ED 334 266   TM 016 892

AUTHOR   Kochan, Susan; Teddlie, Charles
TITLE   Statewide Evaluation of Eleven Special Education
                University Grants.
PUB DATE   Apr 91
NOTE   25p.; Paper presented at the Annual Meeting of the
                American Educational Research Association (Chicago,
                IL, April 3-7, 1991).
PUB TYPE   Reports - Evaluative/Feasibility (142) --
                Speeches/Conference Papers (150)

EDRS PRICE   MF01/PC01 Plus Postage.
DESCRIPTORS   Data Collection; Elementary Secondary Education;
                *Evaluation Methods; Formative Evaluation; *Grants;
                Higher Education; *Program Evaluation; *Research
                Methodology; *Special Education; State Aid; *State
                Programs; State Universities; Summative Evaluation
IDENTIFIERS   *Louisiana

ABSTRACT
                An evaluation of 11 university grants funded by the
Louisiana Department of Education's Office of Special Education
Services (OSES) during the 1989-90 academic year is presented. The
methodology used was based on an evaluation format adopted by the
Louisiana Board of Elementary and Secondary Education for evaluating
Louisiana Education Quality Support Fund projects. The evaluation
process included the following steps: (1) analysis of grant
applications; (2) development of interview protocols; (3) site
visits; (4) completion of Project Objective Management Forms (POMFs);
(5) collection and analysis of Mid-Year Reports (MYRs) from project
directors; (6) completion of Project Summary Evaluation Forms based
on information from the POMFs and MYRs; and (7) production of
narrative summaries for all projects. This paper includes summaries
of the formative and summative evaluations as well as a critique of
the overall OSES process for monitoring and evaluating these
projects. Results from the summative evaluation were generally
positive, although there was considerable variance across programs
and categories. Six areas of weakness were uncovered through the
formative evaluation, and recommendations were provided in these
areas. (Author/TJH)

Statewide Evaluation of Eleven Special Education

University Grants

Susan Kochan
Charles Teddlie
Department of Educational Administrative
and Foundational Services

Louisiana State University

2

Abstract

This paper describes an evaluation of university grants funded by the Louisiana Department of Education Office of Special Education Services (OSES) during the 1989-90 academic year. The paper focuses on the methodology employed, the findings, and recommendations for improving the projects.

The methodology was based on an evaluation format adopted by the Louisiana Board of Elementary and Secondary Education for evaluating Louisiana Education Quality Support Fund (LEQSF) projects. That evaluation process included the following steps:

1) analysis of grant applications;

2) development of interview protocols;

3) site visits;

4) completion of Project Objective Management Forms (POMFs);

5) collection and analysis of Mid-Year Reports (MYRs) from project directors;

6) completion of Project Summary Evaluation Forms (PSEFs), based on information from the POMFs and MYRs; and

7) production of narrative summaries for all projects.

This paper includes summaries of the formative and summative evaluations, plus a critique of the overall OSES process for monitoring and evaluating these projects. Results from the summative evaluation were generally positive, although there was considerable variance across programs and categories. Six areas of weakness were uncovered through the formative evaluation and recommendations were presented in these areas.

2

3

Statewide Evaluation of Eleven Special Education
University Grants

ᴛhis paper describes the evaluation of 11 university grants that were funded for a total of $460,000 by the Louisiana Department of Education Office of Special Education Services (OSES) during the 1989-90 academic year.

From the OSES perspective, the evaluation objectives were both formative and summative in nature in that they wᴣre intended to:

1) determine the success of each project in meeting its goals,

2) discover and describe unusually effective programs, and

3) uncover problems encountered by the universities in the conduct of their programs and recommend strategies for overcoming them.

The evaluators also saw the study as an opportunity to pilot an evaluation system that was adopted in 1989 by the Louisiana Board of Elementary and Secondary Education for statewide use, including the evaluation of more than $24 million in Louisiana Education Quality Support Fund* (LEQSF) projects.

The OSES evaluation, which was conducted by staff at Louisiana State University in the summer of 1990, drew upon:

1) a rationale for linking goals to activities to measurable outcomes, such as that described by Rutman (1977), and

3

2)   the evaluation standards developed by the Joint Committee

on Standards for Education Evaluation (1981).

Also of concern to the evaluators was the utilization of the evaluation results inasmuch as under-utilization of such results (Shapiro, 1986) is a chronic problem, especially with state agencies (Peck & Triplett, 1983).

