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ABSTRACT

Evaluation of the role of structured on-site training (SOST) in the Employment Training Panel's (ETP's) training program involved 10 case studies of active ETP projects with SOST, survey of 50 recently closed projects with SOST, face-to-face interviews and focus groups with key stakeholders, Delphi survey of consultants, and quantitative analysis of contract information. A review of 1,066 contracts indicated about half included SOST funding; 30.8 percent had SOST scheduled in all jobs, about 15 percent in some jobs; and presence of SOST showed no trend over time. ETP spent about $1 of $6 on SOST; and, for 680 completed contracts, about 17 percent of total training expenditures was spent on SOST. SOST added substantial value to ETP training; trainees rated SOST quality and usefulness as significantly more useful than classroom or lab study and indicated it had a greater impact on productivity than classroom or lab training; and two-thirds of managers of closed SOST projects rated SOST as equally or more effective than classroom training in meeting training goals. Six strategic issues were identified: existing training reimbursed with SOST funds; use of unstructured practices, not SOST; contract administrators focus on billing trainer hours rather than achieving competence; difficulty of reliable monitoring of SOST; SOST reimbursement unrelated to actual costs; and SOST-only projects pay more than market price for one-on-one counseling and generic classroom training. (Instruments are appended.) (YLB)

The Role of Structured-On-Site-Training in ETP
Final Report

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Executive Summary

Overview

The Employment Training Panel contracted with the Management and Organization Development Center at California State University, Northridge to evaluate the role of structured on-site training (SOST) in its training program. Specifically, ETP wanted answers to these questions:

1) "Is the current delivery of SOST effective in ensuring that trainees are attaining competency in the skills being taught?"
2) "Is the current SOST reimbursement rate appropriate?"
3) "Are current SOST record keeping requirements appropriate/adequate?"
4) What is the scope of SOST – in terms of the proportion of projects with SOST and ETP's dollar investment in SOST?

Methods

We evaluated SOST from several perspectives, using the following research methods: 10 case studies of active ETP projects with SOST, a survey of 50 recently closed projects with SOST, face-to-face interviews and focus groups with key stake holders, a Delphi survey of consultants, and a quantitative analysis of contract information.

Results

The results of our research can be summarized under the following topics:

- **Scope of SOST**
  - **Presence in projects**

    We reviewed 1,066 contracts from FY 96-97 to present. We found that about half of these contracts included SOST funding. Slightly fewer than a third of the contracts (30.8%) had SOST scheduled in all jobs and about 15% had SOST present in some jobs. In the contracts we examined, the presence of SOST showed no trend over time.
  - **ETP investment**

    The Employment Training Panel spends about one of six dollars on SOST. For the 680 completed contracts, about 17% ($29.8 million) of the total training expenditures ($177.7 million) was spent on SOST. The disencumbrance rate for contracts with full SOST was 60% higher than for contracts with no SOST.
- **Value of SOST**

  Our findings from this project support other published research which shows that SOST adds substantial value to ETP training. Trainees rated the quality and usefulness of SOST as significantly more useful than classroom or lab study and indicated that they thought SOST had a greater impact on productivity than classroom or lab training. In our survey of closed SOST projects, two thirds of managers rated SOST as equally or more effective than classroom training in meeting training goals.

- **Strategic Issues**

  Our research further identified six strategic issues related to the Employment Training Panel's questions, as follows:

  1) SOST often reimburses existing training. Much SOST is on-demand troubleshooting as part of a supervisor's regular duties; it does not supplement existing training efforts and therefore does not comply with ETP Legislation requiring ETP training to "supplement rather than displace funds available through existing programs conducted by employers and government funded training program . . ."
  2) Unstructured training practices are often used instead of SOST. Of the 10 active projects studied, only one had all five characteristics of quality SOST: a structured plan, trained trainers, on-site customized training, and a valid, reliable skill certification process.
  3) The system motivates contract administrators to focus on billing trainer hours rather than on achieving trainee competence. They spend more effort ensuring on-time completion and submission of paperwork than they do ensuring that trainees have met training goals.
  4) Reliable monitoring of SOST is difficult because much of it, as currently delivered, lacks the structure defined by the five characteristics of quality SOST.
  5) SOST reimbursement is often unrelated to actual cost. The median fully loaded hourly cost of delivering SOST was $41 for companies and $101 for consultants. Both companies and consultants report a wide range of costs.
  6) At $80 per hour, SOST-only projects pay above the market price for one-on-one counseling or generic classroom training.

Recommendations

We present three policy alternatives for Panel consideration:

- Maintain the status quo for the SOST portion of the reimbursement program;
- Require that contractors have a plan to reinforce classroom training but only fund SOST training that meets new, rigorous structure criteria and, furthermore, stop funding SOST-only projects; or
- Eliminate SOST from the reimbursement program.

We recommend the second alternative:

- Require that contractors have a plan for reinforcing classroom training but only fund SOST training that meets new and rigorous criteria for structure. This will eliminate the reimbursement of trouble-shooting and informal coaching, documented as SOST, and will make SOST monitoring easier for ETP staff.
- Stop funding SOST-only projects. These projects do not fit the SOST model – they are just a way to provide generic training to individuals or small groups who cannot be profitably served by classroom training.
- Keep the existing $80 hourly trainer rate and continue to track trainer hours.

  Systematically evaluate the impact that any SOST policy changes might have on skill attainment, finances, or program administration.

Introduction

In November 2001, the Employment Training Panel (ETP) contracted with the Management and Organization Development (MOD) Center of California State University, Northridge to evaluate the role of Structured-On-Site-Training (SOST) in the ETP Program. The Panel asked that MOD focus on three questions:

1. Does the current delivery of SOST ensure that trainees attain competence?
2. Is the current SOST reimbursement rate appropriate?
3. Are current SOST record-keeping requirements adequate?

In this report, we begin with a discussion of structured SOST in general, then turn to what previous studies have shown about SOST as part of ETP, and will review the history of Panel policy on ETP. Next, we provide a brief overview of the methods employed in this study. This is followed by an analysis of the scope and cost of SOST training, and a section detailing the results of our evaluation by focusing on six strategic SOST-related issues that emerged from our work. Finally, we present a range of policy options and our recommendations.

Research on the Effectiveness of SOST

A great deal of research, from a variety of sources, shows clearly that learning on the job, compared to learning in the classroom, is a powerful training intervention. Hands-on training allows workers to learn new skills and knowledge in their work environment, leading directly to improved productivity, or helps workers to improve their performance by taking classroom learning and putting it into action at their workstation (Hart-Landsburger, Brauger, Reder and Cross, 1992 and Lave and Wenger, 1991). However, not all on-the-job or on-site training is equally effective.

Since the guild system in the middle ages, various forms of on-the-job training (OJT) have been common. While OJT represents the most common form of training in American industry, its effectiveness is often suspect. An extensive study of unstructured OJT (Jacobs 1994) concluded:

> "...while unstructured OJT occurs most often, employees seldom achieve the desired levels of expertise as a result of its use. ...unstructured OJT leads to increased error rates, lower productivity and decreased training efficiency."

As this quote points out, all OJT is not the same. Much OJT is delivered in a haphazard way by co-workers and supervisors with limited resources and training expertise. At the same time, managers recognize that training on the job is powerful. If classroom learning is to be transferred to the workplace, on-the-job reinforcement is crucial. The difficulty is creating OJT that works. Jacobs and Jones, in their recent book *Structured On-the-Job Training: Unleashing Employee Expertise in the Workplace* (1995), argue convincingly that the key ingredient missing from most OJT is "structure." The authors' definitions of unstructured and structured OJT are given in Figure 1 on the next page. We find these definitions valuable for evaluating ETP's delivery of SOST.

Figure 1

Definition of Unstructured and Structured OJT	
Unstructured	**Structured**
Employee is trained by an experienced employee whose experience as a trainer is likely to be limited and whose task expertise may also be questionable. Training content, methods and outcomes vary across employees.	Employee is trained by an experienced employee who has expertise as a trainer and in the task to be learned. Training content, methods, and outcomes are consistent across employees.

Our own research on ETP's SOST suggests that the authors are correct. On-the-job training is a potentially powerful intervention, but must be carefully structured to be fully effective.

Previous Research on ETP SOST

In our recent study, *ETP at Work,* we conducted case studies of 26 ETP projects, most including a SOST component. Through interviews with project managers, trainers and trainees, and an evaluation survey of trainees at each site, we assessed SOST effectiveness.

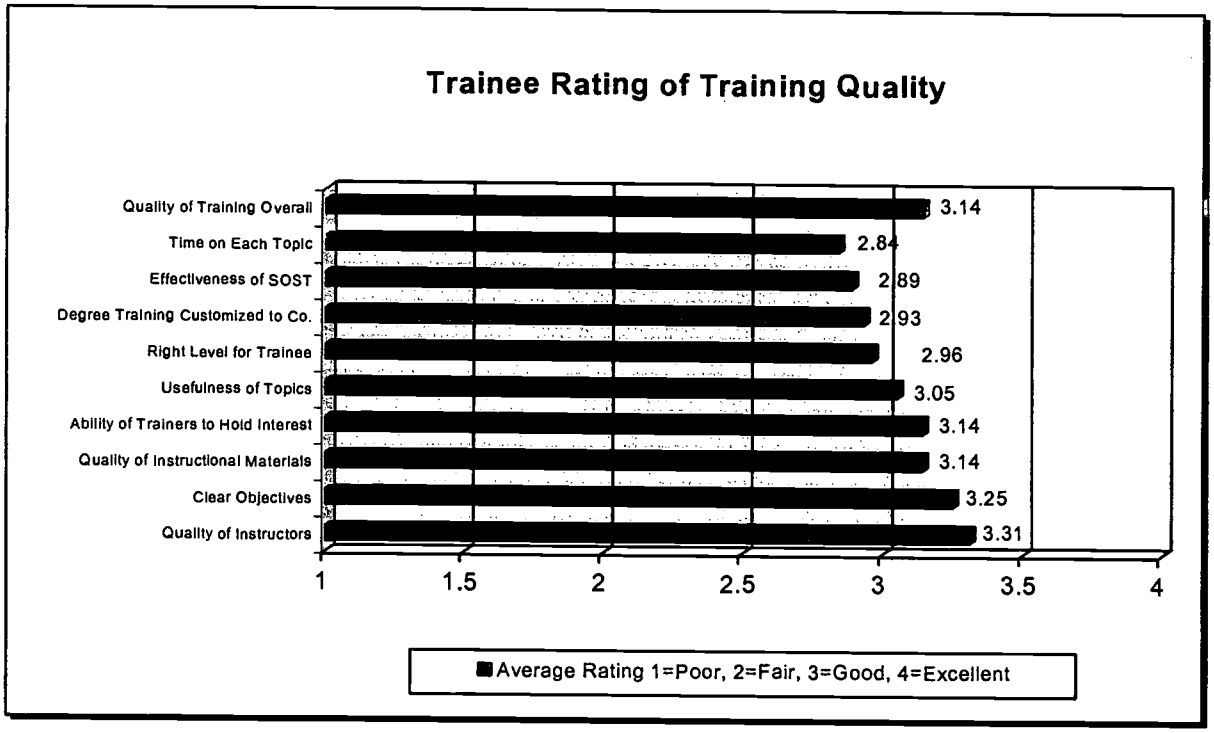
We found that SOST quality varied widely across the projects we visited. SOST is a powerful instructional approach when applied correctly but, all too often, we found that SOST activities had limited training relevance, were poorly supervised, and contributed little to training effectiveness.

It is important to note that the projects we studied operated under a different SOST policy than what is in operation today. At that time, payments were based on trainee hours spent on SOST assignments. The policy allowed 10 trainees per instructor for SOST training. Each trainee had to document every hour spent on SOST training. The current policy pays for instructor time spent on SOST and requires documentation only for instructor time. The focus is now on measuring trainee achievement of competence in specified skills. Thus, one could reasonably assume that practices, and possibly the impact of SOST, have changed since our fieldwork.

Our research found that good SOST has a number of key characteristics. First, the assignments follow, in a timely manner, the topics covered in class. Second, the assigned tasks deal with immediate, work-related problems. Finally, trainees need attention from instructors while they complete SOST assignments – employees need to be able to get help promptly when they "hit a road block" in their assignment, and they need to get immediate feedback on the quality of their work to know whether they are using new skills effectively.

In our fieldwork, we found that SOST was often poorly delivered. This observation was confirmed by our questionnaire – across all projects, trainees rated the quality of SOST substantially below overall training quality (SOST was rated 2.89 and overall training 3.14 as illustrated in Figure 2 on the following page). It appears that, in some cases, SOST was added to contracts to increase their value without increasing the hours employees were off the job, and so, it seems, was half-heartedly implemented.

Figure 2



Trainees often complained that SOST seemed a waste of time. In interviews about SOST, the topics that came up repeatedly were the difficulty of completing SOST documentation and the pressure that employees felt to complete assignments. Consequently, when asked to recall their SOST experience, learning was seldom the first thing that came to mind. It may be that the newer SOST policy has mitigated these problems. The text box on the following page illustrates an effective SOST program. Again, it is important to note that these observations refer to a time when ETP was tracking employee hours, not just instructor hours.

Figure 3

SOST at Basic Batteries: *The Right Way to Do SOST*

In our questionnaires, 56.3% of the trainees at this site rated the effectiveness of SOST as "good" and 31.3% thought it was "excellent." SOST worked well here because the company used in-house trainers who knew the production processes; the trainer was the union shop steward so the company had the cooperation of the union; and the supervisors were extremely cooperative in helping trainees as they completed their SOST assignments. One trainee we interviewed felt encouraged to use the new skills and knowledge due to "the on-site training that we received."

To explore the relationship between training quality and training impact, we used regression analysis. Regression is a statistical technique that measures the strength of the relationship between predictor variables and a target variable such as "impact of training." As shown in Table 1, we used regression to see whether different aspects of the training quality were associated with training impact. The training impact was measured three ways: the amount

learned, how often new skills were used, and productivity change. The coefficients measure the strength of the unique relationship between a quality measure and an outcome measure. Significance measures show the probability that the measured relationship is due to chance or random error. Traditionally, relationships are considered statistically significant only at levels of 0.05 or lower (indicating a five percent or lower probability that the relationship is due to chance or random error). Significant relationships are shown in **bold** type. Finally, the overall R^2 measure indicates what proportion of variation in impact measure is accounted for by the measures of quality, in aggregate. In other words, this measure shows the degree to which quality measures predict training impact. A higher R^2 that the apparent correlation between the predictor quality measures and the observed training impact is stronger.

Table 1

Regression Results for Quality Measures on the Impact of Training

Quality Measure	Amount Learned		How Often Skill Used		Impact on Productivity	
	Coefficient	Significance	Coefficient	Significance	Coefficient	Significance
Clear objectives	.048	.481	.028	.701	.044	.527
Usefulness of topics	**.159**	**.013**	**.311**	**.000**	**.249**	**.000**
Length of time on topics	-.034	.620	-.059	.409	.041	.566
Quality of instructional materials	.065	.315	.067	.316	.001	.983
Degree of customization to company	**.127**	**.043**	-.060	.356	.086	.166
Quality of instructors	-.145	.056	-.124	.126	-.028	.712
Effectiveness of SOST	**.306**	**.000**	**.344**	**.000**	**.258**	**.000**
Ability to hold interest	**.164**	**.032**	.039	.624	.082	.283
Right level	-.037	.554	-.055	.391	-.089	161
Quality Overall	.040	.612	.101	.220	.093	.240
Adjusted R^2	**.284**		**.310**		**.343**	

The table shows that, while we observed extensive variation in SOST quality, there was a strong relationship between SOST quality and training impact. In other words, as SOST quality increased, its impact – on amount learned, frequency of skill use, and productivity – all increased significantly. This led to our conclusion that SOST remains an important, if imperfect, part of the ETP program.

A Brief Policy History of ETP

SOST has been a part of ETP since inception. Previous panels recognized that opportunity to build skills on the job was a critical element of training. Since ETP's early

years, the management of the SOST component has been problematic. Panels dealt with SOST issues as they emerged. Below, we provide a summary of major recent SOST issues and describe the policy responses.

