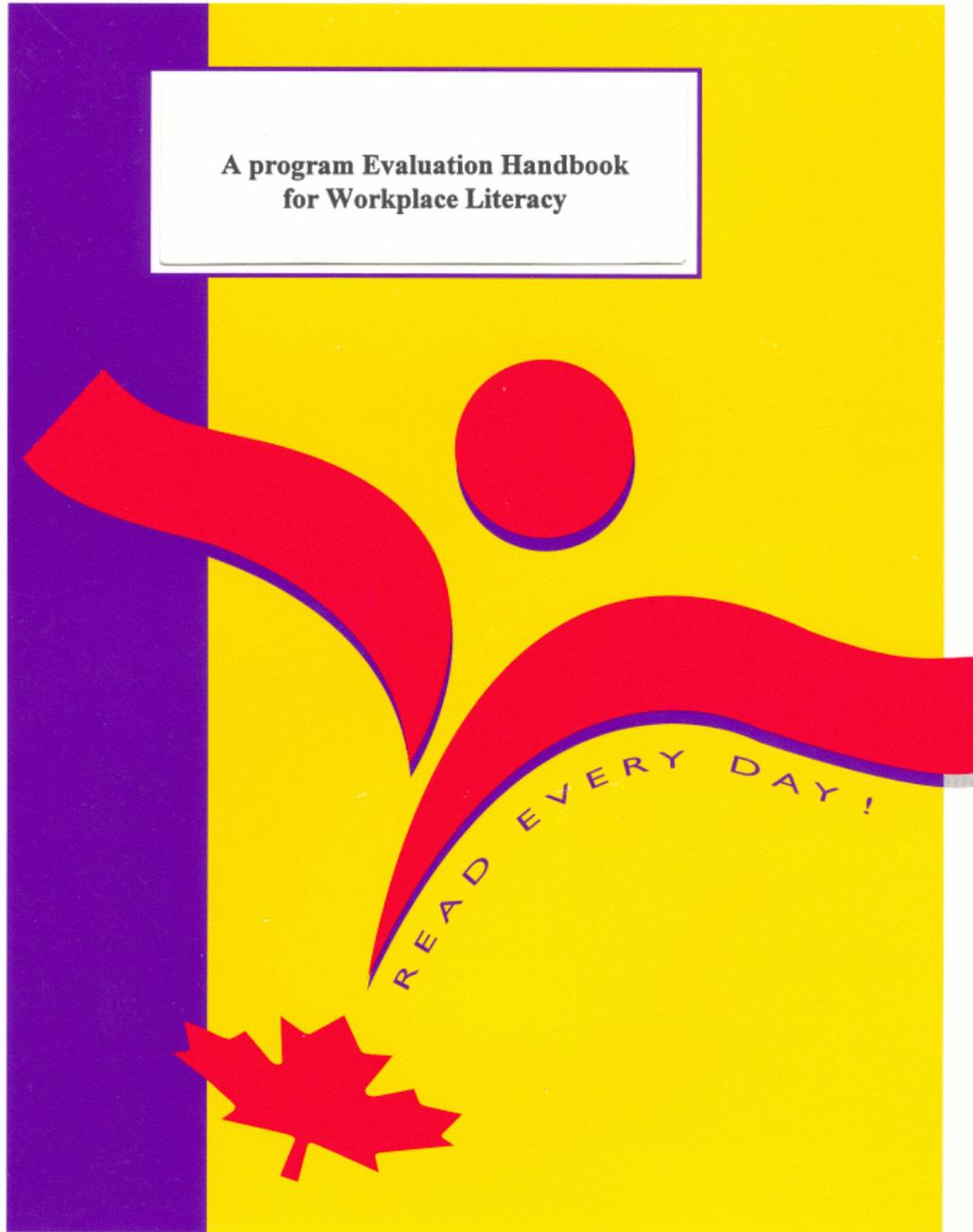




Human Resources Développement des
Development Canada ressources humaines Canada

**A program Evaluation Handbook
for Workplace Literacy**



*National
Literacy
Secretariat*



*Le Secrétariat
national à
l'alphabetisation*

Canada

A program Evaluation Handbook for Workplace Literacy

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1. Introduction to this Handbook

Program evaluation can be complex and intimidating. This handbook is based on the following assumptions:

- You've decided, for whatever reason, that program evaluation may be useful to you and your program.
- You are not an authority on evaluation and might want some theoretical and/or practical advice.
- You are not an expert on workplace literacy and want some ideas about the field.
- You might appreciate some questions to focus your thoughts about the evaluation of your program.

This handbook only contains suggestions and advice. The following limitations must be acknowledged:

- There is no one way to evaluate an educational program; evaluation can take a variety of forms
- Evaluation can be formal and/or informal; this document focuses on formal evaluation.
- Workplace literacy programs come in a wide variety of formats. It is impossible to tailor one handbook to all formats, and this handbook may be generalizable to many formats.

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2. Introduction to Workplace Literacy

Terms and Definitions

The term "literacy" has a variety of meanings, for example:

- basic reading, writing and computation skills.
- reading skills that give people power over their own lives.
- basic communication and reasoning skills.
- information processing.

The term "workplace literacy" is sometimes used synonymously with:

- basic skills instruction in the workplace.
- basic reading and writing skills for the workplace.
- functional literacy instruction for the workplace.
- advanced literacy instruction in job training.
- work-specific literacy instruction for the workplace.

For purposes of this document, the term "workplace literacy programs" encompasses the entire range of possibilities.

Programming Variety

Workplace literacy programs vary greatly depending on the expectations and limitations of:

- the initiator, e.g. a trade union, management, an educational institution, an instructional methodology group such as Laubach Literacy.
- the sponsors of financial, material and instructional resources.
- the participants and their needs for literacy instruction.
- the level of literacy instruction, i.e. basic, functional or advanced.
- the materials and content used, i.e. work-related or non-work-specific.
- such details as time frames, location (on-site/off-site), volunteer or paid staff.

Thus, workplace literacy programming can be:

- voluntary or compulsory for employees.

