$6,729.85** (2.13)	\$1,504.28 (1.26)	\$244.19 (0.38)	\$427.89 (0.70)	\$511.15 (0.74)	\$329.22 (0.42)
Odds Ratio Weighting	\$2,060.60† (0.65)	\$2,336.88 (1.51)	\$409.57† (0.64)	\$529.06 (0.91)	\$448.39† (0.65)	\$588.32 (0.88)
t statistics noted in parentheses	*** statistically significant at the .01 level ** statistically significant at the .05 level * statistically significant at the .10 level		† Matching strategies passed the two-sample t-test (at the 0.10 level) †† Matching strategies passed both the t-test (at the 0.05 level) and standardized bias test (score of 20 or less).			

SOURCE: DATA FROM CLC, RAY MARSHALL CENTER FOR STUDIES IN HUMAN RESOURCES AT THE UNIVERSITY OF TEXAS AT AUSTIN, AND TEXAS WORKFORCE COMMISSION.

The analysis of the impact on the earnings of the male CLC participants showed no statistically significant estimates that also have a balanced match between the treatment and comparison groups. The nearest neighbor and odds ratio weighting strategies are successful in creating balanced matches on observable variables. For the earnings estimates with balanced matches, the difference in means analysis shows the mean quarterly earnings impact of the program to be \$2,061 to \$3,654 for the seven cumulative quarters after program entry. The

regression-adjusted difference in means estimates for these matching strategies show some statistically significant estimates that are less than the unadjusted treatment effects and using the unbalanced one nearest neighbor match, there is a negative but statistically insignificant impact.

Similar to the analyses for the other sites, the two difference-in-difference analyses for CLC produce estimated earnings impacts that are somewhat lower than those in the difference in means estimates. The nearest neighbor and odds ratio weighting matching strategies produce balanced matches and the earnings estimates are positive, but statistically insignificant. For the balanced difference in difference estimates using the fifth and sixth preprogram quarters, the treatment effects range from \$226 to \$878. The quarterly earnings estimates are similar when comparing the difference in difference with seventh and eighth preprogram quarters.

TABLE 4.8: IMPACT ESTIMATES OF COMMUNITY LEARNING CENTER TRAINING PROGRAM (SECOND COHORT) ON QUARTERLY EARNINGS FOR FEMALES, SEVEN QUARTERS AFTER ENTRY INTO THE PROGRAM

Matching Strategy	Difference in Means		Difference in Difference (compared to 5 and 6 quarters preprogram earnings)		Difference in Difference (compared to 7 and 8 quarters preprogram earnings)	
	Unadjusted Treatment Effect	Regression- Adjusted Treatment Effect	Unadjusted Treatment Effect	Regression- Adjusted Treatment Effect	Unadjusted Treatment Effect	Regression- Adjusted Treatment Effect
Nearest Neighbor, 1	\$10,866.18† (1.48)	\$2,899.89 (0.59)	\$3,060.92† (1.33)	\$1,244.89 (0.68)	\$2,563.05† (1.14)	-\$259.37 (-0.15)
Nearest Neighbor, 5	\$9,562.89† (1.45)	\$7,340.95** (2.28)	\$2,622.68*† (1.71)	\$2,451.78** (2.07)	\$2,216.74† (1.51)	\$1,989.61* (1.77)
Kernel, 0.02 bandwidth	\$12,186.76* (1.94)	\$4,706.62* (1.92)	\$1,815.01 (1.44)	\$1,722.71* (1.71)	\$1,965.98 (1.61)	\$1,619.04* (1.70)
Kernel, 0.08 bandwidth	\$17,857.61*** (2.85)	-\$133.82 (-0.06)	\$451.93 (0.36)	\$196.57 (0.21)	\$977.39 (0.81)	\$167.63 (0.18)
Odds Ratio Weighting	\$6,611.34† (1.07)	\$6,694.03*** (2.61)	\$1,780.35†† (1.44)	\$1,842.78* (1.84)	\$1,773.94†† (1.49)	\$1,925.95** (2.07)
t statistics noted in parentheses	*** statistically significant at the .01 level ** statistically significant at the .05 level * statistically significant at the .10 level			† Matching strategies passed the two-sample t-test (at the 0.10 level) †† Matching strategies passed both the t-test (at the 0.05 level) and standardized bias test (score of 20 or less).		

SOURCE: DATA FROM CLC, RAY MARSHALL CENTER FOR STUDIES IN HUMAN RESOURCES AT THE UNIVERSITY OF TEXAS AT AUSTIN, AND TEXAS WORKFORCE COMMISSION.