Figure 4

SOST Policy Issues		
Year	**Issue**	**Policy Initiative**
1995	Some projects included a large number of SOST hours but the value added was not always clear.	Panel restricts SOST to a ratio of two SOST hours for each class hour.
1996	ETP requires tracking of every hour of SOST completed by every trainee. This is found burdensome for employers. In addition, it is clear that some trainees need more SOST than others.	Panel changes from tracking *trainee* hours to tracking *instructor* hours. Compensation changes from $8 per trainee hour to $80 per instructor hour. Payment is based on a 10 to 1 trainee to trainer ratio in either case. The SOST instructor must still certify every trainee's skill attainment.
1999	The power of SOST is recognized as particularly appropriate for Welfare-to-Work participants. New policy of tracking instructor hours allows for one-on-one training.	Panel experiments with Welfare-to-Work training, including only SOST and allowing one-on-one training.

SOST In Other States

We reviewed two national studies on state-financed training programs and found that only four states – Illinois, New Jersey, Pennsylvania and Missouri – have programs that fund on-the-job training similar to SOST. In New Jersey, on-the-job training is defined as "training conducted at the work station in which limited production is generated by the trainee as an outcome of the training process" (Regional Technology Strategies, Inc. 1999, p.64).

Methods

Our approach to the questions posed by ETP was a method known as triangulation. In this approach, researchers measure a phenomenon from multiple perspectives. ETP is a complex system with an independent panel, a central administration, regional offices, and a wide range of contractors and subcontractors. Each element of the system is sure to provide a different perspective, and the reality is likely to lie somewhere between the various stakeholders' perspectives. To answer the research questions, we designed a method that draws on the perspectives of all ETP participants, adds the best available empirical data, and uses the knowledge we have accrued in fifteen years of studying ETP.

In short, we combined the following methods to answer the questions:

- Interviews with ETP executives and Panel members
- A focus group with SOST monitors
- Case studies of ten current representative ETP projects with SOST
  - Interviews with internal project managers, trainers and consultants
  - A survey of SOST Trainees
- A telephone survey of managers of recently closed SOST projects
- A Delphi Survey of contractors and consultants
- An analysis of five years of contract data

Table 2 on page 9 shows how method components tie to the research questions posed in the RFP. A double star indicates a primary source for answering the question posed; a single star indicates a secondary source for answering that question.

Table 2

MATRIX OF QUESTIONS & METHODS					
QUESTION	Executive Interviews	Staff Focus Groups	SOST Trainer Delphi Technique	Ten Field Sites	Survey Mgrs of Closed Projects
1) Is the current delivery of SOST effective in ensuring that trainees are attaining competency in the skills being taught?	☆	☆	☆	☆☆	☆☆
How is SOST being conducted in ETP projects? How effective is it? Is the focus on competency attainment? Is that being achieved? Should the ratio of trainer to trainees, or class/lab hours to SOST hours be modified? To what, if any, extent is some SOST time devoted to unnecessary training, at the expense of other trainees not receiving the training they need?					
2) Is the current SOST reimbursement rate appropriate?	☆	☆	☆	☆☆	☆☆
What are the real costs of SOST? What SOST costs might actually be the costs of doing business, which would be incurred even without the training? How should SOST costs be reimbursed? Should reimbursement be different for technical and soft skills?					
3) Are current SOST record keeping requirements appropriate/adequate?	☆	☆☆	☆	☆☆	☆☆
Is the tracking of only trainer time and focus on competency attainment an effective method of record keeping?					

A synopsis of research methods is given below. Samples of actual instruments used to collect data are included in Appendices A through I on pages 55-75.

Interviews of ETP Organization Members

The first step was to interview representative key stakeholders within the ETP organization.

- **Interviews With Selected Panel Members**

  Three Panel members were designated by the acting executive director to be interviewed. The Panel members were questioned on the following topics: current SOST issues, ideal SOST components versus recent problems, the role of SOST in the delivery of ETP projects, evaluation of reimbursement rates, and SOST policy evolution over the past several years. The purpose of these questions was to increase understanding of overall issues and to collect key policymakers' views on the current state of SOST.

- **Interviews With ETP Executives**

  Interviews with ETP executives focused on the context of SOST policy. Specific topics included: recent policy history of SOST, emerging issues that led to this study, and the role of central and regional office staff in implementation. We also collected executives' views on the value and effectiveness of SOST.

Focus Group With Monitors

Because monitors are on the frontline of ETP, spending time with contractors and consultants every day, we wanted to collect their views on key project questions. We also solicited their views on how best to observe SOST in the field. This exercise helped sharpen the key-issue focus for field site visits.

Ten Site Visits

This component was at the heart of the research. Our previous study showed us the value of getting into the field to observe training on site. We believe this is the key to answering the questions posed. In effect, we treated each site visit as an individual case study. We developed a project history by reading the contract file, interviewing the contract monitor, and then going into the field to see the project at work and talk to managers, trainers, and trainees. The key elements of this approach are reviewed below.

- **Sample**

  We worked with ETP staff to identify thirty companies with current SOST projects representing the range of projects funded by ETP. Ten were selected for study and 20 as potential replacements. In the selection, we considered variables such as region, industry, size, and training provider. However, we had to make immediate substitutions because not all companies originally chosen would agree to participate. We actually contacted twenty-one companies to get ten case-study participants. Some companies declined for security reasons. Others said they were too busy to participate. At a few, we were unable to make contact with the appropriate training person. We pulled the contract files on those who agreed to help us and extracted relevant data.

- **Interviews with Internal Project Managers and Trainers**

  Through interviews with companies' SOST project managers and trainers we found out why the company or trainer became involved with the ETP program, why a SOST component was included in the project, and how the planning and implementation of SOST unfolded. We also collected data on actual costs of implementing SOST and found out how ETP reimbursement was spent. Please see the data collection instruments in Appendices C and G on pages 59-60 and 70-71, respectively.

  - Consultant Interviews

    We interviewed the contractor's consultant, if any. These interviews addressed the goals, benefits, costs (reimbursements), implementation procedures, and effectiveness of SOST. Consultants were also asked whether or not they participated in the decision to include SOST in the project, and what they would have done differently had ETP support not been available. We discussed the consultant's interaction with the project monitor and evaluated consultant costs as part of ETP reimbursement.

- **Survey of SOST Trainees**

  We asked current SOST trainees to rate, on a structured evaluation form, the quality, effectiveness, and impact of the SOST they received. The form was based on our earlier experience in administering evaluation instruments at ETP sites.

- **Observing the process**

  Researchers shadowed a SOST instructor to observe time use, content of SOST assignments, number of participants contacted in an hour, types of one-on-one instruction, and any visible impact of the instruction (such as trainee use of the techniques taught).

Survey of Fifty Closed Projects

Fifty companies with recent SOST were contacted by telephone. The projects were chosen from a list of 200 provided by ETP's Sacramento office. The most recently completed projects were contacted first, but all 200 companies were contacted eventually in order to get fifty responses.

Based on our experience with case studies, we developed a survey instrument for project managers of the fifty SOST projects that closed most recently. The purpose of the survey was to collect data on manager experience relevant to each research question. We wanted to validate our tentative findings from the ten case studies. For example, knowing the cost factors identified by case studies, we could ask managers for cost data on these factors. This provided a database for estimating cost across all projects. We also asked managers for their experiences with the administrative and recording-keeping aspects of the project.

Survey of Data with Delphi Method

We designed and applied a modified Delphi survey of consultants and contractors, to explore their perceptions of issues relevant to the three research questions. The Delphi technique, developed nearly fifty years ago, is a form of iterated survey analysis. A wide range of acknowledged experts in the subject area are identified and this initial group is

surveyed on the research topic. We acquired a sample of forty-three e-mail addresses, from the Alliance for ETP and from a search of consultant Web sites and various lists of ETP contractors. Of forty-three initially contacted, sixteen participated. Our Delphi survey involved three phases:

- **Phase I**

  The purpose of the first phase was to obtain basic information about cohort perceptions and to find out if perceptions of the effectiveness of SOST differed depending on how SOST training was provided. In this initial query, each respondent was asked to complete our survey and, if the respondent had special expertise or a strong opinion, to write an explanation of the answers given. We collected these responses and assembled them into a composite response sheet that preserved respondent anonymity. This sheet provided representative answers and the percentage of sample that seemed in agreement each answer. The composite answer sheet, the compilation of explanations, and a fresh copy of the original survey form were then distributed to each respondent.

- **Phase II**

  In the second phase, the panel was asked to review the compiled answers and explanations and to provide a second set of answers to the same questions. Survey participants who had strong opinions regarding an answer were again invited to write explanations.

- **Phase III**

  In the third phase, the respondents were given statistical summaries of previously answered questions, and a series of representative statements gathered from comments, to which they could express the strength their agreement. Though the study was designed to allow the possibility of a fourth or even fifth round, sufficient convergence of answers was achieved in three iterations.

In order to minimize the cost of participation, to maximize response rate, and to facilitate quick turn-around, we collected data by e-mail. We contacted participants by telephone, letter, or e-mail and explained the modified Delphi process. We distributed the questionnaires, answer summaries, and explanation compilations electronically using a secure Web site. To remind respondents to participate, we set frequent e-mails with links to the Web site.

We used two different survey approaches to estimate the actual cost of SOST training.To obtain companies' estimates of the cost of in-house SOST training, we included cost questions in the telephone survey of companies with recently closed projects. To obtain consultants' estimates of their cost of providing SOST training, we included cost questions in the modified Delphi survey. These two surveys provided interesting results (summarized in Figures 14, 15, and 16 on pages 38-40) regarding the actual costs of providing SOST training.

Data Analysis

In accordance with our triangulation approach, we analyzed data from several sources to answer each research question. Following is a brief description of how data was used to answer the research questions.

1. **Does the current delivery of SOST effectively ensure trainee attainment of competence in the skills being taught?**

   We answered this question by first observing the delivery of SOST training in the field and then surveying current SOST trainees to get their perceptions of the quality and value of the training. Interviews or surveys of all other key stakeholders – ETP staff, monitors, trainers, and 50 recent project managers – completed the research. The combined data from all sources enabled us to draw conclusions about SOST delivery and effectiveness.

2. **Is the current SOST reimbursement rate appropriate?**

   During the case-study fieldwork, we identified the factors driving overall SOST cost and collected available on-site comparison data, such as costs of other on-the-job training. We collected additional cost data in the Delphi survey of trainers and in the survey of managers of 50 closed projects. Data from all sources were combined to provide a complete picture of the costs of SOST. This picture was used to evaluate current reimbursement policies and generate recommendations for reaching Panel policymakers' goals for SOST. An essential part of this analysis was outlining the incentives that various fee structures create for contractors and consultants.

3. **Are current SOST record-keeping requirements adequate?**

   Here too, the question was answered by first making objective observations of record-keeping in the field and then collecting the views of parties directly involved. Data on these parties' perceptions were combined with our own observations and conclusions drawn about the most effective method of documenting SOST.

Results

In the process of piecing together the data to answer the research questions, we were led to the conclusion that there was an important question not initially posed. What is the extent of SOST, in terms of projects involved and money expended? The results section begins by showing the size and scope of ETP's investment in SOST and then describing the impact of the SOST we studied. We then discuss six key strategic issues that emerged from our work:

1. SOST funds often reimburse existing training.
2. Unstructured training practices are used instead of SOST.
3. Contract administrators focus on billing trainer hours rather than on achieving competence.
4. Reliable monitoring of SOST is difficult.
5. SOST reimbursement is often unrelated to actual costs.
6. SOST-only projects pay more than market price for one-on-one counseling and generic classroom training.

In our view, some of these issues represent forces hindering SOST in reaching its full potential for trainee skill attainment and productivity improvement. Others are strategic policy matters, related either to price or to ability to monitor activities, which the Panel may wish to consider as they review SOST.

Scope of SOST

It is impossible to review SOST without first understanding the extent of ETP investment in this training method. Overall, ETP spends one dollar out of six on SOST. ETP budgeted $15.2 million for SOST in Fiscal Year 2000-01. To understand the extent of SOST in some detail, we analyzed 1,066 ETP contracts to look for patterns and trends in SOST funding. This analysis answered the following questions:

- What percentage of ETP contracts includes SOST funding?
- What percentage of ETP training dollars goes to supporting SOST?
- Are there time trends in the number of contracts with SOST funding or in the percentage of training dollars devoted to SOST funding?
- Is there evidence that the presence of SOST funding might compromise the success of a training contract?
- Is there a relationship between the use of consultants in the contract and inclusion of SOST funding?

Our analysis used data from 680 completed contracts and 396 active contracts, for a total of 1,066 contracts. The completed contracts included those that began in third quarter 1996 and completed before December 2001; the active contracts were those active in January 2002, when field visits were scheduled.

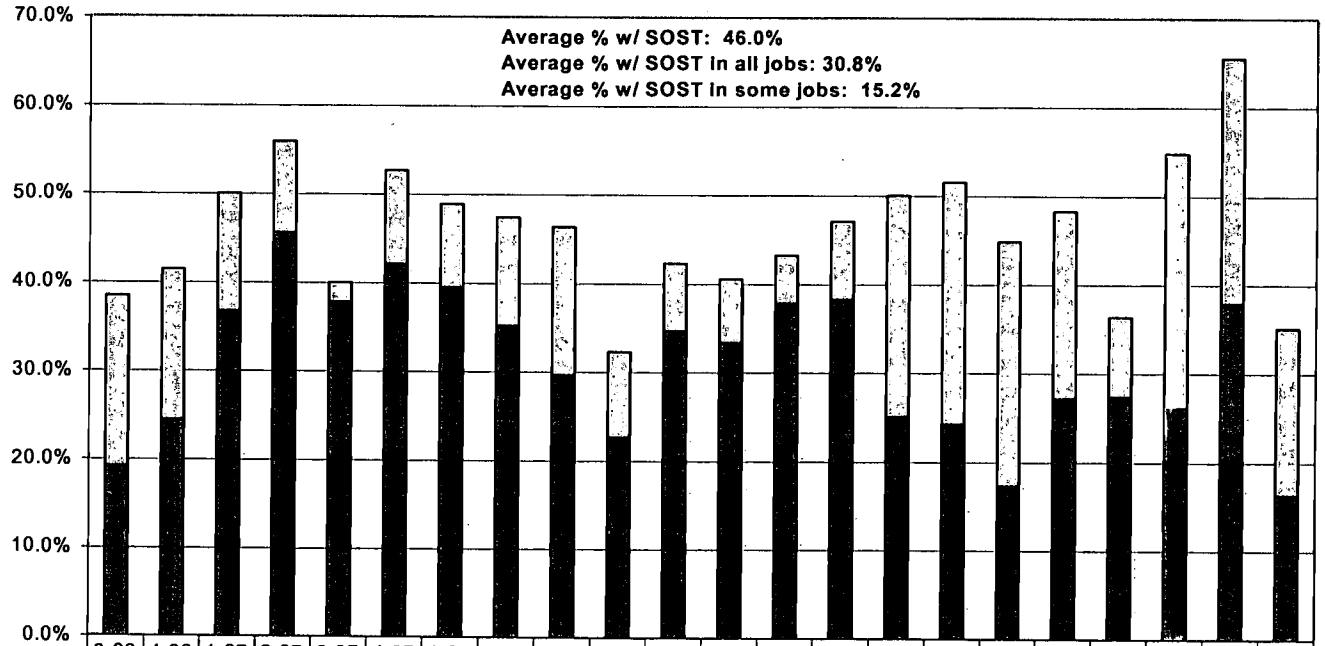
The Prevalence of SOST in contracts

Nearly 50% of contracts studied contained SOST funding, and there was no significant time trend in this percentage. The percentage of contracts with SOST funding averaged 46.3% across all completed and active contracts – it was 44.9% of completed contracts and 49.7% of active contracts. The slightly higher percentage of active contracts with SOST funding was offset by the fact that the SOST in active contracts involved fewer jobs.