- staffed by volunteer tutors or paid instructors.
- organized by labour unions, community and vocational colleges, professional training consultants, adult literacy organizations, school boards, and so on.
- short-term or ongoing.
- on-site or off-site.
- offered during working hours or on the employee's own time, or a combination of both.
- restricted to employees only or open to families.
- offered for specific occupational levels or open across levels.
- focused on work-related reading only or on general reading activities.

This list can go on and on!

Questions to focus your thoughts

- If you are involved with or considering a workplace literacy program, how would you describe it?
- Who is the program for and who stands the most to gain by it?
- Who is sponsoring it and what are the expectations?
- What are the instructional levels and approaches?
- Were these conscious choices? Were you aware of the alternatives?

Stakeholders in Workplace Literacy Program

The stakeholders comprise a variety of individuals and agencies who make **decisions** about workplace literacy programs. All of the following should be considered when evaluating a program:

- the potential learners who may or may not choose to participate.
- the actual learners who may or may not choose to continue participation.
- the instructors and tutors who often determine learning materials and methods.
- the program administrators who manage human and financial resources and who have responsibility for planning.
- the labour leaders who may or may not endorse programming.
- the corporate management which may initiate or terminate a program, or its involvement in it, at any time.
- the funders who need to account for expenditures.
- the legislators who need to justify decisions to the public.

Each has a purpose in wanting to know about the outcomes of a given program, reasons relating to their own involvement in the program.

Question to focus your thoughts

- Who are the specific stakeholders in your program?

Good Practice in Workplace Literacy

There are no standards of excellence that can be applied to all of the wide variety of programs which are labelled workplace literacy programs. Attempts to develop recommendations for "good practice" have resulted in the following suggestions for quality programs.

From *The Bottom Line: Basic Skills in the Workplace* (1988:40):

- Both the goals and projected results for the company and for participating employees are clearly stated.
- The program has active support of top-level management.
- Employers use recruiting techniques which are appropriate to the employees they wish to reach.
- The planning and ongoing operation of the program involves management, human resource development personnel (if applicable), supervisors and workers.
- Explicit standards are used for measuring program success. This information is shared with participating employees and determined with the help of their supervisors.
- Pre-tests that simulate job situations and tasks are used to diagnose employee needs and strengths and to guide the development of learning plans for participating employees.
- Employees' personal goals are solicited and incorporated into learning plans.
- Instructional methods, materials, and evaluation strategies are tied directly to learning goals.
- Instructors know the basic skills needed to perform job tasks in the specific division or department for which personnel will be trained.
- Employees and supervisors get frequent feedback on their progress and that progress is carefully documented.
- Evaluation data are used to improve program effectiveness. Post-tests that simulate job situations and tasks are used to measure learning.

From *Job-related Basic Skills: Cases and Conclusions* (Sticht & Mikulecky, 1984):

- Training uses job reading and numeracy materials and tasks, because skills and knowledge are best learned if they are presented in a context that is meaningful to the trainees.

- Learning conditions are arranged so that the greatest amount of time possible is spent with each trainee actively engaged in a learning task.
- The skills and knowledge to be taught are related to the person's occupational setting and mastery levels have been set accordingly.

From an article by Spikes and Cornell (1987) about effective employee participation in training programs:

- There is a positive employer/employee relationship that enhances the employee's motivation.
- There is assurance of job advancement if skill levels are attained.
- Individual counselling is available regarding health, welfare, housing, day care, police and schooling.

From AT&T's experience with workplace literacy (Tenopyr, 1984):

- The program objectives are measurable; standards for program "success" have been clearly identified at the outset.
- Evaluation of program effectiveness is carried out in a systematic fashion, with control groups and other appropriate elements of good study design.
- Program objectives are achievable, consistent with overall company objectives, and tied to practical business outcomes.

From the Business Council for Effective Literacy (1987):

- The program is taught by well trained teachers.
- The program is offered on company time.

From *Basic Skills Training - A Launchpad for Success in the Workplace* (Taylor & Lewe, 1990):

- Successful programs tend to be relevant to both employer and employee. They serve organizational goals, while at the same time benefitting the worker personally on the job.
- Innovative partnerships are producing exemplary programs that can offer new instructional models. In all cases, the key to success is the partnership, with each partner bringing a measure of expertise to complement the expertise of the other partners.

Please note that this list is not necessarily complete or prescriptive; it makes reference to some very different approaches to workplace literacy programming.

Focus question

- Do any of these recommendations have particular relevance for you?
Which ones are absolutely unattainable for you?

Reasons for Evaluating Workplace Literacy Programs

It is very difficult to judge or compare workplace literacy programs because so few evaluation reports have been published. A full discussion of the issues surrounding evaluation and workplace basic skills programs can be found in Section 5. In short, evaluation is used for at least two major purposes:

- To develop and improve programs.
- To maintain or terminate programs.

Practically speaking, there are a number of good reasons for evaluation of workplace literacy programs (Carnevale, Gainer & Meltzer, 1990:86):

- There is increasing pressure from top executives for such programs to prove their effectiveness in measurable terms, showing how they contribute to the profitability of the organization and achievement of its strategic goals.
- There is increasing pressure from the training managers and trainees themselves to obtain better measures of the effects of the training.
- A system of evaluation protects the program from the inadequate judgements of people who have no solid information about results.
- Organizations want to know about the relative effectiveness of their various departments, programs, and services.
- Specific measurements of a past program's success build credibility and can help secure funds for future projects.
- It is reasonable that evaluation should be required of an activity that represents a significant expenditure from the organization.
- Finally, including an evaluation system in the proposal to management shows that you are confident that you can demonstrate the success of the program in meeting its stated objectives.

Certainly, there are many more reasons for evaluation. Some evaluations are simply mandatory; some are used for devious purposes.

Focus questions

- What is your reason for reading about workplace literacy evaluation?
- What purpose do you have in conducting a program evaluation?

3. Introduction to Formal Program Evaluation

The field of formal program evaluation is specialized and complex. A lengthy discussion of definitions, purposes and other details can be found in Section 6 of this Handbook.

