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ABSTRACT

The state of workplace literacy in the United States was reviewed, and future challenges facing workplace literacy programs given projected economic and demographic changes were examined. First, statistical information from 121 workplace literacy program reports entered into the ERIC database between 1990 and 1993 was synthesized in an analysis of the following: program organization and target clientele, program goals, curriculum and materials, and program complexity. Next, selected workplace literacy programs were profiled in the context of existing policy guidelines for federally funded workplace literacy programs. Special emphasis was placed on curriculum approaches, commitment of school and business partners, and program evaluation methods. The implications of demographic and national/global economic trends economies for the provision of workplace literacy programs were analyzed. Finally, the following promising new developments in workplace literacy programs were described: pay for knowledge, multiple employer and union activities within industries, and increased state-level support and diversification of basic skills provision for the work force. Among the study's main conclusions were the following: partnerships are integral to program success, programs must emphasize continuing lifelong learning in rich educational environments, and more attention must be paid to program evaluation. (Contains 89 references.) (MN)

NCAL

NATIONAL CENTER ON ADULT LITERACY

A REVIEW OF RECENT WORKPLACE LITERACY PROGRAMS AND A PROJECTION OF FUTURE CHALLENGES

Larry Mikulecky
Paul Lloyd
Lisa Horwitz
Sharon Masker
Patti Siemantel

Indiana University, Bloomington

NCAL TECHNICAL REPORT TR96-04
APRIL 1996

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The National Center on Adult Literacy (NCAL) was established in 1990 by the U.S. Department of Education, with co-funding from the Departments of Labor and Health and Human Services. The mission of NCAL addresses three primary challenges: (a) to enhance the knowledge base about adult literacy; (b) to improve the quality of research and development in the field; and (c) to ensure a strong, two-way relationship between research and practice. Through applied research and development and dissemination of the results to researchers, policymakers, and practitioners, NCAL seeks to improve the quality of adult literacy programs and services on a nationwide basis. NCAL serves as a major operating unit of the Literacy Research Center at the University of Pennsylvania.

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A REVIEW OF RECENT WORKPLACE LITERACY PROGRAMS AND A PROJECTION OF FUTURE CHALLENGES

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Abstract

This report describes the current state of workplace literacy in the United States, through both summary statistics and individual program profiles. It considers such aspects as providers, learners served, principal goals, and types of curriculum. Following that is an assessment of the economic and demographic trends likely to affect workplaces and workplace literacy programs in the near future, leading to a discussion of the changes needed in workplace literacy to cope with these trends. The report concludes by highlighting several promising new developments in workplace and workforce literacy. Several themes run strongly through all four sections of the report: the importance of partnerships, the necessity of workforce education in addition to programs in specific workplaces, an emphasis on continuing life-long learning in a rich educational environment, and a need to diversify—while at the same time targeting—workplace literacy provision.

INTRODUCTION

In this time of a rapidly changing world economy, the role of workplace literacy is becoming more and more important. Jobs are changing, and people are changing jobs and as a result many more workers find themselves having to learn new ways of operating in the workplace. And they need help to do this—both job-specific instruction and more general workforce readiness. To what extent do such programs exist? And how are they organized?

This report describes the current state of workplace literacy in the United States, through both summary statistics and individual program profiles. It considers such aspects as providers, learners served, principal goals, and types of curriculum. Following that survey is an assessment of the economic and demographic trends likely to affect workplaces and workplace literacy programs in the near future, leading on to a discussion of the changes needed in workplace literacy in order to cope with these trends. The report concludes by highlighting several promising new developments in workplace and workforce literacy.

Thus the report contains four major sections, which discuss the following topics:

- Workplace Literacy Programs in the 1990s: Program Organization and Goals

  Program Organization and Target Clientele
  Program Goals
  Curriculum and Materials
  Program Complexity

- Workplace Literacy Program Profiles

  Policy Guidelines for Federally Funded Workplace Literacy Programs
  Curriculum Approaches
  Commitment of Partners
  Evaluation Methods

- New Challenges: Implications of Recent Labor Market Research

  Influences of Trends in the National and Global Economies
  Influences of Demographic Trends
  Implications for the Provision of Workplace Literacy Programs

- Promising New Developments in Workplace and Workforce Literacy

  Pay for Knowledge
  Multiple Employer and Union Activities Within Industries
  Increasing State Level Support and Diversification of Basic Skills Provision for the Workforce

WORKPLACE LITERACY PROGRAMS IN THE 1990s: PROGRAM ORGANIZATION AND GOALS

Between 1990 and 1993, 121 workplace literacy program reports were entered into the ERIC database. These program reports were examined for patterns of program organization, clientele, program goals, and curriculum among current workplace literacy programs.

The topics covered in this section are the following:

- Program Organization and Target Clientele, including

  program bases and partnerships,
  learners completing programs,
  industry sectors, and
  programs without industry linkage.

- Program Goals, including

  choice of program goals, and
  clustering of program goals.

- Curriculum and Materials
- Program Complexity

PROGRAM ORGANIZATION AND TARGET CLIENTELE

PROGRAM BASES AND PARTNERSHIPS

The organizational frameworks of the 121 programs reported in the ERIC database reveal some distinct patterns. More than three quarters are linked to specific employers, in some cases to a consortium of several employers. The other programs address populations not in the workforce or seeking help without linkage to a current employer. Nearly all programs involve partnerships of some sort. About a third are cooperative partnerships designed to serve geographic regions, or several counties and cities. More detail about these organizational patterns are reported below.

A majority of these workplace literacy programs (92 programs or 76%) operate to serve learners who work for clearly specified employers. Descriptions of smaller programs designate a single employer, while larger programs may offer service at multiple sites and serve up to 34 companies. Sixty percent (i.e., 73 workplace literacy programs) report serving four or fewer employers.

Nearly a fourth of the reports describe workplace literacy programs without naming a specific employer affiliation. These programs tend to operate at locations outside a specific workplace and address general

workforce populations (i.e., unemployed, dislocated workers), or provide industry-specific training without being limited to specific employers. Of these programs without specific employer linkage, 11 represent broad, labor-management partnerships and ten are labor-initiated programs not associated with particular companies, and take place in a community location or union hall sites.

Of the 121 program reports, 36 or nearly 30% describe workplace literacy programs which serve several cities, counties, or entire regions. These regional programs are often established in cooperation with a number of community agencies, such as a community or technical college, labor councils, business councils, chambers of commerce, school systems, and sometimes non-profit education consulting firms. Regional programs may serve a town or city, a portion of a state, or extend statewide. They operate outside a given workplace, such as at a community college or a union hall, and serve the general workforce community. Sometimes these programs are provided for displaced or dislocated workers. The table below displays program bases and partnerships by percentage of the total sample or subtotals of 121 programs. Because programs sometimes involve several partners, the percentages in the "Partnerships" sections total more than 100%.

Workplace Literacy Program Bases and Partnerships

(Total: 121 programs)

A. **Employer-Based programs**	92 (76%)
Partnerships:	
partners with community agencies	68 of 92 (73.9%)
college partners	48 of 92 (52%)
management/labor partners	10 of 92 (10.8%)
unaffiliated with partners	6 of 92 (6.5%)
B. **Labor Union-Based Programs**	8 (6.6%)
C. **Community-Based Programs**	21 (17.3%)
Partnerships:	
state-based program	18 of 21 (85.7%)
college partners	7 of 21 (33.3%)

LEARNERS COMPLETING PROGRAMS

Among the 121 workplace literacy programs examined in this survey, 80 report enrollment figures for learners completing programs. Enrollments range from a modest, company-based program of 13 adults to huge, state-wide programs serving up to 3,775 adults. Thirty percent of programs report fewer than 100 learners completing programs and more than half of programs report fewer than 200 completers. An overview of numbers of learners completing workplace literacy programs follows in the table below.

Workplace Literacy Program Size by Learners Completing

(Total: 80 programs)

Student enrollment	Number of programs
< 50	14
51 — 100	11
101 — 150	10
151 — 200	7
201 — 300	8
301 — 400	10
401 — 500	3
501 — 1000	10
1001 — 1500	5
> 1500	2

The four largest programs operated at many different sites. A partnership of community associations in Orange County, Florida reached employees at 21 businesses with a heavy emphasis on hotels and restaurants, including the EPCOT Center. No learner completion figures were made available in the report (Casasnovas-Bauer & Thibodeau,1990). The Wisconsin Workplace program offered basic skills training for employees at 11 worksites in order to improve their chances for job retention or advancement. The program involved 1441 participants with a average of 16 in each course that was offered (Paris, 1990).

New Jersey's Workplace Literacy Partnership Program was a cooperative effort to coordinate seven separate workplace literacy programs involving 34 companies affiliated with the United Auto Workers, the Standardbred Breeders and Owners Association, and the New Jersey Thoroughbred Horsemen's Benevolent Association. The partnership program reached 1514 participants at 33 site locations, and about 150 to 200 participants were served through each of the seven workplace programs (New Jersey State Department of Education, 1990).

Finally, the largest program reported was the New York City Education Program of the Central Labor Council for Workplace Education involving 3,775 learners. The program involved 215 classes, with an average of 18 participants in each class, for English as a Second Language (ESL) instruction, basic education, and specific union skills instruction (Gross & Feldmann, 1990).

INDUSTRY SECTORS

All but 15 of the 121 program descriptions identify the type of business or industry served by their programs. Each industry type mentioned is included in the table which follows.