Contracts with SOST may have SOST for all jobs[1] or only for some jobs. Overall, 30.8% of contracts had SOST for all jobs (Full-SOST) and 15.2% had SOST for only some jobs (Partial-SOST). The ratio of Full-SOST to Partial-SOST is 2 to 1. Completed contracts had a higher ratio of Full-SOST (34.3%) to Partial-SOST (10.6%) than did active contracts, which were split almost evenly between Full-SOST (25.3%) and Partial-SOST (24.5%). Figure 5 on the next page shows the percentage of contracts with SOST in some or all jobs, by the quarter in which the contract originated. Clearly, the percentage of contracts with SOST funding is highly variable from quarter to quarter, and the analysis revealed no significant time trend in the presence of SOST in contracts overall – for example, 50.5% of contracts included SOST in 1997 compared to 51.6% in 2001. However, there is a clear decrease in the percentage of Full-SOST contracts over time, moving from an average of 41.5% Full-SOST contracts in 1997 to only 26.0% Full-SOST in 2001.

[1] A "job" is defined as the training of a specific group of workers in a specific skill. For example, management staff might get computer-skills training, assembly workers might get continuous improvement skills training, and lab workers might get manufacturing skills training. Some contracts have only one job; others have as many as 34 – the average number of jobs per contract is just under 6.

Figure 5
Percent of Contracts with SOST in Some or All Jobs by Quarter



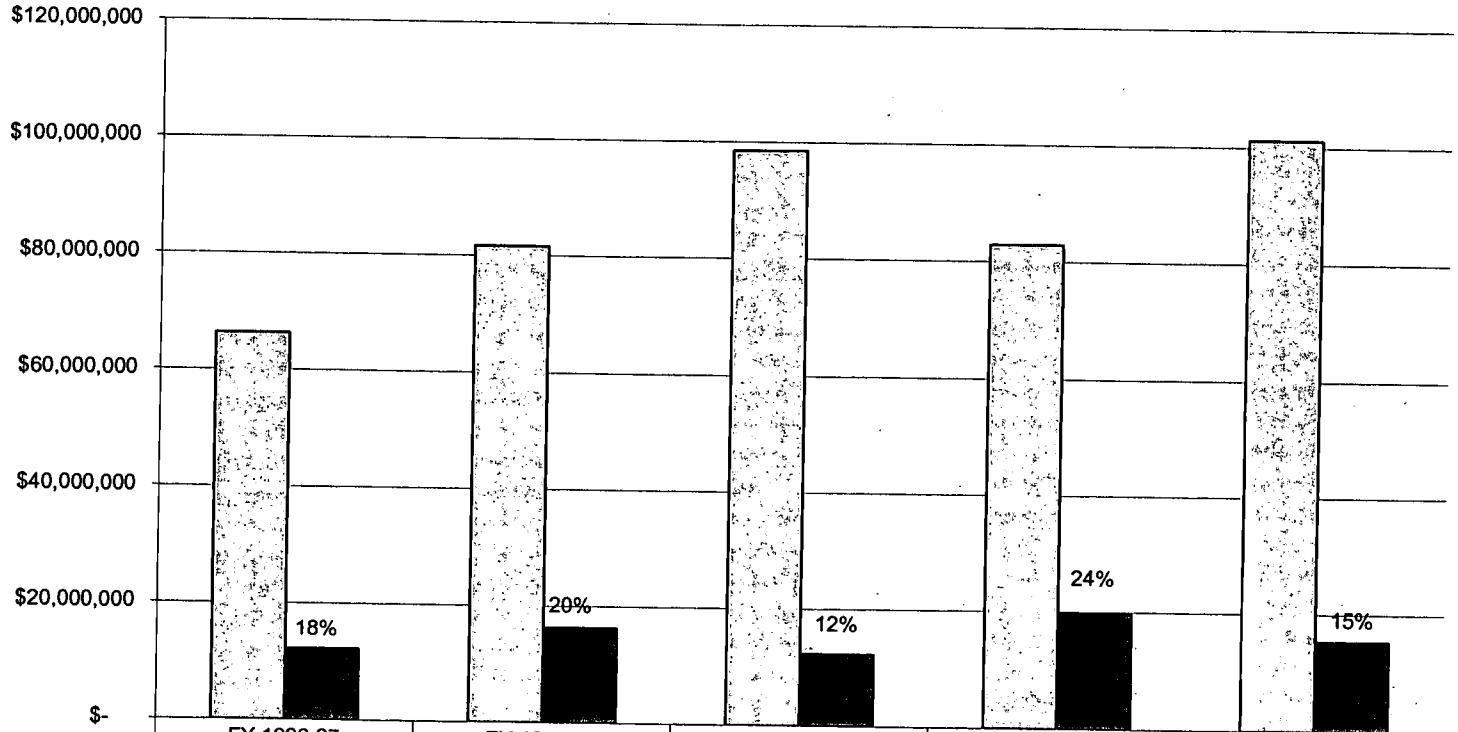
	3-96	4-96	1-97	2-97	3-97	4-97	1-98	2-98	3-98	4-98	1-99	2-99	3-99	4-99	1-00	2-00	3-00	4-00	1-01	2-01	3-01	4-01
% SOST some	19.2	17.1	13.3	10.3	2.2%	10.5	9.3%	12.3	16.7	9.7%	7.7%	7.2%	5.4%	8.8%	25.0	27.3	27.6	21.2	9.1%	28.7	27.6	18.9
% SOST all jobs	19.2	24.4	36.7	45.6	37.8	42.1	39.5	35.1	29.6	22.6	34.6	33.3	37.8	38.2	25.0	24.2	17.2	27.1	27.3	26.1	37.9	16.2

The Level of SOST Funding

The level of SOST funding in contracts varies from year to year, but we found no significant trends over time. Figure 6 on page 18 shows the total planned training expenditure for contracts in each of the last five fiscal years, along with planned SOST expenditure in those contracts. While planned SOST expenditure varied from 12% to 24% of total, there is no apparent time trend in the SOST percentage. Over the full five-year period, planned SOST expenditure averaged 18.2% of total planned training expenditure.

Actual training expenditures in contracts are usually less than planned because of disencumbrance of funds, which is caused by non-completion of some of the planned training. Reasons for non-completion vary – fewer workers than planned may start the training, some workers may quit or be transferred before the end of training, or some change in market conditions may lead management to cancel part of the planned training. Whatever the cause, the actual expenditure for overall training and for the SOST component are usually less than planned. An analysis of the 680 completed contracts revealed that, of the $177,725,083 spent on the contracts, SOST accounted for $29,825,328, or 16.8% of the actual training expenditures. The absence of any time trend in the SOST percentage indicates that, under current policies, ETP can expect to continue spending one of six dollars on SOST.

Figure 6
PLANNED TOTAL TRAINING COSTS AND SOST TRAINING COSTS BY FISCAL YEAR



	FY 1996-97	FY 1997-98	FY 1998-99	FY 1999-2000	FY 2000-01
Planned Total Training Cost	$66,342,450	$81,585,396	$98,492,181	$82,829,585	$101,134,324
Planned Total SOST Cost	$12,042,184	$16,133,080	$12,184,712	$19,629,776	$15,248,304

Other SOST Patterns – Disencumbrances and Consultants

The analysis of completed contracts also disclosed an interesting relationship between SOST inclusion and the disencumbrance rate. When the 680 completed contracts were grouped into No-SOST, Partial-SOST, and Full-SOST, the average disencumbrance rate varied directly with the level of SOST in the contracts. Table 3 on page 20 shows that Full-SOST contracts disencumbered 47.4% of their original funds; Partial-SOST contracts disencumbered 31.4% of original funds; and No-SOST contracts disencumbered only 28.9%. The disencumbrance rate for Full-SOST contracts is 60% higher than that for No-SOST contracts.

Grouping the completed contracts also revealed a strong positive correlation between consultant involvement and SOST inclusion. Consultants were involved in 64.4% of Full-SOST contracts, 54.2% of Partial-SOST contracts, and only 36.8% of No-SOST contracts. The reasons for this pattern are unclear. In our interviews with staff, we found that some believed that consultants encouraged contractors to "load up" contracts with SOST, because it was "easy money." However, the higher disencumbrance rate for projects with more SOST suggests that SOST money may not be easy to earn.

Table 3

Analysis of 680 Completed Contracts	ORIGINAL AMOUNT	ORIGINAL # TO TRAIN	CURRENT* CONTRACT AMOUNT	CURRENT # TO TRAIN	AMOUNT EARNED	# TRAINEES PLACED
NO-SOST CONTRACTS: 375; 55.1%						
	$137,976,447	90,030	$150,928,269	99,748	$98,128,301	64,037
Percent of original amount			109.4%	110.8%		
Percent of current* contract amount					65.0%	64.2%
Disencumbrance rate (% of original amount)	28.9%					
Averages	$ 367,937	240	$ 402,475	266	$ 261,675	
Consultants present in 36.8% of contracts						
PARTIAL-SOST CONTRACTS: 72; 10.6%						
	$ 27,365,078	25,913	$ 28,521,728	27,348	$ 18,776,251	17,236
Percent of original amount			104.2%	105.5%		
Percent of current* contract amount					65.8%	63.0%
Disencumbrance rate (% of original amount)	31.4%					
Averages	$ 380,071	360	$ 396,135	380	$ 260,781	
Consultants present in 54.2% of contracts						
FULL-SOST CONTRACTS: 233; 34.3%						
	$ 103,991,676	67,410	$ 100,290,850	69,301	$ 54,681,531	40,465
Percent of original amount			96.4%	102.8%		
Percent of current* contract amount					54.5%	58.4%
Disencumbrance rate (% of original amount)	47.4%					
Averages	$ 446,316	289	$ 430,433	297	$ 234,685	
Consultants present in 64.4% of contracts						

*Current amount or number of trainees is the amount or number after all contract amendments.

The Value of SOST

Our field observations support published research (reviewed earlier), that SOST adds substantial value to training. It remains a powerful method for ensuring that skills are learned and that learning is put to work on the job. We observed that more structured training results in better skill attainment. For example, AA Electro had the most structured training plan of any of the ten case-study sites visited. The assembly of each product was broken down into a series of tasks to be mastered by the trainee. Production assemblers cannot assemble any of the company's products without passing a fully documented certification process that requires the trainee to assemble a product task by task until it is complete and the quality of the finished product is thoroughly tested. This is done under the scrutiny of a trainer who evaluates the trainee at each step of the process. The trainer can objectively verify that the trainee has acquired the necessary skills, because he has actually watched the skill in action as the product is assembled. There is no ambiguity – the product either has or has not been assembled correctly. The regimentation in the training process at AA Electro ensures that all trainees are consistently trained and evaluated.

Figure 7

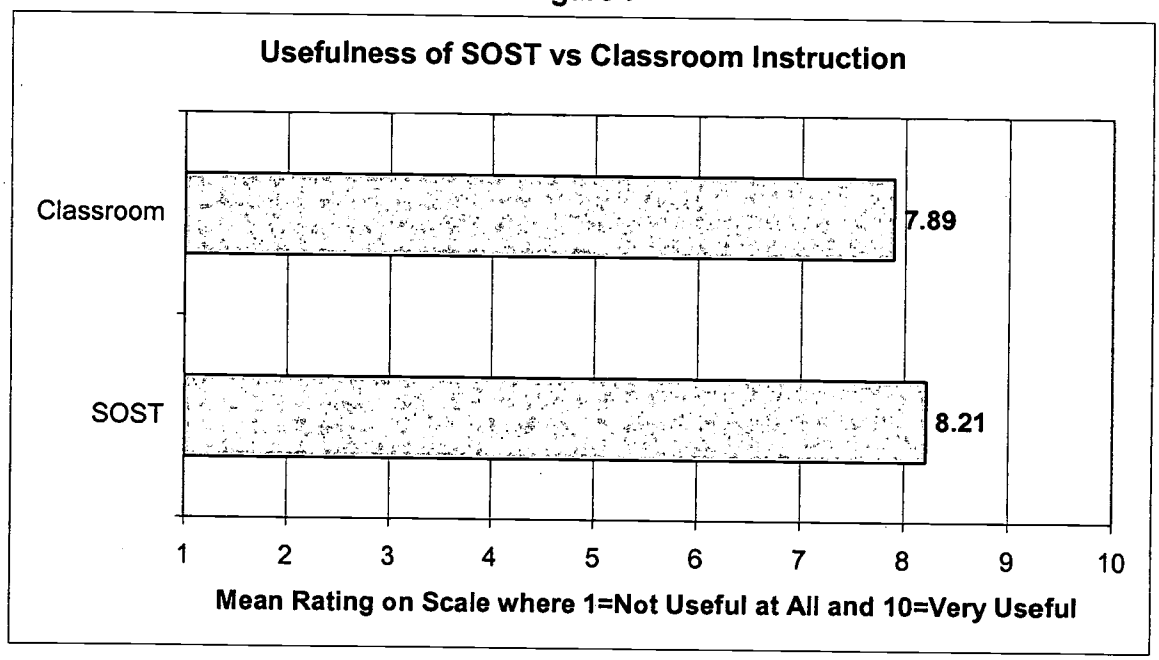
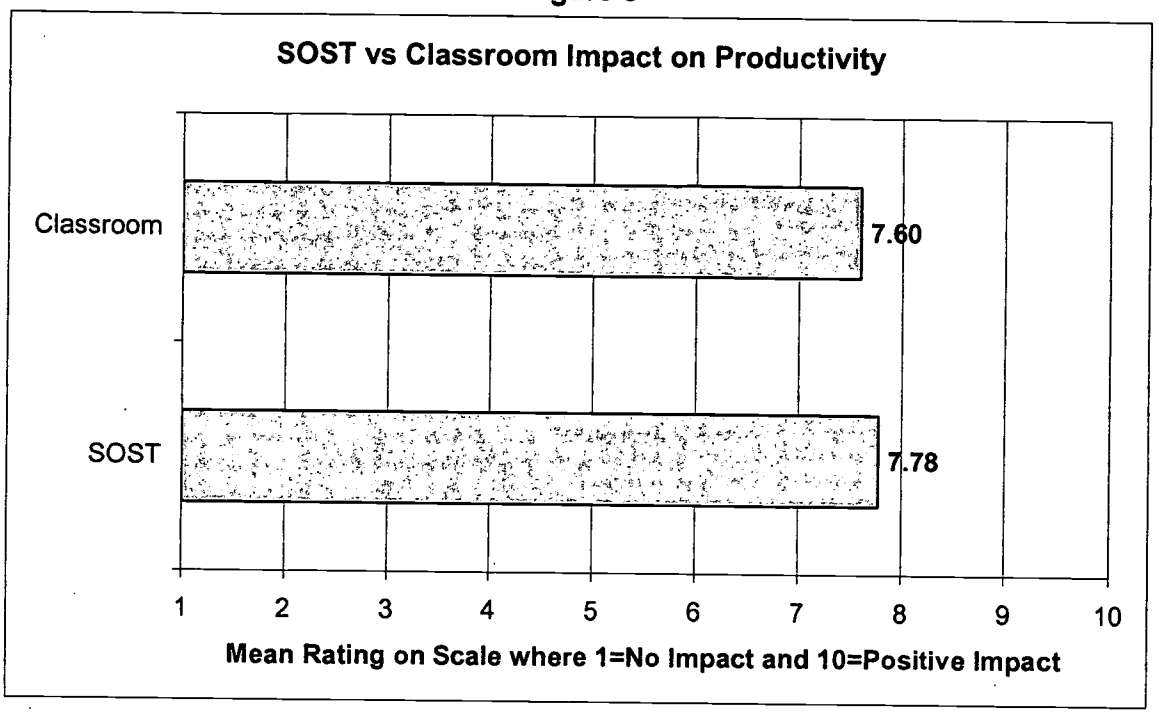


Figure 8



Trainees in our survey gave about equal ratings to overall classroom or lab quality vs. SOST quality, and to classroom or lab instructor quality vs. SOST instructor quality. However, Figure 7 shows that trainees rated SOST usefulness significantly higher than classroom or lab usefulness – 8.2 for SOST and 7.9 for classroom or lab (on a ten point scale where 1 = "Not Useful at All" and 10 = "Very Useful"). In addition, Figure 8 shows that trainees across all ten case-study sites rated the productivity impact of SOST slightly higher than classroom productivity impact – 7.8 compared to 7.6 (on a ten-point scale where 1 = "No Impact" and 10 = "Positive Impact").