What the Term "Evaluation" Means

To evaluate means to determine the value of something, individuals, programs or products, for example. For practical purposes, evaluation may be defined as a three-step process:

1. Description and measurement;
2. Comparison; and
3. Judgement.

Practically speaking, evaluation is performed in the service of decision making, therefore it should provide information which is useful to the stakeholders. Decision makers rely on objective evaluation in order to maintain, improve or terminate programs or their involvement with one. It stands to reason that all decision makers are looking for demonstration of success, and success is measured differently by each decision maker.

Focus questions

- If you are planning a program evaluation, the major question you should be asking is: WHO wants to know what, and why?
- Are there adequate resources (people, money, equipment, time) to undertake the evaluation?

There is often resistance to formal program evaluation. The term "evaluation" seems to be a threatening one; formal program evaluation is often feared or avoided. A major challenge facing you is to remove some of the fear and suspicion associated with program review - fear that negative consequences will result. The best argument may be honesty about the reasons for the evaluation. The best approach may be to involve as many stakeholders as possible.

Approaches to Program Evaluation

Evaluation processes and outcomes are first determined by who is conducting the evaluation.

Five common approaches (Barak & Breier, 1990) to evaluation are:

- Consultant-oriented, utilizing expert opinions.
- Survey-oriented, conducted by a research specialist gathering opinion.
- Data-oriented, conducted by a research specialist gathering and analyzing data.
- Self-study, conducted by program participants.
- Combination of all of the above.

Focus question

- Which approach do you anticipate using, i.e. who is going to conduct your evaluation? On what basis would you justify this choice?

The Evaluation Process

Step 1: Description and Measurement

The first step in the program evaluation process begins with data-gathering and ends with two descriptions: the "intended" and the "actual." Data-gathering involves the collection of documents, statistics and opinions; the next section of the handbook is a discussion of data-gathering processes and methods.

The first description, a description of the "intended," is derived from the initial planning documents, for example, the program proposal, projected budget, needs assessment, marketing materials, negotiated human and material resources, organizational chart, job descriptions, and advertised positions. A problem has been identified and the resulting program is intended to remedy the problem. Thus, the planning documents should include the following:

- A statement of purpose, i.e. the rationale for the program.
- Specific details of location, time frames, numbers of learners, staff, sponsorship.
- Program objectives, i.e. what is intended as an outcome for the students and the funders.
- A description of the client population, including the perceived needs, abilities and selection criteria.
- The behaviours which students will be expected to demonstrate upon completion of the program, i.e. the major learning objectives of the program.
- The learning materials, methods and plans which will enable the learners to achieve the program goals, i.e. the instructional objectives.
- A description of the instructional staff, the criteria for their selection, the level of their pre-program competency, and the expected level of the competence following any in-service training.
- A description of program staff functions, the number and type of positions.
- A descriptive list of administrative support, facilities, materials, and equipment.
- The financial plan.
- Strategic documents, i.e. short- and long-term plans.

From this information, a description can be created of the ideal, the standards of acceptability or success which were intended at the outset.

Focus question

- Can you acquire all of this information? What does it say about a program if some of this information is not available?

The second description, the current reality, is obtained largely through measurement and data gathering. This is where the data-gathering tools come in (see Section 4). Some information or data are gathered directly from documents, some through individual opinion surveys, and some through calculation of statistics. Some statistical measurements which will be included in this second description are attendance rates, attrition rates, achievement rates for individuals, completion rates per time frame, and others as deemed necessary. For all intents and purposes, the creation of this second description is what many consider to be program evaluation; in reality, it is only the first step. This is the data-gathering phase.

Step 2: Comparison

When the two descriptions are complete, the next step is comparison. The description of the current circumstances can be compared against one or more of the following:

- The internal standards of program objectives that define success for the various stakeholders.
- Relative standards or those of other similar programs.
- Absolute standards or standards of excellence resulting from experimentation, consultation and consensus by experts in the field.

To date, no absolute standards have been articulated for workplace literacy programs; however, the listing in Section 2 may be useful. It is almost as difficult to draw comparisons with other programs as few evaluation reports are published. Most program organizers must be - and usually are - satisfied with an internal comparison. This is the data-analysis phase, i.e. looking at the data in ways that lead to useful conclusions. Has the program done what it set out to do? Do the intended outcomes and the real outcomes match? What conclusions can be drawn about the success of the program? What worked well and what didn't? What are the recommendations for change? Should the sponsor continue to fund this program?

The purpose of the comparison is to look for discrepancies between what was intended and what has actually happened, between what has occurred and what would be ideal. Not all discrepancies indicate a problem. The discrepancy information becomes feedback for the program organizers, either in the

formative sense of correcting weaknesses, or in the summative sense to pass judgement on a program.

Step 3: Judgement

The final step in the process of evaluating a program is to make judgements about the acceptability or worth of the program. Rational judgement in educational evaluation is a decision as to how much to pay attention to the relative and/or absolute standards which have been set in deciding whether or not to take some administrative action (Stake, 1967).

The judgements and recommendations will be a significant portion of the evaluation report.

The Evaluation Report

The outcomes of an evaluation procedure must be communicated to the relevant stakeholders in an appropriate way. The content of the report must be sensitive to the needs of the stakeholders, as must the format.

With regard to content, an evaluation report may be structured along the lines of the following:

1. Program and evaluation overview
2. Background to the program
 - Origin and rationale
 - Goals and objectives
 - Characteristics
 - Students
 - Staff
3. Description of the evaluation Purpose
 - Design
 - Measures
4. Results
 - Formal
 - Informal
5. Discussion of the results

6. Conclusions and recommendations
 - Regarding the program
 - Regarding subsequent evaluation

The evaluation report should address some or all of these questions (developed by Smith & St. John, 1987):

1. How can we best understand what is happening in this program?
 - What is the nature or character of the program?
 - What are the conditions and activities of the program?
 - What are the central issues, themes, conflicts, trade-offs?
 - What seems important?
2. How could this program be made to work better?
 - Are resources being used optimally?
 - Where is there a critical lack of feedback?
 - What are the barriers to improvement?
 - What are the critical weaknesses?
3. What are the outcomes of the program?
 - What objectives are/are not being met?
 - What "side effects" does the program appear to have?
4. What important variations are there in the program's activities or effects?
 - To what extent are different groups affected in different ways?
 - In what ways has the program varied over time?
 - How do the program's resources, services, or outcomes vary geographically?
5. How worthwhile is the program?
 - Overall, how good is the program?
 - Is the program cost-effective?