Workplace Literacy Programs by Industry Sector

(Total: 106 programs)

Industry Sector	Programs	
	Numbers	Percentage
Manufacturing	58	55
Service: Health	23	22
Service: Other	14	13
Agribusiness	8	7
Transportation	3	3

Manufacturing areas indicated by program providers include utilities, chemicals, printing/graphics, automotive, carpentry and building, aircraft, apparel/textile, and metal industries. Programs were very evenly spread across these areas, with no particular industries dominating the list of 58 programs. The areas of manufacturing industry most often reporting workplace literacy programs were just four in the automotive industry and four in the apparel industry. Workers in service industries were offered training in 37 programs (35%). The largest number of service industry programs was in health care (i.e., medical centers, hospitals, and nursing homes): 23 (22%) of the workplace literacy programs address the health care industry. Other service industries include housekeeping and maintenance, hospitality, food service, insurance, education, and newspapers. Agribusinesses mentioned included farming, agriculture, and the poultry industry. Among the larger programs in this area is a program serving poultry workers in Virginia at Perdue Farms and Wampler Longacre Chickens (Merlin, 1993) and a regional project in California for migrant and seasonal farm workers designed to develop job skills (California Human Development Corporation, 1991). The three programs in the transportation industry focused primarily on commercial driver's license training.

PROGRAMS WITHOUT INDUSTRY LINKAGE (USUALLY FOR UNEMPLOYED OR DISLOCATED WORKERS)

A relatively small number of programs (15 of the 121 surveyed) were not linked to a specific industry. These programs tended to provide literacy services for unemployed, displaced, and dislocated workers. Typical of these programs was a community-based program in Harrisburg and Lebanon, Pennsylvania that trained welfare mothers, titled Potential Reentry Opportunities in Business and Education, PROBE (Baird & Towns, 1991). Another population was addressed by the Greater Hartford Alliance for Literacy in Connecticut, which responded to the region's economic recession by providing a literacy/basic skills training project aimed at laid-off middle-management workers. The program offered "advanced" literacy skills (5th-10th grade equivalent literacy skills) to enhance employability of participants (Greater Hartford Community College, 1992).

PROGRAM GOALS

CHOICE OF PROGRAM GOALS

Workplace program reports delineate goals intended to be met through workplace training. A summary of specifically cited goals, listed in the order in which they were most often mentioned in the ERIC descriptions, follows below. Most programs reported multiple goals.

"Job Enhancement and Productivity"—61 programs (50%) report connecting job literacy training to specific training to improve workers' job skills and work ethic. Program reports often mention improved "job performance" and "productivity." Typical phrases used in descriptions include boosting "competitiveness" for the company, enabling the worker to "see the job-to-organization relationship," and training for "technological advances" that will affect the worker. Several program descriptions also mention supporting the overall goal of becoming a "high performance workplace"—11 programs instituted worker training for Total Quality Management, Quality Control, Quality Assurance, Statistical Process Control, Just-In-Time or Synchronous Manufacturing, High Technology and Industrial Process Management. Also included under productivity is the goal, "improved safety"—6 programs (4%) are designed to teach and promote safety at the worksite.

"Functional Context Literacy"—60 programs (49%) sought to improve literacy skills that were job-related or linked to the functional context of the workplace. Functional context is a term introduced by Sticht (1987) to denote the direct connection of training materials and activities with work tasks. Among these 60 programs, 38 specifically mention or describe creating custom-designed, job-related curricular materials. The remaining programs made no reference to job-related custom-designed materials though such materials may have been developed. As one might expect, there was a good deal of overlap between the programs reporting enhanced "productivity" as a goal and the programs indicating the provision of "functional context" literacy instruction as a goal.

"Learner-Centered General Basic Skills"—69 programs (57%) report as a major goal the improvement of a wide range of general adult basic skills. In addition to basic reading, writing, and computation, goal descriptions mention teaching "life skills" such as "time management" or promoting "lifelong learning." Several (9 program reports) mention learners working toward a high school equivalency degree, such as the GED.

"Training for Retention or Advancement"—36 programs (30%) report a major goal of "upgrading skills" and encouraging employee retention. Some programs encouraged educational opportunities that lead to further training. Other programs promote workplace literacy as a path to "job security." Still other programs offered training as a means for retaining employees in industries with high turnover rates or offered skills to help employees make lateral moves to other positions for which they can become qualified. One example of a retention/advancement program is Project EXCEL (Career Resources Development Center, 1991), which involves four small business enterprises in San Francisco and offers Limited-English-Proficient workers language and literacy training in order to improve their opportunities for

advancement as well as other goals. Another example is the Palm Beach Post newspaper in Florida, which provides a workplace literacy program for individuals whose jobs were in jeopardy. Instruction was designed to reduce turnover and further employment and advancement for those individuals (Howden, 1990).

"Morale"—26 programs (21%) report a goal of improving employee attitudes. They cite improved self-esteem, motivation, improved confidence, and "compassion and acceptance," reduced frustration, stress and absenteeism. These goals have been gathered together under the general label of improving morale.

CLUSTERING OF PROGRAM GOALS

A good deal of professional discussion has addressed the issue of the degree to which programs should be job-related and to what degree they should teach general skills. A clustering of the goals described above reveals the following breakdown for the 121 programs in this survey:

job-related skills training only	52 programs (43%)
general skills training only	15 programs (12%)
both general & job-related	54 programs (45%)

Job-Related Skills Training: In the cases of 52 programs, job-related literacy goals were identified when one of a number of features was described, such as upgrading workplace skills; offering job-related instruction; providing a custom-designed program based on workplace needs or a task assessment; having a goal that the program would determine workplace literacy needs, train for job-specific skills, or job-specific literacy; offer training for entry-level workers. In addition, programs that used functional-context materials or materials that matched tasks at the worksite and programs that involved supervisors in the assessment of training needs and assessment of employee improvement on the job site were included among job-related programs. (It is possible that some unreported general skills training may have occurred in classes using custom-designed materials.)

An example of job-related training was the Kodak Skills Enhancement program. Designers determined the workplace literacy needs of Kodak's Colorado division and wrote a performance-based functional context literacy curriculum. Training consisted of a multistrand approach of basic mathematics skills required to perform manufacturing and quality control tasks expected of the workers as well as the basic reading and thinking skills required in their workplace (Beaudin, 1993).

The Allentown Literacy Council created a training program for a variety of occupational areas for small businesses in the area: food, hotel/hospitality, industrial machines, maintenance, and health care industries. Common entry-level reading and thinking tasks were identified and matching tasks were addressed with a functional context approach. Actual workplace materials were used in the training program (Adult Literacy Center of the Lehigh Valley, 1992).

Northampton Community College in Bethlehem, Pennsylvania, developed technology training courses for business and industry firms in eastern Pennsylvania, based on needs and skills assessments conducted at the firms (Northampton Community College, 1991).

Boston's Continuing Education Institute created ESL and ABE programs intended to improve the job experience for health care employees with language and literacy problems by teaching them language strategies that had direct applications to their jobs. The ability of learners to fill out patient forms correctly and report problems on the job were used as indicators that the training had been accomplished (Continuing Education Institute, 1993).

General Skills Training Focus: Programs were occasionally designed (15 out of 121 cases) principally to improve a learner's general literacy skills. Program descriptions stated that basic literacy instruction was provided, or basic math, reading, computer, communication, or thinking skills were addressed in the training program. Skills instruction was not directly tied to job skills. An example of general basic skills training can be found in a cooperative United Auto Worker and General Motors program operated at three sites. The programs provided adults with sufficient basic education to enable them to benefit from later job training and retraining (Hacker, 1992). Motorola's SPDI division also provided training services to upgrade employee's basic skills and help them become more effective, self-motivated learners (Merex Corporation, 1992).

Combined Job Skills Training and General Skills Training: The largest category of reports (54) described programs designed to provide job skills training in conjunction with general skills training. For example, a California Rural Workplace Literacy Project program provided literacy training to migrant and seasonal farm workers. Both reading and job skills were taught at multiple levels, and success was indicated by evidence of job retention, career advancement, increased earnings, and continued education (California Human Development Corporation, 1991). The Greater Hartford Alliance for Literacy was a project designed to train unemployed men and women in the "new basic skills of the American Workplace." Learners were enrolled who functioned at a 5th- to 10th-grade level of reading and math skills. Instruction included business reading, writing and math, ESL instruction, job skills instruction, group interaction skills, strategies for getting along with supervisors and co-workers, and creative problem solving (Greater Hartford Community College, 1992). The Basic Education Skills Training (BEST) workplace literacy model was designed to provide adult basic education services for employees in Maury County, Tennessee. The focus was on job-related instruction, and the goal of the program was to increase safety, productivity, and morale with decreased absenteeism as a result of improved employee basic skills (Westberry, 1990).

CURRICULUM AND MATERIALS

Larger, multi-site programs tended not to describe curriculum in any detail. In the majority of program descriptions, curriculum discussion was limited to the simple listing of topics addressed. Among the workplace literacy program topics most often mentioned are the following:

Communication, including oral, writing, and listening skills—70 programs or 57%;

Math, including calculations, blueprint reading, and metric conversion—68 programs or 56%;

Reading—48 programs or 39%;

Computer Technology Instruction—28 programs or 23%;

English as a Second Language (ESL) & Limited English Proficiency (LEP)—40 programs or 33%;

Problem-Solving or Critical Thinking—26 programs or 21%; and

Job-Specific Knowledge Instruction (including special technology)—14 programs or 11.5%.

Clustering of curricular foci can be detected among certain of these areas. Most notably, "Reading" and "Math" are taught together in 51 programs. In 34 programs, reading and math are offered along with "Communication," which includes oral, writing, and listening skill instruction. An example is a Pennsylvania Department of Education workplace program for Pennsylvania workers in light industry, health care, hotel and food service occupations. The program is principally designed to upgrade workplace vocabulary and comprehension skills, but includes math tasks common to occupational areas and specific jobs.

"Reading" and "Math" are taught with "Problem Solving or Critical Thinking" in eight programs. "Reading" is taught alone with "Problem Solving" in six programs. The Allentown Literacy Council in Pennsylvania has a program for small businesses to teach thinking and reading for entry-level workers (Allentown Literacy Council, 1991).