Similar to the results for male participants, none of the estimates of the earnings impact on females was both statistically significant and has a comparison group that would be considered a good match. However, the overall estimates of the earnings impact were higher for the female participants. The nearest neighbor and odds ratio weighting produced the best matches between the treatment and comparison samples, as shown by the balancing tests. For the estimates with balanced matches, the impact estimates for the difference in means analysis showed a range of \$6,611 to \$10,866 for the seven quarters after program entry but none of these estimates was statistically significant. The regression-adjusted difference in means estimates for

these matching strategies showed some statistically significant estimates that, on the whole, were less than the unadjusted treatment effects.

The difference-in-difference analysis comparing the sixth and seventh quarters after entering the program to both the fifth and sixth quarters and the seventh and eighth quarters prior to entering the program showed smaller and mostly statistically insignificant impacts of the CLC program. For the most part, while the nearest neighbor and odds ratio weighting matching strategies produced balanced matches, the earnings estimates showed positive but statistically insignificant results. However, the strategy that used the five nearest neighbors to create the matched comparison sample produced a balanced match and statistically significant impact estimate of \$2,623 for the fifth and sixth pre-program quarter comparison. Because this was the only positive statistically significant result, it could not be interpreted as strong evidence of a positive impact of the program.

The earnings effects of CLC's HGJTI-funded training showed consistently positive but statistically insignificant results using the balanced matching strategies. This suggested that the program was likely not making participants worse off in terms of earnings than they would have been without the training program compared to WIA non-trainees. As with the analysis of several of the other HGJTI sites, the treatment samples when broken out by gender were too small to identify a program impact.

Regression Discontinuity Design Results

The CLC program provided the opportunity to use a regression discontinuity model as an additional nonexperimental estimation strategy. The regression discontinuity design (RDD) took advantage of the TABE test score eligibility criterion and compared earnings outcomes for applicants who are immediately above the test score cutoff and applicants immediately below the it. The efficiency of the RDD was contingent on the rigor with which the CLC program staff adhered to the test score cutoff. The CLC program used a TABE score of 16 (must have at least a 8.0 for total reading score and 8.0 for total math score) as the cutoff to determine eligibility for the training program. In practice, this eligibility criterion was not strictly used. Some (18 out of 333 applicants) with a test score below the cutoff were enrolled in CLC training, possibly because retesting was allowed in some cases, or case-by-case exceptions were allowed. A much larger share (416 out of 617) of applicants above the test score cutoff were not enrolled in CLC training, either because they were not offered training or because they decided not to enroll.⁴⁹

Analysis of descriptive statistics suggested that the CLC applicants who scored above the TABE test score cutoff saw some improvement in their employment levels from the pre-application period to the post-application period.⁵⁰ In the eight quarters prior to application, applicants' employment levels ranged from 67.4 to 77.4 percent, which increased to 72.1 to 82.8 percent in the five quarters after entering the program. (See Appendix C for Table C.4 on the

⁴⁹ The RDD model is adjusted to account for the imperfect implementation of the test score eligibility requirement. While strict adherence to a cutoff score is ideal, the adjustments required to account for the weakening of this assumption are standard in the literature. See Appendix B for more detail.

⁵⁰ Due to an insufficient number of observations by gender, the RDD approach for CLC analyzes men and women together.

descriptive analysis.) CLC applicants who scored below the TABE test score cutoff experienced a moderate increase in their employment. Their employment levels ranged from 60.0 to 75.9 percent before the application, and rose to 62.4 to 76.8 percent after the application.

Earnings did not show the improvement in the descriptive statistics for CLC applicants above the test score cutoff that was apparent in the employment levels for this population. Average quarterly earnings before application ranged from \$5,650 to \$7,404, decreasing to a range of \$4,002 to \$6,645 for the period after application. A similar average earnings decline was experienced by the CLC applicants who scored below the test score cutoff. Before application, average quarterly earnings for this population ranged from \$4,065 to \$6,713, falling to a range of \$3,115 to \$5,450 after application.

An RDD model was used to compare the change in earnings from applicants immediately below the TABE score cutoff to applicants immediately above the cutoff, indicating the program impact. By crossing the eligibility cutoff, applicants sharply increased their probability of enrollment in the program; with no sharp change in any other covariates, any observed changes in earnings could be attributed to the change in the probability of enrollment in CLC training. A total of 333 applicants scored below the TABE test score cutoff, while 617 applicants scored above the cutoff.