4. Information Gathering and Analysis

A great deal of information must be gathered, in a variety of ways, during all phases of a program cycle in order to conduct a program evaluation. There are a number and variety of sources of information, and there are an equally large number and variety of methods of gathering data (see Section 6). The types of data which must be gathered relate either to the environmental circumstances that have served to create and sustain the program, or to the program itself.

Various factors in the environment are:

- The literacy requirements of a given job.
- The literacy skills of the workers relative to the job.
- The general literacy skills of the employees.
- Projected changes in literacy demands and employee skills.
- The resources available to begin and sustain a program:
 - the financial resources
 - potential student numbers
 - human expertise and material resources
 - commitment to success from the employer and employees.

Various program factors include:

- Student retention and achievement.
- Course content and materials.
- Instructional design and learning environment.
- Instructional, administrative and support staff competence.
- Program effectiveness.

Following is a variety of data-gathering devices relative to the various environmental and program factors.

Data Gathering Regarding Factors in the Environment

Literacy Demands in the Workplace

Purpose:

To identify the actual literacy requirements, skills and tasks involved with a given job(s) from the differing perspectives of the employee and employer.

Source:

Employee, immediate supervisor, employer.

Method:

Literacy audit.

Tools:

- Survey/questionnaire of employees
- Survey/questionnaire of supervisor and employer
- Observation for verification and clarification
- Task analysis

Outcomes:

- A list of the actual reading/writing tasks to be used in assessing employee literacy competence.
- Knowledge of the actual literacy demands to be used for instructional purposes.
- Awareness of the significance of literacy to task completion in the workplace.

Sample Tools and Processes:

- Workplace Literacy Analysis developed by:
CASAS
(Comprehensive Adult Student Assessment System)
2725 Congress Street, #1-M
San Diego, CA 92110.
- Literacy Task Analysis Process in:
Drew, R.A. & Mikulecky, L. (1988). *How to Gather and Develop Job Specific Literacy Materials for Basic Skills Instruction*.
Bloomington, IN: Indiana University, School of Education, Office of Education and Training Resources.

- Job and Literacy Task Analysis Process in:
Taylor, M.C. & Lewe, G.R. (1990). *Basic Skills Training - a Launchpad for Success in the Workplace*. Ottawa, ON: Algonquin College, Adult Basic Education Department.
- Job Analysis and Needs Assessment Checklists in:
Worker-centred Learning: a Union Guide to Workplace Literacy, available from:

Guide Orders

AFL-CIO Human Resources Development Institute

815 -16 Street N.W. #405

Washington, D.C. 20006

- Task Analysis Process in:
Carnevale, A.P., Gainer, L.J. & Meltzer, A.S. (1990). *Workplace Basics Training Manual*. San Francisco: Jossey-Bass Publishers.
- Organizational Needs Assessment developed by:
Sue Waugh
150 Ruskin Street
Ottawa, ON
K1Y 4C1

Literacy Levels of Employees

Purpose:

To determine if a discrepancy exists between the literacy demands of the job and the literacy skills of the employees.

To identify potential students.

Source:

Targeted workers/employees, employee's supervisor and peers.

Method:

- Achievement testing
- Survey research
- Needs assessment.

Tools:

- General reading/writing tests
- Workplace-specific reading/writing tests
- Interviews with employee, supervisor and/or peers
- Observation for verification and clarification.

Outcomes:

- A list of potential students for a program should they decide to participate.
- A list of individuals who can be a control group if they do not participate in the program.
- Entry-level skills for individual students, i.e. pre-test scores for determining later achievement.

Sample Tools:

- Workplace Literacy Analysis Individual Profile developed by:
CASAS
(Comprehensive Adult Student Assessment System)
2725 Congress Street, #1-M
San Diego, CA 92110
- Occupational Skills Analysis System developed by:
Educational Data Systems Inc.
22720 Michigan Ave.
Dearborn, MI 48124

Educational Programming Needs

Purpose:

To determine if a training program is needed or wanted by employees and employer.

To determine the scope and variety of training required from the point of view of the employer, the employee and immediate supervisor.

To determine the parameters of potential programming, e.g. time frames, availability, attitude, support services.

Source:

Employees, employer, supervisors.

Method:

Survey research.

Tools:

- Questionnaire
- Interviews.

Outcomes:

- Knowledge of the type of training desired by employee and/or employer.
- Details of what would be considered optimal in terms of programming.

Sample Tools:

- Joint Training Needs Survey in:
Mark, J.L. (1987). *Let ABE Do It - Basic Education in the Workplace*.
Washington, D.C.: American Association for Adult and Continuing Education, Business and Industry Unit, available from the ERIC Reproduction Service.
- Learner Needs Survey in:
A Guide to Setting up Literacy Programs in the Workplace.
Laubach Literacy of Canada
National Development Office
P.O. Box 298
Bedford, Quebec J0J 1A0
- Company Needs Assessment in:
A Guide to Setting up Literacy Programs in the Workplace.
Laubach Literacy of Canada

- Employer Training Inventory in:
Worker-centred Learning: a Union Guide to Workplace Literacy,
available from:

Guide Orders
AFL-CIO Human Resources Development Institute
815-16 Street N.W. #405
Washington, D.C. 20006

Necessary Resources and Available Resources

Purpose:

To determine what is available to and required for a literacy program in terms of:

- actual meeting space
- financial and human resources
- time commitments from workers and employers
- instructional and promotional materials
- professional assistance.