Methodology

As mentioned previously, the overall methodology employed for evaluating the OSES College/University Grants was patterned after the system utilized by BESE for the evaluation of LEQSF projects. That overall process involved a number of components:

1)   a review of each project's grant application,

2)   a site visit and interview,

3)   the joint completion of the Project Objective Management Form (POMF) by the evaluator(s) and project director during the site visit,

4)   completion of the Mid-Year Report (MYR) by the project director,

5)   completion of the Project Summary Evaluation Form (PSEF) by the evaluator(s), and

6)   generation of a narrative description of the program by the evaluator(s).

The narrative was not part of the evaluation procedure adopted by BESE but was included in the evaluation of the OSES College/University Projects (K.T. Associates, 1990) to provide a

4

capsule description of each project. A visual overview of the process is found in Table 1.

Grant Proposal

Upon receipt of the OSES contract in May 1990, the evaluators carefully reviewed the most recent grant proposals for the projects, nine of which were in their second year of funding. The remaining two programs were in their third year of funding.

In order to generate questions for the interviews and to structure information that would become part of the POMF, the evaluators listed the objectives identified in the grant proposals, the activities that the project managers intended to conduct by way of accomplishing their objectives, and the evaluation mechanisms they would use to gauge their program's progress.

It may be parenthetically noted that, in many cases, the objectives were not linked to the activities, which in turn were not linked to the evaluation measures. This lack of continuity caused the evaluators some difficulty in establishing interview protocols and in completing the POMFs.

On-Site Interviews

The grant applications were reviewed prior to the on-site interviews, which were conducted during May and June. Each site was visited, with multiple-person days spent at each location. At each site, the evaluators determined through interviews and observations whether modifications had been made to the project

objectives, activities, and evaluations. The evaluators' written comments and interview tapes were then used to complete the POMFs.

Project Objective Management Form (POMF)

After all the interviews had been completed, the evaluators filled out the POMFs, recording the objectives, activities, and evaluations described in the grant application proposals and noting where modifications had been made. Progress was then noted on each original objective, activity, and evaluation as well as on those that were modified. In some cases (e.g., the Northeast Louisiana University project), no modifications had been made; on others (e.g., the Grambling State University project), numerous modifications were listed.

It became obvious during the course of the interviews that the project directors' expertise in completing the grant applications varied considerably from one project to the next. In many cases, the project director and assistant director were quite adept a securing grants, but were unfamiliar with the rationale for linking objectives, activities, and the evaluation of outcomes. OSES should be more explicit in stressing this linking rationale in future grant application processes.

Mid-Year Reports (MYRs)

The Mid-Year Reports were to have been completed before the interviewers went into the field. This happened in most cases, although some project directors did not complete their MYRs until after the site visits.

6

7

The overall evaluation of the 1990-91 OSES College/University Grants was complicated by the fact that several of the projects were not completed until the end of June, July, or even August 1990. Given the July 1990 deadline for completing the overall evaluation, some projects were evaluated before their programs were completed.

The project directors were generally sympathetic to the evaluators' deadline difficulties and in some cases, simply submitted their Mid-Year Reports the first week of July, regardless of the status of their projects. Those that did so were sometimes forced to turn in partial MYRs, noting that they could not ' 'ligently respond to some of the questions so early in their programs.

Once the POMFs were complete, the evaluators drafted project narratives, dravring on information from the POMFs, the MYRs, the original grant proposals, and the site visits. Field notes (which were transcribed and edited) and audio tapes made by the evaluators offered valuable scurces of qualitative data. Though the narratives were begun at the end of June 1990, most of the writing occurred in July.

Project Summary Evaluation Forms (PSEFs)

The evaluators also began work on the Project Summary Evaluation Forms (PSEFs) in June, drawing on information from the POMFs, MYRs, and the narratives. Though the POMF form differed little from the version adopted by BESE, the PSEF form was modified

considerably to reflect the special characteristics of college/university grants as opposed to the elementary/secondary grants for which it was originally designed. The original PSEF was 13 pages long and consisted of eight sections; the version used in the OSES evaluation was five pages long, divided into six sections. Information included in the open-ended sections of the elementary-secondary PSEF was incorporated into the OSES narratives.

The PSEF was primarily a summative evaluation. Little or no formative evaluation was possible given the time constraints within which the evaluation had to be conducted and completed.