The impact estimates using RDD are presented in Table 4.9 and the full results using these estimators are provided in Appendix C, Table C.37. Both an ordinary least squares (OLS) regression approach using instrumental variables (to account for the “fuzzy” implementation of the test score cutoff) and a local linear regression model specification were used to estimate earnings impacts.⁵¹

TABLE 4.9: IMPACT ESTIMATES OF CLC TRAINING PROGRAM ON QUARTERLY EARNINGS

Model Specification	Earnings from the 1 st to 5 th Qtr.	Earnings, 1 st Quarter	Earnings, 2 nd Quarter	Earnings, 3 rd Quarter	Earnings, 4 th Quarter	Earnings, 5 th Quarter
“Fuzzy” Instrumental Variable RDD (cutoff, 16)	\$5,128.53 (0.07)	\$1,566.25 (0.10)	-\$1,801.40 (-0.09)	\$10,099.74 (0.51)	\$1,822.87 (0.10)	-\$6,558.93 (-0.29)
Local Linear Regression (cutoff, 16)	-\$1,549.98 (-0.33)	\$19.33 (0.02)	-\$539.81 (-0.48)	-\$244.23 (-0.23)	-\$347.72 (-0.33)	-\$437.54 (0.39)
t statistics noted in parentheses	*** statistically significant at the .01 level ** statistically significant at the .05 level * statistically significant at the .10 level					

SOURCE: DATA FROM CLC, RAY MARSHALL CENTER FOR STUDIES IN HUMAN RESOURCES AT THE UNIVERSITY OF TEXAS AT AUSTIN, AND TEXAS WORKFORCE COMMISSION.

The earnings impact estimates provided by the analyses were neither consistent, nor statistically significant. Impact estimates for quarterly earnings in the five quarters after application ranged from -\$6,558 to \$10,099 for the OLS regression, and -\$539 to \$19 for the

⁵¹ To check for the robustness of the results, an alternative specification of the test score cutoff of 14, rather than 16, is estimated but the results are too erratic to be credible.

local linear regression, none of which were statistically different from no program impact. While these findings may suggest that the CLC training had no impact on earnings, it should be noted that the treatment and comparison samples were not as large as indicated because only a proportion of observations around the cutoff are used in the RDD analysis (see Appendix B for more detail on the RDD method). The implication was that the analysis did not have a large enough sample size to detect the effect of the program using RDD. It was also possible that there was an unobserved difference between the motivation or employment opportunities of training enrollees and non-enrollees, but these unobserved differences should not change immediately above and below the test score cutoff.

Lower Rio Grande Valley Workforce Development Board/South Texas College

Of the five HGJTI-funded training programs examined, Lower Rio Grande Valley Workforce Development Board/South Texas College⁵² operated the longest training program.⁵³ It offered three- to four-year registered apprenticeships in advanced manufacturing occupations for approximately 270 individuals employed by companies in the McAllen-Harlingen area in south Texas, encompassing the three counties of Hidalgo, Willacy, and Starr. The four apprenticeship programs in which participants trained were industrial maintenance, tool & die, machining, and plastic processes. (See Appendix A for a description of this training program.)

The South Texas College (STC) apprenticeship programs analyzed began in 2005 and enrolled participants through 2007, with the final cohort scheduled to complete coursework in 2011. STC staff noted that there had been attrition from the programs—often in excess of 50-60 percent. Attrition occurred primarily due to company actions—apprentices were laid off because of a plant closing or downsizing, companies needed apprentices to shift into production-related work that did not meet on-the-job training skill requirements, or apprentices were promoted into management positions or other jobs. Some attrition also occurred because workers lacked the math skills needed as they moved to more demanding classroom instruction (usually after the first year), found that personal or family commitments did not allow them sufficient time to work and attend training at night, or moved to other jobs/localities.

While STC enrolled 270 participants in the apprenticeship programs, complete data, including social security numbers and start dates for participants, were only available for 130 individuals.⁵⁴ Thus, the analysis sample was limited to 130 observations.

Based on descriptive analysis, the STC apprentices saw no substantial improvement from their pre- to post-program employment levels. (See Table C.7 in Appendix C for descriptive statistics on STC.) In the eight quarters prior to enrollment, participants' employment levels ranged from 80.8 to 87.7 percent, which remained at 86.9 to 87.7 percent in the two quarters

⁵² Hereafter, the grant program operator is referred to as South Texas College (STC) because the college operated the grant activities. As previously noted, the Lower Rio Grande Valley Workforce Development Board served as the fiscal agent for the grant.