Source:

Employer, program administration and sponsors

Method:

Survey research.

Tools:

Questionnaires (employer, other programs, professional organizations).

Outcomes:

- Awareness of optimal conditions for programming in terms of resources and support.
- Awareness of what is available, and whether or not it will suffice.

Resources:

National Literacy Secretariat
25 Eddy Street 11H15
Hull, Quebec K1A 0M5
(819) 953-5280

National Adult Literacy Database
c/o Fanshawe College of Applied Arts and Technology
P.O. Box 4005
London, Ontario N5W 5H1
(519) 659-3125

Movement for Canadian Literacy
500 Wellington Street, Suite 701
Ottawa, Ontario K1R 6K7
(613) 563-2464

- Philosophy, facilities and equipment, and learner support services questionnaires in:

Adult Literacy Volunteer Tutor Program Evaluation Kit
Provincial Curriculum Publications
c/o Open Learning Agency, Marketing Department
P.O. Box 94000
Richmond, B.C. V6Y 2A2

Data Gathering Regarding Actual Program Factors

Achievement for Individual Students

Purpose:

To determine achievement of individuals and of the program in both literacy skills and employment tasks.

Source:

Student, instructor, supervisor, peers.

Method:

- Achievement tests
- Attitude survey
- Observation by supervisor
- Case study

Tools:

- Experimental designs (pre-test/post-test)
- Interviews/observation

Outcomes:

- Data regarding the actual program outcomes in literacy attainment, attitude change and increased skill in the workplace.

Sample Tools:

- Adult Education Follow-up Survey in:
Darkenwald, B.B. & Valentine, T. (1984). *Outcomes and Impact of Adult Basic Education*. New Brunswick, NJ: Rutgers University, Centre for Adult Development.
- Supervisor Rating of Participants, and
- Supervisors' Evaluation of Effects on their Departments developed by:
Jorie W. Philippi
Performance Plus Learning Consultants, Inc.
7869 Godolphin Drive
Springfield, VA 22153
- Learner Assessment in
Adult Literacy Volunteer Tutor Program Evaluation Kit
Provincial Curriculum Publications

c/o Open Learning Agency, Marketing Department
P.O. Box 94000
Richmond, B.C. V6Y 2A2

Teaching Content and Materials

Purpose:

To determine the actual course content and its appropriateness.

To determine the appropriateness and usefulness of materials which are being used to facilitate learning.

Source:

- Actual materials (handouts, tests, exams, etc.)
- Training outlines
- Learners

Method:

- Document
- Criticism

Tools:

- Content analysis
- Interviews/questionnaire

Outcomes:

- Knowledge of what works and what doesn't
- Judgement of the value of materials and content from the stakeholder's view

Sample Tools:

- Materials questionnaire in
Adult Literacy Volunteer Tutor Program Evaluation Kit
Provincial Curriculum Publications
c/o Open Learning Agency, Marketing Department
P.O. Box 94000
Richmond, B.C. V6Y 2A2

Instructional Design and Learning Environment

Purpose:

To assess the appropriateness of the instructional approaches and methodologies.

To determine the nature of the training environment and the extent to which it is conducive to learning.

Source:

Program staff and learners.

Method:

- Survey
- Case study

Tools:

- Questionnaire
- Interview
- Observation

Outcomes:

- Awareness of the relationship between teaching and learning.
- Awareness of the need to change or improve instructional approaches.
- Knowledge of environmental aspects which must be changed or improved upon to enhance learning.

Sample Tools:

- Instructional Strategies Questionnaire in
Adult Literacy Volunteer Tutor Program Evaluation Kit
Provincial Curriculum Publications
c/o Open Learning Agency, Marketing Department
P.O. Box 94000
Richmond, B.C. V6Y 2A2
- Guide for Worker-centred Learning in
Worker-centred Learning: a Union Guide to Workplace Literacy
available from
Guide Orders
AFL-CIO Human Resources Development Institute
815-16 Street N.W. #405
Washington, D.C. 20006

Program Staff

Purpose:

To determine the effectiveness of the instructional, administrative and support staff.

Source:

Individual staff members, students.

Method:

Performance appraisal.

Tools:

- Student evaluation of instruction
- Self and peer evaluation of instruction

Outcomes:

- Knowledge about the effectiveness of staff.
- Areas to target for recognition and for improvement.
- Awareness of the actual roles and functions of staff.
- Indication of problem areas.

Sample Tools:

- Sample Rating Form - Instructor Performance in
Carnevale, A.P., Gainer, L.J. & Meltzer, A.S. (1990). *Workplace Basics Training Manual*. San Francisco: Jossey-Bass Publishers.
- Administration, staff training and development, and planning questionnaires in
Adult Literacy Volunteer Tutor Program Evaluation Kit
Provincial Curriculum Publications
c/o Open Learning Agency, Marketing Department
P.O. Box 94000
Richmond, B.C. V6Y 2A2
- Checklist for Choosing Instructors in
Worker-centred Learning: a Union Guide to Workplace Literacy
available from:

Guide Orders
AFL-CIO Human Resources Development Institute
815 - 16 Street N.W. #405
Washington, D.C. 20006

Program Effectiveness

Purpose:

To determine how useful the program has been to the collective learners and the employer.

To determine the nature and extent of learning that has resulted from the program.

To assess the impact of the program on the workplace.

Source:

- All stakeholders
- Class records of attendance, achievement
- Budget

Method:

- Cost analysis
- Survey
- Case study

Tools:

- Cost-effectiveness analysis
- Questionnaire
- Structured interview
- Document analysis
- Impact study

Outcomes:

- Justifications to extend or terminate the program
- Indications of problem areas

Sample Tools:

- Cost/benefit Analysis Process in
Carnevale, A.P., Gainer, L.J. & Meltzer, A.S. (1990). *Workplace Basics Training Model*. San Francisco: Jossey-Bass Publishers.
- Funding Questionnaire in
Adult Literacy Volunteer Tutor Program Evaluation Kit
Provincial Curriculum Publications
c/o Open Learning Agency, Marketing Department

P.O. Box 94000
Richmond, B.C. V6Y 2A2

- Guidelines for Impact Evaluation in:
Courtenay, B.C. & Holt, M.E. (1987). Evaluating program impact.
In C. Klevins (ed.), *Materials and Methods in Adult and Continuing Education*. Los Angeles: Klevens Publications.