Results

Summative Evaluation

The overall results from the "Third Party Evaluation of the Office of Special Education Services' College and University Grants, 1989-90" (hereinafter referred to as the College/University Evaluation or CUE) were very positive. As indicated in Table 2, the overall mean score on the PSEF was 26.3 out of a possible total score of 30.

There was, of course, variance across colleges/universities on their PSEF total and category scores. The two highest total scores were achieved by the Northeast Louisiana University and McNeese State University projects, both of which received perfect 30 scores. It should be noted that these were the only two projects that were in their third year of funding; the other nine projects were in their second year. In conversations with the project directors at Northeast and McNeese, both indicated that having had

8

two prior years of experience had greatly enhanced the efficacy of their projects during the third year.

The college/university scores on the PSEF ranged from 21 (70 percent of the total possible) to 30. As indicated in Table 2, four projects (i.e., Grambling State University, Louisiana College-I, Louisiana College-II, and Southeastern Louisiana University) scored 80 percent or lower on the PSEF. There also was considerable variation across PSEF categories. The projects scored highest on characteristics of participants (96.7 percent), while scoring lowest on adequacy of evaluation design (75.8 percent).

The variation among scores on the specific PSEF indicators was even greater than that in the PSEF categories as indicated in Table 3. It should be noted that scores from the 31 PSEF indicators were used to produce the six PSEF category scores. All PSEF indicators must have been rated "four" or "five" on a five-point scale in order for the PSEF category to be rated "excellent" ("three" on a three-point scale). Additionally, if any two or more PSEF indicators were rated "one" or "two" on the five-point scale, the category would be rated "unsatisfactory" ("one" on a three-point scale). [Copies of the PSEF with categories and indicators will be available at the AERA session.]

As indicated in Table 3, the College/University scores across all PSEF indicators ranged from 107 (69 percent of total possible) to 149 (96.1 percent of total possible). The mean score across all grants was 131.7 (84.5 percent), with a standard deviation of 13.5. Overall scores by indicators within categories ranged from highs of

9

94.2 percent and 90.9 percent for characteristics of participants and personnel to lows of 79.2 percent and 79.1 percent for adequacy of evaluation and attainment of stated purposes/objectives.

It is noteworthy that the two projects receiving perfect PSEF scores utilized two different approaches: the Northeast project used the summer institute/workshop approach, while the McNeese project used the regular academic course approach. Since four other projects used the summer institute/workshop approach and another four used the regular academic course approach, these two exemplary projects may provide useful models for other projects.

Formative Evaluation

Exemplary Programs. Particularly valuable aspects of the Northeast Louisiana University Summer Institute were:

1) the very impressive group of presenters who took part in the Institute;

2) the attractive marketing campaign mounted by the project staff;

3) the vocational education focus on "ecological congruence" between the worker and the workplace, which could be transported to other special education units around the state; and

4) the excellent evaluation of student performance component of the Summer Institute.

The principal investigator at McNeese State University indicated that he had integrated some of Northeast's "ecological congruence" literature into his regular academic courses. Such cross-

10

fertilization is an excellent ancillary outcome of the College/University grants.

Particularly valuable aspects of the McNeese program, which as previously mentioned took the regular education curriculum approach, were:

1) the alteration of course descriptions/requirements in the university catalog, based on innovations resulting from the project itself;

2) the project's emphasis on increasing the vocational-technical and job analysis skills of teachers of mild/moderate secondary education students; and

3) the strong evaluation of student performance component of the grant.

The procedure used by the principal investigator to institutionalize change in curriculum offerings should be followed by other grantees using the regular education curriculum approach.

Other Programs. Other projects showed exceptional promise, including the Louisiana State University-I program and the two University of New Orleans projects. Positive aspects of the LSU-I grant included:

1) the project's emphasis on coordination between the university, the state Department of Education, and local education authorities;

2) the utilization of telelearning technologies; and

3) the development of modules that could be utilized by other special educators in the state.

11

12

The University of New Orleans-II project was particularly interesting inasmuch as its major focus was the creation of model sites that maximize the degree to which students with severe handicaps can be integrated into the regular curriculum. The UNC-I grant, on the other hand, showed promise of establishing a statewide program to train teachers to work with visually impaired students. This concept of statewide training is particular important inasmuch as many special education teachers have difficulty locating suitable course offerings in their regions of the state. The evaluators saw great potential in integrating the UNO-I statewide training concept more fruitfully with the LSU-I rning approach.