In our recent survey of fifty closed SOST projects, about two thirds of managers (65.9%) indicated that SOST is as effective as, or more effective than, classroom training in achieving their training goals. When we asked the managers to estimate how much of the added value they had expected to come from classroom training compared to SOST, they said they had expected about half of the added value to be derived from classroom and half from SOST. They then confirmed that the actual contribution of value added was in fact half and half.

Six Key Strategic Issues:

Issue #1: SOST Funds Often Reimburse Existing Training

At one manufacturing site, during a fifteen-minute interview with a trainer employed as a full-time supervisor, the walkie-talkie strapped to his shoulder buzzed four times. Each calls was a "problem" that had occurred on the shop floor. The problems covered a range of issues – one call was about a disciplinary action that was needed; another was an assembly process that was not going smoothly. The latter type of call could result in booking of SOST time.

This on-demand troubleshooting, while acceptable as SOST according to the site's ETP

contract, is a routine part of the supervisor's duties. At the same site, one supervisor said that 90% of the training he performed (reimbursed as SOST) was of this type. On-demand troubleshooting may be excellent management, but in these instances no new training is *created* by the SOST funding. In other words, at some locations SOST dollars are subsidizing business as usual.

ETP Legislation requires that ETP training should "supplement rather than displace, funds available through existing programs conducted by employers and government funded training programs..."[2]. In situations where supervisors provide SOST as part of their regular duties, it is easy to argue that ETP funding is not "supplementing" existing training efforts.

Of administrators of closed SOST projects, 36% reported that a primary goal of SOST was to provide on-demand help with problems when trainees returned to their jobs; 38% reported that this on-demand tutoring in response to problems actually did occur. On the whole, our research suggests that roughly one-third of training reimbursed as SOST could be classified as training that the company would have done even if no SOST reimbursement had been available.

In the survey of 50 administrators of closed SOST contracts, 25% of respondents said that – absent the ETP SOST program – the company would have done exactly the same amount of OJT and would have footed the bill with company funds. Another 47% indicated that the company would have done some of the same OJT, but not as much. These figures indicate that a minimum of 25%, and an absolute maximum of 72% (25% + 47%), of all ETP dollars paid to reimburse SOST goes to subsidize routine training.

Three additional facts support the conclusion that SOST dollars often subsidize business as usual. First, information gathered in interviews during field visits make it clear that, at six of the ten sites visited, the same OJT would have occurred without SOST funding. Second, only 36% of the administrators of closed SOST projects responded "Yes" when asked if SOST caused any lost production. Logically, non-routine SOST *should* cause lost production. If trainees are completing planned exercises using new skills, tools, or materials, it is logical that production will lag. Third, the dispersal of SOST funds in the company shows that SOST does not add costs – it is viewed as part of routine supervision. At one site, the training manager reported he "used the SOST funds to refurbish the training room." At another site, SOST funds were used to pay for diversity training because funds were not available for this training in the regular budget. In the view of the training managers, SOST money was available for other purposes because there was no marginal cost for delivering SOST, since it was delivered by supervisors as part of their regular duties. In other cases, contract administrators interviewed during field visits reported that SOST reimbursements were captured by the "finance people" in the company, rather than being accessible to training decision-makers. This finding may be partly because of quirks in the managerial accounting systems at those particular companies, but the underlying message is that funds are going elsewhere because no new costs were generated by SOST.

One reason companies report that SOST funding is not creating new training at their sites is that, at many companies, the training identified in the SOST contract was cited as

[2] Employment Training Panel Legislation 10200 (a) 4.

something that the company *must* do in order to be a viable competitor. In other words, if the company didn't do OJT (funded as SOST), then the company might as well close its doors. Had SOST funding not been available, would the company have paid for the training out of company funds, cut back operations, or shut the operation down entirely?

It is important to note that the examples and evidence cited in this section are in no way intended as exemplary of poor management or poor supervision. In fact, the supervision we observed during field visits was frequently superb. However, superb supervision and trouble-shooting do not necessarily merit SOST funding. This is something of a dilemma for policymakers. On one hand, most SOST dollars do appear to fund – though not always *create* – value-added activities that increase competitiveness. On the other hand, many value-added activities that support competitiveness are simply business as usual, and funding that supports these activities could be viewed as a subsidy. We interviewed some stakeholders who were not troubled by this because they viewed the availability of a SOST subsidy, regardless of how it was used, as an incentive for companies to remain and expand in California.

Issue #2: Use of Unstructured Practices Instead of SOST

Our field observations, the survey of closed projects, and interviews with ETP staff all confirm that, in many projects, informal coaching substitutes for carefully structured SOST. As noted, based on our experience and previous research, the five characteristics of SOST that can ensure skill attainment are:

- ✓ ***A Structured Plan:***
  Plan includes sequenced modules, measurable training objectives, and specific on-the-job activities tied to class instruction.
- ✓ ***Trained Trainers:***
  Trainers are trained in both content and instructional methods.
- ✓ ***Customization to Companies:***
  Training uses company's products, tools, machines, and procedures.
- ✓ ***Delivery On Site:***
  Training is done at the workplace and on the clock.
- ✓ ***Valid, Reliable Skills Certification:***
  There is objective, frequent measurement of skill attainment tied to job performance.

These characteristics were often missing from the field sites we visited. Table 4 on page 32 shows that only one of the sites visited had all of the characteristics of effectively-structured SOST. Furthermore, only five of the ten sites had a structured training plan, six had trained trainers, seven were fully customized, eight were delivered on site, and only three had valid skills certification.

In this analysis, we review each of the five characteristics of quality SOST and what we learned about its presence or absence.

- **A Structured Plan**

  ETP requires that ETP contracts including SOST must have a plan. We examined a number of contracts and found that the plans often lacked the specificity needed to

produce structured training: They did not have specific training modules with objectives, or measurable training objectives. The sample below is an example of the type of plan often approved.

Figure 9

Sample SOST Plan
✓ *SOST Training Activity Plan for Continuous Improvement* Coach Trainees in using continuous improvement techniques Coach Trainees in identifying process problems Coach Trainees in improving customer satisfaction Observe/ Coach Trainees on team communications Observe/ Coach Trainees on operating procedures Observe/Coach Trainees how to satisfy customer needs
✓ *SOST Training Activity Plan for Computer Skills* Review Computer Systems with Trainees Assist Trainees in retrieving data needed during a typical work project Observe trainees creating spreadsheets/ narrative documents and navigating through multiple software applications Review data inputs and assignments

This plan obviously calls for unstructured coaching, not structured training. When we analyzed our ten case-study sites, we found four of them had no structured plan for SOST, one had a partially structured plan, and five had fully structured plans. Tech-Loan[3] is an example of a company without a structured SOST plan. Tech-Loan is a financial services company in the Central Valley. Loan officers were trained in operating sophisticated computer systems that supported the loan application process. The SOST process we observed consisted of loan officers summoning supervisors for help when they were having problems with the software. This was logged on SOST time sheets as coaching related to training.

Conversely, we saw very carefully structured SOST at AA Electro in Southern California. This plant assembles electronics products. Assemblers worked on their own to assemble an entire unit. Assemblers had to be certified before they could work on their own. The training for certification was mostly SOST and was highly structured. All the skills and procedures needed to assemble a particular product were documented and arranged in a logical order. Trainees received instruction from the SOST instructor and were paired with a buddy who was a certified assembler. The trainees began with simple tasks and when those tasks were mastered, and their performance evaluated, they moved to the next-more-complex task until they could assemble an entire unit. Trainees regularly spent time with the trainers as they moved through the tasks. Careful records were kept and, at any

[3] Companies who cooperated with the study were promised anonymity. Actual company names are not used in this report and company locations have been changed.

time, a supervisor could see what tasks and skills had been mastered, at what level the trainee was being trained, and what additional training was needed.

The figure below is an example of a completely structured task from AA Electro's training plan.

Figure 10

Example of Structured Training	
What?	**How?**
Review the workbench's testing cables, their test function and how to perform a quality workmanship visual pre-inspection on these connectors	Identify and explain the workbench's testing cables and their functions: a) TTY-A b) Color video c) Keyboard d) SCSI Show and explain, using each cable's connector, how to perform a quality workmanship visual pre-inspection on each connector, **every time before** its use. Ask the trainees to demonstrate their understanding of the workbench's testing cables and their test function. Ask the trainees to demonstrate their understanding of performing a quality workmanship visual pre-inspection on each connector, **every time before** its use.

In our survey of closed projects, only 33% of the project managers said their SOST training included trainees meeting individually, or in small groups, with SOST instructors to complete structured exercises. Conversely, 67% said that trainees were simply observed by the SOST instructor and got help as needed.

Jacobs and Jones (1995, p. 88) argue that effectively structured on-the-job training has modules with the following features:

Figure 11

Characteristics of Effective Training Modules	
Title	Clearly describes the topic of the module
Rationale Statement	Explains why this topic is included in training and what trainee can do with the skills
Training Objectives	Tells trainee what he or she can know or do when training is completed
Trainee Prerequisites	Knowledge, skills, and attitudes the trainee needs before entering training
Training Resources	Equipment, supplies, and materials needed for training
Training Content	Information needed about the topic. May be presented in wide variety of formats: articles, textbooks, photos, diagrams, Web pages, etc.
Training	Describes how training is to be delivered
Performance Tests and Feedback Forms	Performance tests, rating scales, or other structured methods for giving trainee feedback on their performance

- **Trained Trainers**

In our view, to be a qualified trainer, a person should have mastered the content of the subject to be taught and have had specialized instruction in how to train in a SOST setting. In our fieldwork, we found that the trainers in six of ten case-study sites met these criteria. The six included two training-agency sites with professional trainers and a third where the trainer was provided by a vendor. According to our trainee survey, trainees consistently rated the quality of the fully-trained trainers better than the quality of those who were not trained. For example, trainers from training agencies were rated 4.9 and 4.4 on a five-point scale while trainers assessed as not fully trained were rated 3.4 and 3.1 on that same scale.

The difference between fully-trained and partially-trained trainers was clear to us in our field study. At one manufacturing plant with fully trained trainers, trainees would be assigned a series of tasks to complete, based on a training plan. The instructor would ensure that the trainees knew how to begin the task and had the correct tools and parts. If the trainees got stuck, the trainer would ask them questions and help the trainees solve the problem themselves. In contrast, at a financial services firm, when a trainee had a problem with software, the trainer (who was a regular supervisor) would come over and tell the trainee how to solve the problem, sometimes going so far as to sit in the trainee's seat and punch the keys himself. The goal was clearly to solve the software problem and only secondarily to build trainee skills.

Some companies seem to treat the issue of trained trainers more leniently in SOST than in the classroom. For example, one of the ten sites we visited had very strict requirements for classroom trainers. Classroom trainers had to meet three criteria:

1. Be certified in the skills being taught, *or* be a "revered expert,"
2. Be experienced, and
3. Have received positive evaluations (if used as a trainer before)

At the same site, however, SOST "mentors" were simply selected by trainees and were not required to meet any of these criteria.

According to our survey of closed projects, slightly over half the projects reported that SOST was provided, at least in part, by regular supervisors; about 60% reported that they used at least some company trainers; and 30% used vendor-provided trainers.

Jacobs and Jones (1995), in their book, suggest the selection and training of trainers for structured OJT is a key ingredient in training success.

> Structured OJT trainers have basic requirements in two areas: They must have adequate knowledge and skill in the task and they must have adequate knowledge, skills, and attitudes as a trainer. If trainers do not meet the requirements in both areas, the effectiveness and efficiency of the training are likely to be at risk. (p.74)

The authors suggest that trainers typically need about 12 hours of formal training that should conclude with having each trainer deliver a lesson from the program in which they would serve as an instructor. The figure below provides Jacobs and Jones' suggested learning objectives for trainers.

Figure 12

Learning Objectives for SOST Trainer Training

- State the features of SOST.
- Predict the organizational consequences of using structured and unstructured OJT.
- Demonstrate how to analyze tasks in which they have expertise.
- Demonstrate how to prepare various components of structured OJT modules.
- Demonstrate how to get ready to deliver structured OJT by making use of the appropriate instructional events.
- Apply criteria to evaluate the effectiveness of the their own training. (Jacobs, 1990)

Instructor training should use a variety of instruction methods – video demonstrations, small group activities, and opportunities for supervised practice.

- **Customized to Companies**

  This is the criterion on which ETP projects came closest to meeting the model. Training at seven of the ten sites we visited was completely customized to the company. At these sites, trainees completed SOST using the same processes, tools, and materials they would use in their regular jobs. The three exceptions are interesting. The first was a training agency conducting a SOST-only Welfare-to-Work project where trainees came to the agency site to receive generic training on standard software. The second was another training agency where trainees worked in a lab setting. The third was an engineering-intensive operation involved in the design and manufacture of aerospace equipment.

  At the training agency conducting training on standard software, trainees were – as part of the SOST – given workbooks containing exercises that all trainees had to complete. These generic exercises comprised roughly 40% of total SOST hours for this particular course. Once the generic exercises were completed, most trainees would attempt to apply the lessons to projects relevant to their own companies.

  The engineering-intensive aerospace operation was attempting to deliver, via SOST, "soft" skills such as communication and negotiation skills. These soft skills are generic, meaning they are completely transferable from one setting to another – it is not feasible to customize the teaching of these skills to a specific organization. These generic soft skills are in contrast to "hard" skills that can be easily customized to the organization. For example, SOST can be designed to increase workers' ability to perform perfect welds on unique company products using unique company welding machinery.

- **Delivered On-Site**

  All but two of the programs we visited were delivered at the work site with trainees on the clock. One exception was the above-mentioned training agency conducting the SOST-only Welfare-to-Work project. The other exception was also a training agency, cited above, at which we observed SOST sessions on a Saturday using computers in the training agency's lab. A fundamental problem with this type of off-site SOST is that all computing environments involve unique software installations and unique settings. These sometimes make lessons learned on one system hard to apply to another system. For example, a toolbar that appears onscreen in the lab may not appear onscreen at the trainee's workplace computer. Unless toolbar settings are a specific part of the training, trainees might require additional help to translate off-site SOST lessons to the workplace.

- **Valid, Reliable Skills Certification**

  Only three of the ten sites we visited had valid, reliable skills certification, where employee skill attainment was carefully measured against a reliable and valid standard. One example of valid reliable skill assessment was a finance-industry site at which trainees were learning new software for claims processing. Trainees worked under close supervision, each claim was checked for accuracy, and productivity was carefully monitored. Trainees were not certified until they could

process the desired number of claims in a certain time period with a specified error rate.

Four sites had partial skills certification, which went beyond simply having the instructor sign off that skills were attained. For example, at one site, a well-trained vendor-provided trainer spent time at each trainee's workstation on a regular schedule to make sure they had mastered the current unit of the curriculum – in this case, blueprint reading.

At the remaining three sites, skill certification was very informal. Trainers, who were usually regular supervisors, would simply sign off on skill attainment based on their perceptions of the trainees' performance on the job.

Our survey of closed projects supports these observations. Many projects used multiple methods to determine if trainees had attained the required skills. The most common assessment techniques were informal. For example, 82% of managers said "trainers observe trainees work on the job to see if they are using the skills, informally." Almost three-quarters (72%) said that they assessed SOST by having "supervisors observe trainees work to see if they are using skills, informally." Forty-four percent of project managers reported that they did not formally assess the effectiveness of SOST.

The proportion of managers reporting formal assessment of learning was much smaller. About one third reported that supervisors used a formal evaluation, and about one third reported using tests.