Analyzing the Data

An analysis of the information gathered may be focused by considering the questions to which answers are needed from the perspective of the major stakeholders.

Phillipi (1989) has developed a set of workplace-specific questions, which can form the basis of the data analysis process and the evaluation report. These questions follow the four-part evaluation model developed by Stufflebeam *et al.* (1971), which structures the examination of programs by context, input, process, and product.

Context attempts to review and validate the underlying philosophy and goals of each basic skills program, determining the resulting program objectives and standards, and identifying unmet needs for service, help, or improvement within each program, by addressing questions such as:

- How have fundamental basic skills been defined? Is it a clear written statement to which all learners and instructors subscribe?
- What is the philosophical belief about basic skills promoted by each program and its instruction? Are those beliefs documented and widely accepted by those who are a part of the program? Are those beliefs supported by current theory and research?
- Are program objectives clearly stated in terms of learner development and growth?
- Is there a descriptive program statement? Does it include operational objectives (statements of how basic skills instruction occur at different phases of the program)?
- Does the program delineate sub-programs for screening and readiness assessment, skills development, application in occupational contexts?
- Is there a systematic plan for evaluating the program? for acquiring feedback from the employer, instructors, and participants for identifying new and emerging needs over time?
- How does the program accommodate individual differences, needs and patterns of growth in adult learners?
- Is the program, as defined, compatible with the needs and characteristics of the participating learners? with the needs of the community/occupations it serves?

Input attempts to determine whether or not required resource capabilities are available for operating each program as defined, by addressing questions such as:

- Are the program materials consistent with its philosophy and stated goals?
- Are adequate materials available for all phases of the program?
- Do the materials work? Are they interesting and stimulating? easy to use? cost-effective? readily available?
- Do the materials accommodate learners with wide-ranging abilities?
- Can learners easily find materials which they can use?
- Are instructors adequately trained to implement all phases of the program?
- Are specialists available to help instructors with problems for which they are not trained (psychologist, consultants, diagnosis and remediation specialists, industry personnel, evaluator)? Is there a procedure established for contacting them?
- Are volunteers or aides used in the program? Are their roles clearly defined? Do they have the necessary skills to do what is being asked of them?
- Is the learning facility planned and equipped to support the program?
- Is the record-keeping system complete, simple, and efficient?
- How much time is spent in instruction with learners? individually? In small groups? large groups?

Process attempts to determine if instructional plans are being implemented as designed by examining the types of records maintained as instruction occurs to note any discrepancies in program curriculum plans and daily instructor decision making required during program operation, by asking questions such as:

- Is a current record of day-to-day activities in basic skills maintained? Are those activities reflective of the program?
- What are each learner's current progress, instructional activities, and learning problems.
- How much time is devoted daily to basic skills instruction? How is it divided?
- Are the program instructional decisions and activities generally consistent among instructors who have similar responsibilities or who must serve the needs of similar learners? Why or why not?
- Are learners making the progress expected? How is this determined?

- Are the resources planned for use actually being used? Is there a need for additional resources not initially planned for?
- Is training and in-service for professional staff occurring? Is it meeting the defined needs of the program?

Product attempts to examine program outcomes as determined by stated program objectives for both individual learners and participants as a group, by asking questions such as:

- Are participants learning basic skills applications according to the program's definition of this skill area of need for learner performance of work and life tasks?
- Do learners continue to use basic skills after they leave class? Do they apply new learning to performance of job tasks or job training?
- Is each learner acquiring the necessary skills identified by employers? Is progress satisfactory?
- Are learners using basic skills to solve their own work and personal problems or to acquire other kinds of skills? Do they view basic skills as having utility?
- Do learners have situational literacy and numeracy, i.e. do they read and compute and understand basic skills concepts well enough to handle everyday survival tasks and to meet personal and career goals?
- Have learners with basic skills disabilities compensated in a healthy and productive way?

The answers to these questions form the judgement step of the evaluation process and the basis for an evaluation report.

5. Background and Rationale for Evaluation of Workplace Literacy Programs: a Review of the Literature

A review of the literature in the field of workplace literacy reveals very little on the subject of program evaluation. Sometimes program evaluation is mentioned as one of the steps in developing a workplace program (Carnevale *et al.*, 1988). Most common are compelling arguments for evaluation.

Arguments for Formal Program Evaluation

- If there is one point at which most program evaluators fall short, it is in determining the value of the program. (Sticht & Mikulecky, 1984:36)
- One of the most important of the questions is whether adult literacy training by employers is effective... the literature in this area is incomplete or inconclusive. (Tenopyr, 1984:13)
- The persistence of functional illiteracy in industrialized countries provides a perfect example of the unfortunate effects that can be produced in societies which have not set up sufficiently accurate mechanisms for monitoring the results of their efforts. (Brand, 1987:21)

Chisman, author of *Jump Start: The Federal Role in Adult Literacy* (1989), says that in order to address adult illiteracy, the U.S. government must, among other things, demand systems that produce large gains in basic skills and hold programs accountable for achieving those gains. It appears that literacy program evaluation is essentially "missing" in the literature and that it is highly recommended by experts.

Unsubstantiated Claims

Actual evaluation reports are difficult to find; however, claims of program evaluation are common.

