



Academy for Educational Development

Bridge to Advanced Technological Education and Employment

Summative Evaluation Plan

I. Introduction and Roles

The National Science Foundation's Advanced Technological Education (ATE) program has funded the University of Illinois at Chicago's Great Cities Institute and its partner institutions to undertake a three-year (6/98 to 5/01) model demonstration project titled: "Bridge to Advanced Technological Education and Employment (NSF DUE 9850327)."

Formative evaluation of the project will be carried out by advisors from manufacturing industries and by faculty from community college and university manufacturing and engineering technology programs.¹ These individuals will ensure that the Bridge curriculum provides the foundation for career-long learning both in post-secondary technical education and in the advanced technological workplace.

The Academy for Educational Development (AED) will conduct a summative evaluation of the Bridge project's outcomes and impacts at its Chicago and Detroit pilot test sites. Paul Bucci, AED Vice President of Higher Education Management Services, will direct the evaluation. AED's role will be to plan and manage the evaluation; design the data collection system, survey instruments and interview protocols; and analyze the data and report findings and conclusions in the form of annual evaluation reports and a final evaluation report.

Project staff will collect the data by a combination of quantitative (survey research, participant tracking data) and qualitative (case study, interview) methods. Project staff at the Chicago and Detroit sites will be responsible for collecting the data, entering the data into databases, and conducting local interviews using the interview protocols designed by AED staff. AED evaluators will advise project staff in this effort. Project staff will collect and forward data, documentation, and interview notes to AED staff for analysis and reporting to project management,² NSF program officers, and other key supporters and stakeholders.

¹ Formative evaluation seeks to improve a program, whereas summative evaluation seeks to prove or demonstrate a program's effectiveness and to identify the populations and circumstances where the program worked.

²The Bridge Program project management includes: Representing Chicago, Davis Jenkins, Faculty Fellow and Director of Workforce Development Partnerships at the University of Illinois at Chicago's Great Cities Institute, and Prem Sud, Executive Director of Richard J. Daley College's Manufacturing Technology Institute. And representing Detroit, Dale Brandenburg, Director of Workforce Educational Programs and Research Professor of Instructional Technology at Wayne State University, and Gary Saganski, Director of Henry Ford Community College's Office of Corporate Training.

Thus, AED will be responsible for the *design, analysis and reporting* components of the summative evaluation. Project staff at the Chicago and Detroit pilot test sites will be responsible for the administrative components of the evaluation. These include *data collection and database development, and interviewing* instructional staff and program completers.

II. Program Background and Goals

The University of Illinois at Chicago and Wayne State University are leading teams of community colleges, community-based organizations, and industry groups in Chicago and Detroit in a model demonstration project. Three programs will be developed and pilot tested in the project: (1) Pre-Bridge, (2) Technological Learning Skills Bridge, and (3) Pre-Technologist Bridge. After a two-year process of improvement and formalization, together these three programs will constitute a multi-leveled model Advanced Technology Bridge program. The model Bridge program will provide for the continuous and systematic preparation of educationally disadvantaged adults for two-year college certificates and associate degree programs in Manufacturing Technology, and for technician positions in industry.

The pilot programs, each adapted for different participant cohorts, will vary in length, from 7 to 14 weeks for the Pre-Bridge, and from 16 to 20 weeks for the Technological Learning Skills Bridge and the Pre-Technologist Bridge. The programs will focus on basic skill development in workplace communication and mathematics, employability skills, technical skills in such areas as machine operation and blueprint reading, and industrial computer applications such as SPC and CAD. The Chicago partnership began piloting models of bridge and pre-bridge programs in March-April 1997. The Detroit partnership launched pilots in March 1999.

The Bridge project is designed to address a basic problem among educationally disadvantaged adults³. Many capable but disadvantaged people, particularly those with English as a second language, are locked into low-paying jobs because they are ill prepared even for basic level technical training. They lack the basic skills and knowledge needed to get on the track to an advanced technology career. Successful participation in: 1) post-secondary technological education such as that offered by community or technical colleges, and 2) employment in well-paying entry-level jobs in manufacturing and other advanced technological fields are two essential parts of an advanced technology career track. But a gap exists between where disadvantaged adults are, and where this career track begins. The **problem** is that *no system exists to prepare disadvantaged adults to gain entry to an advanced technology career track*. The model Advanced Technology Bridge program will be designed to fill this gap.