⁵³ As discussed below, in registered apprenticeship programs, the apprentices spent most of their time in on-the-job training; they also participated in a minimum of 144 hours of related instruction in a classroom setting each year.

⁵⁴ Limited covariates for the program sample were available for analysis. Data were not collected on demographics such as age and education.

after entering the program, right at the upper bound of the pre-program employment rate. This lack of substantial change was expected because the STC program was targeted on incumbent workers. Earnings for the STC apprentices showed an increase. In the two years prior to entry, STC apprentices had average earnings between \$6,200 and \$7,400 per quarter. In the two quarters following entry, they had earnings between \$7,300 and \$7,600. This earning increase was less dramatic than what could be observed in other selected grantee programs, primarily because the STC apprenticeship program specifically served incumbent workers and a moderated wage progression schedule was built into the apprenticeships.

The comparison group was a WIA sample, drawn from among WIA Adult and Dislocated Worker program participants who were served by the local One-Stop Career Centers in 2004-2008. Since the STC program participants in the treatment group were exclusively Hispanic males, all non-Hispanics and all females were removed from the WIA sample. Propensity score matching was used to weight the remaining Hispanic males in the WIA sample so that they would be comparable to the STC sample. As noted above, the STC apprenticeship program was unique among our selected grantees in serving incumbent workers, which was accounted for in the propensity score matching strategy.⁵⁵ For this analysis, WIA participants who received only core or intensive services, 13,813 individuals, are included in the comparison group pool.⁵⁶ The WIA comparison group had considerably lower pre-program earnings than the STC apprentice sample, making a successful matching strategy essential to a meaningful comparison.

The impact estimates are presented in Table 4.10, and the full results using these estimators are provided in Appendix C, Figure C.6 and Tables C.38-C.44.

While for the most part the analyses showed positive earning impacts across all matching strategies, most of the impact estimates were neither statistically significant nor had a comparison group that would be considered a good match. Of all the strategies used, the nearest neighbor strategy performed the best on the balancing tests, with the match using five neighbors being the only matching strategy to pass both balancing tests. The impact estimates provided by these nearest neighbor matching strategies ranged from -\$463 to \$1,809. The regression-adjusted difference in means estimates provided a similar range, but the impacts were somewhat higher (\$851 to \$2,086). While this range included both positive and negative impact estimates, the only statistically significant, well-matched findings were positive.

⁵⁵ Initially, only WIA participants who were employed in the quarter that they entered WIA were used in the analysis. However, the average earnings for these participants were still considerably lower in their quarter of entry than in previous quarters, suggesting that they became unemployed at some point during the quarter of entry. Therefore, the analysis also matched on earnings in the quarter of entry in the propensity score matching to improve the match between the treatment and comparison groups. Since STC participants did not experience a drop in earnings in the quarter of entry, they were matched to WIA participants who similarly did not experience a drop in earnings. See Figure C.5 in Appendix C to see the graphic results of the matching strategies.

⁵⁶ WIA training participants were not included in the comparison group pool because they tended to be in training for an extended period after entering WIA and most were still enrolled in their training during the follow-up period analyzed. While STC apprentices were also in training for an extended period after program entry, they were employed as a part of their training.

TABLE 4.10: IMPACT ESTIMATES OF STC APPRENTICESHIP PROGRAM ON QUARTERLY EARNINGS, TWO QUARTERS AFTER ENTRY INTO THE PROGRAM, COMPARED TO ALL WIA NON-TRAINEES

Matching Strategy	Difference in Means		Difference in Difference (compared to 5 and 6 quarters preprogram earnings)		Difference in Difference (compared to 7 and 8 quarters preprogram earnings)	
	Unadjusted Treatment Effect	Regression- Adjusted Treatment Effect	Unadjusted Treatment Effect	Regression- Adjusted Treatment Effect	Unadjusted Treatment Effect	Regression- Adjusted Treatment Effect
Nearest Neighbor, 1	-\$463.38 (-0.2578)	\$851.76 (0.8456)	-\$1,600.17 † (-0.8983)	\$598.45 † (0.5534)	-\$1,630.26 (-0.8739)	\$1,267.40 (0.9639)
Nearest Neighbor, 5	\$1,809.49 †† (1.6110)	\$2,086.35*** †† (2.4728)	\$982.40 †† (0.9626)	\$2,048.42** †† (2.1484)	\$752.10 †† (0.7072)	\$1,910.05* †† (1.9340)
Kernel, 0.02 bandwidth	\$1,676.18* (1.9150)	\$1,554.28** (2.2967)	-\$443.34 (-0.6257)	\$1,490.72* (1.9291)	-\$588.57 (-0.7580)	\$1,419.23 (1.6244)
Kernel, 0.08 bandwidth	\$4,459.60*** (5.3982)	\$892.39 (1.0781)	\$601.55 (0.9793)	\$1,090.02 (1.1697)	\$653.93 (0.9580)	\$798.08 (0.8140)
Odds Ratio Weighting	\$10,118.21*** (17.0074)	\$3,837.70*** (2.9792)	\$1,767.54*** (3.8178)	\$4,212.75*** (2.9416)	\$1,384.60*** (2.7891)	\$3,794.93*** (2.5711)
T statistics are noted in parentheses	*** statistically significant at the .01 level ** statistically significant at the .05 level * statistically significant at the .10 level		† Matching strategies passed the two-sample t-test (at the 0.10 level) †† Matching strategies passed both the t-test (at the 0.05 level) and standardized bias test (score of 20 or less).			