English as a Second Language (ESL) or Limited English Proficiency (LEP) instruction clusters with "Reading," "Math," and "Communication" instruction in 14 programs. A Cambridge, Massachusetts program in two health care sites was designed to help improve the language skills of employees, and stresses communication instruction (Lowry & Sterling, 1992). ESL instruction is taught with "computer technology" instruction in 9 programs.

In addition, "Computer Technology" instruction is often taught in combination with "Reading," "Math," and "Communication." A program for employees at BP Chemicals/HITCO, Inc. offers workplace basics to provide a foundation for Total Quality Management. To address the need, three core courses cover communication, English skills, and TQM, all for LEP and ESL workers (El Camino College, 1992).

An example of one of the rare single-strand programs is a numeracy training program for employees of two manufacturers in Lehigh Valley, Pennsylvania. The curriculum emphasizes basic operations (McMahon, 1990).

Some program reports described curriculum beyond a superficial goals or topics level. Fifty-two program descriptions provided some degree of detail about materials and curriculum. Of these, only two programs reported exclusive use of off-the-shelf published materials. The remainder used a mix of published materials and custom-designed materials or exclusively used custom-designed

materials. Of these, 48 programs stated that custom-designed materials are used in the curriculum and these materials were intended to relate to actual job experiences at the workplace. The use of custom-designed workplace literacy materials included training workers with simulated or actual forms, work-related reading material, and writing activities used at the workplace.

A program offered through the Allentown Literacy Council in Pennsylvania simulated reading materials and worksite writing experiences across occupational areas such as hotel/hospitality and industrial/machine operations (Allentown Literacy Council, 1991). Lake Michigan College provided job training services to help revitalize Southwest Michigan by involving several business and industry partners and integrating materials custom-designed to address, among other things, Total Quality Management program, job skills, and leadership demands (Mulder & Wismer, 1991). In Bethlehem, Pennsylvania, Northampton Community College (1991) established an automated manufacturing training center for industry training in the region that provided demonstrations and training in the use of technology. The Minnesota Teamsters Service Bureau's project for commercial driver's license instruction correlated learning activities with materials and skill instruction for filling out commercial driving information sheets (Minnesota Teamsters Service Bureau / Northeast Metro Technical College, 1993). This workplace literacy project was among those creating its own computer training courses, videotapes, and audio tapes. The Northampton Community College program developed industry-specific training videotapes.

Video disk content-based curricula for two separate programs were described. The Working Smart workplace literacy project for the hotel and food industry in the Los Angeles, California area, developed interactive video disk technology (Los Angeles Unified School District, 1990). A partnership with Service Master in Texas, one of the largest maintenance companies in the world, trained learners from a custom-designed video disk program (Ziegler & Taylor, 1992). The Workplace Literacy System Project (Poulton, 1992) in Raleigh, North Carolina prepared an interactive 50-hour CD-ROM disk program of instruction and drill in basic skills within the context of the textile/apparel manufacturing industry.

PROGRAM COMPLEXITY

In recent years, a good deal of concern has been expressed that workplace literacy programs only prepare workers for specific jobs and do little to take into account workers' broader interests and needs. One means of monitoring the degree to which this is the case is examining the degree to which workplace literacy programs are multi-stranded. Single-strand programs offer only one type of education, while multi-strand programs address several populations with several types of instruction. In many multi-strand programs, it is possible for a learner to start with one sort of instruction (e.g., ESL), progress to other sorts (e.g., GED and/or functional context training) and eventually take training to help make a transition to technical college courses.

Multiple-strand programs have been described by Mikulecky and Lloyd (1993) and Bussert (1992). For the operational purposes of analyzing the 121 programs surveyed in this study, multiple strand programs are

designated as those offering two or more of the following: ABE, GED, ESL, and a selection of basic skills/technical courses, as opposed to single-strand instruction (instruction in one area). Programs that mentioned only home study, or computerized learning were also designated single strand even though these methods might indicate several audiences and curriculum goals. Bussert (1992) used this definition in her survey of 107 workplace programs operating in the late 1980s. Results from this more current survey of 121 programs in the 1990s essentially parallels Bussert's findings.

Of the 121 programs in the current survey, 93% described multi-strand curricula. Not all strands were available to workers at the same time, but strands were available to different populations within the workforce and to learners at different times in their development. Only seven programs (or 5.7%) referred to only one skill area or strand of instruction offered by their program.

Conclusions About Workplace Literacy Programs in the Early '90s

A good deal of workplace literacy activity was reported in the early 1990s. Although half of programs reported some form of enhanced productivity on the job as among program goals, the vast majority (93%) offered several strands of instruction to accommodate a wide variety of learner interests, needs, and abilities. Nearly all programs, whether employer-based or community-based, involved partnership activities. The industry sectors most often mentioned as targets for workplace literacy instruction were manufacturing, service, and agribusiness, in that order. No single manufacturing industry dominated the 58 programs in that sector. Two thirds of the service industry programs, however, addressed health care-related fields. Though the majority of programs report 200 or fewer learners completing programs during a year, 25% of programs report more than 400 completers.

Workplace Literacy Program Profiles

The Federal Register has specified several criteria used for selection of workplace literacy projects to be funded, which include the areas of curriculum, partnerships, and evaluation. This section of the report presents examples of how various projects both met a given criterion and documented that they did so. These examples may not be the only good examples of compliance with specific criteria. The decision about which of more than 120 lengthy program documents to examine closely was based on statements made in abstracts, under the assumption that the abstract provides a reasonable summary of what the program providers felt they did especially well. Even among those examined, projects may well have done admirable jobs of meeting the criteria without documenting it adequately in the final project report. However, the federal criteria and reported compliance with them do provide a lens through which to examine good workplace literacy program practices.

The topics covered in this section are the following:

- Policy Guidelines for Federally Funded Workplace Literacy Programs
- Curriculum Approaches, including

  the relationship between skills taught and the literacy requirements of actual jobs,
  use of adult materials and individualized educational plans, and
  targeting adults with inadequate skills for new employment, continued employment, career advancement, or increased productivity.

- Commitment of Partners, including

  active commitment of all the partners toward accomplishment of the goals, and
  provision of educational and support services that reduce barriers to participation by adult workers.

- Evaluation Methods, including

  gathering objective, quantifiable data;
  identifying and measuring participant outcomes;
  effects on job advancement, job performance, and job retention; and
  systematic evaluation for on-going program improvement.

POLICY GUIDELINES FOR FEDERALLY FUNDED WORKPLACE LITERACY PROGRAMS

The federal criteria (U.S. Government, 1992) for selection and funding of programs under the auspices of the National Workplace Literacy Program were used to focus an examination of several workplace projects. For ease of reading, these criteria have been restated in the form of the following questions:

1. Did the project demonstrate a strong relationship between skills taught and the literacy requirements of actual jobs? Did the project demonstrate use of curriculum materials specifically designed for adults and use of individualized educational plans?
2. Did the project target adults with inadequate skills in such a way as to increase the probability of new employment, continued employment, career advancement, or increased productivity?
3. Did the project demonstrate active commitment of all the partners toward accomplishment of the goals?
4. Did the project demonstrate commitment to provision of educational and support services that reduce barriers to participation by adult workers?

In addition to these criteria, four additional evaluation criteria were considered when projects were selected for funding. These criteria were the following:

1. Did the evaluation include objective, quantifiable data?

2. Did the evaluation identify and measure participant outcomes?
3. Did the evaluation include effects on job advancement, job performance, and job retention?
4. Was a systematic evaluation developed that could be used throughout the project period for ongoing program improvement?

CURRICULUM APPROACHES

RELATIONSHIP BETWEEN SKILLS AND LITERACY REQUIREMENTS OF JOBS

Did the project demonstrate a strong relationship between skills taught and the literacy requirements of actual jobs? Did the project demonstrate use of curriculum materials specifically designed for adults and use of individualized educational plans?

One hospital literacy project in Georgia (Chase, 1990) targeted entry-level housekeeping, food service, and laundry personnel. At this site, literacy analysis included observation of specific job tasks, interviews with workers and supervisors, and collection of all printed materials. Interviews solicited workers' descriptions of their tasks and information about where they had problems. Notes from observations and interviews as well as the actual workplace documents were examined for the kinds of reading, writing, and speaking demands they generated, resulting in both a skills list and a list of the 100 most frequently used job-related words and phrases.

Documentation included examples of lesson plans and job-specific materials around which lessons were developed: personnel manual, pay stubs, interoffice memos, and task instruction sheets. Lesson plans used a whole language approach and appear to be completely customized. In addition, each session began with a chart showing the job task, what employees needed to know, and the specific literacy objectives of the lesson.

At the Martin-Marietta plant in Maryland (Essex Community College, 1992), curriculum was developed after a literacy audit, which included site visits, review of relevant workplace documents, interviews, and job shadowing. The auditors developed a list of broadly applicable literacy skills and matched them to CASAS assessment items. The auditors' report is included along with curriculum guides and sample lesson plans. Lessons generally began with concepts familiar to the participants and then made a workplace connection through use of workplace specific documents or processes. Methods used include journal writing, group discussion, individual and small group work, and instructor modeling, as well as practice time and an opportunity to fine tune lessons to the specific needs of individual learners through use of individualized education plans.

The Martin-Marietta program, in fact, seemed to make unusually good use of individualized education plans. Each employee received counseling on entry into the program and an IEP was developed for each learner which remained confidential between the individual and Essex College. It included test scores, educational background, work history, self-assessments (including strengths and areas needing improvement), and education goals (long term, short term, and intermediate steps). An interim and exit report permitted reevaluation and modification of goals at the mid-point and end point, and included a section to

note problems/ resolutions associated with early withdrawal. Samples of the IEP and the interim and exit report were provided. It is worth noting that, due to time constraints associated with such intensive counseling, after the first semester, interim counseling was conducted only when requested or if there were attendance problems.