Reliable, valid skills certification is not possible without a carefully structured training plan. If the knowledge, skills, or attitudes to be developed by training are not carefully defined, it is impossible to measure their attainment. Hence, lack of careful planning in many SOST projects precludes valid skill certification. If the objectives of training are clearly stated, then skill certification is possible. Essentially, skill certification should occur at two points – at the conclusion of each training module, to ensure that trainees have achieved the desired objectives; and upon completion of training, to certify that the trainee has achieved the overall objectives of the training. Figure 13 on the next page provides some examples of skill certification methods.

Figure 13

Skill Certification Methods	
Method	**Example**
Standardized Tests	Standardized tests are often available from equipment manufacturers, software suppliers or professional groups (such as the American Society for Quality). If these tests are tied to the training plan, they are effective skill certification methods
Locally Produced Tests	Local training managers can develop tests to measure trainees' knowledge of concepts taught. For example, a test of product knowledge could be developed for customer assistance staff. After training in the feature and maintenance of the new product they could complete the test to see if they had mastered the required knowledge.
Observation, Rating and Feedback	Structured rating forms can be developed based on the learning objectives of the training. Instructors can rate each trainee's performance and provide him or her with feedback. For example, if training is in meeting skills, the instructor could observe the trainee chairing a meeting, rate various aspects of his behavior (starting on time, following the agenda, summarizing etc), and provide feedback.
Evaluating Work Products	Instructors can review and evaluate work products to evaluate trainee learning. For example, in the case of meeting skills, the trainer could review agenda and meeting minutes. In the case of processing insurance claims instructors can review claims for mistakes, look for patterns in the mistakes, and provide feedback to the trainee on their learning.

Table 4

Summary of Findings By Site										
Elements of An Effective Program	**Tech-loan**	**ABC Coil**	**Pumps Inc.**	**EE Insur**	**Engine Inc**	**AA Electro**	**Hend Inc.**	**Grove CC**	**Black Inc.**	**West Air**
A Structured Training Plan with Modules	0	2	1	2	0	2	0	2	2	0
Trained Trainers	0	2	2	1	1	2	2	2	2	1
Customized To Company	2	0	2	2	2	2	2	1	2	1
Delivered On-site	2	0	2	2	2	2	2	1	2	2
Valid Reliable Skills Certification	0	1	1	2	2	2	0	0	1	1
Training Context										
New Training (Would not have occurred without ETP)	0	2	2	0	0	0	2	0	1	0
Top Management Support	2	0	2	2	1	2	2	2	2	2
Trainees on the Clock	2	0	2	2	2	2	2	1	2	2
No Compliance Problems	2	1	2	1	1	2	1	2	2	2
Ability to be monitored	1	2	2	1	1	2	0	2	2	0

2 = Has characteristic completely; 1 = Has characteristic partially; 0 = Characteristic absent

Issue #3: Contract administrators focus on billing trainer hours rather than achieving competence

SOST monitors typically spend a significant amount of time reviewing paperwork consisting largely of logs of SOST trainer hours. Contract administrators and consultants have learned to expect this inspection of paperwork and, therefore, spend a great deal of time ensuring that the paperwork is complete and in order. The incentive system is clear to contract administrators: There are serious consequences for botching the paperwork but apparently no serious consequences for not conducting formal and rigid certification of trainee skill attainment.

Consultants saw the paperwork as more burdensome than company training managers. Our Delphi survey included the statement, "Overall, SOST documentation is burdensome to SOST trainers." The median response was 4.0 on a 1-to-5 scale (with 1 indicating "Not Burdensome" and 5 indicating "Extremely Burdensome"). On the other hand, as Table 5 indicates, most company managers found the paperwork procedures to be difficult at the beginning but they mastered them over time. Only about one out of five managers reported continued problems with paperwork throughout the project.

Table 5

Experience With Paperwork Procedures "Which statement best describes your experience completing the procedures required to keep track of SOST hours?"	
Procedures were clear and easy to complete.	16.3%
Procedures were initially difficult but were mastered them over time.	62.1%
Procedures were confusing and difficult and were a continuing problem throughout the project.	22.4%

A contract administrator at one site visit estimated that he spent roughly two hours per day attempting to ensure that trainer hours were accurately logged. The consultant, who worked on this particular ETP contract for about 32 hours per week, claimed to also spend two hours per day trying to ensure that paperwork was accurate and complete enough to satisfy a monitor. In cases where paperwork seemed to consume a disproportionate amount of resources, we observed the following problems:

- Trainers, company supervisors in this case, felt intuitively that on-demand troubleshooting should not qualify as SOST. The trainers assumed that, as they were merely doing their jobs when supervising employees on the line, ETP reimbursement shouldn't apply. The site's ETP contract, however, allowed on-demand troubleshooting to qualify as SOST. The feeling that "I'm not training; I'm just doing my job as supervisor" seemed a common mindset of supervisors in a manufacturing setting.
- Our observations confirmed that trainers (company supervisors) were extremely busy during the workday, with rarely a minute free; therefore, the supervisors would typically wait until the end of the workday, or even another day, to fill out the paperwork. One trainer, reflecting a typical practice, indicated that he keeps pre-printed forms in his pocket but finds it difficult to remember to fill them out. This particular trainer felt quite certain he records only a fraction of the SOST he performs. A long history of research

shows that when there is a delay, the recording of action is almost certain to be riddled with inaccuracies and omissions.

While significant resources are being consumed in an honest attempt to tackle the "harder-than-it-looks" effort to log trainer hours, the effort to track trainee skill attainment is comparatively weak. Of the 50 closed-project contract administrators surveyed, 38% indicated that they did not formally assess the effectiveness of SOST. Even in instances where on-the-job observation was used to assess trainee skill attainment, less than one-third of the observations resulted in formal assessment of trainee skill level; the other two-thirds involved some sort of informal assessment.

We investigated two other aspects of SOST paperwork: the use of consultants and the role of the ETP monitor. We found that two-thirds of the companies had used a consultant to help with the project's administrative work. As Table 6 shows, more than two thirds of the managers rated their consultant's performance "Excellent" or "Good," with about one fifth giving a rating of "Fair" or "Poor," indicating some dissatisfaction. We observed one benefit that consultants brought to projects: various customized software programs that could be used for tracking SOST hours and generating reports to be signed by instructors and submitted to ETP. None of the sites we visited were using ETP's recently implemented on-line system for recording SOST hours, so we were unable to assess its value.

Table 6

Managers' Rating of Administrative Consultant Performance	
Rating	Percent of Managers
Excellent	57.6%
Good	12.1%
Average	12.1%
Fair	3.0%
Poor	15.2%

We were also interested in knowing how much help managers thought they got from their ETP monitor. We asked each contract project manager to characterize his relationship with the company's monitor as "Helpful," "Neutral," or "Unhelpful." Table 7 on the next page shows that ratings were generally very positive, with over 80% characterizing their monitor as helpful. This matched our field observations – we found that most monitors were supportive and working hard to make projects successful. Few monitors seemed to take an adversarial role towards contractors.

Table 7

Managers' Characterization of Relationship with ETP Monitors	
Rating	Percent of Managers
Helpful: Project monitor provided valuable advice and behaved in a professional and helpful manner.	81.6%
Neutral: Project monitor was neither particularly helpful, nor difficult to work with.	14.3%
Unhelpful: Project monitor was difficult to work with and did not provide helpful service.	4.1%

Issue #4: Reliable Monitoring of SOST Is Difficult

ETP uses monitoring to find out whether training at funded sites complies with legal, regulatory, and contractual expectations and requirements. Monitors are the eyes and ears of the ETP. However, the monitoring of SOST presents difficulties that make monitors unable to evaluate the actual delivery of SOST in the field. As a result, the monitoring of SOST yields little more than an assessment of the thoroughness of project documentation.

Ideally, monitors would be able to validate that each of the elements of quality SOST is present. Monitors would routinely review SOST plans and schedules, and observe and assess SOST performed in the workplace. They would verify that SOST trainers have the requisite skills and that SOST is clearly linked to both the business of the firm and to corresponding classroom training. Finally, monitors would be able to determine whether trainees achieved the expected skill levels.

Currently, monitors rely on interviews with key project personnel, trainers, and trainees, and on reviews of project documentation. While interviews can be very useful, the core of effective monitoring is documentation review and validation, direct observation, and analysis. These functions are hampered by a number of factors, as follows.

- **Lack of Structure in Training**

  All the monitors we talked to admitted that they found it very difficult, if not impossible, to observe the delivery of SOST. None of the monitors at the ten case-study sites had observed SOST being given during their monitoring visits. In our visits, we also found it difficult to observe SOST even though we coordinated with the project managers in advance. The main reason for this is the ad hoc manner in which SOST is typically given. As discussed elsewhere in this report, structure is lacking in most of the SOST projects we reviewed. If there is no SOST schedule, monitors are unable to schedule their visits to observe SOST. If SOST has no definite curriculum, monitors often cannot differentiate between SOST and routine supervisor oversight. At one site, for example, we interviewed a SOST trainer and expected to see SOST being delivered. The trainer explained that most of the SOST he gave was solving problems raised by trainees and none were raised while we were there. Consequently, we were unable to observe SOST – monitors often confront the same obstacles to SOST observation.

The lack of structure also adversely affects the usefulness of the interviews monitors conduct. Several monitors reported that trainers and trainees often do not understand what SOST is and confuse it with their routine duties. We had similar experiences in interviews conducted at several sites. When monitors ask trainees and trainers questions about SOST, they get responses more appropriate to the employer's on-the-job training program than to SOST.

When SOST is not structured, monitors have difficulty in determining how, or if, it is related to ETP-funded classroom training. If SOST were given within a defined curriculum, monitors could reasonably assess how much it reinforces classroom training.

- **Decentralized Delivery**

  SOST projects for Welfare-to-Work clients pose particular problems for monitors. These projects give trainees one-on-one training at employer and trainer sites in different parts of California. As a result, monitors face logistical problems in observing SOST. In addition, the SOST curricula are often unique to each trainee; to evaluate the project as a whole, monitors must evaluate each trainee's experience.

- **Incomplete or Perfunctory Documentation**

  Monitors rely heavily on reviewing SOST documentation, but the documentation is often incomplete, untimely, or perfunctory. Monitors focus their reviews of SOST on the documentation of trainer hours. This documentation is the basis for SOST reimbursement by ETP. Monitors for half of the projects in our sample indicated that this documentation was not up to date; this was corroborated by interviews with project managers and trainers. The most common reasons given were that employers did not understand SOST documentation requirements and that trainers found it difficult to remember to fill out the forms. As a result, forms are often completed weeks or months after the SOST was given. These delays make the monitors' validation of documentation problematic.

  Several monitors we interviewed indicated that the documentation of trainee skill certification was perfunctory. Since these certifications are usually based on the attestations of supervisors, monitors generally have no way to validate them. Monitors must be satisfied with merely ensuring that the documentation has been completed. If certification were more objective (e.g. third party certification), monitors would have more reliable evidence of skill attainment.

- **Over-Reliance on Documentation**

  SOST documentation alone is neither satisfactory nor sufficient. Its mere existence does not ensure that SOST has happened or that it was effective. Monitoring should go beyond the review of documents to determine the nature of the SOST actually being delivered and to assess its quality. This is only possible if SOST is clearly defined and differentiated within the employer's context, and if the skills of both trainers and trainees can be objectively measured.

- **Monitors are Dissatisfied With Their Ability to Monitor SOST**

  As noted in the methods section, we conducted a focus group with project monitors, interviewed monitors in the field at each of the ten field sites, and interviewed managers of ETP monitors. We found monitors themselves were dissatisfied with their ability to

effectively monitor the quality and quantity of SOST. They are keenly aware that they are often reduced to reviewing paperwork and interviewing a few trainees. They would much prefer to evaluate SOST "in action." Because of this dissatisfaction, a number of monitors advocated discontinuing SOST, and they sometimes try to discourage contractors from including it in projects.

Issue #5: SOST Reimbursement Is Often Unrelated To Actual Costs

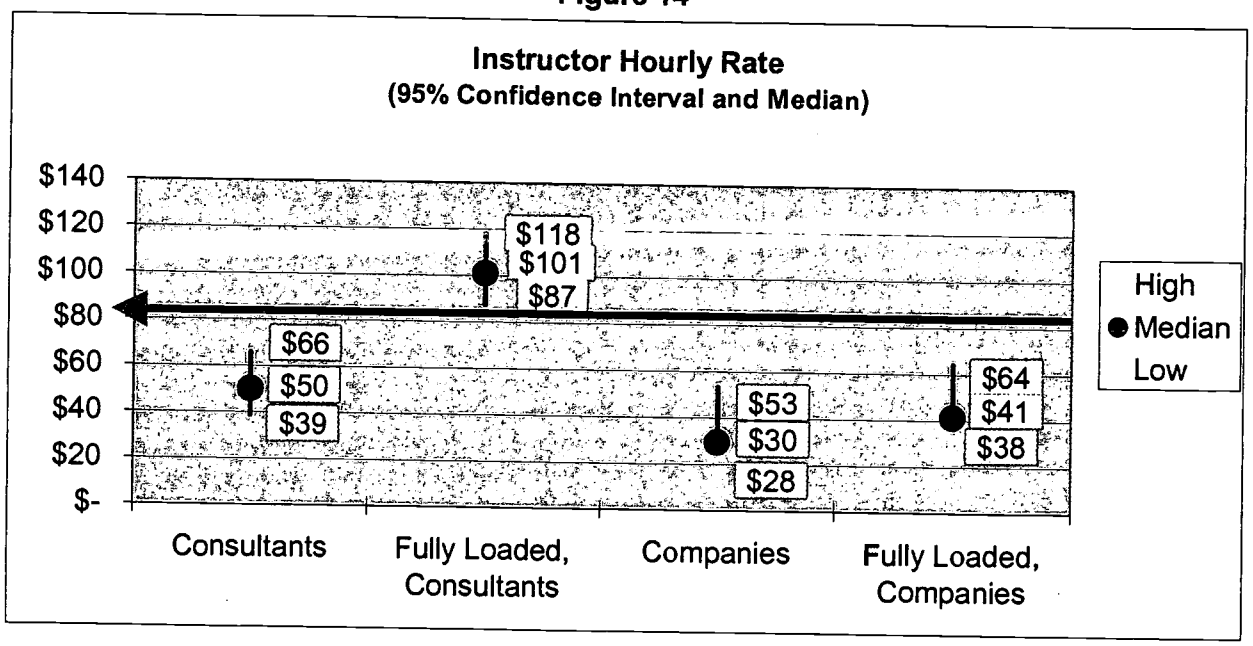
Our general finding is that the $80 hourly trainer reimbursement rate is probably too high in some cases and too low in a few cases; overall, there is a wide variation in the actual costs incurred. We found little evidence to warrant raising the rate.

We used two different survey approaches to estimate the cost of SOST training. To estimate companies' cost of in-house SOST training, we included cost-related questions in the telephone survey. To estimate consultants' cost of providing SOST training, we included cost-related questions in the modified Delphi survey. These two surveys provide interesting results, summarized in Figure 14 on the next page, regarding the actual costs of providing SOST training.

The consultants' estimates of the hourly rate for trainers have a median value of $50.00, a mean value of $52.17, and a 95% estimate band of $38.72 to $65.61. The consultants' estimates of the "fully loaded" hourly rate have a median value of $101, a mean value of $102.67, and a 95% estimate band of $87.47 to $117.87. The fully loaded rate was calculated as the full cost of operation, plus profit, divided by the number of instructor hours delivered.

The companies' estimates of the hourly rate for trainers are much lower than the consultants' – they have a median value of $29.50, a mean value of $40.75, and a 95% estimate band of $28.32 to $53.18.

Figure 14



The companies' fully loaded rate estimates included one respondent who indicated that the fully loaded hourly rate for SOST training was $1000. Including that single outlier, the companies' cost estimates had a median of $42, a mean of $83.96, and a 95% estimate band from $16 to $152. Without the outlier, the companies' fully loaded cost estimates had a median of $41.42, a mean of $51.25, and a 95% estimate band from $37.99 to $64.15.