The projects did, of course, experience some problems during the 1989-90 funding cycle. One would expect some difficulties in the administration of a program that consisted of more than $460,000 in projects operating at 11 separate sites across n entire program year. The difficulties that were noted include:

1) inadequate linking of goals to activities to evaluations by project directors;

2) management problems at the project sites due to loss of key personnel;

3) generally less than excellent evaluation procedures at some project sites;

4) inadequate monitoring by the state Department of Education staff due to manpower shortages in that agency;

12

13

5)   lack of a uniform system for determining the progress
     that program participants are making toward new or
     expanded certification in special education; and

6)   lack of coordination and communication among the
     College/University projects.

Before presenting recommendations for addressing these
problems, a note should be made about the CUE. The scope of the
CUE was limited by virtue of the fact that the evaluators did not
receive a final funding decision until May 1990 and the site visits
had to be completed by July 6. The major problem caused by this
schedule was the fact that preparations for the five summer
institutes were not complete during the time of the site visits.
This, of course, impeded the evaluation process.

Repercussions of the timeframe constraints included the
following.

1)   No meaningful formative evaluation could occur inasmuch
     as the timeframe for the evaluation was so short.

2)   Some project directors were defensive during the site
     visits because they were busy preparing for or just
     starting their summer institutes.

3)   Some project directors were unsure how to complete their
     Mid-Year Reports inasmuch as their major activity – their
     summer institute – was just getting underway.

The CUE scope was further limited by the fact that the
evaluation was funded at approximately 1.4 percent of the total
value of the projects. As a rule of thumb, an evaluation with

13

14

complete formative and summative evaluation requires funding at 3-5 percent of the total project expenditure. The evaluation should have started in October 1989 rather than May 1990 with a 3-5 percent budget, which would have allowed sufficient time and resources to stage site visits early in the program year. Such visits would have greatly enhanced the formative evaluation.

Conclusions and Recommendations

The conclusions and recommendations section will center around six problem areas identified in the previous section.

Inadequate Linkages

As mentioned previously, several project directors inadequately linked their project goals, activities, and evaluations. To assist them in the future, the evaluators recommended that OSES consider holding a training session for all project directors in which the linking rationale is explained. Short of this, OSES was advised to send each College/University expressing an interest in applying for funds a written explanation of the importance of linking objectives to activities that are in turn linked to a set of evaluations.

If all funded projects had such a linkage, the chances of their being both successful and evaluable would be enhanced. A linking mechanism helps the grantee to organize his/her project activities and evaluations, and it helps the third party evaluator to determine if the project is working (summative evaluation) or, if not, what can be done (formative evaluation).

14

Personnel Turnover

At least three projects (i.e., the Southeastern Louisiana University, Louisiana College-II, and Louisiana State University-I programs) lost key personnel or consultants during the year, thus hampering their potential success. While the LSU-I project was able to rectify the problem, the SLU and Louisiana College projects suffered timeline and evaluation problems.

LDE Manpower Shortages

The problem of project staff turnover was exacerbated by a related problem: the inadequate monitoring of projects by OSES staff due to manpower shortages within the state Department of Education. How could OSES address the associated problems of personnel attrition at both the university and state levels?

One recommendation was to give a Program Manager at the Department of Education specific part-time responsibility for monitoring the College/University grants throughout the program year. (Oversight of the projects was a shared responsibility among several individuals, with no single staff person taking ultimate responsibility). Should that OSES staff person change jobs, the evaluators recommended that another staff person be immediately assigned those monitoring responsibilities.

If the OSES staff maintained regular contacts with the project directors through the program year, they would become immediately aware of personnel losses at the local level and could help the College/University involved respond by locating replacement staff or developing other coping strategies. An alternative strategy

15

would be to fund future evaluations at the 3-5 percent level and expect the third-party evaluator to monitor the projects throughout the year as part of the formative evaluation process.

Program Evaluation Problems

With regard to problems with the individual project evaluations, some difficulties would be addressed if evaluations were properly linked to objectives and activities. The evaluators recommended that the OSES staff also consider providing all grant recipients in-service training on evaluation techniques. A one-day seminar for all project directors would be both useful and cost-effective. The evaluators nonetheless pointed out that OSES might have to make attendance mandatory to ensure full participation, inasmuch as some College/University personnel might either assume they already were knowledgeable about evaluations or might not see the worth of proper evaluation strategies.