Disadvantaged adults therefore need bridging educational programs that provide a pathway to post-secondary technical programs and entry-level career-track jobs. The Bridge program builds the basic competencies, including English mastery, needed to develop technical skills. By this

³The term "educationally disadvantaged adult" will be defined operationally so that evaluators can draw conclusions about this population that will assist in the implementation of the program in other areas of the country. Those persons most likely to succeed among this population will be carefully identified. In general, disadvantaged adults include displaced workers, immigrants, welfare recipients, and employed adults working in low-wage, dead-end jobs.

means, the Bridge program provides feasible ways for adults who would otherwise remain unemployed or under-employed to make the transition to a well-paying job in the manufacturing industry or other advanced technology field. Further, the Bridge program is designed to provide a career ladder - - to prepare these individuals not only for entry-level skilled jobs, but also for the additional post-secondary education and training they will need to develop an advanced technology career.

The **goals** of the Bridge project are to:

- 1) Build a model program of training and support services to prepare educationally disadvantaged adults for two-year college certificate and associate programs in manufacturing technology and entry-level employment as skilled technicians in industry;
- 2) Demonstrate the effectiveness of the program as a national model worthy of dissemination to other U.S. cities; and
- 3) Develop guides and other materials that facilitate widespread replication of the Bridge model.

III. Evaluation Purpose, Approach, and Outcome Measures

The **purpose** of AED's summative evaluation is to assist the Principal Investigators in assessing the value, effectiveness, significance and replicability of the model to be developed and demonstrated in the project. To this end, the Academy will design and carry out an assessment of the model's outcomes and impact.

The evaluation **approach** will consist of a *series of cohort studies* of the three types of Bridge programs under development: (Pre-Bridge, Technological Learning Skills Bridge, and Pre-Technologist Bridge). The cohort studies of *all* piloted programs will be undertaken in two steps.

First, for each pilot program and participant cohort in Chicago and Detroit, upon receipt from project staff of pilot program data and documentation, AED evaluators will *organize* the data and documentation by three program aspects or phases:

- 1) *beginning conditions*, including the cohort's profile of entering characteristics and the resources available;
- 2) *program interventions* (i.e., curriculum, services, methods, materials, etc.) designed and delivered; and
- 3) *program outcomes*, the accomplishments of participants resulting from the program and the impacts of the program on its participants.

In effect, the evaluators will develop a number of "snapshots" in order to construct a complete picture of the effects that each cohort program had on its participants. For each pilot program and cohort of participants, the evaluators will assemble:

- 1) a pre-program snapshot of the entering participants and the program's learning environment and resources;
- 2) several in-program snapshots of the program's structure and key events; and
- 3) two post-program snapshots of the participants - - one at program completion, and another three months after program completion.

Appendix A, *Cohort Evaluation Logic Model*, offers the conceptual framework that project staff and AED Evaluators will use to identify evaluation questions, organize data collection, design data collection instruments, and analyze and report findings and conclusions.

The post-program snapshots of the program's outcomes and impact on participants will record the cohort participants' educational and employment progress and success by using the following **outcome measures**:

- 1) educational outcome measures: mastery of Bridge program math and ESL learning objectives or competencies, Bridge program retention and completion, and placement and retention in post-secondary education and training; as well as
- 2) employment outcome measures: placement and retention in career-path technician jobs in manufacturing or related industries.

Second, AED evaluators will *analyze* the cohort data and pilot documentation by making a number of comparisons.