- After instituting a literacy program, a floundering Vancouver firm found that:
"Soon staff turnover was reduced to manageable levels, productivity increased, and within six months the company was turned around and became profitable." (Gibb-Clark, 1989:B4)
- At Levi Strauss in Hamilton, a literacy program for workers "... brought better communication with management and co-workers and led to a

better understanding of their individual responsibilities. Also, ...workers are now better able to protect themselves and others against injury." (Davis, 1990:9)

Based on the Southam Literacy Survey, Calamai (1987) concluded that for every dollar spent on literacy upgrading, businesses get \$5 back in increased productivity. From a speech regarding the BEST Program in Ontario comes the warning against unrealistic or unsubstantiated claims and promises:

- We feel it is important to be more realistic about the gains from increased literacy because overstated expectations will lead, over time, to a withering of broad commitment to resolving literacy problems. (Turk, 1989:5)

Evaluation Examples

There are a few examples of workplace literacy program evaluations in the literature, among them:

- The Massachusetts Workplace Education Initiative which has recently conducted a pilot study to evaluate programs within its jurisdiction. (BCEL, Jan. 1990)
- *Adult Literacy: Industry-based Training Programs* (Fields, Hull & Sechler, 1987), a publication of the National Centre for Research in Vocational Education.
- An evaluation of the Job Functional Literacy Program as reported in *Job-related Basic Skills: Cases and Conclusions* (Sticht & Mikulecky, 1984).
- *The Lessons Learned Report* (Philippi, 1989) for the Technology Transfer Partnership joint project of Meridian Community College and the Peavey Electronics Corporation, prepared for the National Alliance of Business.
- A report by Mark (1987) which provides evidence that some American workplace programs have resulted in improving the basic skills of workers.

Criticisms and Recommendations

There has been just enough evaluation reporting for the critics to have been at work; the problems which have been identified can be avoided through planning.

- According to Tenopyr (1984) and BCEL (1987), the most serious problem in evaluating the research on adult literacy is the lack of control groups,

that is, achievement of persons who received training has not been compared with that of comparable groups of persons who did not receive training.

- Another problem has been the dual set of objectives - employer-centred and student-centred. Fingeret (1984) points out the problems of determining, stating and measuring the multiplicity of workplace programs' goals.
- A third problem has been the barriers to data collection (McCune & Alamprese, 1985), for example, insufficient time, financial and human resources, expertise, standardized measurement tools.

Obviously, then there are a set of optimum preconditions for formal evaluation, time, resources, and expertise among them.

Most program organizers report that their programs are just too new to have been systematically evaluated. More commonly, projects are just now underway to develop evaluation models and/or to conduct large-scale program evaluations, for example, the Adult Literacy Evaluation Project which is developing and examining evaluation procedures in some 70 adult basic education programs in the Philadelphia area (BCEL, Jan. 1990).

Measures of Success

In the literature, there is no commonly used method or model of evaluation, but there is a great deal of advice, both about the process and perceived success measures. The purpose of evaluation is essentially to make program decisions relative to the objectives of some or all of the relevant decision makers. What do employers and workers want out of basic skills programs?

According to the Canadian Business Task Force on Literacy report, *The Cost of Illiteracy to Business in Canada* (1987), business and industry measure the cost of illiteracy in terms of lost productivity; poor, inconsistent product quality; excessive supervisory time; lack of worker ability to be trained or promoted; and poor morale and absenteeism. It would make sense, then, to measure program success in terms of the same criteria. Houston (1990) says that an employer may be looking for something as complex as increased sales, customer satisfaction and profit, or as apparently simple as workers who can think for themselves - neither are easy to evaluate. For employers, evaluation is a cost/benefit analysis (Tenopyr, 1984). This is not surprising when it is estimated that Canadian employers could spend approximately \$50 million on basic literacy training. Difficult as they may seem to measure, the first component of program evaluation must relate to the employer's objectives for program success.

The second major group of decision makers are the students/employees. Obviously, the first criterion is attainment of basic skills. In addition, according to the literature, the wage-earner is looking for more decision-making muscle, more flexibility, opportunities for advancement and increased job security (Houston, 1990). The BEST program in Ontario, which is union-sponsored rather than employer-sponsored, exists for the purpose of improving the quality of life for union members (Davis, 1989). The second evaluation component must be achievement of learner goals and objectives.

There may be success criteria peculiar to each of the other identified stakeholders; however, the literature is not revealing.

What a review of the literature in workplace literacy reveals most significantly is the wealth of resources which are rapidly becoming available. There are a large number of organizations, agencies, individuals and programs that exist, in part or in total, to give advice and direction. The following reference list is but a start.

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6. Technical Aspects of Formal Evaluation

Formal program evaluation is complex and sometimes controversial. There can be great variations in the use of the term "evaluation," in the models/processes used and in the reporting/use of the findings.

Defining "Evaluation"

Various technical definitions of evaluation may be found in the literature of administration and educational reform.

- In early development of curriculum development theory, Tyler (1949) defined evaluation as the process of determining the extent to which objectives have been achieved; this definition is simply concerned with whether or not objectives are met.
- Suchman (1967) defined evaluation as the determination of results attained by some activity designed to accomplish some valued goals; this definition adds the dimension of causal relationships.
- Stake (1967) stated that program evaluation requires the collection, processing and interpretation of data pertaining to an educational program; this introduces the gathering of evidence.
- Evaluation, as defined by Provus (1969), is the process of agreeing upon program standards, determining whether a discrepancy exists between some aspect of the program, and using discrepancy information to identify the weaknesses of the program; here, standards of acceptability are introduced.
- According to Stufflebeam (1971), evaluation is the process of delineating, obtaining and providing useful information for judging decision alternatives; this definition incorporates a stated use for evaluation.

Current definitions of program evaluation incorporate all of these concepts. For practical purposes, evaluation may be defined as a process involving description and measurement, comparison and judgement (Brack & Moss, 1984). In order to examine an educational program, it must be described in observable terms. Measurement, the process of determining status and amount, provides the most observable statements about a program and makes description more concrete and usable. A program, once described, can be compared to other such programs in relative terms, to standards of acceptability and excellence in absolute terms, and/or to the criteria of success determined within the individual program. Comparison leads to judgement about the value of the program, whether it is as good as it set out to be, as good as other such programs, or whether it is at all acceptable. It is the judgement process which is

the most threatening, but the most critical to decision making. The key factor in the judgement process is "who" is making the judgement; the judges - the stakeholders - are determined by the purpose of the evaluation.