Certification Tracking

Another problem uncovered by the CUE was the lack of a uniform system for determining how many program participants had either gained or expanded their certification as a result of having attended the classes, institutes, and workshops sponsored by the various projects. Several grantees listed this as a major project objective, and OSES requests certification data as part of the MYR. Despite this, no project director had an adequate method of tracking students' progress toward certification. Several project directors indicated that the appropriate data collection point was

16

the state Department of Education inasmuch as it is the state teacher certification agent.

Obviously, solving the problem would require a joint effort by OSES and the College/University grantees. Each grantee should maintain an up-to-date cumulative file of all participants with Social Security numbers, current certification status, and type of certification sought. This data should be forwarded semiannually to staff at OSES; they in turn should work with the department's Bureau of Teacher Certification and computer section to set up a system whereby participant files are cross-matched with certification files.

A computerized tracking system would answer the important question of how many teachers have become certified in special education as a result of the College/University projects. By comparing this information with data from Teacher Certification, pinpointing manpower needs around the state in the various special education specializations, OSES staff could help present and future grant applicants keep abreast of changing manpower needs.

Lack of Coordination

The final problem area has to do with the lack of coordination and communication among College/University projects. For instance, five summer institutes were held in 1990, but only one (Louisiana College-I) was conducted in cooperation with other universities. Such joint ventures are of great benefit if, as in the case of Louisiana College-I, they make it possible to expand programming to

17

several sites around the state. Unfortunately, lack of communication and coordination among campuses is characteristic of Louisiana higher education; in fact, Governor Buddy Roemer often refers to the state's "Lebanon of higher education."

In conversations with OSES, the evaluators suggested that the agency strongly encourage inter-institutional cooperation in the future. Consortium funding arrangements might be one way to foster such cooperation. Another strategy would be to have project directors share their "Best Practices." Perhaps the best strategy would be for OSES to call a project directors workshop at the end of the funding period, during which each director would present a final report to their colleagues and to the OSES staff.

Ancillary Findings

As mentioned previously, the under-utilization of findings is a chronic problem in the evaluation of public programs (Shapiro, 1986; Peck & Triplett, 1983) and was viewed by the evaluators as a probable outcome of the 1989-90 CUE.

Considerations of Staffing

The decision to undertake a third party evaluation of the OSES College/University projects was initiated by the then-OSES program manager, who convinced her supervisors that such an overall evaluation was necessary. When she later accepted a new job, no other staff person assumed primary responsibility for the College/University grants, prompting the evaluators' inclusion of Recommendation 4 in the 1989-90 CUE report.

18

Under the circumstances, the evaluators became concerned that the evaluation findings would be under-utilized due to four factors.

1) Because no program manager had direct responsibility for the project, no one was in a clear position to instigate action on the evaluation recommendations.

2) Upper level management at OSES was overworked and might not have had time to attend to an evaluation follow-up.

3) The College/University Grants program was entering a new funding cycle in which programmatic emphasis was likely to change dramatically. An overworked staff might have written off the evaluation report rather than incorporate/adapt its findings to future programs.

4) Two of the 11 projects evaluated were in their third year of funding and were barred by program guidelines from seeking a fourth year of funding. Inasmuch as the evaluation took place at the end of the projects' last year, the findings would have had no formative value for those two projects. What's more, because communication/coordination among projects was so poor, it also was unlikely that insights from the two third-year evaluations would have been shared with the other project directors.

Though the nine projects in their next-to-last year of funding could have benefitted from the findings the following year, the previously mentioned lack of a "point

person" at OSES brought even this potential benefit into question.

Considerations of Timing

As noted throughout this report, considerations of time and timing proved a major impediment both to the conduct of the evaluation and to the utilization of its findings. Though the evaluation format offered ample opportunity for formative evaluation, such analysis was all but impossible within the allotted time frame.

Ideally, the projects should have been evaluated annually, beginning with the first year of funding. Even so, noticeable improvements in both the conduct of the study and the utilization of findings could have been realized, however, had an evaluator been hired at the start of the 1989-90 program year rather than at its end.

Had the evaluators reviewed the grant proposals at the start of the year, the problem of inadequate goal/activity/evaluation linkages could have been addressed early on. Inasmuch as some managers found the linking rationale instructive in terms of project management, their exposure to such concepts early on might have helped them improve project operations. Finally, had the formative evaluation commenced in the fall, the evaluators also might have been able to alert the OSES staff to the problem of staff turnover at various project sites.