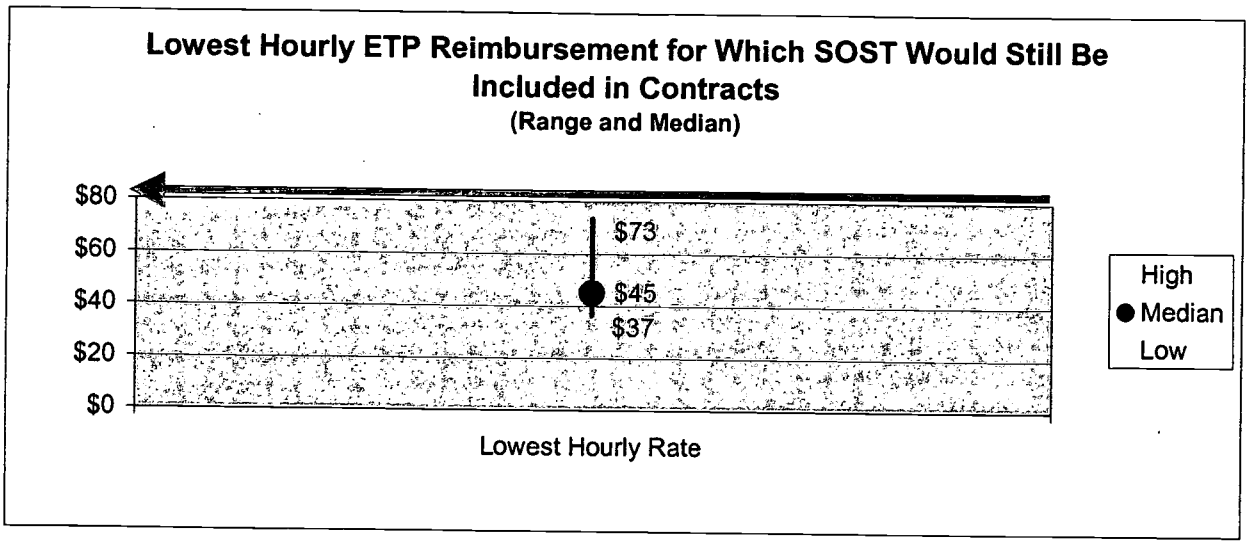
With the outlier, the companies' fully loaded estimates are close to the consultants'; in fact, the companies' 95% estimate band overlaps the consultants' 95% estimate band. Excluding the outlier, which seems appropriate, we found that the companies' fully loaded rate was statistically the same as the consultants' basic rate.

While the consultants' fully loaded cost was in excess of the $80 state reimbursement, the companies' estimates of both basic and fully loaded rates were much less. Indeed, the $80 rate did not fall within the 95% estimate band. Although the companies' average estimate was about $84 with the outlier included, this would be a misleading justification for increasing the $80 rate, as the $80 would not begin to cover the $1000 high estimate but would more than adequately cover the total cost estimated by the majority of companies.

We asked companies the cost question in one other way: "What percent of the total costs of SOST did the $80 per trainer hour cover?" The median answer was 75%. Interpreting this in relation to the fully loaded hourly instructor rate estimates is difficult, but we can only assume that, when considering "total costs," managers assumed some costs not included in the "fully loaded" rate.

On the Delphi survey we tried to gain some insight into what would happen if the Panel changed the price of SOST. We asked, "What is the lowest hourly ETP reimbursement for which SOST would still be included in contracts?" The 95% estimate band was $36.52 to $73.48, with a median of $45 and a mean of $55.

Figure 15



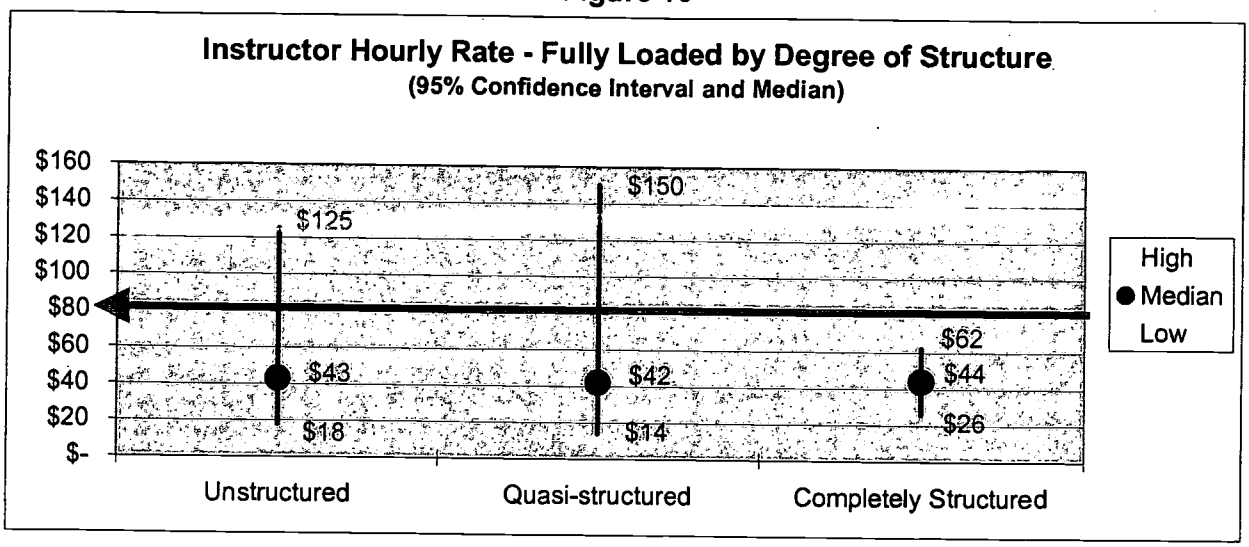
In a similar vein, we asked the managers in the survey of closed projects what they would do differently if the reimbursement rate was lowered to $40 per instructor hour or raised to $160. Interestingly, Table 8 shows that, under both scenarios, a slight majority of managers said they would do the same amount of training. This inelastic response is probably due to managers' views that the reinforcement of training on the job is essential and must be done whether or not incentives are offered.

Table 8

Managers' Response to Change in SOST Reimbursement Rate		
Scenario	$40 Per Hour	$160 Per Hour
Amount of SOST would *decrease*	47%	7%
Amount of SOST would *stay the same*	53%	56%
Amount of SOST would *increase*	0%	37%

We performed a final cost analysis by comparing the reported costs of projects we classified as structured, quasi-structured, and unstructured. Figure 16 on the following page indicates that the median cost of a fully loaded instructor hour was almost identical across the three project groups, varying only from $42 to $44. Interestingly, the 95% confidence bands around the median were much larger for the unstructured and quasi-structured projects. This indicates to us that the current rate is adequate to support fully structured SOST.

Figure 16



Based on these survey results, the current $80 hourly reimbursement for SOST exceeds the 95% estimate band of the minimum compensation level for which SOST would still be included in projects (Figure 15). The results also indicate that it would take a substantial increase or decrease in the reimbursement rate to change the amount of SOST employers are willing to provide. However, these results relate to the current models of SOST – it is reasonable to believe that the estimate band, as well as other cost estimates, would shift upward if additional resources were required to more fully customize and structure on-site training.

Issue #6: SOST-only Projects Pay More Than Market Price For One-on-One Counseling and Generic Classroom Training

We were able to visit one SOST-only project run by a training agency, serving former welfare recipients who were now employed. We also interviewed ETP staff about these projects.

- **How Training Works**

  The project we visited essentially enrolls former welfare recipients into ETP and offers them generic training on various types of office automation software, including Word, Excel and Access. Trainees also get some life planning and other soft-skills training. Training is individual or in groups of two or three. The agency offers instruction in two languages other than English, as many trainees are recent immigrants.

  At the time of our visit, the trainees were already employed. They came to the training agency when they were off work or released from work. The training they received might or might not have been related to their current jobs. Frequently, trainees are seeking training to get a better job. For example, one woman we interviewed worked in a local retail store afternoons and early evenings. She came into the training agency to get training in Access and computerized bookkeeping in hopes of ultimately getting a job as a bookkeeper. She received one-on-one instruction for two hours and left.

- **How Funding Works**

The SOST funding formula is as follows. If, for example, the average number of trainee SOST hours is 80 and if there are 100 trainees, the total SOST hours are calculated to be 8,000. The formula assumes one SOST instructor for ten trainees, so the number of trainer hours to be reimbursed is calculated by dividing the total number of trainee hours by ten, in this case yielding 800 *trainer* hours to be tracked by ETP. The contract will therefore deliver 800 instructional hours. Since many trainer hours will be spent with one, two or three trainees, the hours an individual trainee receives will be far fewer than the planned 80. If our hypothetical trainer always works with ten trainees, each trainee will get 80 hours of training, but if the instructor always works with two trainees, each trainee will get only 16 hours of training, and if the trainer always works one-on-one, each trainee will get only eight hours of training.

In the case of the above-described project, the proposal officially called for 700 hours of SOST instruction, but since this number is just used to calculate trainer hours, far fewer hours are received by any particular trainee. If all training were one-on-one (as it often was), the trainee would receive only 70 hours of instruction. The agency is reimbursed $80 for each hour the instructor teaches. Instructors are paid between $25-$35 at this site; most work part time and do not receive fringe benefits. This arrangement is typical of other SOST-only Welfare-to-Work projects.

We find ETP's rate of reimbursement to be far above the market cost of similar training. One can receive, for example, 100 class hours of training in Microsoft office applications for far less than $8,000. Another comparison is that an hour of therapy with a licensed psychologist commonly costs $100 or less. Training agencies have found that it is profitable to provide one-on-one standard training under SOST, as they are reimbursed $80 per instructor hour. Training of small groups is not as profitable at the regular ETP classroom reimbursement of $13 an hour. For example, assume an agency had four ETP-eligible MS Word trainees. If this were treated as classroom training, the agency would receive only $52 per instructional hour rather than $80 if the training were classified as SOST. Agencies argue that one-on-one training is actually efficient because students learn more with one-on-one instruction. This may be true, but instruction would have to be more than six times as efficient to warrant the higher cost. In other words, for one-on-one training to be as efficient as regular ETP classroom training, a trainee would have to learn as much in 20 hours of one-on-one instruction as they would learn in 120 hours of regular classroom instruction.

Policy Options and Alternatives

In this section, we present a range of policy alternatives for the Panel's consideration, with pros and cons based on our research. We then present the financial implications of each alternative. In the final section, we present our recommendations.

SOST Policy Alternatives

- **Alternative 1: No Change in SOST**

  This policy alternative would continue funding SOST projects at $80 per trainer hour, with a ratio of two hours of SOST to one hour of classroom instruction; this has been the policy since 1996. The advantages of maintaining status quo are that this alternative costs least in time and effort, and avoids the controversy that might arise in implementation of other policy options. Furthermore, our research indicates that even companies using informal, unstructured SOST report benefits.

  However, maintaining status quo does not solve the problems, outlined in our analysis, which may worsen with time. For example, contractors will continue to "game the system" by funding existing training with ETP dollars; less effective unstructured on-the-job training will likely continue to be the dominant mode of SOST, reducing the potential return on ETP's investment in SOST training; and monitors will continue to be frustrated at their inability to adequately monitor SOST.

- **Alternative 2: Require that contractors have a plan to reinforce classroom training, only fund SOST training that meets new and rigorous structural criteria, and stop funding SOST-only projects.**

  This alternative takes into account what research has shown – on-the-job reinforcement is essential for classroom training to have a real impact on productivity. The policy would have four elements:

  1. Contractors would be eligible for SOST reimbursement if they have plans that include the five elements deemed essential to structured-on-site- training[4]. Again, these elements are:
     - ✓ ***A Structured Plan:***
       Plan includes sequenced modules, measurable training objectives, and specific on-the-job activities tied to class instruction.
     - ✓ ***Trained Trainers:***
       Trainers are trained in both content and instructional methods.
     - ✓ ***Customization to Companies:***
       Training uses company's products, tools, machines, and procedures.
     - ✓ ***Delivery On Site:***
       Training is done at the workplace and on the clock.
     - ✓ ***Valid, Reliable Skills Certification:***
       There is objective, frequent measurement of skill attainment tied to job performance.

[4] A more detailed description of how these elements would be used in ETP SOST training is included in the results section under Issue #2.

2. Contractors would receive the current $80 hourly instructor reimbursement, up to the current ratio of two hours of SOST per classroom hour. The policy of tracking instructor hours, not trainee hours, would be retained.
3. Structured training would be much easier to monitor because it is scheduled and therefore can be observed. Valid and reliable skills certification would give monitors better evidence than a supervisor's sign-off to verify skill attainment. Tightening quality standards would discourage "gaming" of the system and reduce funding for training that would have taken place even without ETP funding. The overall quality of the training should improve, enabling contractors to realize the full potential benefit of training.
4. SOST-only projects would not be funded. They are an expensive, inefficient way to deliver generic training that could be conducted in a classroom or lab setting.

On the downside, additional conditions for funding would increase the complexity and cost of the application process. Contractors would need to develop their training plans and certification programs before applying for funding, or they might be required to have a certification process in place prior to funding. This definitely could be to the disadvantage of small companies that do not have the upfront resources to comply with these funding demands. This alternative would also increase the monitoring burden for ETP staff and the contractors themselves.

- **Alternative 3: Eliminate SOST**

  In this case, ETP would simply cease funding SOST. It would only fund class and lab instruction.

  This alternative has the advantage of removing the risk of paying for low-quality training or training that would happen even without ETP funds. It also frees up resources for more classroom or lab training and "releases" monitors from trying to track the "elusive" SOST.

  On the negative side, discontinuing SOST eliminates a powerful and proven training intervention provided by ETP. Over two thirds of trainees surveyed at our case-study companies rated SOST "extremely valuable" in improving their skills. Project managers report that SOST, despite its flaws, added as much value as class or lab training. Furthermore, eliminating SOST would engender much controversy, because it has been a part of the ETP program from its earliest days.

Financial Implications of Policy Options

Different SOST policies can be expected to yield different SOST expenditure levels. The financial implications of the three SOST policy alternatives are discussed below.

- **Alternative 1: No Change in SOST.**

  Key Implication: *SOST cost remains the same.*

  ETP is spending 16.8% of its training dollars on SOST under current SOST policy. While the SOST percentage varies from year to year, the absence of any detectable trend implies that ETP can expect to to spend about this proportion of its training funds on SOST if policy is not changed.

However, if SOST-only contracts – those involving only SOST training and no classroom or lab hours – were eliminated as recommended above, about 28.5% of SOST expenditures would be eliminated from the training budget. To illustrate the budgetary implications of this policy move, suppose that ETP spends $60 million in a fiscal year on training contracts. Under present SOST policy, 16.8% of that, $10 million, would go to fund SOST (one out of every six dollars). If SOST-only contracts were eliminated, SOST spending would fall by 28.5%, about $2.8 million, leaving SOST funding at $7.2 million.

Figure 17

Alternative 1 Financial Implications Illustration:

Hypothetical annual $60 million ETP training expenditure currently implies $10 million SOST expenditure.

Alternative 1—no change in SOST funding—means $10 million SOST spending continues, unless SOST Only projects are dropped. In which case:

Current $10.0 million SOST expenditure
minus $ 2.8 million SOST Only project expenditure
$7.2 million SOST expenditures remaining

Net savings: $2.8 million if SOST Only projects dropped.

- **Alternative 2: Require that contractors have a plan to reinforce classroom training, only fund SOST training that meets new and rigorous structural criteria, and stop funding SOST-only projects.**

  Key Implication: *SOST cost is reduced by half.*

  Restricting funding to fully structured SOST will reduce SOST spending by about 70%, but some increased class and lab spending will mean that net savings to ETP will be only around 50% of its current SOST expenditures.

  To estimate the impact of this policy, we used information from our survey of 50 closed projects. We evaluated the "degree of structure" in the SOST component of training according to the five elements specified under Alternative 2 above. We found that the degree of structure varied considerably – some SOST components had all five elements and were considered completely structured, others had some elements of structure, and some had none of the five elements and were considered unstructured. Five of the 50 projects were completely structured, 23 had some elements of structure, and 22 were completely unstructured. In the middle group of 23 SOST contracts, 9 had 4 of 5 desired structural characteristics, 10 had 2 or 3, and 4 had only 1 of the desired characteristics.