To the extent possible, within cohort pre/post comparisons will be made. In this analysis, AED staff will compare before- and after- snapshots of each cohort and pilot program in order to benchmark the cohort's progress and the program's impact. To make this comparison, AED staff will assess cohort participants at both pre-program (i.e., "baseline") and post-program points using the *same measures* of educational and employment status. This analysis will measure the discrepancy between the baseline of the cohort's literacy level and work status at entry (that is, the cohort's profile when participants begin the Bridge program), and the literacy level and work status achieved by the same cohort at program completion and job placement. This discrepancy analysis will enable evaluators to answer such questions as: "Was the cohort's post-program average hourly wage greater than its pre-program average hourly wage?"

The common set of measures to be used in this before/after comparison of the same cohort might include the cohort's:

- average math grade level,
- average English as a second language proficiency level,
- average hourly wage, and
- eligibility for health benefit (i.e., percentage of cohort that is eligible for health benefit).

In addition, the rolling schedule of the Bridge project, in which new cohorts enter a pilot program over the project's three years, may allow for a number of other comparisons, including:

- 1) Between cohort comparison: For example, the program entry and program exit competencies of the Fall 1999 cohort in Chicago might be compared with those of Chicago's Spring 2000 cohort.
- 2) Between city comparison: Comparisons might be made between Detroit and Chicago. Between city comparisons would include assessment of the possible influence of the different demographic and economic contexts on the program participants' job placement and retention. Local demographic and economic factors may affect the supply of and demand for both entry-level technicians by the area's manufacturing industry and entering students by area colleges. This comparison could help identify which variations of instructional and support program work best, and for which populations.
- 3) National norms comparison: This comparison would compare the entering profiles and exit competencies of Bridge program participants against norms established by similar populations who could be considered roughly comparable non-participants.

Basically, then, conclusions from such comparative analyses that any positive outcomes or impacts can be attributed to the model program would be supported with evidence, controlling to the extent possible for extraneous factors, that:

- 1) Cohort participants' entering skills/knowledge and/or employment status improved upon completion of the program; and/or
- 2) Cohort program completers' educational and employment outcomes surpassed those of comparable non-participants.

These cohort studies of different models piloted at the various project sites in years one and two will offer insights that will help refine, validate and document the model that in year three will be packaged for national dissemination.

IV. Data Collection Instruments

The Academy will work with project staff to design the following data collection instruments.

1. Participant Intake Form (see Appendix B)

This form consists of two parts: (1) the EZ/EC-Form 1 (Part 1), and (2) Supplementary Applicant Information (Part 2). Data elements include participants' demographic data, and educational and employment history and entering status.

2. Participant Competencies and Progress Summary (see Appendix C)

Program staff will complete this form for each participant. Information will be drawn from participant records on site, as well as from any pre-/post-program assessments of participants'

reading and math skill levels (E.g., TABE test scores). Instructional staff will also record on the form whether the participant completed the program or dropped out, took a new job (or advanced in the same job), or enrolled for more education.

3. Cohort Program Profile (see Appendix D)

Program staff will complete this form for each cohort and pilot program. The Cohort Program Profile records the participant cohort's general characteristics as well as the program of instruction and related services designed and delivered for that cohort. Program staff will note variations from the basic model program and unique circumstances, and record recommendations for program improvement.

4. Post-program Instructional Staff Interview Protocol (see Appendix E)

Conducted by project staff, the protocol outlines phone interview questions that project staff will ask the program staff upon the pilot's completion. The protocol is designed to ascertain instructional staff knowledge, attitudes, and practices about the curriculum, materials, and teaching strategies. Program staff will report the organizational support and resources provided for the program, as well as their perceptions on the program's impact on participants.

5. Participant Exit Questionnaire (see Appendix F)

Before participants leave the program, they will complete an exit interview questionnaire. This instrument includes contact information for follow-up tracking purposes as well as questions about participants' current employment and educational status.

6. Participant Follow-up Tracking Protocol (see Appendix G)

Three months after program completion, project staff will use this protocol to interview program completers by phone. Project staff will also record on the form information on each program completer's educational and employment status.