The Purposes of Evaluation

In the literature of evaluation, there are a number of stated purposes for formal program evaluation:

- To uncover durable relationships, those appropriate for guiding future educational programs. (Cronback, 1963)
- To reflect the fullness, the complexity and the importance of a program. (Stake, 1967)
- To delineate, obtain and provide useful information for judging decision alternatives. (Stufflebeam, 1971)

Speaking technically, systematic formal evaluation provides a baseline of information about a program, system or product; it can be responsive to data requirements as they emerge (Stufflebeam, 1971). To this end, evaluation could be a cyclic, continuous process. According to Stake (1967), records which document causes and effects, the match between intent and accomplishment, should be maintained and these records should be kept to promote action, not obstruct it. Ultimately, the evaluator wishes to communicate: to inform, educate, inspire, arouse, or otherwise produce a beneficial impact upon the appropriate people (Smith & St. John, 1985).

Speaking practically, evaluation is performed in the service of decision making; therefore, it should provide information which is useful to decision makers, i.e. students, instructors, administrators and sponsors. Each has a different purpose for supporting or conducting a formal program evaluation. The purposes which stakeholders have for program evaluation are related largely to timing. Formal evaluation can be conducted during three decision-making situations: before a program starts, i.e. program planning; while it is in operation, i.e. implementation; and at the end of a program cycle, i.e. conclusion. According to Stufflebeam (1971), different types of evaluation are conducted for making different types of decisions.

1. Planning decisions are needed to determine program objectives.

- Context evaluation defines the relevant environment, describes the desired and actual conditions pertaining to that environment, identifies unmet needs and unused opportunities, and diagnoses the problems that prevent needs from being met and opportunities from being used.

2. Structuring decisions are needed to design procedures.

- Input evaluation provides information for determining how to utilize resources to achieve project objectives by identifying and assessing

relevant capabilities of the responsible agency, strategies for achieving project objectives, and designs for implementing a selected strategy.

3. Implementing decisions are needed to utilize, control and refine procedures.

- Process evaluation serves to provide ongoing feedback. The objective is to detect or predict defects in the procedural design or its implementation, and to guide appropriate changes.

4. Recycling decisions are needed to judge and react to attainments.

- Product evaluation measures and interprets attainments not only at the end of the project cycle, but as often as necessary during the project term.

Purposes for evaluation are also related to usage, i.e. what types of decisions are going to be made. The purposes may be either formative or summative; formative evaluation is used to develop, modify and improve a program and summative evaluation is used to pass an absolute judgement about the success of the program. Either type of evaluation can be conducted at any time as circumstances dictate; however, typically, formative evaluation is conducted during the program cycle or between ongoing cycles to indicate areas of strength and weakness. Typically, summative evaluation is conducted at the end of a program cycle for the purpose of determining continuance. Each stakeholder can and often does find reasons to make informal formative and summative decisions about the program. Formal decisions are often the result of formal evaluation: gathering evidence, making comparisons and judgements. The purpose or purposes for a formal program evaluation determine the appropriate types of information or data which will be gathered, the methods and tools for analyzing the data, and the reporting of the data.

Data Gathering Methods and Tools

There are a wide range of methods and tools for gathering information about a program. Not all are necessarily applicable or appropriate; the choice depends on the evaluator's purpose. In simplified form, some of the choices are as follows (Smith & St. John, 1985:18):

Tools	Methods	Purpose
Investigative	Investigative journalism	To confirm hunches, discover new leads
In-depth Interview	Case study	To probe, to gain insight
Testimony	Committee hearings Panel reviews	To gather evidence and viewpoints of different interests
Observation	Case study Phenomenology Service delivery Assessment	To obtain "snapshots" of reality; to discover patterns
Document and tracking	Investigative journalism Legislative history	To substantiate review history of issue or program
Achievement Test	Experimental design	To determine if groups are statistically different
Operational Tests	Product evaluation	To measure the qualities of performance
Surveys and Questionnaires	Market research	To discover the distribution of opinion
Photographs	Photography	To capture images of reality

Data Analysis

Different types of data are analyzed in different ways. Again, in simplified format, the choices are as follows (Smith & St. John, 1985:19):

Tools	Methods	Purpose
Factor analysis t-test	Statistical analysis	To determine if observed differences are statistically significant
Cost analysis: - feasibility - effectiveness - utility - benefit	Cost analysis	To determine if programs are feasible, or to measure costs against results
Operational analysis: - assignment - transportation - queuing	Operations research	To determine maximum use of resources; to minimize costs
Box plot Function transformation Stem and leaf display	Exploratory data analysis	To discover relationships and patterns hidden in accumulated data
Geocode Trend surface and social area analyses	Geographic methods	To portray the spatial distribution of program variables
Thematic matrix analysis	Literary criticism	To identify predominant themes
Concept analysis	Philosophy	To clarify thinking, language and ideas
Content analysis Tracking	Document analysis	To substantiate themes and/or a hypothesis
Debriefing	Service delivery assessment	To arrive at consensus of perceptions
Connoisseurship	Criticism	To offer personal, expert analysis and opinions
Hearings	Government Committee hearings	To synthesize evidence in an open public format
Juries	Legal proceedings	To judge evidence in the form of adversary testimony

Tools for Communicating the Findings

Tools	Methods	Purpose
Narrative prose	Story telling	To convey the reality, humanness of the program
Briefs	Journalism	To convey highlights in headline form
Graphics	Art/Design	To translate information into clear, insightful, graphic form
Maps	Geography	To illustrate relationships using mapping formats
Pictures	Photography	To use pictures to heighten sense of program reality
Oral briefings	Service Delivery Assessment	To give oral presentation of findings
Hearings	Committee Hearings	To present all testimony and evidence publicly.
Vignettes	Case Study	To present in writing typical illustrative scenarios

Conclusion

Formal program evaluation is both complicated and assisted by the variety of options and processes available. Once the purpose of an evaluation is determined, however, many of the decisions are obvious. Each program evaluation can be specifically tailored and, therefore, unique.

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