Timing was a problem not only with the start but the end of the evaluation process: the deadline for submitting the final

20

evaluation report was well in advance of the conclusion of several projects. As mentioned previously, the evaluators were required to submit final reports at the end of July so that their findings could inform the 1990-91 grant application process, which began in August.

Admittedly, the findings should have informed the 1990-91 review process (assuming that, in the absence of an OSES project manager, they were read and digested). However, the net result was that the five summer institutes - all of which were eligible for funding in 1990-91 - were still underway at the study's conclusion and hence were never evaluated in their entirety .

It would have been better had OSES required that the evaluators submit partial evaluations on the five summer institutes in advance of the 1990-91 grant review process, and submit true summative evaluations on the completed projects in late August Decisions whether to fund the summer institutes in 1990-91 could have been made contingent on the receipt of a final favorable evaluation and/or the project director's commitment to address weaknesses uncovered in the evaluation prior to the start of the 1990-91 institutes some nine months later.

At any rate, both the project directors and the OSES staff would have profited from having access to summative evaluations of the completed programs. With manpower at the Department of Education so short, it is highly unlikely that, without a third party to compile and digest the summative data into an easily

21

digestible format, any OSES staff person would have been in a position to do so.

Considerations of Funding

As mentioned previously, the evaluation was funded at 1.4 percent of the total program budget as compared to the 3-5 percent funding level typically recommended for full formative/summative evaluations. The intent was not to scrimp; rather the level of funding was dictated by the same budgetary constraints that compelled the OSES staff to postpone evaluation of any kind until some projects were in their third year.

The net effect, however unintentional, was to severely restrict the amount of formative review that could be conducted in the way of third-party site observations and interviews or other labor-intensive but nonetheless valuable methods of qualitative evaluation. It also forced the evaluators to focus closely on linkages between goals, activities, and evaluations as the most efficient means of quickly familiarizing themselves with highly diverse projects and then assessing their equally varied outputs.

Though dedicated proponents of Scriven's "goal-free evaluation" might consider the methodology used to be too focused, the primary evaluation tools — the POMFs, interview/observation protocols, and PSEFs — were expressly structured to identify and assess latent and emerging objectives and outcomes. As such, the evaluators felt that they operated well within the standards espoused by Cronbach (1982): that they were open to all ends toward which the projects might reasonably aim without closing out

22

23

insights that could be gained from the project staff, and that they used their evaluation training to introduce values that otherwise would not have been voiced.

Though additional "goal-free" evaluation could enhance future College/University Project evaluations, it is unlikely that the OSES budget could support such time-consuming and labor-intensive analysis by a third party evaluator. Popham's recommendation (1988) that, in the face of budgetary constraint internal "goal-free" evaluations be combined with external "goal-based" evaluations, seems a possible alternative.

Though OSES staff could hardly conduct "goal-free" evaluations given their familiarity with the projects, they could conceivably arrange to trade off evaluation services with one of the many other Department of Education units whose programs must also be evaluated. For instance, the LEQSF program staff (whose BESE-adopted evaluation plan served as the model for the OSES plan) could conduct an internal "goal-free" analysis of College/University projects in return for the OSES staff's evaluation of some of their projects. Again, such a pact would be contingent on the ability of the two units - both of which are chronically under-staffed - to free up the manpower to undertake such a venture.

References

Cronbach, L.J. (1982). Designing evaluations of educational and social programs. San Francisco: Jossey-Bass.

Joint Committee on Standard for Educational Evaluation (1981). Standards for evaluation of educational programs, projects and materials. New York: McGraw-Hill.

K.T. Associates (1990). Third party evaluation of the Office of Special Education Services' college and university grants, 1989-90. Batcn Rouge, LA: author.

Peck, H. and Triplett, S. (1983). Management and organization of an evaluation unit in a state agency. In R.G. St. Pierre (Ed.), Management and organization of program evaluation. San Francisco: Jossey-Bass.

Popham, W. J (1988). Educational Evaluation. Englewood Cliffs, N.J.: Prentice Hall.

Rutman, L. (1977). Evaluation research methods: A basic guide. Beverly Hills: Sage.

Shapiro, J.Z. (1986). Evaluation research and educational decision making: A review of the literature. In J. Smart (Ed.), Higher education: Handbook of theory and research, Vol. 2, New York: Agathon Press.

24