SOURCE: DATA FROM SOUTH TEXAS COLLEGE, SOUTH TEXAS MANUFACTURERS ASSOCIATION, RAY MARSHALL CENTER FOR STUDIES IN HUMAN RESOURCES AT THE UNIVERSITY OF TEXAS AT AUSTIN, AND TEXAS WORKFORCE COMMISSION.

The treatment effects provided by the two difference-in-differences frameworks reduced the estimated earnings impacts for the nearest neighbor matching strategy (the strategy that was the most successful on the balancing tests). When the difference in difference estimates were calculated using the fifth and sixth quarters before entering the apprenticeship program, the treatment effect ranged from -\$1,600 to \$982, and \$598 to \$2,048 for the regression adjusted models. When the difference in difference estimates were calculated using the seventh and eighth quarters before entering the apprenticeship program, the effect ranged from -\$1,630 to \$752 for the unadjusted estimates, and \$1,267 to \$1,910 for the regression-adjusted models. Only the higher estimates in this range were statistically significant, and all estimates for the nearest neighbor strategy using five neighbors passed both balancing tests. The difference-in-differences framework, therefore, helped to confirm the findings of the nearest neighbor matching strategy for the difference in means model, providing some evidence for a statistically significant positive treatment effect relative to a reasonably well matched WIA non-trainee comparison sample. Overall, the kernel density matching strategy and the odds ratio strategy provided results that were more statistically significant than the nearest neighbor estimates, but these matches were of considerably lower quality.

The magnitudes of the treatment effect for the most balanced matching strategies (the nearest neighbor strategies) ranged from substantial negative impacts to high, positive impacts. However, the highest quality matching strategy consistently provided a positive treatment effect that was usually statistically significant, suggesting that the program was not making participants

worse off than they would have been without the apprenticeship and quite likely improving their earnings relative to comparable WIA non-trainees. While these findings offered some, albeit weak, evidence of a positive impact of STC apprenticeships on earnings, the cautions expressed when interpreting the findings of the analysis for the preceding programs also applied to the STC program. The STC treatment sample was small, and may be too small to identify a program impact. Overall, the match to the WIA non-trainees was even poorer than for the other selected grant programs. This was probably attributable to the fact that STC apprentices earned considerably more than the WIA sample in the pre-program period, and the sample was exclusively composed of incumbent workers. As noted previously, the treatment and comparison group members could be matched on few socioeconomic variables. Therefore, there may be important unobserved differences between the treatment and comparison samples that could not be held constant by a matching strategy dependent on observable characteristics.

While the nonexperimental analysis for STC showed some significant positive impacts of the program on earnings, only some of these estimates were based on what would be considered a good match, limiting the confidence in the results. Moreover, the descriptive statistics showed improvement in earnings and employment for the STC apprentices, and the earnings of these apprentices did not seem to be any lower than comparable WIA participants in core and intensive services.

In summary, there was weak evidence from some of the matching strategies, suggesting that the STC apprenticeship program increased participant earnings relative to WIA services without training, but confidence in these results must be tempered by the fact that most of the matching strategies failed to produce a reasonable counterfactual. The small number of participants and the lack of many suitable variables available for matching meant that good matches could not be generally drawn from the comparison group pool.

C. Summary of Findings

There were several challenges in implementing the impact evaluation. The major challenge was that the impact evaluation was added after the HGJTI grants were implemented in the sites. Because the analysis was retrofitted to the existing structure of the HGJTI training sites, the number of participants in each site was fixed, and for the most part, the numbers enrolled were too small to provide adequate sample sizes to assure reasonable statistical power. The creation of comparison groups after the fact also provided a challenge because the comparison groups selected were not ideal but the best available under the circumstances.