  Presuming that these 50 contracts are representative of the usual array of SOST projects, distribution by their degree of structure can be used as a guide to estimate the likely funding consequences of more restrictive SOST standards. We grouped these 50 contracts according to their specific SOST characteristics, and each group's share of SOST funding was determined. The results are presented in Table 9 on page 46. (Note that we dropped one of the projects in the "Mostly Structured" group because it was a SOST-only project

and therefore would not be funded under Alternative 2. Besides, because that project was very richly funded, it would greatly distort the distribution of funds over the groups).

Table 9

	Sample of Completed Projects				
	Number Of Contracts	SOST Earnings In Sample Contracts	Total Earnings In Sample Projects	SOST Earnings As % Of Total Earnings	SOST Earnings As % Of Total Sample SOST Earnings
Completely Structured	5	$ 288,912	$ 1,604,968	18.0%	10.3%
Mostly Structured*	8	$ 440,784	$ 1,399,686	31.5%	15.7%
Less Structured	14	$ 428,424	$ 1,606,973	26.7%	15.3%
Unstructured	22	$ 1,648,056	$ 4,870,521	33.8%	58.7%
Sample Total	**49**	**$ 2,806,176**	**$ 9,482,148**	**29.6%**	**100.0%**
Completed Contract Total	680	$ 29,825,328	$ 177,725,083		
Sample as a % of Total	7.2%	9.4%	5.3%		

*One observation in this category was dropped because it was a SOST-only contract with very high training costs.

Our research suggests that SOST funding would drop by more than half in the face of a requirement that SOST be completely structured to qualify for ETP support. Still, we believe a sizable segment of SOST contractors would elect to meet the new standard. Obviously, those who already have completely structured SOST would qualify for funding. We also believe that most, if not all, of the middle group – those with some or most of the elements of structure – would elect to provide completely structured SOST for two reasons. First, the new standards would provide a clear blueprint for what ETP would expect of SOST in order to qualify, and some in this group would have to add very little additional structure in order to qualify. Second, our research shows most SOST providers estimate the cost to be less than $50 per trainer hour, which implies that they could add structural elements at some additional cost, and SOST would still be worth doing if compensated at $80 per trainer hour. However, we believe that those with unstructured SOST, representing over half of regular SOST spending, would not add the necessary structure to qualify for SOST support, because of the high cost of structuring what is now mostly trouble-shooting by supervisors. We applied this logic to the survey results in Table 9.

The first group consists of the five "Completely Structured" projects that represent 10.2% of the contracts and 10.3% of the SOST funding in the sampled contracts. These projects would be expected to receive SOST funding under the new, stricter standards. The eight "Mostly Structured" SOST projects had most of the elements required of completely structured projects. This group would require little modification to be funded under the stricter standards, and the funding incentives would likely induce the necessary modifications. This group represented 16.3% of the sample contracts and 15.7% of sample SOST funding. Together the completely structured and mostly structured contracts represented 26.0% of sample contracts and 26.5% of funding. If the completely structured projects were funded under the stricter standards, and the mostly structured projects were induced to add the necessary elements to be funded, and all other projects were excluded, about 25-30% of current SOST contracts would continue. The percentage of continued SOST funding also would be 25-30%.

The "Less Structured Group" had only one or two of the elements required of structured SOST. These contracts would require more modification to qualify for funding under stricter standards, but we believe that the financial incentive of $80 per trainer hour for SOST funding would induce most in this group to qualify. The 14 contracts in this group represent 28.6% of the sample contracts but only 15.3% of total sample SOST funds. If this group responded to the funding incentives, along with the more structured groups, it would push the percentage of contracts to 55% and the percentage of SOST funding to just over the 41%.

It is much less likely that many in the unstructured group would respond to the funding incentives, because the SOST support level would stay where it is now, but the required change in contract structure would be significant. These contractors, who now use supervisors in a trouble-shooting role to deliver SOST, would have to provide all the required elements of SOST structure, including trained trainers. We do not believe many companies would consider this dramatic change to be

worthwhile. Our analysis suggests that imposing a requirement of complete structure to qualify for SOST funding would result in up to 55% of the current number of SOST contracts and just over 40% of the current SOST funding level, in the future. If the policy change were accompanied by any increased support for SOST, more contractors could be expected to respond, increasing both the number of contracts and the SOST funding levels above these projections. Note also that these projections are based on previous contracts absent the stricter standards. In the future, with a set of well-defined standards and a growing number of people experienced in meeting those standards, the number of contracts and approved funding levels could grow beyond these predicted levels.

This discussion above implies that imposition of the completely structured SOST option would free almost 60% of the currently allocated SOST funds to support other ETP training activities. Our further analysis suggests that the savings would be considerably less. The average trainee, in a training job with SOST, costs ETP $631 in SOST support dollars, based on analysis of completed contracts. However, the difference between the average per-trainee cost in a job with SOST and one without SOST is only $349. This smaller-than-expected difference results from a higher average number of class or lab hours in jobs without SOST compared to those with SOST. We believe that contracts without funded SOST would substitute some additional class or lab hours that would otherwise have taken place as SOST learning.

This analysis suggests that the actual savings to ETP from the stricter SOST standards option would only be about 55% of the estimated decrease in SOST support. That is, the expected reduction of nearly 60% in SOST funding would imply only a 33% savings.

To illustrate the financial implications, consider our previous illustration with ETP spending $60 million a year on training and SOST support at $10 million. Elimination of the SOST-only contracts would reduce SOST support by $2.8 million, leaving $7.2 million in SOST spending. We estimate that imposing the stricter SOST standards would reduce the remaining $7.2 million SOST support by just under 60%, which would reduce SOST spending by $4.2 million, from $7.2 million to $3 million. That is, SOST spending would be reduced from $10 million to $3 million under Alternative 2, but increased class and lab costs would absorb some of the $7 million in SOST savings.

Increased class and lab hours in the contracts that drop SOST funding would reduce net savings to only 55% of the $4.2 million in SOST funds that they represent. The other 45% would go toward class and lab spending in these contracts, pushing those costs up by $1.9 million.

In summary, using our $10 million SOST example, Alternative 2 would decrease SOST spending by $7 million to $3 million, but class and lab spending would rise by $1.9 million, yielding net savings of $5.1 million. The good news for ETP monitors is that the remaining $3 million in SOST components would be fully structured and have scheduled time, structured exercises, trained trainers, and formal skill attainment evaluations, all of which make SOST much easier to

monitor. The additional $1.9 million in class and lab costs would be part of contracts that are already monitored and may not require extra monitoring time.

Figure 18

Alternative 2 Financial Implications Illustration:

Hypothetical annual $60 million ETP training expenditure currently implies $10 million SOST expenditure.

Alternative 2: Fund only Completely Structured SOST projects, Drop SOST Only projects.

Current	$10.0 million SOST expenditure
Minus	$2.8 million in SOST Only projects
Minus	$4.2 million Unstructured SOST projects
	$3.0 million in Structured SOST projects
Plus	$1.9 million in additional class/lab costs in currently Unstructured SOST projects
Net Savings	$5.1 million

- **Alternative 3: Eliminate SOST**

  Key Implication: *SOST cost is reduced by more than two thirds.*

  ETP would shift some costs from SOST to class and lab training, resulting in net savings of about 68% of current SOST costs.

  The third alternative – eliminating SOST funding – would seem to have clear financial ramifications: SOST funding would disappear from ETP budgets, and approximately 16.8% of current training dollars would become available to support other training. As noted, however, training contracts without SOST tend to have more class or lab hours than contracts with SOST, and so net savings in training support would be less than the reduction in SOST funding. While the average SOST cost per trainee is $631, the average difference in the per-trainee costs of projects with SOST and without SOST is only $349, or 55% of the SOST costs. This means that eliminating SOST would save 55% of the previous level of SOST support.

  The financial implications of eliminating SOST funding can be illustrated by using again our example of $60 million of ETP spending on training with $10 million allocated to SOST. Eliminating SOST-only contracts reduces SOST spending to $7.2 million, as previously explained, and banning all SOST support would eliminate this balance. However, with SOST banned, we believe that the class and lab hours would grow in these contracts by 45%, or $3.2 million, of the SOST savings. The net savings to ETP of eliminating $10 million in SOST support would thus be $6.8 million.

While this alternative would eliminate SOST monitoring, it would increase class and lab costs in some existing contracts by $3.2 million, thereby adding some monitoring expense. However, as the class and lab components of those contracts would be monitored anyway, the increased costs should be minimal.

Figure 19

Alternative 3 Financial Implications Illustration:

Hypothetical annual $60 million ETP training expenditure currently implies $10 million SOST expenditure.

Alternative 3: Ban SOST funding.

Current	$10.0 million SOST expenditure
Minus	$2.8 million SOST Only projects
Minus	$7.2 million in other SOST projects
	$0 in SOST expenditures
Plus	$3.2 million in increased class/lab expenditures in the unfunded other SOST projects
Net Savings	$6.8 million

Recommendations

1. **Require that contractors have a plan to reinforce classroom training, but only fund SOST training that meets new and rigorous criteria for being structured.**

   We recommend that the Panel adopt this alternative. It recognizes the value of reinforcing classroom training in all projects, but restricts funding to the highly structured on-site training that research suggests offers the most added value for ETP's investment. Projects that have a high degree of structure are much easier to monitor and therefore solve many of the problems in the existing arrangement.

   Perhaps most importantly, this policy ends the practice of supervisors providing informal coaching as part of their regular duties and charging it to ETP as SOST. In those situations, ETP funds clearly do not supplement existing training, the quality of training is relatively poor, effective monitoring is virtually impossible, and positive outcomes are unlikely.

2. **Eliminate SOST-Only Projects**

   We recommend that the Panel move from its current moratorium on funding new SOST-only projects to permanently eliminating such funding. These projects are not structured on-site training but rather vehicles for providing generic training and counseling to individuals or small groups who cannot be served profitably under the classroom-training formula. As we note in our findings, we believe the cost of training under these projects substantially exceeds the market price for the training or counseling delivered. These projects represent a substantial portion of current SOST investment, which we estimate to be almost 30% of all SOST expenditures.

   If the Panel wants to serve groups such as Welfare-to-Work participants or employees of very small businesses, we recommend reconsidering the class-and-lab funding formula to provide incentives to serve these groups rather than continuing to effectively misclassify generic training and counseling as SOST.

3. **Keep the Existing $80 per Trainer Hour Rate and Track Trainer Hours**

   We have argued that ETP has been over-paying for the informal coaching by regular supervisors, which makes up most of SOST, but we do not believe the current rate overpays for quality SOST that has the five key elements described previously. If ETP funds only this quality SOST, contractors' costs are expected to be higher. Instructors will have to be trained or hired. Companies will have to develop structured exercises to be done on the job. Production will slow during training, and assessing skill attainment will take time and resources. Since we did find a number of contractors who delivered fully structured or nearly fully structured SOST, we believe the current price is adequate support for a fully structured program[5].

4. **Plan To Evaluate The Impact Of Any SOST Policy Changes**

   All policies generate unintended consequences and may or may not achieve intended benefits. We recommend that whatever SOST policy the Panel adopts, they plan and implement systematic evaluation of the policy's impact on skill attainment, ETP finances, and program administration.

[5] It is interesting, however, that structured projects do not report higher costs than unstructured projects.

Appendix A
Consultants Interview Guide

Date:_____

Project:_____

Interviewer:_____

Interviewee:_____

Company:_____

Describe purpose of the project. (We are evaluating the SOST component of the ETP project. We are not here to evaluate your particular project. We just want to see how SOST is being implemented) Assure the interviewee about confidentiality.

1. How did you get involved with this company and this project?
   - What is your role in the project?
   - Have you had other ETP experience?
   - What were the primary goals for the project?
   - How has the project been working out?

2. Were you involved in the decision to include SOST In this project? If YES, why did you decide to include a SOST component in this project?
   - What were the goals of SOST? How were they different from those of the classroom component?
   - What did you see as the primary benefits of using SOST?
   - Does your company have other OJT activities?

3. What would you have done if SOST support from ETP had not been available?

4. How did you originally plan to deliver SOST, and how did you actually end up doing it?
   - Is your SOST training provided by internal staff? If so, did they need to be trained?
   - Are you using a training agency or consultant(s)? If so, how was the consultant(s) or training agency selected?
   - How was SOST designed into the training schedule?
   - How did you decide how many hours of SOST to include?
   - Did you need any special training materials or equipment to support SOST? If yes, what did they cost?

I would like to ask a few questions about how you are actually implementing SOST.

5. How do you schedule and deliver SOST?
   - If SOST is provided as needed, does the employee request training from the trainer, or does the trainer initiate the training?
   - Do trainers continue their regular duties as well as doing SOST, or are they doing SOST only?
   - How much are the trainers paid per hour?
   - What successes and problems have you encountered in delivering SOST?

6. ETP requires that you track instructor time and verify that employers have mastered the intended skills, how have you met these requirements?
   - What record-keeping procedures do you employ?
   - Do you feel these procedures accurately capture SOST results?
   - How would you characterize your relationship with ETP monitors?
   - What problems have you encountered?
   - How effective and efficient is the monitoring process?

7. How effective has SOST been at accomplishing your workforce training goals?
   - Have it helped trainees gain skills? How do you know?
   - What has influenced the effectiveness of SOST?
   - How are the results evaluated?
   - Would you use SOST again for training?

8. Do you feel the current SOST reimbursement rate of $8.00 per trainee is adequate?

   - How would you estimate the cost of SOST training at this company?
   - What factors would you consider?
   - How would you estimate the costs of these factors?

Appendix B
Delphi Questionnaire

SURVEY #1: Background Information & Opinions
Please type your responses on a "reply" to this e-mail.
Example: __X___ is a marked answer.

How many years have you (& your firm) provided ETP consultant services?

How many ETP projects has your company completed to date?

Of these projects, how many included an SOST component?

How much do your projects pay SOST instructors per hour, salary only/ _____
(Don't know _____)?

How much do you pay in additional fringe benefits? _____
(Don't know _____)

What do you estimate the "fully loaded" cost of SOST instructor time to be?
(Please consider salary, fringes, overhead, any other relevant costs).
_____

What is your estimate of the materials costs per trainee of SOST training? _____
(Don't know _____)

Did SOST cause your clients to have any lost production?

--------- Yes
(If YES):
Please estimate the cost of the lost production _____
--------- No

How did you estimate that cost?
_____

Were trainees always on the clock for SOST?

--------- YES
--------- Don't Know
--------- NO (If NO): What percent of the time were employees on the clock? _____%

What percent of your projects' total SOST costs would you estimate were covered by the SOST, $80 per instructional hour, reimbursement? _____%

What would your clients have done differently if the reimbursement had been $40.00/per hour

--------- Training would have decreased
--------- Training would have stayed the same
--------- Training would have increased

What would your clients have done differently if the reimbursement had been $160.00/per hour

--------- Training would have decreased
--------- Training would have stayed the same
--------- Training would have increased

ADMINISTRATION

Which statement best describes your clients' experience completing the procedures required to keep track of SOST hours?

--------- 1 Procedures were clear and easy to complete

--------- 2 Procedures were initially difficult but we mastered them over time.

--------- 3 Procedures were confusing and difficult and were a continuing problem throughout the project.

If #3, please elaborate: _____

_____

What do you see as the most serious administrative problems you have experienced with SOST?

_____

_____

Appendix C

Internal Project Manager Interview Guide

Date:_____

Project:_____

Interviewer:_____

Interviewee:_____

Title:_____

Describe the purpose of the project. (We are evaluating the SOST component of the ETP project. We are not here to evaluate your particular project. We just want to see how SOST is being implemented). Assure the interviewee about confidentiality.

1. How did your company get involved with the ETP program?
   - How did you first learn about ETP?
   - Had the company had earlier ETP projects
   - What were the primary goals for the project?
   - How has the project been working out?

2. Why did you decide to include a SOST component in this project?
   - Did a consultant play a role?
   - What were the goals of SOST? How were they different from those of the classroom component?
   - Does your company have other OJT activities? Please describe.