TARGETING ADULTS WITH INADEQUATE SKILLS

Did the project target adults with inadequate skills in such a way as to increase the probability of new employment, continued employment, career advancement, or increased productivity?

One way to determine whether or not a project has met this criterion is to examine methods of program and participant evaluation to see if particular attention was paid to measuring this outcome.

The Lanai Visitor Serving Workplace Literacy Project in Hawaii (Donahue, 1991) was designed to aid displaced agricultural workers in their transition to hotel jobs. This program focused largely on oral communication skills because the target population, not native English speakers, would need to be able to speak understandable English to work in the tourism industry. This project used a novel approach to evaluation. Since the purpose of the project was to enhance employability, 180 of 274 participants were interviewed by the Hawaii State Employment Service and Rock Resorts Human Resources personnel. Interviewers rated participants both before and after training and placed them into one of five categories, shown in the table below, which also indicates pre- and post-program ratings:

Category	Pre-Program	Post-Program
Hire Now	0	90
Probable Hire	21	37
Potential for Hire	134	44
Unlikely to be Hired	20	9
Unemployable	5	0

Follow-up surveys indicated that 74% of workers enrolled in classes were hired by hotels, 85% of those hired were still employed after 180 days, and 25 participants who started at entry level had been promoted, including three to a supervisory level.

The City University of New York and the New York City Central Labor Council developed a program in New York (Perin, 1992) to prepare paraprofessional health care workers to enter college programs to enable them to advance into professional level jobs such as registered nurse, radiology technologist, and so forth. Selection requirements for the program included union membership, a high school diploma or equivalency certificate, and a passing score on the screening assessment, which involved writing an essay which was then scored using the same six point holistic scale used by CUNY. CUNY requires a score of four or more in order to enter college work without remediation. For this program a score of two or better was required.

Program evaluation included examining how many participants actually entered college/were planning to enter college and how many actually passed the CUNY entrance examinations (exempting them from remediation), as well as testing during training. Nearly 150 learners showed initial interest in the program. Only the 99 learners who remained beyond the second session were considered to be actual program participants. Of those 99, 47% completed the entire 168-hour program. A survey of 96 participants taken three and four months after the completion of the program found that 62 were enrolled in college programs, including some non-completers. Twenty-three others planned to enroll.

Testing during training simulated college placement testing. Based on these simulated tests, the most successful component of training appeared to be writing. From these tests, evaluators estimated that 44% would have been exempt from remediation if they had taken placement tests immediately and 56% would have been placed in upper level remediation. Because of the long lag time between completion of the program and acceptance into college, actual information was available only on the 17 participants who had been accepted into college and given entrance testing. Of those 17, 10 passed reading, 7 passed writing, and 11 passed math placement tests.

COMMITMENT OF PARTNERS

ACTIVE COMMITMENT TO ACCOMPLISH GOALS

Did the project demonstrate active commitment of all the partners toward accomplishment of the goals?

As stated above, the vast majority of workplace literacy projects are partnerships to some extent; however, a clear description of the roles played by each partner is rarely provided in project reports, and rarer still is there any demonstration of the extent of their commitment and participation. The example below was exceptional in its discussion of partnership issues.

The Workplace Skills Enhancement Program was developed as a result of a partnership between Martin-Marietta and Essex Community College, Maryland (Essex Community College, 1992). Martin-Marietta provided two sites, one union and one non-union site. Working committees were established at each site, consisting of representatives from each partner and including union representatives at the union site. These committees met regularly—weekly at the union site—to direct program development and address problems as they arose. In addition, an advisory board met monthly to oversee program development and insure adherence to grant guidelines. This board represented high level management from each of the partners, including the local union. Regular, formal meetings were supplemented by informal communication as needed to maintain a flow of information between partners.

One potential area for disagreement in this partnership revolved around company concern about direct communication between college and union representatives. This potential problem was resolved with the union focusing on a program support role and the company acting as liaison between the union and the college.

The external evaluator for this program examined working committee participants' perceptions of partner interrelationships. His analysis of their responses suggests that a solid balance had been found in a very complex partnership. In addition, the final report included a listing of services provided by each of the partners.

A second example demonstrating partner commitment to a program is described in the partnership between the Massachusetts Career Development Institute and the Geriatric Authority of Holyoke, Massachusetts, along with the United Food and Commercial Workers Union (Massachusetts Career Development Institute, 1992). Representatives from each partner plus four employees met monthly to discuss curriculum and assess students' progress. The meetings also served as a forum for discussion of other program concerns as they came up, such as inclusion of family members or teaching methodologies. The report documentation included copies of agendas, sign-in sheets, and minutes of meetings.

REDUCING BARRIERS TO PARTICIPATION BY ADULT WORKERS

Did the project demonstrate commitment to provision of educational and support services that reduce barriers to participation by adult workers?

Child care, transportation, educational counseling, and release time are support services mentioned in only a few projects and usually without information about utilization, making commitment hard to gauge. Project LEAP in Baltimore, Maryland (Bennet, 1991), however, did track utilization of services by their program participants and found that 22% used transportation assistance, and 14% used child care assistance. These figures were verified by the external evaluator.

A different barrier reduction effort was offered by the previously mentioned CUNY project to provide college preparation of health care workers (Perin, 1992). In this project, participants were surveyed ahead of time to ascertain scheduling preferences.

EVALUATION METHODS

GATHERING OBJECTIVE, QUANTIFIABLE DATA

Did the evaluation include objective, quantifiable data?

Projects typically kept track of demographic data such as gender, race/ethnicity, family data, years of education, type of program enrolled in (for multi-stranded programs), hours of instruction, and employment data. These data are important but do not measure program effectiveness except as they contribute to an understanding of the population reached.

Many programs also kept evaluation data, but much of this data is limited in its usefulness for various reasons. For example, unanchored, Likert-type rating scales are commonly used in evaluating both programs and student job performance changes. Resulting data is quantifiable (i.e., convertible to numbers), but it is sometimes difficult to tell what it reflects. Even when pre- and posttest data were based on information normally quantified, such as test

scores, it was often given for only some of the participants, without an adequate explanation of what became of the other scores.

There are legitimate problems in collecting this kind of data. Short programs (30 to 40 hours) are not likely to produce significant gains on tests designed to measure general literacy in grade level equivalents. Programs that are long enough (100 or more hours) to effect such changes are also very often open-enrollment, making collection of pre- and posttest data difficult.

MEASURING PARTICIPANT OUTCOMES

Did the evaluation identify and measure participant outcomes?

The Training Opportunities Project in Greenville, South Carolina (Greenville Technical College, 1993) attempted to measure the impact of training in three areas: skill level achievement, job productivity, and personal growth and development. In addition to standardized tests, the project developed anchored supervisor ratings to measure the following factors related to productivity: dependability, team work, self-initiative, job knowledge, adaptability, work pride, making decisions, leadership, and taking responsibility. For each factor, a five-point scale was developed identifying the behavior of a person functioning at a given level. For example, on the adaptability scale, one set of descriptions was:

performs unusual tasks willingly (5)
cooperates as needed; performs unusual or new tasks with supervision (3)
complains when asked to do something out of the ordinary (1).

Similar instruments were developed to measure changes in self-esteem and personal growth, math skills, and reading and language arts skills. Both the raw data and the percentage changes are provided in the report.

EFFECTS ON JOBS

Did the evaluation include effects on job advancement, job performance, and job retention?

As previously noted, job performance changes were most frequently measured using rating scales. Actual performance data measuring these factors was rarely reported except in projects whose primary focus was training for new employment. There were some noteworthy exceptions, however. One such example is the Lanai project (Donahue, 1991) already mentioned. A second program, the Literacy for Employability (LitE) Program (Shelton, 1993) provided by Texas University in Austin tracked attendance, turnover, and accident rates as performance data and found significant positive differences in accident rates between participants and non-participants in two of the three program companies. This program also recorded 90 anecdotal reports of success, during the 21 month life of the program, to augment other data. A third example is the PROBE project in Pennsylvania (Baird & Towns, 1991), a program to provide single, welfare mothers with marketable skills. This project measured success by participant ability to secure jobs and effected considerable success in the first two years with 90% and 80% placement rates in jobs for program participants.

Where applicable, programs did track certification. For example, a program in Holyoke, Massachusetts (Massachusetts Career Development Institute, 1992) articulated objectives concerning successful completion of the State Nurses' Aid Licensing and GED exams and also reported success rates.

SYSTEMATIC EVALUATION FOR ONGOING PROGRAM IMPROVEMENT

Was a systematic evaluation developed that could be used throughout the project period for ongoing program improvement?

A good example of how systematic evaluation can be designed to assist ongoing improvement is provided by a program designed to prepare employees in several small businesses (i.e., custodial workers, commercial truck drivers, day-care workers, and employees in a small manufacturing plant) in San Marcos, Texas (McBride et al., 1992). This program used a number of methods and measures to provide information for both formative and summative evaluation. A few weeks into the program, an outside evaluator examined documents stating program goals and interviewed program directors, instructors, and learners about those goals in order to determine the degree to which there was shared understanding and agreement. Classroom observations and examination of resources determined the extent to which the program was implementing instruction matched to the goals. Feedback allowed for program adjustment and refocusing.

Effectiveness, in terms of learner gains, was assessed using a variety of indicators before instruction, during instruction, and after instruction. Instructors interviewed workers at the outset of each course to develop an Individual Education Plan, which was used both to adjust curriculum goals and monitor learner progress. A weekly evaluation form filled out by students enabled the teacher to stay abreast of student perceptions and correct problems early in instruction or as they came up. The anonymous, written format of this weekly evaluation also provided additional writing practice for program participants. A final written evaluation form at class end and an exit interview addressed transfer from the classroom to the literacy requirements at work and at home.