V. Annual and Final Evaluation Reports

The first and second year evaluation reports and the final evaluation report, to be delivered within 30 days of the end of each project year, will present a summary of findings from the cohort studies and conclusions on the summative evaluation's two main questions:

- 1) Is the Bridge program model *effective* in achieving its intended outcomes for disadvantaged adults? Can the Bridge program attract and retain educationally disadvantaged adults in high-poverty communities and open up for them more promising opportunities for educational and career advancement than is afforded by most high school or community college adult literacy, GED, remedial or welfare-to-work programs?

- 2) Is the Bridge program model *feasible*? Under what necessary or favorable conditions? What implementation factors and best practices contribute to the model's success? Can universities, community colleges and community-based organizations in cities join forces in community partnerships that develop and coordinate sustainable work force development systems? Does the model have *potential for replication* in other cities?

Appendix A

Cohort Evaluation Logic Model

For each cohort of participants, AED evaluators will study and document: 1) the cohort participant profile, program resources, and context at the beginning of the program; 2) the key activities undertaken during the program; and 3) the outcomes of completers after the program. To facilitate this study and documentation process, AED evaluators will develop jointly with project staff Cohort Evaluation Logic model. Linking beginning conditions, program activities, and program outcomes, this tool will guide project staff and evaluators in identifying key evaluation questions to ask in the pilot studies at the three phases (beginning, middle, end) of each pilot program's implementation. Further, the Cohort Evaluation Logic model presents the kinds of data and data collection instruments needed to answer the evaluation questions.

The Cohort Evaluation Logic model below organizes the key evaluation questions to be asked, for each Chicago and Detroit program cohort, under three headings:

- 1) **Baseline Conditions**, the beginning conditions and context, entering participant characteristics, and program resources available;
- 2) **Program Interventions**, the program's instructional content, activities and methods designed to enhance student learning and success in subsequent employment or education; and
- 3) **Outcomes**, the student learning and post-program educational and employment results realized by program completers.

These headings, in the left column, correspond to the three chronological phases of the program as represented in the logic model. The data collection instrument(s) to be used during each phase of the program's implementation to help answer the evaluation questions are given immediately below each heading.

Cohort Evaluation Logic Model

<p>1. Baseline Conditions</p> <p><i>Instruments:</i></p> <ul style="list-style-type: none">• <i>Participant Intake Form (new), Appendix B</i>	<p>1a. Who are the participants entering the Bridge program, how many began the program, and what are their characteristics?</p> <p>1b. What is the cohort's educational and employment profile? What is</p>
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<ul style="list-style-type: none"> • <i>Case Management Folder (existing)</i> • <i>None (AED staff research)</i> 	<p>the cohort's average math grade level? What percentage of the cohort has been working? What has been the cohort's average hourly wage? What percentage of the cohort has been receiving health benefits?</p> <p>1c. What barriers to education and employment have the participants faced? (Transportation, child care, English language, etc.)</p> <p>1d. What is the context in which the Bridge program takes place? What are the circumstances and conditions that characterize the immediate environment in which the Bridge program operates for the cohort?</p> <p>1e. What is the current economic environment in which the program operates? What is the state of labor markets in the industries targeted? How critical is the city's shortage of qualified applicants for entry-level skilled technician jobs in manufacturing? Are local economic development initiatives attempting to draw manufacturing to their city centers?</p> <p>1f. What was the Bridge program's annual budget? What resources, in both dollars and in-kind contributions, were used for this cohort?</p>
<p>2. Program Interventions</p> <p><i>Instruments:</i></p> <ul style="list-style-type: none"> • <i>Cohort Program Inventory (new) Appendix D</i> 	<p>2a. Which of the three model programs was pilot tested with this cohort?</p> <ul style="list-style-type: none"> - Basic Skills Remediation "Pre-Bridge" program? - Technological Learning Skills Bridge program? - Pre-Technologist Bridge program? <p>2b. What are the program's <u>key features</u>? (E.g.: eligibility criteria used to define the target population, entry and target competencies, course descriptions and schedule, etc.)</p> <p>2c. How did the <u>component services</u> offered to this cohort depart from the main Bridge program model? (E.g.: Did entrance requirements differ from the standard Bridge program model or framework? Was curriculum content or program duration modified? Did the program add paid internships to the model? Etc.)</p>