The availability of data was also a key challenge. Data on program participants and comparison groups were not collected consistently across sites, and too few variables for participants and comparison group members were available to ensure that the participants and comparison group members could be matched on all the variables likely to affect participation and earnings.

Finally, because of the limits of the evaluation, only the early training impacts, most often two post-program quarters, could be examined, which did not allow any longer-term follow-up on which to evaluate the training. In the future, and as ETA was currently doing, similar pilots and demonstrations expected to use nonexperimental methods could embed an

appropriate evaluation design in the overall project design. This would allow for increased treatment group sizes by encouraging larger numbers of participants in programs or making it possible to pool (or combine) observations across sites, the development of better comparison groups, and the creation of centralized and consistent data systems for the demonstration program with adequate information to match treatment and comparison group members.

There were three key implications from the findings of the HGJTI impact analysis. The findings provided no consistent evidence of the impacts of HGJTI-funded training so no determination of how well the programs worked could be made. (See Table 4.11 for a summary of the impact estimates across sites.) However, there may be some reason to explore training strategies similar to HGJTI as most of the HGJTI training programs showed, at least descriptively, modest increases in employment and earnings from the pre- to post-program periods. This supported the second implication for the analysis: continued and more rigorous experimentation with industry-focused approaches should be considered to better understand the impacts of training approaches such as the HGJTI-funded activities. Finally, while it was possible to examine the impacts of HGJTI-funded training on participants' earnings, the impacts of the capacity-building activities were not considered in this evaluation. Studying these larger industry and community impacts would be even more challenging than studying the impacts on individuals, but they could be considered for future evaluations.

TABLE 4.11: SUMMARY OF IMPACT ESTIMATES ON QUARTERLY EARNINGS FOR ALL HGJTI PROGRAMS, BY PROPENSITY SCORE MATCHING STRATEGY*

HGJTI Grantees and Impact Estimate	Nearest Neighbor, 1	Nearest Neighbor, 5	Kernel Density, 0.02 Bandwidth	Kernel Density, 0.08 Bandwidth	Odds Ratio Weighting
Carpenters Joint Apprenticeship Program					
Difference in Means	-\$1,491.47** ††	-\$1,267.51** ††	-\$1,464.75** ††	-\$2,242.57***	-\$2,425.03***
Difference in Difference (5 and 6 quarters preprogram earnings)	-\$1,262.64 ††	-\$1,104.71* ††	-\$1,114.35 ††	-\$382.62	-\$1,642.93**
Difference in Difference (7 and 8 quarters preprogram earnings)	-\$999.19 ††	-\$1,057.79* ††	-\$1,027.93 ††	-\$276.72	-\$1,562.26***
Chicago Women in Trades					
Difference in Means	\$1,017.58 ††	\$457.27 ††	\$564.41 ††	\$663.32	\$4,499.97***
Difference in Difference (5 and 6 quarters preprogram earnings)	\$101.49 ††	\$480.78 ††	\$293.00 ††	-\$98.00 ††	-\$32,241***
Difference in Difference (7 and 8 quarters preprogram earnings)	\$530.82 ††	\$351.39 ††	\$602.64 ††	\$79.72 ††	-\$9,028.87***
Columbia Gorge Community College					
Difference in Means	-\$992.34*	-\$632.70 ††	-\$623.28 ††	-\$729.64* ††	-\$696.73 ††
Difference in Difference (5 and 6 quarters preprogram earnings)	-\$759.67	-\$617.44 ††	-\$607.18 ††	-\$323.85 ††	-\$763.40* ††
Difference in Difference (7 and 8 quarters preprogram earnings)	-\$39.42 †	-\$450.62 ††	-\$599.65 ††	-\$342.54 ††	-\$733.95* ††
Community Learning Center (for males)					
Difference in Means	\$1,213.16	\$2,411.60†	\$3,653.97†	\$6,729.85**	\$2,060.60†
Difference in Difference (5 and 6 quarters preprogram earnings)	-\$955.24	\$878.28†	\$225.97†	\$244.19	\$409.57†
Difference in Difference (7 and 8 quarters preprogram earnings)	-\$610.87	\$979.55†	\$357.29†	\$511.15	\$448.39†
Community Learning Center (for females)					
Difference in Means	\$10,866.18†	\$9,562.89†	\$12,186.76*	\$17,857.61***	\$6,611.34†
Difference in Difference (5 and 6 quarters preprogram earnings)	\$3,060.92†	\$2,622.68*†	\$1,815.01	\$451.93	\$1,780.35††
Difference in Difference (7 and 8 quarters preprogram earnings)	\$2,563.05†	\$2,216.74†	\$1,965.98	\$977.39	\$1,773.94††
South Texas College					
Difference in Means	-\$463.38	\$1,809.49 ††	\$1,676.18*	\$4,459.60***	\$10,118.21***
Difference in Difference (5 and 6 quarters preprogram earnings)	-\$1,600.17 †	\$982.40 ††	-\$443.34	\$601.55	\$1,767.54***
Difference in Difference (7 and 8 quarters preprogram earnings)	-\$1,630.26	\$752.10 ††	-\$588.57	\$653.93	\$1,384.60***
*** statistically significant at the .01 level ** statistically significant at the .05 level * statistically significant at the .10 level		† Matching strategies passed the two-sample t-test (at the 0.10 level) †† Matching strategies passed both the t-test (at the 0.05 level) and standardized bias test (score of 20 or less).			