In addition to the above measures of participant perspective, the project used more traditional pre- and post- measures to document reading and writing progress. The *Hadley Press Adult Placement Indicator* was used to measure general literacy. A cloze test based on a company newsletter was used to estimate ability to comprehend work-related reading tasks. A pre- and post-administration of a writing apprehension scale was employed, which revealed a marked reduction in learner fears about writing after instruction. The project also measured program retention rates (average 91%) and time spent on independent practice outside of class. Examples are provided in the report of all these instruments except the *Adult Placement Indicator.*

Finally, this project initiated development of portfolio-based qualitative assessment that program instructors felt would be even more effective and sensitive instruments to monitor learner gains and facilitate revision of instruction.

CONCLUSIONS FROM PROGRAM PROFILES

The program profiles considered above demonstrate the importance of various aspects of a workplace literacy program. Curriculum and materials are most effective when they relate directly to the adult learners' needs, whether for enhancing job skills or meeting individual goals. In addition, to produce improvements in job-related competencies, custom-designed curriculum built around real workplace materials is most likely to succeed. Also, communication among project partners is essential to the smooth operation of a workplace program, including frequent well-documented meetings to resolve potential conflicts. Finally, evaluation is vital to the continuing success of the program, both quantifying learner and program gains and showing the way to future improvements.

NEW CHALLENGES: IMPLICATIONS OF RECENT LABOR MARKET RESEARCH

The previous sections of this report have documented the state of workplace and workforce literacy programs in the early 1990s. Several forces, both economic and demographic, are creating new challenges for program providers. Several national and international trends in labor markets interact to complicate our vision of future workplace literacy programs. For example, at the same time that calls are being made for workers with higher levels of skill, efforts are being made to de-skill jobs with technology. Some jobs for which adults have prepared in workplace literacy programs leave the country before learners have graduated from the programs. The complexities of competing trends continue. On the one hand, there are gaps between the skill demands of many current jobs and the skills of entry-level workers. On the other hand, current workers are living and working longer and about 20% of college graduates are taking jobs previously held by high school graduates.

This section of the report synthesizes a good deal of information from labor market analyses as well as economic and education studies related to workplace literacy program demand. The synthesis concentrates on the following three areas:

- Influences of Trends in the National and Global Economies, including

  the growing service sector,
  the increase in temporary and part-time work,
  the increase in small businesses, and
  high-performance workplaces.

- Influences of Demographic Trends, including

  the surplus of college graduates,
  low levels of worker skills,
  continuing older workers, and
  immigrants with little English.

- Implications for the Provision of Workplace Literacy Programs, including

  job-related, targeted training;
  workforce development;
  non-exportable jobs;
  English as a Second Language; and
  long-term education.

In the first two parts, the trends themselves are described and brief indications are given of their possible consequences. Then, in the third part, these consequences are pursued in more detail with suggestions and recommendations for future policies and programs.

INFLUENCES OF TRENDS IN THE NATIONAL AND GLOBAL ECONOMIES

THE GROWING SERVICE SECTOR

In the last twenty years, our country has experienced a major shift in employment from jobs in the goods-producing sector (including manufacturing, mining, and construction) to jobs in the service-producing sector (including transportation and public utilities, wholesale trade, retail trade, financing, insurance and real estate, services, and government). In 1965, 35.9% of the workforce was employed in the goods-producing sector; by 1984, that percentage had dropped to 26.2%. And by 1993, only 21.0% of United States workers were in the goods-producing sector (based on statistics from *Monthly Labor Review*, 1966, 1985, & 1994). In fact, if the 1965 percentage still held true, more than 15 million additional people would be in the goods-producing sector than are actually employed there today.

On the other hand, the service sector increased from employing 64.1% of the workforce in 1965 to 73.8% in 1984. And, by 1993, 79.0% of the workforce was employed in service industries (based on statistics from *Monthly Labor Review*, 1966, 1985, & 1994). In the past, many people made middle-class incomes while working in the goods-producing sector, and they were not required to have high school diplomas or advanced literacy skills to do so. In contrast, many service sector jobs require considerable literacy skills. For the most part, the shift towards employment in services has meant that people must have higher literacy skills to get jobs that pay less (Borjas & Ramey, 1994; Gittleman, 1994; Moore & Blake, 1992).

Job opportunities in the United States will increasingly be in fields of direct service, building, or assembly, because these jobs are not economical to export to countries with lower labor costs. For example, teachers, lawyers, doctors, nurses, and high technology repair personnel will still be in demand as will orderlies, day care workers, cashiers, garbage removers, food preparation, and clean-up personnel (Bureau of Labor Statistics, 1992;

Eck, 1993). *It may be more meaningful for workplace literacy policymakers planning for future programs to look at job training in relation to this factor of non-exportable jobs than in any other way.* Jobs that *must* be provided locally are more likely to be a good investment for training resources than are jobs that could be done for less cost in other parts of the world.

INCREASE IN TEMPORARY AND PART-TIME WORK

Another service sector phenomenon with fundamental training implications, is the increase in temporary, contingent, and part-time workers. Employers in the United States are using these workers on an unparalleled scale (Bureau of Labor Statistics, 1992; Gordon, 1993; Judis, 1994). For the most part, when employers avoid full-time permanent workers, their reasons are economic. The rising cost of benefits and the flexibility afforded by temporary and contingent workers make employers wary of adding workers to whom they are committed for longer terms (Plewes, 1992). In our rapidly changing global economy, making labor a variable, instead of a fixed cost is an advantage. Companies can more easily change volumes, methods, locations, and product lines when they use temporary workers. Worker skills usually have little to do with these decisions.

Nevertheless, the skill implications for the workforce are enormous. Workers who must constantly adjust to new skill demands must be facile learners. Much of the information they need to learn to perform their varying job duties will be delivered by means requiring a high level of reading comprehension. Without the contextual cues that permanent, full-time workers bring to reading workplace instruction, temporary and contingent workers face higher literacy requirements, more frequent literacy tasks, and more stressful literacy demands. Workplace literacy policymakers could profitably assess ways to assist these workers (Plewes, 1992). For example, agencies for temporary labor services might be persuaded to implement longer term, higher level adult literacy training as an investment in the quality of the individuals they provide to client employers.

INCREASE IN SMALL BUSINESSES

Similarly, smaller businesses hire more workers annually than do larger businesses, but these organizations have few resources to provide workplace training for their employees. And they do, in fact, provide less training for their employees than larger organizations (Berryman, 1994; Lynch, 1994). This factor is exacerbated by the high rate of failure and turnover that small businesses experience (Business Council for Effective Literacy, 1993). So, although workers are more likely to be hired by small businesses, they are also more likely to be looking for other jobs than are workers hired by larger companies. These conditions suggest training needs that policymakers should consider. Consortia of small businesses and community colleges, rather than specific workplaces, may be the most feasible delivery systems for these workers (Kutner, Sherman, Webb, & Fisher, 1991).

HIGH PERFORMANCE WORKPLACES

One trend that affects both service sector and manufacturing jobs is the extent to which organizations are forming "high performance workplaces." Although we cannot evaluate precisely the strength of this trend through a

synthesis of research, several sources indicate that perhaps as many as 35% of businesses are employing some form of high performance workplace technique, such as

- implementing total quality management,
- integrating quality control into production (statistical process control),
- implementing just-in-time or computer-integrated production,
- creating work teams or quality assurance teams, and
- increasing responsibility for all workers.

(See, for example, Bassi, 1992; Gordon, 1993; Osterman, 1993; Richman, 1994.)

Two workplace literacy factors emerge when businesses embrace these techniques. First, ordinarily many workers are laid off as work is reorganized, management layers are reduced, and technology is more effectively employed. These workers then compete for other jobs. Second, the remaining employed workers are faced with new, and sometimes additional, responsibilities with concomitant skill demands. In many cases, workers who have previously been given detailed oral directions from supervisors need to read work orders, manuals, and other instructions to carry out their jobs. Also, the formation of work teams requires regular discussions of problems and progress, and the writing and reading of meeting minutes. In addition, the use of statistical process control involves workers in measuring, averaging, and graphing their own production, and making decisions based on what they find. All of these changes shift greater responsibility to the workers—and require them to read, write, compute, and communicate more effectively than ever before. In many workplaces, the employees are not able to do this at first, and extensive workplace literacy education is required to improve their skills (Chisman et al., 1992).

INFLUENCES OF DEMOGRAPHIC TRENDS

In addition to changes in the nature of the jobs available, the population holding and seeking those jobs is also changing. The proportion of non-English speakers is rising rapidly, there are more college graduates entering the workforce, and older workers are tending to remain in their jobs longer. These trends may have a variety of effects on the employment situation and on the need for workplace literacy programs.

SURPLUS OF COLLEGE GRADUATES

Several sources project an apparent overall surplus of college graduates in the range of 20% to 30%, for the decade ending 2005 (Eck, 1993; Hecker, 1992; Shelley, 1992). Earnings of college graduates are already showing slower growth in comparison with past decades. One out of five college graduates in 1990 held a job that did not require a degree (Center on Budget and Policy Priorities, 1992; Judis, 1994; Shelley, 1992). The excess supply of college graduates and workers with "some years of college attended" is pushing available skills in the labor market downward into jobs traditionally filled by high school graduates, and this may happen more in the future. For example, large numbers of teachers' aides are projected to be hired as the

number of school-age children increases over the next decade. Because of budget pressure and increasing numbers of special education students, teachers' aides will be the fastest-growing position in the public schools (Morisi, 1994). Historically, teachers' aide positions have been filled with high school graduates. Should a surplus of college-trained personnel occur, it is logical that administrators will prefer to employ workers with more, rather than less, education. In this way, lower skilled workers will be at an increasing disadvantage in the workplace.