<ul style="list-style-type: none"> • <i>Participant Competencies and Progress Summary (new) Appendix C</i> 	<p>2d. What <u>distinctive approaches</u> were taken in each of these services to meet the goals of the program? (E.g.: Performance-based skills assessment? Emphasis on interdisciplinary problem-solving and hands-on instruction? Linked to work place applications? Use of instructional software? Use of vocational ESL? Etc.)</p> <p>2e. What <u>role(s)</u> did each partner play in the design and delivery of services? By what procedures and systems did the partners carry out their project responsibilities? (E.g.: What procedures and tools did the community-based organizations use for recruitment, needs assessment, screening and case management? Etc.)</p> <p>2f. What were the <u>objectives</u> or intended learning outcomes for the workplace math, communication and ESL components of the curriculum?</p>
<p>3. Outcomes</p> <p><i>Instruments:</i></p> <ul style="list-style-type: none"> • <i>Participant Competencies and Progress Summary (new) Appendix C</i> • <i>Participant Exit Questionnaire (new) Appendix F</i> • <i>Post-program Instructional Staff Interview Protocol (new) Appendix E</i> • <i>Participant Follow-up Tracking Protocol (new) Appendix G</i> 	<p>3a. What average participant achievement rates in reading and math were attained for the cohort?</p> <p>3b. What were the <i>cohort's</i> characteristics at the program completion and at the follow-up points? What percentage of the cohort was working at a career-oriented technician job, what was the cohort's average hourly wage, and what percentage of the cohort on average was receiving health benefits?</p> <p>3c. Which participants completed the Bridge program? What was the cohort's completion rate?</p> <p>3d. What impact did the Bridge program have on the cohort participants' acceptance and enrollment in postsecondary technical training?</p> <p>3e. What impact did the Bridge program have on cohort participants' advancing to an entry-level, career-oriented job in the manufacturing industry? How many participants were successfully placed? What job placement rate was achieved?</p> <p>3f. How well did the program prepare cohort participants for job performance, retention, and advancement?</p> <p>3g. How did employers assess the quality of the work produced by Bridge program completers?</p>



Manufacturing Technology Bridge Program
 Instituto del Progreso Latino
Supplementary Applicant Information
Participant Intake Form (Part 2)
 To be used in conjunction with the EZ/EC application form

Please fill out this second form. Date: _____

Name: _____ Social Security Number: _____

Please check yes or no to the following questions:

	YES	NO
Did you earn a high school diploma?		
Did you earn a G.E.D?		
Are you currently on welfare?		
Have you ever been on welfare in the past?		
Are you a TANF recipient?		
Have you ever been convicted of a felony?		
<i>(this helps us later on with your job placement)</i>		
Have you ever had any vocational training?		

— If so, what was the name and location of the program?

Are you currently employed?

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Have you ever worked in manufacturing?

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— If so, how many years did you work in manufacturing? _____

— If so, what was the name and location of the company that you worked for?

—If so, what did you do at the company?

—If so, what was your job title at the company? _____



Participant Name: _____

Social Security Number: _____

Bridge program, site and completion date:

Fill out this section while student is in the program, and immediately upon program completion

Found out about program through. . .					
Enrollment	Date:	Site:			
Funding source <i>(circle only one)</i>	EZ	EC	DCCA	Other	
TABE Scores upon entering program	Reading:	Math:	Level of TABE:		
Has the participant been working during the program?	Yes / No	In manufacturing? Yes / No	Employer:	Hourly wage: \$	
Did the participant drop out?	Yes / No	Date:	Reason:		
Did participant graduate?	Yes / No	Date:	Overall attendance: %		
TABE scores upon completing program	Reading:	Math:	Level (type) of TABE test:		
Directly following graduation, what will the participant be doing? (circle an answer for each question) (NA means "does not apply")	Staying with same job?	Going to a new job?	Enrolling for more education?	Unemployed but in job search?	Unemployed, not looking, other?
	Yes / No / NA	Yes / No / NA	Yes / No	Yes / No / NA	Yes / No / NA