3. What would you have done if SOST support from ETP had not been available?

4. How did you originally plan to deliver SOST, and how did you actually end up doing it?
   - Is your training provided by internal staff? If so, who are they and did they need to be trained?
   - Are you using a training agency or consultant(s)? If so, How was the consultant(s) or training agency selected?
   - How was SOST designed into the training schedule?
   - How did you decide how many hours of SOST to include?
   - Did you need any special training materials or equipment to support SOST? If yes, what did they cost?

I would like to ask a few questions about how you are actually implementing SOST.

5. How do you actually schedule and deliver SOST?
   - If SOST is provided as needed, does the employee request training from the trainer, or does the trainer initiate the training?
   - Do trainers continue their regular duties while they are doing SOST, or are they doing SOST only?
   - How much are the trainers paid per hour?
   - What successes and problems have you encountered in delivering SOST?

6. ETP requires that you track instructor time and verify that employers have mastered the intended skills. How have you met these requirements?
   - What record-keeping procedures do you employ?
   - Do you feel these procedures accurately capture SOST results?
   - How would you characterize your relationship with ETP monitors?
   - What problems have you encountered?
   - How effective and efficient is the monitoring process?

7. How effective has SOST been at accomplishing your workforce development goals?
   - Has it helped trainees gain skills? How do you know?
   - What has influenced SOST's effectiveness?
   - How are the results evaluated?
   - Would you use SOST again for training?
   - How would you compare the effectiveness of SOST to classroom instruction?

8. Do you feel the current SOST reimbursement rate of $8.00 per trainee is adequate?
   - How would you estimate the cost of SOST training to your company?
   - What factors would you consider?
   - How would you estimate the costs of these factors?

Thank you for your help!

Appendix D

SOST Closed Project Interview Guide

Date: _____

Company Name: _____

Interviewee: _____

Title: _____

Briefly describe the purpose of the project: We are evaluating the SOST component of training. As part of our methodology, we are talking to managers of completed ETP projects to collect their opinions on how successful SOST was as a training tool. Your company will not be identified in our report and all information we collect will remain anonymous. Could we take 15 minutes right now to complete the survey?

YES. Begin

NO. What would be a good time to call back? (Schedule call-back)

_____

1. How many ETP contracts has your company completed to date?

- ☐ (1) One
- ☐ (2) Two
- ☐ (3) Three or more

2. Of these contracts, how many included a SOST component? _____

3. What were your goal(s) for SOST?

- ☐ (1) To help trainees apply what they learned in the classroom to day-to-day work
- ☐ (2) To provide structured practice of skills learned in the classroom
- ☐ (3) To provide on-demand help with problems when trainees returned to their job
- ☐ (4) To certify that employees have learned skills taught in the classroom
- ☐ (5) To provide one-on-one instruction.
- ☐ (6) Other (PLEASE LIST):

_____

4. Please describe how you implemented SOST on your last project? **(ASK OPEN-ENDED BUT CODE THE RESPONSE BELOW)**

Arrangement

- ❑ (1) Training agency provided class or lab (non-customized exercises) off-site
- ❑ (2) Training agency provided customized SOST (tailored to actual work projects) off-site
- ❑ (3) Vendor-provided customized SOST on-site
- ❑ (4) Company trainers provided customized SOST on-site
- ❑ (5) Company's regular supervisors provided SOST on-Site
- ❑ (6) Other (PLEASE SPECIFY):

_____
_____
_____

Pedagogy

- ❑ (1) Trainees had structured exercises to individually complete on-the-job.
- ❑ (2) Trainees met in small groups with instructor and completed structured exercises on the job.
- ❑ (3) Trainees were observed by SOST instructor and got coaching when needed.
- ❑ (4) Trainees asked for help when they needed it, and the instructor provided help.
- ❑ (5) Other: (PLEASE SPECIFY)

_____
_____
_____

SOST EFFECTIVENESS

5. How effective was SOST in comparison with classroom training in achieving your goals....
   - ❑ (1) not as effective as ETP classroom training
   - ❑ (2) about equally effective as ETP classroom training
   - ❑ (3) more effective than ETP classroom training at
   - ❑ (4) impossible to compare to ETP classroom training because the skills delivered are completely different

6. How much of the value added by training did you **expect** to gain from. . .
(ASK RESPONDENT FOR A PERCENTAGE AND RECORD IN TABLE)

7. How much of the value added did you **actually** gain from. . .

	Expected Contribution	Actual Contribution
Classroom	(6a) _____ %	(7a)_____ %
SOST	(6b)_____%	(7b)_____%

8. If ETP had not paid for SOST, what would your company have done?
- ☐ (1) Done the **same** amount of SOST training
- ☐ (2) Done **some** SOST training but less than done now
- ☐ (3) Done **no** SOST training.

9. In this project which of the following do you use to assess the effectiveness of SOST? **(ASK OPEN-ENDED AND THEN CODE)**

	Used	Did not use
Supervisors observe trainees' work to see if they are using the skills, informally.	1	2
Supervisors observe trainees work to see of they are using the skills, complete a formal evaluation.	1	2
Trainers observe trainees work on the job to see if they are using the skills, informally	1	2
Trainers observe trainees work on the job to see if they are using the skills, complete formal evaluation	1	2
Have trainees complete specific projects or activities to see if they learned skills	1	2
Questionnaires completed by trainees	1	2
Tests administered to trainees	1	2
We don't formally assess SOST effectiveness; we assume it's working	1	2
Other _____	1	2

9. How would you rate the level of the following potential **individual benefits** from SOST?

	A major benefit	A minor benefit	Employees do not benefit in this way
Increased opportunity for advancement in this company	3	2	1
Increased pay in this company	3	2	1
Learn skills that are valuable in the larger labor market	3	2	1
Increased interest and motivation in their job	3	2	1

10. How important was SOST in maintaining your company's competitiveness?

- ❑ (1) Critical; we would not be able to compete without SOST
- ❑ (2) Very important; SOST increases our overall competitiveness substantially
- ❑ (3) Somewhat important; it seems to help marginally
- ❑ (4) Not important
- ❑ (5) Don't know (I can't even begin to guess on this question).

SOST COSTS

11. How much do you pay your SOST instructor per hour, salary only?

_____

12. How much do you pay in additional fringe benefits? _____

13. What you estimate the "fully loaded" cost of SOST instructor time to be?

_____

(Consider salary, fringes, overhead, and any other relevant costs)

14. How would you estimate the materials costs per trainee of SOST training?

_____

15. Did SOST cause any lost production?

- ❑ (1) Yes If Yes, **(ASK):** What was the cost of the lost production?

_____

- ❑ (2) No

15a. How did you calculate that cost?

_____

16. Were trainees always on the clock for SOST?
- ❑ (1) Yes
- ❑ (2) No If no, **(ASK):** What percent of the time were employees on the clock? _____%

17. What percent of your total SOST costs would you estimate were covered by the SOST, $80 per instructional hour, reimbursement? _____%

18. What would you have done differently if the reimbursement had been $40 per instructor hour? What about $160 per instructor hour?

a. $40.00/per hour
- ❑ (1) Training would have decreased
- ❑ (2) Training would have stayed the same
- ❑ (3) Training would have increased

b. $160.00/per hour
- ❑ (1) Training would have decreased
- ❑ (2) Training would have stayed the same
- ❑ (3) Training would have increased

ADMINISTRATION

19. Which statement best describes your relationship with your project monitor?
- ❑ **1 Helpful:** Project monitor provided valuable advice and behaved in a professional and helpful manner.
- ❑ **2 Neutral:** Project monitor was neither particularly helpful, nor difficult to work with.
- ❑ **3 Unhelpful:** Project monitor, was difficult to work with did not provide helpful service.

(If unhelpful, **ASK PARTICIPANT TO ELABORATE**):

_____

_____

20. Which statement best describes your experience completing the procedures required to keep track of SOST hours?
- ❑ **1** Procedures were clear and easy to complete
- ❑ **2** Procedures were initially difficult but we mastered them over time.
- ❑ 3 Procedures were confusing and difficult and were a continuing problem throughout the project.

(If #3, PROBE FOR REASONS): _____

_____

21. Did you use a consultant to help you with the administrative process?

- ❑ (1) Yes
- ❑ (2) No

If Yes, **(ASK):**

How would you rate the performance of your consultant?

- ❑ Excellent
- ❑ Good
- ❑ Average
- ❑ Fair
- ❑ Poor

If Fair or Poor,
(ASK):
Why?_____

_____

Appendix E

SOST Interview Guide ETP Executives

Date:_____

Interviewee:_____

Interviewer:_____

1. How have SOST policies evolved over the last three years?
    - What factors have driven the policy changes?
    - How do you see the Panel's current interest in SOST?
    - What are the current issues related to SOST?

2. What would make an ideal SOST component?
    - What problems have you seen? What has gone wrong?

3. What role do you see SOST currently playing in the delivery of ETP projects? What role should it play?

4. How would you evaluate the current reimbursement rate of $8.00 per trainee hour?
    - Is it still adequate?
    - What factors should be considered when setting the price?

5. Which constituent groups are most interested in SOST?
    - What are each groups interests in the issues

6. Is there anything else you want to tell us about SOST that we have not mentioned?

7. Would you consider eliminating SOST from the ETP program?

Appendix F

SOST Interview Guide ETP Monitors

Date:_____

Project:_____

Interviewer:_____

Interviewee:_____

Office:_____

Describe purpose of the project. (We are evaluating the SOST component of the ETP project. We are not here to evaluate your particular project. We just want to see how SOST is being implemented) Assure the interviewee about confidentiality.

(NOTE: (Get copies of recent monitoring reports)

1. Before we begin talking about this project, I would just like to get your views on SOST in general. What particular problems have you encountered monitoring SOST in projects?

2. In your view what features does effective SOST have?

   Lets talk about the_____ Project now.

3. Who is the person on the site primarily responsible for implementing the ETP project and the SOST component in particular?
   - Is the person a consultant or a company employee?
   - What is their best contact information?

4. Have you observed any SOST at the site? (If YES) Could you describe what you have observed about how SOST is being implemented in this project?
   - Who are the instructors?
   - How were they trained?
   - How is the training actually delivered?
   - Is there a structure?
   - Are there planned activities and exercises or is SOST on an "as needed basis"?
   - How is mastery of the various competencies measured?

5. How do you think SOST could be improved?

6. What do you see as the real costs of SOST and how do those costs relate to the current reimbursement rate?

7. Should SOST continue? If yes, why? If no, why not?

Thank you for your help!

Appendix G
SOST Trainer Interview Guide

Date:_____

Project:_____

Interviewer:_____

Interviewee:_____

Affiliation:
Company Employee _____ Title_____
Consultant _____ Company_____

Describe purpose of the project. (We are evaluating the SOST component of the ETP project. We are not here to evaluate your particular project. We just want to see how SOST is being implemented) Assure the interviewee about confidentiality.

1. How did you get involved in this ETP program?
   - Were you involved in planning the project?
   - Did you plan the SOST component?

2. What other experience(s) have you had as a trainer?
   - Have you done other types of OJT training or classroom training?

3. Did you receive any specific training to be an SOST trainer? Please describe.
   - How would you evaluate that training?

4. In a typical week, would you describe how you deliver SOST?
   - Are there structured assignments?
   - Do you have a regular schedule for seeing each trainee or is training mostly on-demand and/or troubleshooting?
   - Are you still responsible for your routine duties while you are delivering SOST?
   - How do you know if trainees have mastered the required competencies?
   - Could you describe a typical day or other time period when you are delivering SOST?

5. What record keeping do you do to keep track of SOST?

6. Overall, how effective would you say SOST is?
   - How does its effectiveness compare to classroom training?
   - What factors influence SOST's effectiveness?
   - What changes would you recommend to improve SOST?

7. How are you compensated for being a SOST trainer?
   - Regular pay
   - Bonus
   - Other expenses reimbursed

A couple questions about you and we are done.

What is your job title?_____

How long have you worked with the company?_____

What is your hourly wage? $__ __. __ __

Thank you for your help!

Appendix H

SOST Trainer Shadow Protocol

Employer:_____ Date of Visit:_____

Trainer:_____

1. How long are the interactions? A related question is how is time spent, if there are interludes where no instruction is going on, record them.

2. How many participants in each interaction, is it one-on-one? A pair? A small group?

3. What happens in the interaction? What topics are discussed? What activities take place? What does the instructor do? What do the trainees do?

4. What is the outcome of the interaction? Do trainees attempt a new skill, change something about their work method, etc? Do they seem to learn anything?

5. Your own reaction, what do you think is really going on? Was this effective or ineffective interaction? What questions does it raise?

SOST Observation

Site:_____ Date:_____

Observer:_____

Time	Observation 1. Participants 2. Topic 3. Activity 4. Outcome	Notes

Appendix I

Trainees Questionnaire

1. What is your current job title?_____

2. How many years have you worked for the company ____ years

3. How often do you get coaching from the SOST instructor? (CHECK ONE BOX ONLY)
   - ☐ (6) Every day
   - ☐ (5) 3-4 times per week
   - ☐ (4) 1-2 times per week
   - ☐ (3) Less than once a week
   - ☐ (2) Varies from week to week
   - ☐ (1) Never

4. Typically, when your instructor does SOST with you, how much time does he/she spend?
   - ☐ (1) Less than 15 minutes
   - ☐ (2) Fifteen to 30 minutes
   - ☐ (3) Forty-five to 60 minutes
   - ☐ (4) More than 60 minutes
   - ☐ (5) Amount of time varies from session to session

5. Which of the following methods of SOST delivery best describes the SOST you receive? (CHECK ALL THAT APPLY)
   - ☐ **(1) I have structured exercises or practice I must complete on the job.**
   - ☐ **(2) We slow down or stop production to practice skills.**
   - ☐ **(3) When I have a problem, the SOST instructor spends time with me to solve it.**
   - ☐ **(4) None of the above**
   - ☐ **(5) Other -- Please describe:** _____

     _____

6. Think about your experience in the classroom part of training and in the SOST part of training and then please rate the quality of the following on a five point scale where 1=poor and 5=excellent: (CIRCLE ONE NUMBER FOR EACH)

	Class/Lab					SOST				
	Poor		Avg		Excellent	Poor		Avg		Excellent
Instructor	1	2	3	4	5	1	2	3	4	5
Overall Quality of Training	1	2	3	4	5	1	2	3	4	5

7. How does the SOST instructor know if you have learned the skills or completed the assignments? (CHECK ALL THAT APPLY)
   - ☐ (1) I tell him or her.
   - ☐ (2) He or she observes me
   - ☐ (3) He or she reviews my work products
   - ☐ (4) I complete a test.
   - ☐ (5) Other: _____

8. The amount of SOST time compared to classroom time is: (CHECK ALL THAT APPLY)
   - ☐ (1) Too Little
   - ☐ (2) About Right
   - ☐ (3) Too Much
   - ☐ (4) I did not take classroom instruction

9. How effective were classroom/lab instructors and SOST instructors in teaching you the new skills? (CIRCLE THE APPROPRIATE NUMBER)

	Not Effective At All									Very Effective
Class/lab Instructors	1	2	3	4	5	6	7	8	9	10
SOST Instructors	1	2	3	4	5	6	7	8	9	10

10. How useful were classroom/lab and SOST in enabling you to apply the skills you learned? (CIRCLE THE APPROPRIATE NUMBER)

	Not Useful At All									Very Useful
Class/lab Instruction	1	2	3	4	5	6	7	8	9	10
SOST	1	2	3	4	5	6	7	8	9	10

11. How much impact have the skills you learned in classroom/lab and SOST had on your productivity? (CIRCLE THE APPROPRAITE NUMBER)

	No Impact									Positive Impact
Class/lab Instruction	1	2	3	4	5	6	7	8	9	10
SOST	1	2	3	4	5	6	7	8	9	10

12. Overall, how valuable would you say SOST was in improving your skills? (PLEASE CIRCLE THE APPROPRIATE NUMBER)

Not Valuable at All — Extremely Valuable

1 2 3 4 5 6 7 8 9 10

Thank you very much for your help!

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