This raises two possibilities connected with workplace literacy. On the one hand, because increasing numbers of college graduates are unable to find jobs requiring a college degree, they may increasingly be forced to take jobs that demand fewer skills, which they should already have. On the surface, this would suggest a decreased need for workplace literacy programs to meet immediate labor requirements. On the other hand, those lower skilled workers who are displaced by college graduates will need to raise their skills in order to become employable. They will require some form of work readiness or job enhancement literacy program to be at all competitive for jobs with wages above the subsistence level.

LOW LEVELS OF WORKER SKILLS

Somewhat confounding the interpretation made above of the surplus of college-trained personnel are recent appraisals of current student and worker skills. There are growing numbers (10%-30%) of students who need remediation in two- and four-year post-secondary institutions (Grubb & Kraskouskas, 1992), and data from the National Adult Literacy Survey (National Center for Educational Statistics, 1993) show surprising numbers of high-level job holders in the lower Levels One and Two on the prose, document, and quantitative scales of the National Adult Literacy Survey measures. These figures suggest that basic skills training may be appropriate for a number (15%-30%) of this highly educated group (Grubb et al., 1992; Mikulecky, 1995). For example, 16% of teachers in the NALS survey in 1990 scored in Levels One and Two on the document scale, as did 21% of administrators and managers, and 10% of the professional group. Most of these low-scoring respondents can be presumed to have college degrees, but achievement at Levels One and Two of this assessment suggest basic skills deficits that probably reduce their effectiveness (Mikulecky, 1995). Therefore, it cannot be assumed that college graduates are necessarily fully equipped to perform jobs that have traditionally been filled by high-school graduates—they may still need workplace literacy programs.

CONTINUING OLDER WORKERS

Projected shortages in certain areas of employment are based, in part, on estimated rising rates of workers leaving their jobs through death and retirement. Some commentators suggest that these retirement estimates may be too high, since the trend toward earlier retirement is slowing (Gendell & Siegel, 1992). Because of increased longevity and less certain retirement resources, people are starting to work longer to build up sufficient reserves for what could be several decades of retirement. These changes from Bureau of Labor Statistics projections (BLS, 1992) will lessen projected shortages and increase the cumulative excess of college graduates, as well as other categories of workers.

This trend, if it continues, could significantly decrease any projected skills gaps, as more experienced workers remain in place.

Although some data suggest that firms are more likely to provide and encourage training for younger rather than older workers, the latter may need additional training to keep up with changes in the workplace (McGraw & Forrant, 1992). For example, computer skills that are now taught in schools may require workplace training for older workers who lack these skills. Such retraining issues would become more important in workplace literacy programs only if older workers took more advantage of them than in the past.

IMMIGRANTS WITH LITTLE ENGLISH

Immigrants and children of immigrants, especially Hispanics and Asians, are projected to comprise an ever-increasing proportion of our workforce, as they will our general population. It is projected that the proportion of Hispanics in the workforce will increase from 7.7% in 1990 to 11.1% in 2005, and that the proportion of Asians will increase from 3.1% to 4.3% over the same period (Bureau of Labor Statistics, 1992, pp. 4-5). Currently, the Hispanic population is over-represented in lower skilled jobs and among those with less than a high school education (Boisjoly & Duncan, 1994). This indicates a need for English for specific purposes, literacy, and specific job skills training (Center on Budget and Policy Priority, 1992; Grubb & Kraskouskas, 1992; Topel, 1994). In addition, Hispanics tend not to receive workplace education, either in pre-service training to help them obtain jobs or in on-the-job training for advancement. They tend to have less access to jobs that require some form of training to obtain, and they receive little employer training in the jobs they do hold (Amirault, 1992).

Lack of literacy and communication skills limit Hispanics in their access to more secure, higher wage jobs, so that they suffer more unemployment in recessions (Boisjoly & Duncan, 1994). This, too, may suggest more need for retraining as turnover can necessitate new job skills. Analysis of population migration patterns indicate concentrations of Asian and Hispanic workers in specific geographic locales. If these populations remain resistant to dispersion throughout the United States, longer term ESL programs may be indicated as English will not be practiced as much in their home and social environments, and so they will need more and longer assistance with learning English (Boisjoly & Duncan, 1994; Topel, 1994).

IMPLICATIONS FOR THE PROVISION OF WORKPLACE LITERACY PROGRAMS

The trends described above suggest a considerable shift over the next decade in the need for workplace literacy programs. The traditional picture is one of basic skills training in large manufacturing companies and some service industries. This training tends to be either job training for immediate application or general education as an employee benefit (often in association with unions). But the situation is changing. More and more jobs are now in small businesses and the service sector and are more likely to be temporary or part-time. This will mean more frequent changes of job for many workers, who will require greater flexibility and ability to learn new skills. Training for a particular job will no longer be enough. This suggests a need for more

workforce—rather than workplace—programs, which provide the generic skills of employment rather than those of a particular job. These include problem-solving, working in teams, understanding written instructions and manuals, and using computers to access information. Such programs are most likely to be provided by consortia of related businesses, too small individually to set up a program, or by partnerships of business and education, such as community colleges.

However, the more traditional job-related programs will still be needed. When companies move towards a "high-performance" standard, many workers will have to be retrained to perform more complex jobs than they have previously done. Also, older employees who remain in the workforce longer are likely to require retraining as their jobs change over time. And the increasing number of workers whose first language is not English will also require training, either for job skills in a particular workplace or for more general workforce readiness. *Thus, the pattern is changing, not from one type of program to another, but towards a greater diversity of program types.*

JOB-RELATED, TARGETED TRAINING

Job-related training includes both the traditional programs in a single large manufacturing company and the more recent collaborations between groups of smaller companies and community colleges. Both kinds of program provide training related to particular jobs in a particular setting, whether it be for operating new machinery or entering client information on to a computer database.

Large manufacturing organizations are more able to provide workplace literacy programs for their workers in-house, because of forces such as economies of scale, unions, and greater economic flexibility. However, service companies are often smaller, non-union, and have narrower profit margins. These differences sometimes reduce their willingness and ability to provide training for the smaller number of their employees needing a basic skills program. Because smaller businesses may be unable to provide successful workplace literacy programs alone, these organizations are more likely to provide training through collaborations with public institutions or trade associations. Such consortia can provide the economies of scale that make literacy programs feasible.

Similarly, temporary workers are unlikely to receive workplace literacy training from their client employers, because these workers often do not remain with one company long enough to make the employer's investment cost-effective. The temporary agencies for these workers, or public institutions, would be more likely to deliver any training that these workers receive. In any case, the nature of their training is likely to be different—less job-specific and more to do with general employment skills. Since they are not the only group requiring such programs, the issue of workforce as opposed to workplace development is considered below.

WORKFORCE DEVELOPMENT: PRE-EMPLOYMENT AND REDEPLOYMENT

Despite the projected surplus of college graduates described earlier, it appears that many people entering the workforce will not have the skills required in today's workplace (Grubb & Kraskouskas, 1992). Also a large

number of current job-holders lack sufficient basic skills for increasing job demands (Grubb et al., 1992; Mikulecky, 1995). Should these workers lose their present jobs, they may have insufficient skills to obtain new employment. Consequently, members of both the entering and re-entering groups will require some form of workforce training, to enable them to compete in the employment marketplace.

As workplaces reorganize and restructure to become more productive, workers are called upon to use skills that were rarely required in traditional workplaces or, for that matter, in traditional school classrooms. Millions of temporary workers, as well as additional millions forced to change jobs or seeking their first job, need training in such areas as working in teams, problem solving and decision making, using print materials to find out how to do new tasks, using computers to access information and add to the database, and understanding processes and trends. Skills like these are of use in many different job areas, allowing workers who have them the flexibility to succeed, not only in one workplace, but also in the range of jobs that they are likely to hold over their working lives, in the new era of mobility and of temporary and part-time employment.

Such general workforce development, tied as it is to no particular workplace or employer, is unlikely to be provided in the traditional way by large companies. Here consortia of companies with similar skill requirements, perhaps using the assistance of a community college, could pool their resources to train potential workers for their industries (Grubb & Kraskouskas, 1992). Agencies for temporary employment could also become involved, investing in adult literacy training in order to make their employee clients more attractive to local employers.

In addition, federal and state governments, wishing to boost the economic competitiveness of particular communities, could provide targeted workforce development programs through colleges and technical schools. However, care will be needed in choosing the types of jobs targeted for such training schemes. Many dislocated and prospective job seekers have gone through state or federally funded skills training programs only to exit to a local job market that does not demand or reward their new skills (Merrifield, Norris, & White, 1991; Murnane & Levy, 1993; Pauly, Long, & Martinson, 1992).

Programs that tie training directly to local employer requests or specific existing jobs achieve better placement results, and/or help employers upskill existing positions (Murnane & Levy, 1993). For example, workers that went through the California ETP retraining program apparently salvaged jobs that had been determined to be at risk. This program, however, served many people that already had jobs and post high school education (Moore & Blake, 1992). No training program, however, has been shown to increase the number of new, high wage jobs (Hull, 1993; Judis, 1994; Mishel & Teixera, 1991; Pauly, Long, & Martinson, 1992; Zemsky & Oedel, 1992). At best, training programs increase the odds that a worker will be qualified if new jobs become available.

All of the above workforce development programs—for new and displaced workers, for small businesses and temporary agencies—could use a "semi-targeted" approach, involving the use of real job-related materials,

but of a fairly general nature. These materials could be drawn from jobs in high demand and not likely to be exported such as cashier, sales clerk, hotel front desk, and hospital aide. This would allow the use of a wide range of job-simulation exercises, combining generic skills and job relevance. Centers providing such employment training could be organized through community colleges, adult education programs and employment offices, where each center could select the range of job-simulations available to match the job opportunities in their region.