* Results from the RDD analysis for CLC are not provided here as no other site used this analysis and the results of the rdd were not useful.

V. CONCLUSIONS

This evaluation was intended to document the HGJTI nationwide and describe the initiatives undertaken by grantees to encourage and expand industry-focused training strategies to meet workforce needs. The grants were used for both job training and capacity-building activities in a particular industry, and grantees were expected to engage employers, industries, and the workforce investment system. Thus, a key feature of the overall evaluation was to document the extent to which grantees developed grant activities (both training and capacity-building) that address identified workforce challenges, established inter-system partnerships, and connected with employers and industry groups. Chapters II and III addressed this aspect of the evaluation. A complementary analytic component of the evaluation examined the earnings impact of grant-funded job training on individual participants; results from the impact analysis were presented in Chapter IV. Taken together, a number of conclusions could be drawn from the descriptive and quantitative analyses combined as presented in the previous chapters.

A. National Initiative

From the national initiative as a whole, three conclusions could be drawn. First, the grants were issued to applicants proposing to target industries identified by ETA as having high demand for skilled workers currently and in the future. Over the several rounds of grant awards, there was a gradual shift from a majority being health sector initiatives in the earliest rounds to a broader mix of industries in the later rounds (up through 2007) with all 2008 grants being awarded in the energy sector. Overall, health care and advanced manufacturing were the two most common sectors on which grantees focused.

Second, capacity building was an important component of the grantees' efforts. Hundreds of capacity-building products in the form of manuals, brochures, training curricula, evaluation reports, Web sites, and training module packages were developed by grantees and submitted to ETA. It was beyond the scope of this evaluation to assess the quality of the products developed, but, based on the field study of selected grantees, some of the program models were potentially promising that could be replicable and evaluated in the future (e.g., distance learning models, career ladder modules, occupational competency criteria, simulated training centers and labs).

Third, over the course of the national initiative, ETA established and improved grant-specific performance management systems and procedures. Training and technical assistance were made available to grantees on grant management, regulations, and reporting requirements, and a standardized quarterly reporting system was implemented. Some of the early grantees that did not have prior experience with federal grants reported challenges with meeting the federal grant requirements. In addition, while the reporting system and grantee training on reporting were strengthened through the initiative, the data were not collected consistently enough throughout the entire HGJTI period to use for evaluation purposes. The implementation analysis component of the evaluation and the nonexperimental analysis of the impacts of training on participants allowed for more site-specific examination of the grantee efforts.

B. Implementation Analysis

The implementation analysis included nine very different HGJTI grantees selected to represent a range of industries and regions, types of organizations, and grant activities as well as examined whether grantees provided training at a scale that might allow more rigorous statistical analysis of the impacts of training for an evaluability assessment. These grantees did not represent the earliest or most recent round of grantees, did not include any grantees that pursued only capacity-building objectives, and did not include any of the national grantees. Training was an important priority in all nine, along with capacity building. Five general conclusions could be drawn from the analysis of these nine HGJTI grantees.

First, occupational training that was focused on the skills needed in a specific industry was generally considered critical by employers and administrators in the various partnering organizations, but establishing such training was not easy and required careful attention to cultivating partnerships with businesses. Unless employers believed that the training was of high quality and met their needs, they may be reluctant to partner in these efforts in any substantial way. Potentially promising examples of employer partnerships were described in Chapter III. Many businesses and other institutions contributed in cash and in kind to projects supported by HGJTI grants. One implication of leveraging resources from employers was that it supported the public investment in expanding industry-focused training with investments that were typically only private and may not have happened otherwise. It was not possible in this study to fully calculate the amount of public or private funds that were leveraged by the HGJTI grantees, but that would be an important analysis to conduct to determine the benefit of or return on public-private investments in future training efforts.