Appendix D

Cohort Program Profile

Bridge program type, site, and start and completion dates:

1. Please provide a brief program description:
2. Content covered in the program (please list items) and related services:
3. Major outcome objectives (please list items):
4. Participant cohort description:
5. Prerequisites (expected and confirmed):
6. Program duration (no. of weeks):
7. Recommended schedule (no. of hours per week):
8. Resource needs/utilization: instructor and participant materials, equipment, facility (room) requirements, room set-up (arrangement of tables, desks):
9. Participant attendance issues:
10. Unique circumstances (interruptions in schedule, travel arrangements, childcare, technical problems, instructor issues, site issues):
11. Recommendations for program improvement (modifications to curriculum; resource demands on instructors; recruitment and orientation of instructors):

Appendix E

Post-program Instructional Staff Interview Protocol

Bridge program type, site, and start and completion dates:

Introduction to the instructional staff: This is the interview outline. Please spend 5-10 minutes going over this outline and thinking about your answers. As this interview is an opportunity for you to talk casually about your experiences with the Bridge program, please do not limit yourself to the topics listed here. Specific examples of participants or experiences are desirable wherever possible. The actual interview itself should take no more than 5-10 minutes. Thank you for your time and participation in this process.

1. Participant Retention/Attendance

- In your opinion, is participant attendance high, low, or average?
- Are participants staying in the course? Do any participants leave the course because they cannot keep up with the material? Are language difficulties a reason for participants leaving the course?
- If participant retention/attendance is low, what steps can be taken to improve these “outcomes”? (Child care? Tutoring? Financial assistance?)

2. Participant Needs

- What are the most important participant needs? Computer skills? Communication skills?
- Have these needs been met through the Bridge program?
- Has it been necessary to “adapt” or make changes to the curriculum in order to meet participant needs?
- Do you have access to the resources necessary to meet participant needs?
- How can the curriculum be improved to address participant needs more effectively?

3. Participant Interest/Performance

- Does participant participation in class reflect a strong interest in the course material?
- In your opinion, is participant performance high, low, or average? (Have you been surprised by the participant performance?)
- Are language difficulties a major hindrance towards participant success in the course?
- Are there areas/subjects where participants need major improvement? What steps can be taken to increase participant performance in those areas?

4. Participant Impact

- What can participants do now as a result of participation in the Bridge program that they could not do before?
- What kinds of positions are participants well prepared for? What kinds of future courses are participants well prepared for?
- Based upon your impressions, are these participants better equipped to succeed in the work place?



Manufacturing Technology Bridge Program Instituto del Progreso Latino Participant Exit Questionnaire

Student Name: _____

Social Security Number: _____

Bridge program, site and completion date:

Contact information: (name, address, phone, etc.):

Work

Name of company								
Address of company								
Company contact						Telephone:		
Wage	\$	/hr.	Health Benefits?	Y / N	Date of hire:		Job Title:	
Additional Information:								

Educational Institution

College	Name of College:	Date of enrollment:
Program of study	Name of Program:	Length of Program:



Manufacturing Technology Bridge Program
 Instituto del Progreso Latino
Participant Follow-up Tracking Protocol

Appendix G

Student Name: _____

Social Security Number: _____

Bridge program, site and completion date:

Contact (three months after program completion)

Name of person who Contacted graduate:				Actual date of contact:	
Any change of graduate contact information: (name, address, phone, etc.):					
Status of Graduate: (circle all that apply)	No change from graduation date	Change in work status	Change in education status	Unemployed	Missing, give up trying to contact

If there is a change in work status since program completion, fill in the new information

Work

Name of company						
Address of company						
Company contact				Telephone:		
Wage	\$	/hr.	Health Benefits?	Y / N	Date of hire:	Job Title:
Additional Information:						

If there is a change in college (or other education/training program) status since program completion, fill in the new information

Educational Institution

College	Name of College:		Date of enrollment:
Program of study	Name of Program:		Length of Program:
Did the person graduate?	Y / N	If yes, date of graduation:	If no, explain change in college status:

Provide any additional information concerning future follow ups

Additional Information:
