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Title:

Preparing Organizations to Qualify/Certify Training Staff Members: A Case Study with Implications for Continuing Professional Education

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**REPORT OF FINDINGS:
1992 TRAINING STAFF JOB/TASK ANALYSIS SURVEY**

by

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prepared by
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November, 1992

ADMINISTRATIVE SUMMARY

In keeping with LANL policy to apply the principles of performance-based training (PBT), the Laboratory Training Office conducted a job/task survey prior to developing the procedure for training staff qualification. Over one hundred Laboratory employees whose roles include training responded. While there is a significant amount of training conducted at the Laboratory, findings indicate a need for (a) increased, specific documentation of training and related activities; (b) greater understanding and application of PBT by laboratory training staff; (c) isolating and responding to the reasons training staff are reluctant to attend Laboratory-sponsored PBT and OJT training, even when the need for such training was recognized by respondents.

Most training staff members have roles other than the training role. Nonetheless they perform several training functions. About half the training staff do not provide training which addresses PBT standards, especially in the areas of analysis (which directly impacts resource requirements), evaluation (which directly impacts quality), and documentation (which directly affects liability).

INTRODUCTION

In May, 1992, LTO conducted a job/task analysis of Laboratory training staff. This conforms to the "Analysis" phase of performance-based training, which is the Laboratory standard for training. The findings have led to specific recommendations for Laboratory Training Staff Development and will be considered current for a period of two years. The development of the analysis survey instruments, their distribution, and the reporting/analysis of findings meets the DOE criteria for a formal training analysis prior to development of a major training initiative.

Purpose of Analysis. The purpose of the analysis was threefold: to provide accurate information about the current performance responsibilities of the Laboratory training staff (a job/task analysis); to elicit information about staff readiness to engage in continued professional development; to serve as an objective foundation for the development of the Laboratory Training Staff Qualification Program.

Overview of Methods and Procedures. The Analysis involved two sequential surveys. The first survey was a questionnaire to identify all Laboratory training staff and to obtain other demographic information. Fifty-four organizations were contacted, and the return rate was 85%; three of the eight which failed to respond have no training staff. The first survey therefore generated a sufficient base from which to select respondents for a job/task analysis survey, distributed to representative training staff members in a group setting. The job/task survey was piloted internally at LTO and initially by HRD-3 prior to wider distribution. The survey itself was drawn from DOE documents and industry standards for PBT. (Copies of the questionnaire are available on request from LTO.) Qualitative and quantitative questions were included.

Survey Respondents. Respondents were from the following Laboratory areas.

Division/Group:	Number of Respondents
NMT	20
HRD	10
WX	7
MST	6
MEC	5
MAT; P	4
AA-EEO; ADP; EMO; HS; JCI; M; PTLA	3
IS; J; LTO; MP; OS	2
A; APO; AT; C; CLS; CMS; EES; EM; ENG; LC; MEE; N; NMT/OSO; PS	1
Total	101

Note: In this report, all data are aggregated and therefore do not reflect the capability or developmental needs of any individual training staff member or any particular group or division.

Report of Findings; Implications and Recommendations. Following is a summary of findings for the job/task survey. This summary report is has two sections:

1. Findings, implications, and related recommendations in specific content areas:

- Training Role and Task
- Training Terminology
- Preparation to Fill Training Role
- Identification of Extent of Training Needed
- Documentation of Training
- Readiness to Attend Additional Training
- Evaluation of Instructors

2. Highlights of findings by phases of performance-based training:

- Training Analysis
- Training Design
- Training Development
- Training Implementation (Delivery)
- Training Evaluation.

FINDINGS, IMPLICATIONS, RECOMMENDATIONS IN SPECIFIC CONTENT AREAS

TRAINING ROLE AND TASK

Finding: Close to 9 in 10 training staff members are involved in instructional analysis, design, development and implementation; 8 in 10 are involved in training evaluation. Seven in 10 are involved in all five phases of performance-based training.

Implication: Irrespective of formal training or experience in adult education and performance-based training, most training staff members see themselves as applying its principles on the job.

Recommendation: In training staff qualification procedures and training, each phase of performance-based training needs to be clearly linked with the next. Each class should be delivered with a clear understanding of the readiness levels of the trainees to avoid redundancy with prior training. Application rather than theory should be stressed.

TRAINING TERMINOLOGY

Finding: Disparate and contradictory responses about methods or techniques used in on-the-job training, indicating that staff often apply sound instructional methods without knowing what such methods are called.

Implication: Staff uses teaching methods which they cannot identify using academic educational terminology.

Recommendation: From LTO and HRD-3, educational terms should be eliminated as much as possible, and "plain English" descriptions of educational methods and activities used instead, in all procedures, guides, and materials. People can grasp and use concepts without learning the terminology of a field outside their own.

PREPARATION TO FILL TRAINING ROLE

Finding: Staff members perceive themselves as prepared more by experience than formal training to fill the training role; all data trended in this direction, with many areas indicating preparation by experience over training at a 2:1 to 4:1 ratio.

About one response in five generally indicates competence by "both" training and experience. In the areas of training implementation and evaluation, however, only about one-tenth of responses indicated preparation by formal training or education.

Additionally, respondents perceive themselves as less prepared for their role than they could be, as the question "Do you need/want to improve performance?" was answered positively about 40% of the time, on the average, in all areas.

Finally, a range of 5% - 18% of responses indicated a desire to build skills in areas in which respondents are not teaching.

Implication: There is an overall lack of formal training among training staff to sufficiently manage the intricacies and demands of true performance-based training, in all five training phases. This is not surprising as most staff members have their chief areas of responsibility outside training.

Recommendation: Training for staff needs to be conducted in a very practical, application-oriented way, with focus on implementing and using the practical aspects of performance-based training. Staff members need to be able to perform the basics in the field, and need to be able to determine which circumstances require consultation and support from full-time training professionals. People need to be offered opportunities to grow outside the areas in which they are currently performing.

IDENTIFICATION OF EXTENT OF TRAINING NEEDED

Finding: Respondents readily made discriminations regarding the consequences of trainee failure to perform in specific content areas, resulting in a near-normal curve defining three distinct levels of performance needed.

Implication: People know their jobs and technical content well enough to confidently estimate the relative severity of trainee failure to perform in their content areas.

Recommendation: Training Staff, particularly the OJT trainers, are well-prepared to determine type and scope of training based on outcomes of projected trainee failure and can play a large part in making "graded" training decisions.

DOCUMENTATION

Finding: Documentation efforts are low for all phases of training; 40-50% of all training effort remains undocumented.

Implication: Difficulty in projecting resource requirements for training; problematic tracking for training compliance; difficulty in maintaining accurate program, employee, and division training records.

Recommendation: EDS and paper file systems need to be in place in each division to document all phases and outcomes of training. Areas in which EDS is deficient need to be cataloged and technical recommendations made and followed so the system can be used widely and consistently. Consistent documentation forms are made. Consider an analysis class to help managers develop and document training plans, in addition to any PBT Analysis courses offered.

READINESS TO ATTEND ADDITIONAL TRAINING

Finding: Unexpectedly, there is no correlation between those who are prepared to teach by training and whether they would attend additional training (many would not, even though some of those would like to "improve performance"). This finding holds true for those prepared to teach by experience as well.

Implication: This is contradictory to adult learning research which finds a positive correlation between prior training and willingness to attend future training. Possible reasons for our findings are that people have been disappointed with past training or that time constraints/competing priorities prohibit class attendance.

Recommendation: We need further research -- focus groups, survey, or informal site visits -- to determine the reluctance of staff members to attend training. It is possible that an additional, anonymous survey should be conducted in the event the reasons for unwillingness to attend are sensitive. This is an important area for us to understand thoroughly so we can optimally meet DOE orders and build a qualified training staff.

EVALUATION OF INSTRUCTORS

Finding: About half of Managers/DTCs are evaluating instructors in some way.

Implication: Many instructors are not being evaluated by anyone to help them recognize teaching strengths and areas for development. (irrespective of course evaluation)

Recommendation: A systematic, regular instructor evaluation system needs to be in place so all instructors have equal access to informed and constructive feedback about their teaching performance. Teaching evaluation should be a part of each staff member's formal performance appraisal.

HIGHLIGHTS BY PHASES OF PERFORMANCE-BASED TRAINING

Note: performing "some component" of a PBT activity in the following section is identified as any one of many of possible activities associated with each PBT phase. The number of components for each phase in the survey were: Analysis, 8; Design, 20; Development, 19; Implementation, 34; Evaluation, 21 (Total PBT criteria assessed, 102).

Training Analysis. 87% of respondents perform *some component* of this activity

- About half the respondents manage or acquire resources; 60% would not attend training to learn how to manage resources better.
- Over 50% would attend training to learn more about needs, job/task analyses and analyzing OJT needs and 50% recognize a need or desire to improve performance in those areas.
- Over 40% recognize development needs in analyzing training analyses data and identifying gaps in training.
- *Recommendation* Since this is one of the most technically complicated phases of performance-based training, plan to offer courses available for re-qualification in the future, which cover deeper aspects of needs assessment such as survey design and interpretation, observation techniques, and preparing analysis materials for briefings or presentations. Let the availability of technical expertise in training analysis be known to line management so they can use support in this phase; ensure that training specialists who help others in the analysis phase are aware of research basics and experienced in applying research findings to training design. Re-qualification courses in instructional design could eventually be added by the Laboratory or accessed through UNM for this and all phases of PBT.

In training, how to document this phase should be taught using the appropriate program guide for Analysis; the program guide also serves as a job aid and as a resource document for the next phase of PBT. (The program guide for each PBT phase is a written checklist/template attached to each PBT-related procedure.)

Training Design. 89% of respondents perform *some component* of this activity

- 39% do not follow training analysis when developing a design (in performance-based training, analysis must precede design).

- Half the respondents would attend training to learn how to apply analysis to training.
- Over 40% would attend training to design OJT and determine extent of training needed.
- While 33-51% recognize a need for further development in this area as a whole, 50%-66% would not attend training to learn skills needed.
- *Recommendation* There is a clear need for recognition that design is a separate function from the performance-based training phases which precede and follow it, even when phases are handled by the same person. In training, design needs to be treated separately and the criteria for passing the Design course for TSQP should be the evidence of ability to complete the Design Document template which is Attachment I of the Design procedure. Documentation needs to be taught, followed, and checked; it should be housed in the course file for future reference. Misperceptions need to be addressed in TSQP training and resource documents.

In training, how to document this phase should be taught using the appropriate program guide for Design (a design document); the design document also serves as a job aid and as a resource document for the next phase of PBT.

Training Development. 92% of respondents perform *some component* of this activity

- While 40% of respondents perceive a need to (a) develop skills in following terminal objectives and (b) select and sequence learning activities (fundamental components of developing performance-based training), 63% would not attend training to learn how.
- 71% develop/use resources and 41% need to improve performance in doing this; however, 65% said they would not attend training to learn how.
- 45% do not follow training course design, a precursor to implementation for sound performance-based training.
- *Recommendation* We need to learn more about the reluctance of training staff to attend training provided by the Laboratory in areas for which there is a clear-cut need. Since development is so often begun without a design phase, TSQP training needs to have links among the performance-based training phases, so that students do not begin development practice in the Training Development course without a design document to follow.

In training, how to document this phase should be taught using the appropriate program guide for Development; the program guide also serves as a job aid and as a resource document for the next phase of PBT.

Training Implementation (Delivery). 91% of respondents perform *some component* of this activity.

- 37% of respondents follow no lesson plans in training delivery; 27% fail to review the purpose and objectives of the training.
- There is a perceived need for training in the methods of discussion/facilitation; demonstration/practice; small group interaction (over 40% of respondents).
- 45% or more agreed that improved performance was needed in following lesson plans, implementing OJT training, working with small groups, and involving and focusing trainees (although fewer than 45% would attend training in these areas).
- 64% said they saw a need to manage resources better; 35% would attend training to manage resources better; 45% actually manage resources now.
- Several methods for competent delivery were not used by at least half the respondents, including team teaching; modeling; use of slides and video; preparing the training setting and materials; fully a third fail to summarize main ideas, create a supportive learning environment, or allow for interaction.
- Confirmation of trainee entry level is routine for only 37% of respondents.
- Recommendation There is a clear need to teach instructional methods beyond lecture. Lesson plans, a fundamental component of performance-based training, must become a part of every instructor guide and every training course, especially those leading to any kind of credential. Other basics, such as learning about the entry-level of course members, must be attended to in well-developed, stepwise instructor guides, perhaps in the form of checklists.

In training, how to document this phase should be taught using the appropriate program guide for Implementation; the program guide also serves as a job aid and as a resource document for the next phase of PBT.

Training Evaluation. 81% of respondents perform *some component* of this activity.

- Fewer than 41% of respondents are willing to attend classes in this area and a need for improvement is recognized by 33-41%.
- For OJT, 62% of respondents do not evaluate the OJT training program.
- Evaluation of effectiveness of training is performed by 46% of respondents; only 38% would attend training to learn how.
- Level of attainment of learning objectives is determined by 35%.

- Pilot training are conducted/assessed by 38% of training staff; 66% would not attend training in this area.
- Most areas in evaluation are performed by fewer than 50% of respondents, for example: grading and scoring of evaluations or assessments; evaluation of completion of material; evaluation of completion of documentation; evaluating the training setting, media, methods, and lesson plans.
- *Recommendation* Of all five performance-based training phases, evaluation is the activity most in need of support and reform. Particularly for LIST Layer 2 and 3 courses leading to some form of credential, true pilot courses should be held, evaluated by SMEs and course developers, and materials/approaches revised accordingly prior to opening the course to those seeking credentials. This is particularly important for on-the-job training where liability is likely to be higher than other forms of training. A component of the training evaluation courses should include planning for using evaluation findings in subsequent renditions of the course.

In training, how to document this phase should be taught using the appropriate program guide for Evaluation; the program guide also serves as a job aid and as a resource document for revisions.

CONCLUSION

The survey results indicate a need for systematic documentation of training process and outcome and an awareness among training staff of the components of and rationale for performance-based training. Training staff members overall are less eager to attend training than would be expected, given the recognized need for professional development. Most training staff perform several training functions but about half are not meeting Laboratory training standards in critical areas including analysis (which directly impacts resource requirements) and evaluation (which directly impacts quality) and documentation (which directly affects liability).

This report stands as a component of the "Analysis" phase of the Training Staff Qualification Program, and course design will follow accordingly.

TRAINING STAFF JOB ANALYSIS SURVEY

You have been selected to represent LANL Training Staff to provide information for the Laboratory Training Office and HRD-3 to establish programs driven by DOE orders. By completing this survey we can organize existing programs and develop new programs or documentation systems to satisfy training mandates and meet Laboratory training and development needs. Thank you for your time and thought in completing this survey.

I. GENERAL INFORMATION

Group _____

Are your training programs driven by a DOE order or a state or federal regulation? _____

If yes, which order(s) or regulation(s)? _____

Please check your position(s).

- | | |
|---|---|
| _____ Division Training Coordinator (DTC) | _____ Training Specialist |
| _____ On-the-Job Training (OJT) Staff | _____ EDS (Emp. Devel. System) Representative |
| _____ Frequent Instructor (40+ hrs/year) | _____ Infrequent Instructor(1-40 hrs/yr) |
| _____ Course Designer/Developer | _____ Training Manager/Supervisor |
| _____ Subject Matter Expert (SME) | |

Experience:

Years at LANL

- _____ Less than 1
- _____ 1 - 3
- _____ 4 - 7
- _____ 8 - 12
- _____ 13 - 15
- _____ More than 15

Years in your field

- _____ Less than 1
- _____ 1 - 3
- _____ 4 - 7
- _____ 8 - 12
- _____ 13 - 15
- _____ More than 15

Education: Highest level of education attained. List other education if it is relevant.

High School Degree _____

Associate Degree in _____

Bachelor's Degree in _____

Master's Degree in _____

Doctorate Degree in _____

Other Degree in _____

Certification(s) _____

License(s) _____

F. Additional Comments

1. Please list any courses you would like to see offered.

2. Please write in any comments you have about training, your preparation to teach, or your training and development needs. You may use the reverse side. Thank you for your time and effort.

III. GENERAL CONTENT AREAS

Please complete the following information.

General Content Areas (Example: computer classes, electrical safety training, glove box skills, etc.)	1- OJT 2- Classroom 3- CBT/ Simulation 4- Laboratory 5- Self-Study					Approx Hours/ month	Years of experience in this field as a		Difficulty for the student to learn: 1- Low 2- Moderate 3- High			Conse- quence of failure of student to learn or perform* see below		
	1	2	3	4	5		technical profess- ional	training profess- ional	1	2	3	1	2	3
1.														
2.														
3.														
4.														
5.														
6.														
7.														

- *Key: Consequence of Failure of Student to Learn or Perform
 1 = Some impact on productivity
 2 = Moderate impact on productivity, safety, or others' work
 3 = Severe impact on safety or violation of regulation/standards

If you are a Division Training Coordinator, please complete the next section.

IV. DIVISION TRAINING COORDINATORS (DTCs)

Choose those which apply to you in your Division Training Coordinator role.

	Do you perform this activity?			Is your preparation to train in this area by		Do you need/want to improve performance?		Would you attend training to build skills in this area?	
	Yes	Dele-gate	Not Per-formed	Experi-ence	Training or Education	Yes	No	Yes	No
Division Training Coordinator									
Employ LANL training procedures									
Review and approve training									
Keep course records									
Keep individual training records									
Enter data into EDS									
Enroll employees in training									
Review prerequisites									
Review training waivers									
Appoint subject matter experts									
Write annual training plan for your organization									
Prioritize training needs									
Document compliance with DOE and LANL training requirements									
Document all training requirements									

Do you perform any additional functions as DTC? If so, please list them below.

Working Draft
of
Training Staff Qualification
Program

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**TRAINING STAFF QUALIFICATION PROGRAM:
A GRADED APPROACH**

- **Purpose**
 - **Enhance training staff capability**
 - **Comply with DOE Orders**
 - **Address training liability issues**

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TRAINING STAFF QUALIFICATION PROGRAM: A GRADED APPROACH

- **LANL approach:**
 - **Develop standards, procedures**
 - **Offer staff development courses**
 - **Develop credentialling process for qualification, certification**
 - **Document process and outcome of training through job aids**

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**TRAINING STAFF QUALIFICATION
AVAILABLE FOR:**

- **Training Specialist**
- **Training Designer/Developer**
- **Lead OJT Trainer**
- **OJT Instructor**
- **Division Training Coordinator**
- **EDS Representative**
- **Classroom Instructor**

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QUALIFICATION COURSES
Follow performance-based training

Analysis

Design

Development

Implementation

Evaluation

All phases are documented.

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Training Staff Qualification

Qualification based on

- Technical Qualification**
- Instructional Qualification**

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Timeline for TSQ program development

- **Analysis**
- **Internal Review (7/16/92)**
- **External Review (8/3/92)**
- **Internal Review (8/17/92)**
- **Issue Procedure (9/92)**
- **DTC Training (9/92)**

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Analysis for TSQP

Two phases of the analysis

- **Determine the number of training staff**
- **Survey a sample of the training staff**

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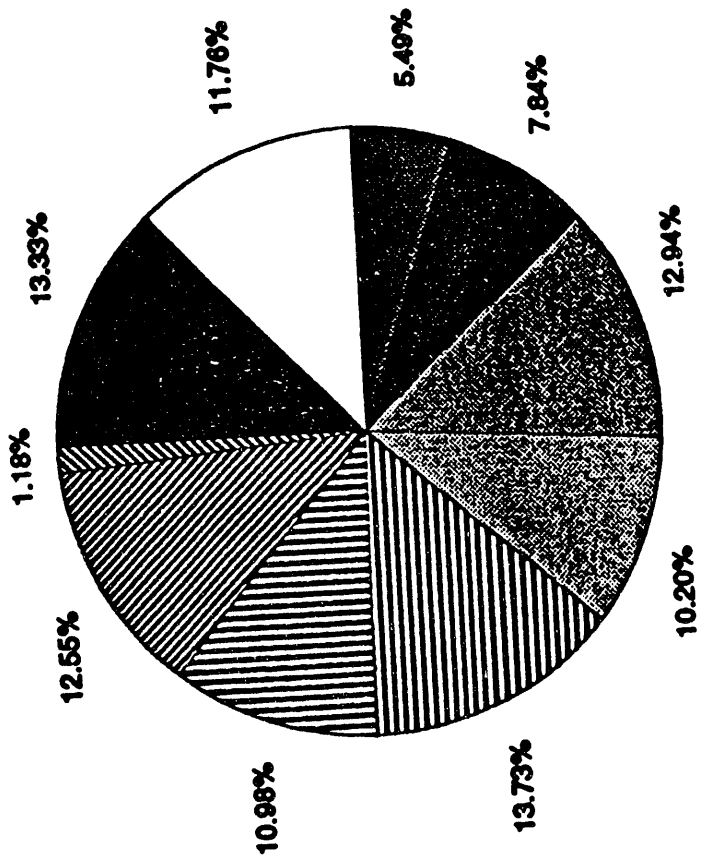
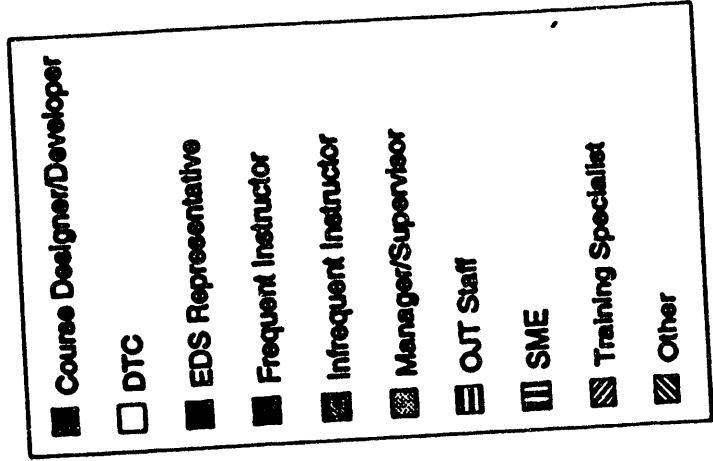
Phase 2 of Analysis for TSQP

- **Based on INEL Task List and Industry Standards**
- **Five major areas (ADDIE)**
- **Major Content Areas**

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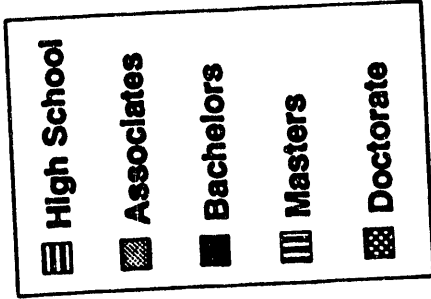
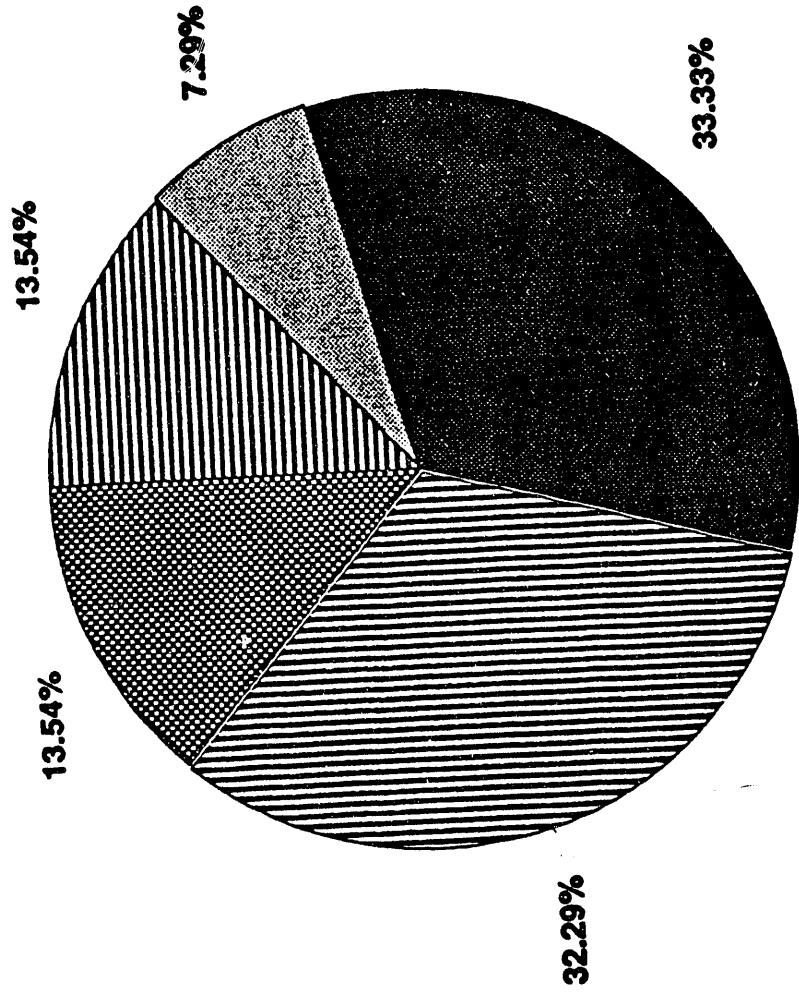
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Representation by Position



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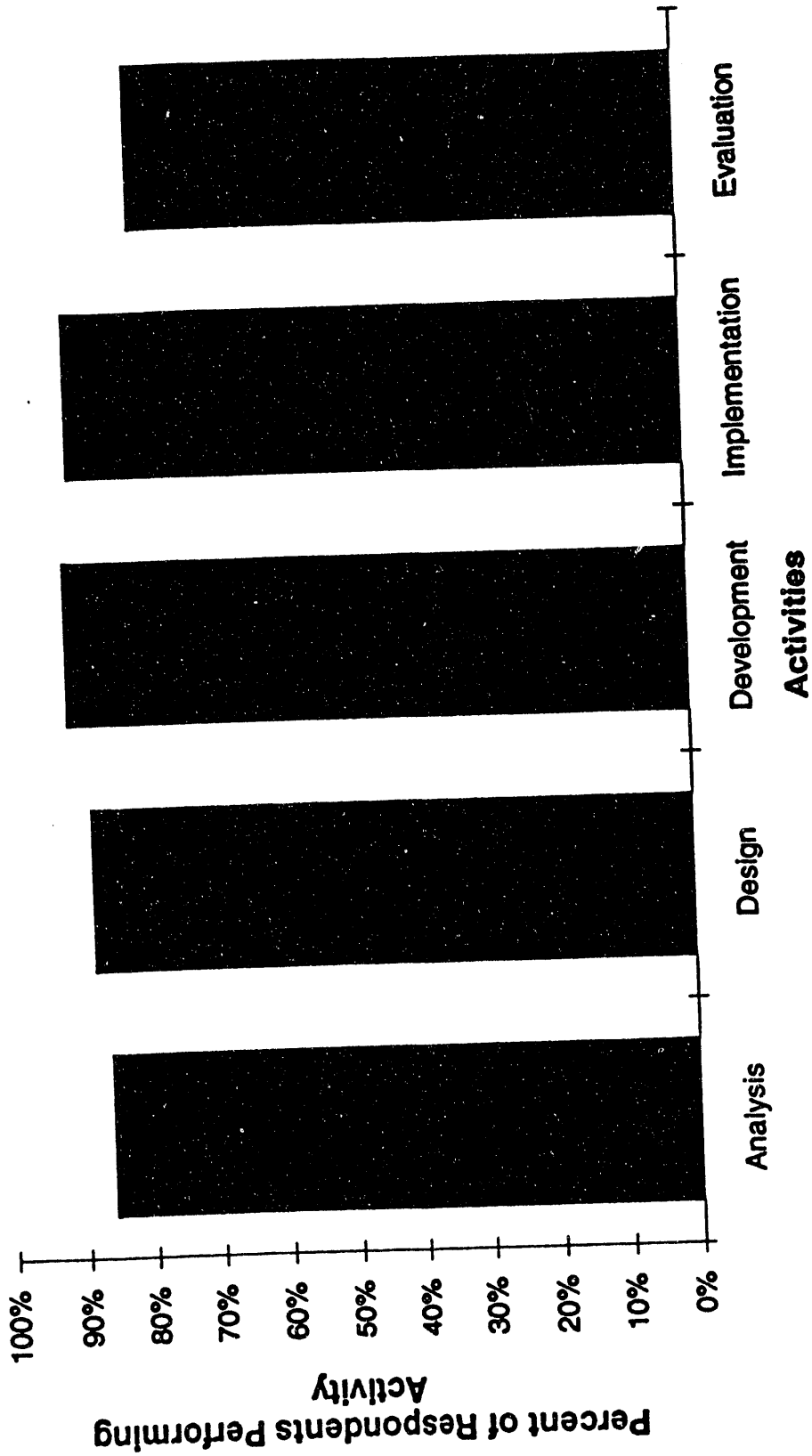
Level of Education of Respondents



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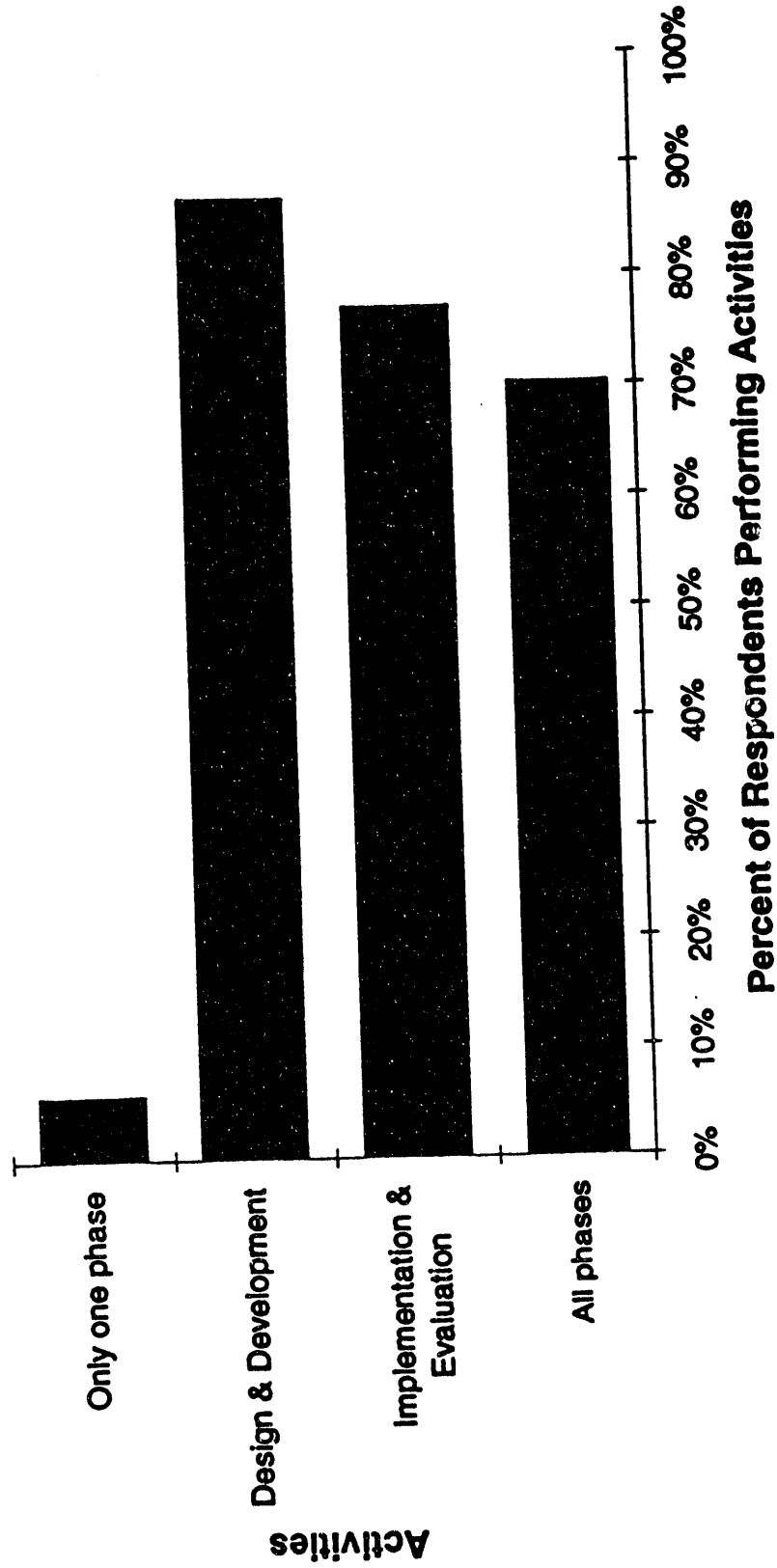
PBT ACTIVITIES



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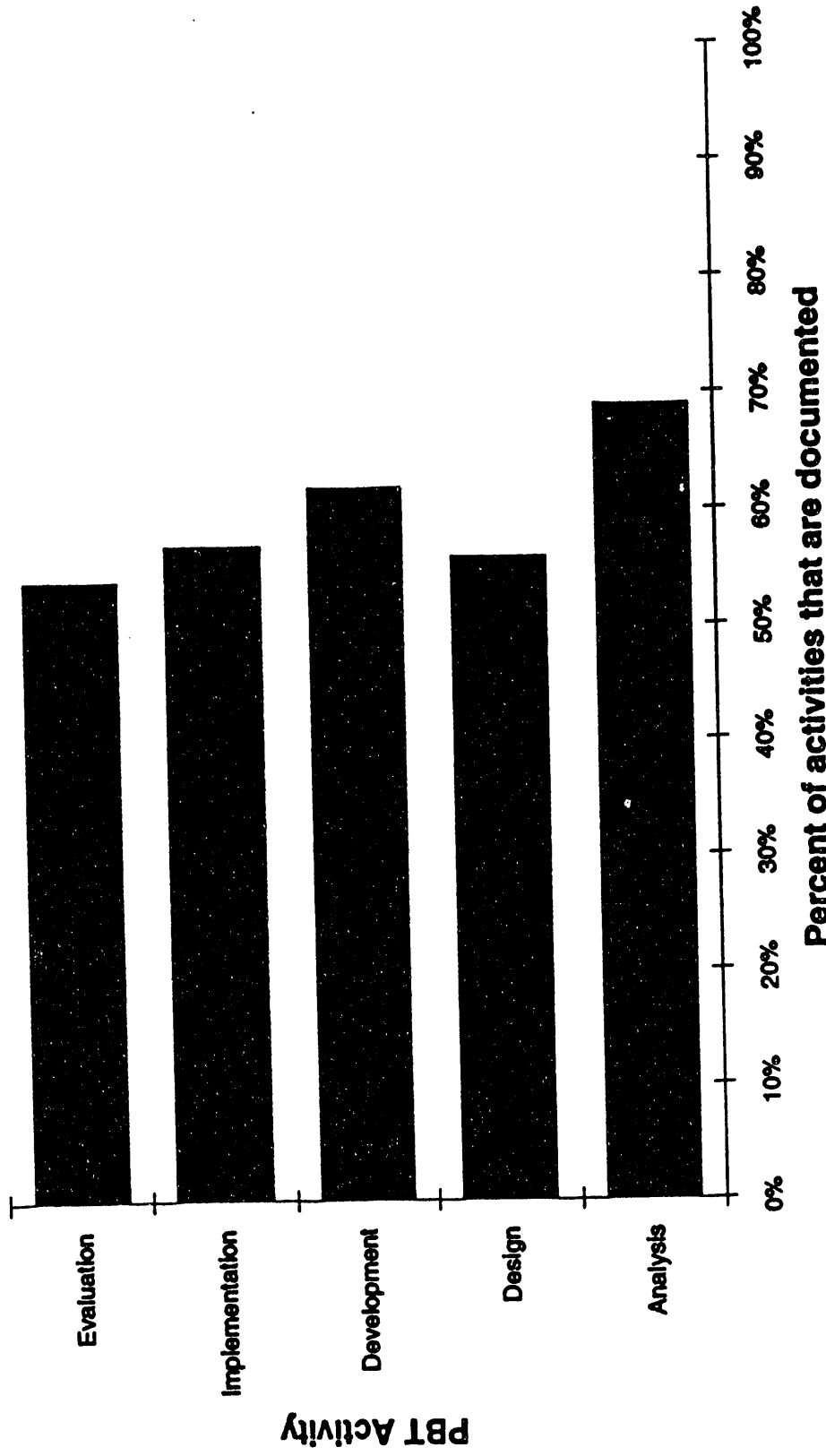
COMBINATIONS OF PBT ACTIVITIES PERFORMED



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DOCUMENTED PBT ACTIVITIES



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How the results will be used

- **Determine content of the program**
- **Determine content of the courses**

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COURSES AVAILABLE FOR QUALIFICATION:

A Graded Approach

- **Overview to Training Procedures**
- **Needs Analysis**
- **Job Analysis**
- **Task Analysis**
- **Training Design**
- **Training Development**

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**COURSES AVAILABLE FOR
QUALIFICATION:**

A Graded Approach

- **Training Implementation**
- **Test Development**
- **Course Evaluation**
- **Trainer Evaluation**
- **Trainee Evaluation**
- **Ethics and Liability**

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COURSES AVAILABLE FOR QUALIFICATION:

A Graded Approach

- **OJT Courses:**
- **Job Steps**
- **Lesson Plans**
- **Implementation**
- **Evaluation**

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**TO OBTAIN TRAINING STAFF
CERTIFICATION:**

- **Qualification as "Training Specialist," or,**
- **For OJT, qualification as "Lead OJT Trainer"**
- **RE-qualification status held for one year**
- **Previous year's teaching = 80 contact hours**
- **LTO signature**

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END

**DATE
FILMED**

10/5/93