Second, hiring and retaining qualified instructors were a major concern in developing and implementing industry-focused training. In several sites, instructors could garner higher salaries in the private sector than what training institutions could pay, diminishing the supply of qualified instructors for training.

Third, while it was important to consider untapped labor sources for high-demand occupations, many of these workers needed skills training. Most of the capacity-building and training projects of the nine grantees visited emphasized recruiting particular populations, including high school students, women interested in non-traditional jobs, and less skilled new and incumbent workers. Targeting certain populations required grantees to incorporate special features into their skill development strategies, such as pre-apprenticeship or pre-training components to improve the basic skills of trainees, and to consider the challenges that low-income persons might have in balancing training, work, and family responsibilities. Grantees could help address these challenges by subsidizing on-the-job training or internships and working with businesses to pay workers while in training.

Fourth, changing the current workforce development system model to focus on particular industries could be extremely difficult when trying to engage employers, education and training providers, and other partners. Fully engaging in a partnership with the workforce investment system was a challenge for several of the grantees. They described difficulties collaborating with or leveraging funds from the workforce investment system related to turf issues or with possible incompatibilities between the grant training and WIA requirements. Long-term

training, for example, was not consistent with some WIB plans, and some of the grantees that operated training programs had not been approved as eligible WIA training providers. Similarly, most of the grantees had some interaction with community colleges, particularly those focusing on occupations that require degrees or state certification. There were many strong examples of collaboration with community colleges, though coordination was not always smooth or without its challenges. For instance, administrators described difficulties in hiring instructors that both met the college's credential requirements and had the necessary occupational and industry expertise to provide effective training. In future grant programs, cross-system collaboration could be improved by carefully identifying partnering challenges upfront and reconciling differences of opinion in the training design and curriculum prior to program implementation.

Fifth, the HGJTI grants provided an opportunity to promote and expand awareness of industry skill training needs and expand the capacity of grantees in several different ways. Again, while it was not possible in this evaluation to rigorously determine the effect of the capacity-building activities, there was some evidence from the field that having the grant funds that could be used fairly flexibly allowed grantees and their industry partners to develop what they considered to be innovative approaches to meeting the demand for skilled workers.

C. Analysis of the Impact of HGJTI-Funded Training

To better understand the impacts of the HGJTI-funded training, five sites were selected for a nonexperimental impact analysis. It was not possible to design an experimental evaluation of the net impacts of job training provided under the HGJTI because the grants had already been awarded and projects were operational and subject to short timeframes. The nonexperimental analysis of impacts of the five training projects funded by HGJTI grants, though, provided some very general conclusions about the training offered.

As discussed in Chapter IV, no consistent findings on the impact of the HGJTI-funded training programs on participants' earnings were found, but the industry-focused approaches to job training used in the HGJTI sites may still be a useful strategy for WIA and other workforce programs. Descriptively, all of the five sites showed small to modest improvements in employment and/or earnings from the two years prior to entering into the program to when their earnings were measured after entering the program (most often six months after the quarter of program entry). The nonexperimental analysis results showed some consistency in the direction of the earnings impact (positive or negative) in some sites, but the analysis was often hampered by poor matches, a lack of statistical significance, or a wide range in the estimates. Thus, more rigorous experimentation with these industry-focused approaches should be considered.

It was anticipated that future evaluations of grant programs such as HGJTI would take into account the challenges and lessons learned in designing and implementing a rigorous evaluation. The key implication was that evaluation requirements should be embedded in any demonstration or pilot program. This would help to avoid the pitfalls of the HGJTI analysis by ensuring that: there were larger treatment group sizes by encouraging greater enrollment of participants in programs or making it possible to pool (or combine) observations across sites; the most appropriate comparison groups could be developed; and there was a centralized and consistent data system for the grant program.

Evaluations of new demonstrations and pilots could also include an analysis of the impacts of the grant activities on the communities and industries served, not only the impacts on training participants. This may involve developing community and industry indicators, conducting cost-benefit analyses, and examining return-on-investment to understand the impacts of industry-focused training on the community and employers, as well as society overall. A fuller picture of the impacts of training programs similar to the HGJTI would provide a richer understanding of how well these programs work.