For some in the lower skilled group of displaced workers, a more radical solution may be possible. There are jobs available in a number of potential shortage areas that call for special training in two- and four-year post-secondary programs: for example, health care technicians, computer programmers, legal and medical secretaries, and positions in personnel and financial services (Eck, 1993). It is usually not possible just to hire a person with a general college degree or a liberal arts emphasis for such positions, since specialized training is required. However, it might be possible to identify low-skilled adults with high potential for success. These adults could be provided with intensive, long-term basic skills and technical training, targeted at lucrative jobs without sufficient qualified applicants. During World War II, programs of this type were used to prepare military officers rapidly. Programs to provide such training would need to be highly selective and highly targeted, but could become part of a productive mix of workplace basic skills offerings.

NON-EXPORTABLE JOBS

One general strategy that should be kept in mind when deciding which employment areas to target with training is the distinction between "exportable" and "non-exportable" jobs. Global labor markets are influencing U.S. employment patterns by exporting low-skill jobs to even lower-wage countries (Borjas & Ramey, 1994; Case for High Performance Work Organization, 1993; Merrifield, Norris, & White, 1991). These exportable jobs are mainly in manufacturing and in the service areas that do not deal with clients face-to-face. However, jobs in health, retail, construction, education, and administrative support services are more resistant to this export strategy. Some workers in these areas, such as general laborers in construction, orderlies in nursing homes and hospitals, or food preparation workers in retail establishments, may or may not require immediate additional literacy skills—depending upon whether work has been reorganized by technology or measures to increase productivity. Interviews with specific employers are often needed to determine increased skill needs. Among the more likely candidates for basic skills training among these less "exportable" jobs are nurses' aides, teachers and teachers' aides, administrative support, retail employees, and skilled trades. Training for these jobs often requires both general literacy and some specific skills focus. Government funding of training in such areas is more likely to lead to employment because these jobs are not going to leave the country before the training is completed.

Another perspective supporting this approach has been offered by Thomas R. Donahue, Secretary-Treasurer of the AFL-CIO, at the national meeting of the Labor/Higher Education Council. He states:

> ". . . a factory can be in Ohio today, Mexico next summer, and Thailand the year after that. Two investments that are far more likely

> to stay right here in the long term and benefit our people are infrastructure and the education, training, and retraining of working people." (Labor/Higher Education Council, 1992, p. 10)

The same point is made by Robert Reich, U.S. Secretary of Labor:

> ". . . a nation's real technological assets are the capacities of its citizens to solve the complex problems of the future. . . . Money, plants, information, and equipment are footloose, along with corporate logos. Brains, however, are far less mobile internationally. Government policy makers should be less interested in helping American-owned companies earn hefty profits from new technologies than in helping *Americans* become technologically sophisticated." (Reich, 1992, pp. 162-163)

In addition to entry-level workers, clients for such retraining programs will come from at least two areas of current employment. There is the general movement from manufacturing to service sector jobs, and the change to high performance workplaces, which normally involves a reduction in the number of employees required. Such high performance work transformations produce as many, if not more, training needs for laid-off workers, as for those who are retained. Unless current laws and practices are changed, there is limited incentive for employers to provide extensive training to workers that they no longer employ. Again the indications are that public institutions will be more involved in any literacy training these workers undergo.

The domestic employment shift towards service sector jobs could also have a significant impact on workplace literacy training in another way. Many of the positions being lost are high wage jobs in traditional manufacturing that required only low skill levels. Those laid off often find themselves applying for service sector jobs that require higher skill levels, but that pay less (Center on Budget and Policy Priorities, 1992; Judis, 1994). The fact that workers may have to train for jobs that pay less than ones they have previously held presents serious motivational and affective consequences, which workplace literacy trainers need to take into account when planning redeployment programs for these workers. Counseling may well be a necessary component of training programs in such situations.

ENGLISH AS A SECOND LANGUAGE

Much of what is written above applies also to those whose first language is not English, but there are special problems in this area. Immigrants whose knowledge of English is slight or non-existent obviously cannot be placed straight into workplace literacy programs for native speakers. They need special programs that combine the teaching of basic English with everyday and workplace applications of the language. In many cases, a component addressing the culture of the American workplace may be required. Training could include courses in English for Special Purposes, which concentrate on the usages and vocabulary of particular jobs. Such courses allow workers to become proficient quickly in what they need to know for their jobs—for example, to be able to work safely in a hazardous environment. Some will

attend ESL courses at adult basic education centers, while others may have jobs and attend courses for ESL learners at their workplace. The current developmental and "school-like" focus of many of these courses may need to be adjusted to the specific language, literacy, and cultural needs of employment.

LONG-TERM EDUCATION

One message that comes through clearly in the employment trends for the future is the need for adaptability and flexibility. It is no longer typical for a worker to start a job straight from school and remain in that job until retirement. Most people change jobs—some many times—in the course of their working lives. A consequence of this trend is that most workers will need constant upgrading of their skills and competencies, adding new skills and taking refresher courses at frequent intervals, as the nature of jobs and the workplace change with new technologies and methods of working. Some workers will realize this and want such education. Others will need to be persuaded. In both cases, providers will need to do a much better job of developing and publicizing opportunities for adults in a variety of situations or "niche markets."

CONCLUSIONS ABOUT THE IMPACT OF DEMOGRAPHIC AND ECONOMIC TRENDS

The fundamental implications of the economic and demographic factors described above seem to be two-fold. One is that specific job training for workers at specific job locations will not address the needs of an increasing number of United States' workers. The second is that training delivered from non-employer based systems will be different from that given in response to specific job needs at specific companies. Both sorts of training will be needed, but workplace literacy professionals must explore ways to better effect learner gains that transfer to new, and often unpredictable, work environments.

This suggests the need for a great deal of diversification and targeting of programs. The same sort of "niche market" approach that has been required of most other areas of the U.S. economy is called for in the development of workforce and workplace literacy programs. Policies that encourage and support simplistic "one size fits all" programs are policies destined for failure. Programs should only be attempted and funded when clear need can be demonstrated, key participants support program goals, and a system for monitoring effectiveness and making flexible adjustments is in place. Resources are too scarce and the stakes are too high to risk more general, uninformed approaches.

PROMISING NEW DEVELOPMENTS IN WORKPLACE AND WORKFORCE LITERACY

Several new approaches to workplace and workforce literacy have developed in the past few years. Some of these developments are related to the

restructuring of work and pay, some to new cooperative ventures within industries, and some to newly emerging approaches to providing workplace and workforce literacy training in a variety of states. The extent to which any of these new developments will become trends is unclear, but the developments are well worth watching.

The topics covered in this section are the following:

- Pay for Knowledge
- Multiple Employer and Union Activities Within Industries
- Increasing State Level Support and Diversification of Basic Skills Provision for the Workforce

PAY FOR KNOWLEDGE

For the past several years, Hart-Landsberg and Reder (1993) have been gathering research data at a business for which they provide the pseudonym of "Hardy Industries." The profitability strategy chosen by this business is based upon having a workforce of highly skilled and knowledgeable employees who can be flexible and effective at monitoring and improving their own productivity. Rather than undergoing extreme downsizing followed by active recruitment of new highly skilled employees, Hardy Industries has chosen to retain current employees while aggressively pursuing a strategy to increase the skill level of every employee.

Simply offering classes and encouraging employee attendance was not judged to be a strategy that would accomplish Hardy's goals soon enough to allow them to remain competitive. So Hardy Industries has completely changed the way workers are paid. Instead of being paid for the number of years of seniority, or for job title, or for current job performance, workers at Hardy are paid for the knowledge and skills that they can demonstrate they currently have. Teams of workers and managers have produced skill and knowledge lists which range from being able to operate a piece of equipment to being able to perform Statistical Process Control procedures to being able to perform the communication roles involved in Quality Assurance group activities. Hundreds of skills have been identified. Workers' pay levels are determined by a combination of a relatively low base pay level plus additional pay for qualifying as having skills. Demonstrating mastery of simple skills adds a relatively low amount to one's hourly pay while more complex skills requiring specialized training and knowledge add much more.

The strategy at Hardy was implemented over several years with the guarantee that no worker would receive less money than he or she received when the plan was first implemented. No pay raises (including cost of living raises) were possible, however, without demonstrating increased mastery of skills. A worker who did nothing would, in effect, have his or her salary lowered by inflation. To increase one's salary, skills could be demonstrated by successfully operating a machine, doing a task, or taking a test. Training, on worker personal time, was available if preparation was needed to demonstrate mastery of knowledge and skills or to recertify knowledge and skills which had been forgotten or lost.

Hart-Landsberg and Reder's (1993) work indicates that the average skill levels and salaries of employees have increased significantly. The system has

been particularly difficult on employees which Hardy Industries describes as "skills poor," but these employees have also increased in skill and salary levels. Research has documented the efforts of some of these workers and they are truly impressive. As of 1995, Hardy Industries is thriving, but it is probably too early to determine all the implications and consequences of this new incentive approach to making employees directly responsible for what they know and can do. It has almost become cliché to say that the currency of today's workplace is knowledge. Restructuring at Hardy Industries has made the cliché into literal truth.

Multiple Employer and Union Activities Within Industries

For more than a decade, basic skills courses have been offered by partnerships between the United Auto Workers and automotive manufacturers such as Ford, General Motors, and Chrysler. Contract negotiations create separate training agencies with independent budgets that are jointly managed by a board of union and management representation. Training is for union members and sometimes spouses. It can address any training focus requested by members. Total training budgets for these joint ventures are several hundred millions per year. In the late 1980s, the Ford/UAW partnership alone was budgeted at over $80 million per year. It is not clear what proportion of these funds are allocated to basic skills and workplace literacy training. Many union/management agreements articulate guidelines that clearly state that management will pay for job and technical training while the joint ventures pay for self-development and employee benefit training. Since workplace literacy training is sometimes basic skills embedded in worksite examples and tasks, program providers sometimes need to walk a careful path to fit within funder guidelines.

The automotive industry is not the only industry providing workplace literacy instruction. American employers spend vastly more upon basic skills instruction than do taxpayers. Although no clear-cut study of funding sources for U.S. workplace literacy programs exists, the American Society for Training and Development surveyed 20,000 U.S. employers with more than 100 employees to determine training expenditures. The survey estimates that American business spent more than $44.4 billion for training in 1989. A small fraction (less than 10%) of this went to remedial education. Still, this is likely to be more than $4 billion spent on remedial training. Not all workplace literacy programs are conceived of as remedial training, however. It is not possible to determine what proportion of workplace literacy training is subsumed under categories like communication skills, technical skills, clerical skills, team building, problem solving and several other categories listed in the survey (Oberle, Gerber, & Gordon 1989). The amount of workplace literacy training subsumed under these labels is likely to be high, however, since the general trend has been for U.S. businesses to abandon remedial terms like "literacy training" in favor of terms like "technical preparation" and "communication skills." In any case, the degree to which employers and unions are funding workplace literacy training vastly exceeds the approximately $20 million per year that the federal government has allocated to the National Workplace Literacy Program. The $4 billion or more expended by employers is vastly greater than the $300-$400 million per year allocated by the federal government to the full range of basic skills programs for all adults.

Increasingly, consortia of employers and unions have begun to cooperate to provide information and workplace literacy services. The United Steel Workers of America, working together with a dozen major steel corporations, has created the Institute for Career Development. Among the projects taken on by the ICD is a major basic skills task analysis of job families in the steel industry as a prelude to developing custom-designed basic skills instruction related to daily demands faced by union members. Similarly, the Electronics Industries Association has surveyed its members and set up a task force to explore the possibility of competitors within the electronics industry cooperating to develop workplace-linked basic skills instruction for employees from within all cooperating companies.

One pressure driving some business and union efforts in workplace literacy training is participation in the global marketplace. Many businesses wishing to do business internationally or to subcontract with large corporations doing international business seek certification for high quality control and productivity standards. For example, any commercial firm wishing to do business with a member firm of the European Economic Community must comply with International Standards Organization (ISO) guidelines (Weiss, 1993). These guidelines are sometimes briefly labeled ISO 9000. The guidelines identify, describe, and measure the degree to which a business has implemented 20 elements of quality assurance. To meet certification in these areas, businesses must document procedures, provide training, demonstrate that all employees are able to inspect, measure, and test for quality. High levels of literacy, communication, and computation skills must be demonstrated as well as ongoing training focusing on continuous improvement. In an increasingly competitive marketplace, companies wishing to trade globally or trade with corporations who do trade globally have an increased incentive to provide workplace training. Informal reports suggest that many large corporations now use only 20% of the subcontractors used in the last decade. The preference is to give more business to subcontractors able to demonstrate quality assurance certification. Subcontractors unable to obtain such certifications are left to shrink and sometimes die. Obtaining and maintaining ISO certification requires constant training of employees.

Increasing State Level Support and Diversification of Basic Skills Provision

The total of federal funding for the National Workplace Literacy Program has tended to be slightly below $20 million per year since the late 1980s. There is no clear reckoning of the total of state level funding for workplace programs, but there is good reason to think it exceeds federal funding by a great deal. Bussert (1992) has attempted to discern the outlines of funding sources for U.S. workplace literacy programs through an examination of published program descriptions. Of 107 workplace literacy program descriptions analyzed by Bussert, 33 reported funding sources. The majority of these programs had multiple source funding. Monetary support for these 33 programs comes, in part, from federal sources (27% of programs), state/local government sources (48% of programs), business sources (67% of programs), union funding (9% of programs) and from other organizations such as libraries and area literacy councils (12% of programs). Nearly twice as many programs report state funding as report federal funding. Askov (1989, p. 16) reported that West Virginia, South Carolina, and North

Carolina provided 100 % matching funds for workplace literacy projects. Stein (1989, p. 3) reported that Massachusetts has matching funds for workplace education. Chynoweth (1989, pp. 3-122) indicated that the state governments of Florida, Idaho, Michigan, Tennessee, Utah, Virginia, and Missouri are heavily involved in funding and organizing workplace literacy initiatives, though dollar figures are not always available. Among these states, Virginia appropriated $4.25 million for the enhancement of literacy services. As a result of this budget, the relationship of state to federal funds for local providers has changed from 0% state/100% federal to 51% state/49% federal. This shift indicates that state literacy policies may become the driving force in the implementation of literacy projects (Chynoweth, 1989, p. 22).

The form of state level support differs considerably from state to state. For example, Brizius and Foster (1987) report that in California it is possible to draw upon Unemployment Insurance funds to provide workplace literacy training if a business can make the case that without such training current workers are in great risk of unemployment. In Alabama, employers providing workplace literacy programs that enhance the basic skills of employees up to and including a 12th-grade functional level receive 20% of program cost as a tax credit. Many states have competitive grant programs for funding workplace literacy programs. In many cases, several different programs with slightly different emphases are located in different agencies within the same state (e.g., Department of Commerce, Special Office of Workforce Development, Division of Adult Education). In addition, local adult basic education providers who are funded with state monies often elect to offer some of their basic education programs in workplaces. The picture becomes even more complicated when workforce support for employment is taken into consideration. Again dozens of individual agencies offer pre-employment literacy programs. As a single example, Brizius and Foster (1987) report that natural resources agencies in 38 states and cities have begun Civilian Conservation Corps type programs for young people and unemployed adults. These programs provide basic employment in parks and recreation sites, and to improve urban landscapes. A central element in each program is the provision of basic skills instruction linked to work experience and workplace preparation.

Because of this mixed assortment of state support, it has not been possible to tabulate total state support for workplace literacy. It does seem clear, however, that the state total is likely to be a good deal greater than all federal support with significant differences in level from state to state.

Conclusions From Promising New Developments

The new developments described in this section indicate that the nature of workplace and workforce education is changing rapidly on many fronts. Both industry and state governments are experimenting with new ways to meet the challenge of working successfully in a global economy. Solutions adopted by industry range from the highly structured "pay for knowledge" approach of Hardy Industries (Hart-Landsberg & Reder, 1993) to the more general raising of educational levels in the automotive and steel industries. But a common thread in all of these developments is life-long learning. Workplace training is not seen as a "quick fix" of a particular problem, but as part of the ongoing education of employees to enable them to work flexibly in an ever-changing environment. A number of state governments are assisting in this endeavor through direct funding or through subsidies and tax incentives. Governments

are also contributing to more general workforce education through, for example, pre-employment literacy programs. In all these situations, basic skills instruction is being linked to workplace preparation, work experience, and actual job tasks, so that industries and their employees are better able to succeed in the global marketplace.

CONCLUSIONS

This survey of the state of workplace literacy in the 1990s has looked at the current provision of programs, both statistically and through program profiles, and has considered future trends, both in terms of economic and demographic influences and of recent developments in program provision. Several themes run strongly through all four sections of the report: the importance of partnerships, the necessity of work*force* education in addition to programs in specific workplaces, an emphasis on continuing life-long learning in a rich educational environment, and a need to diversify—while at the same time targeting—workplace literacy provision.

The first section of the report shows that partnerships play a vital role in most programs. Company managements and employee organizations cooperate to start a program; colleges, community agencies, and state departments become involved as providers or funders. The program profiles demonstrate the importance of partners working closely together, with open communication including advisory committees and regular review of program goals and achievements. Economic trends toward more part-time and temporary work, and toward a higher proportion of jobs in small service industries, stress the need for even more and wider partnerships in future. Small businesses and temporary agencies will probably not be able to set up workplace literacy programs by themselves, but will need to establish consortia of similar industries in a geographical region in order to start a viable educational program. The assistance of state and community partners can contribute to the success of such ventures.

Linked to the importance of partnerships is the growth in workforce education—either teaching the generic skills of any workplace to entry-level or displaced workers or else teaching the cluster of skills relevant to a group of related businesses. The survey and profiles of current programs include a number of examples of programs established by community and professional organizations to enhance the skills of potential workers in a particular region or area of business. Increasingly, such programs are set up in association with and partially funded by state or local governments that want to boost their economies by attracting industries to the area with the lure of a highly educated workforce.

Many current programs consist of multiple strands, addressing a variety of worker needs from very specific job-related topics to more general literacy skills, and targeted at a variety of ability levels. This not only caters to those different needs but allows employees to move from one strand to another over time, gradually making education an integral part of their lives. Such life-long learning is obviously highly desirable in a work environment that is changing rapidly. Whether the techniques of Total Quality Management

require a more flexible, problem-solving approach to the job or work for a temporary agency requires a continual learning of new job tasks, employees who have adopted a positive attitude to education are more likely to succeed in the new environment.

One theme that does not feature largely in current programs is that of evaluation. Few program reports say much about it, and those that do rarely mention objective, quantifiable data that shows what learners have gained from attending the program. However, the need for accountability is likely to grow as funding sources become more diverse and more programs compete for the available money. Pressures from the changing economic climate will put a premium on success—and demonstrating that success in a convincing way. Program providers will need to set clear goals for each course and develop assessment instruments that measure achievement of those goals, if they are to obtain continuing funding in an increasingly competitive market. After all, education does not sit outside the global economy. Just as it is important for businesses to produce quality goods and monitor that quality in order to survive, so is it equally important for workplace literacy programs to provide a quality service and to demonstrate that they are doing so.

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