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ABSTRACT

A meta-assessment is provided of 15 pilot projects aimed at demonstrating how student outcomes of various kinds can be used to assess the effectiveness of general education and baccalaureate degree programs. The Student Outcomes Assessment projects funded by Academic Program Improvement grants of the California state university system, have developed and field tested a variety of assessment measures and instruments, including portfolios, interviews, senior and capstone projects, surveys, and examinations. Factors that may have contributed to the outcomes were evaluated, with relevant variables conceptualized within the categories of assessment environment, assessment methods, and assessment outcomes. Evidence for many of the direct and indirect outcomes proved difficult to evaluate, in part because some of the target outcomes are long-term effects that would require longitudinal measurement. The outcome that appeared to be the best index of project effectiveness was dissemination of results. Information sharing was consistently identified as an important outcome of project involvement. Human resources were the most important environmental variables, while the key methodological variable was development or adoption of adequate measures of outcomes. Six tables present information about the projects, and there is one figure of factors and outcomes. (SLD)

Baseline Characteristics of Successful Programs of Student Outcomes Assessment

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Running head: Characteristics of Successful SOA

INTRODUCTION

The current assessment movement in higher education is driven by the wary partnership of reform and accountability, a partnership yielding a complex and diverse collection of assessment activities in university settings (Ewell, 1991). Over the last several years, the California State University System has moved to construct an assessment agenda which responds to both reform and accountability in ways that will preserve the commitment of the CSU to intellectual and programmatic diversity. Beginning in 1986, Academic Program Improvement grant funds have supported a series of student outcomes assessment projects initiated by faculty in a variety of disciplines on 11 campuses of the CSU. These pilot projects, under the aegis of the CSU Institute for Teaching and Learning, were aimed at demonstrating how student outcomes of various kinds can be used to assess the effectiveness of General Education and baccalaureate degree programs.

The present study, sponsored by the Fund for the Improvement of Postsecondary Education (FIPSE), provides a "meta-assessment" of the 15 pilot projects. These projects, briefly detailed in Table 1, have developed and field-tested a variety of assessment measures/instruments, including portfolios, interviews, senior/capstone projects, surveys, and examinations.

This "meta-assessment" of the projects was designed to identify critical features across the fifteen projects which were

consistently associated with effective assessment. Once defined, these features might be expected to facilitate wider implementation of the assessment strategies field-tested experimentally. Because they represented a broad range of disciplinary perspectives, the pilot projects offered an opportunity to define factors which predicted assessment effectiveness across curricular boundaries.

METHOD

The project used a multi-site method to evaluate factors that may have contributed to the outcomes achieved. A three-part framework was used to specify variables and to organize the data. Relevant variables were conceptualized within the categories of assessment environment, assessment methods, and assessment outcomes.

Assessment Environment

The assessment environment was defined as the social and organizational setting in which each project occurred. Variables relevant to the determination of this construct included:

1) general faculty participation in the planning of the project
2) faculty participation in the implementation of the project
3) the faculty's perceived "ownership" of the project (i.e., self-determination)
4) faculty consensus with the project plan
5) faculty workload required by the project
6) the project director's experience in assessment activities
7) the faculty's experience in assessment activities
8) the project director's general academic experience
9) adequacy of budget, supplies and resources
10) administrative support
11) student support
12) previous experience with outcomes assessment

13) the content domain (e.g., physical science)
14) and the nature of the intended audience for the project's results

Assessment Methods

Assessment methods were defined by variables that described the strategic aspects of each project. General procedures with relevance across curriculums were selected. These variables included:

15) goal definition
16) selection of appropriate outcomes
17) the psychometric adequacy of measures used or developed
18) the success of data collection and reporting
19) the appropriate use of statistical analyses
20) sensitivity to multicultural issues
21) the use/development of multiple outcome measures
22) the comprehensiveness of reports describing the results of the project
23) and the utility/economy of procedures used

Assessment Outcomes

Outcome variables were used to capture the systematic growth and change that could be attributed to the assessment project. The following "direct" and "indirect" outcomes of the assessment projects were evaluated:

DIRECT

24) the survival of the project
25) attainment of additional funding
26) gains in student achievement
27) curricular development
28) improved teaching
29) better student feedback
30) the use of new methods of assessment
31) improved use of existing databases
32) and the dissemination of results

INDIRECT

33) improved student recruitment/retention
34) better general attitudes toward assessment

35) new sources of money for assessment
36) higher visibility of assessment
37) and external adoption of measures or methods developed

Conceptual Model

The conceptual model guiding the analysis is based on the assumption that key "environmental" and "methodological" variables will determine the nature of "outcome" variables. This model is illustrated in Figure 1. Included in each of the categorical "bins" are the specific variables that were addressed.

Data Collection

Information relevant to the assessment of the variables described above was obtained from multiple sources. First, copies of all project reports were obtained. All reports were studied and assessed by both researchers conducting this analysis. Independent conclusions concerning the "presence/absence" or "adequacy/inadequacy" of key variables were compared and evaluated. Where consensus on variable indicators could not be reached, that source of information was dropped from consideration. This process was especially important to the assessment of methodological variables (variables #15 to #23).

The second, and perhaps most utilized, source of data was the project directors themselves. A survey was developed and administered to each of the project directors. Results of this survey were especially critical in determining the nature of environmental variables for each project. These results were

also primary determinants of the project outcome variables.

Project directors were further utilized throughout the data collection period to fill in missing information and to provide updates on developments not available in the final project reports. A meeting with directors held in the third month of the data collection process yielded additional information on the assessment environment at individual campuses.

Telephone interviews with project directors continued into the final weeks of the data collection process. A special effort was made to obtain additional focus concerning multicultural issues relevant to outcomes assessment.

The final source of information utilized was the reports submitted by the external evaluators of the pilot projects. These were read last in an effort to maintain the objectivity of the researchers through the initial stages of the data collection. These reports were especially useful in supplementing observations concerning the methodological variables.

Analysis

Data organization was achieved in a manner consistent with the recommendations for qualitative data analysis prescribed by Miles and Huberman (1984). All observations, comments, and survey scores were condensed and entered in a highly abbreviated form onto a "meta-matrix." This master chart contained information relevant to all thirty-seven variables for all projects considered complete enough for inclusion in the final

assessment. In early versions of the chart, the basic principle was inclusion of all relevant data.

For the final analysis, projects which lacked comprehensive data were excluded. One project assessed three different disciplines on three different campuses. Because the five sources providing information for this analysis were describing discrete event from what were apparently very different experiences, these data sources were treated as five different "sites" for this analysis. The total "n" of sites ultimately used was sixteen.

On the basis of information represented in this matrix, a qualitative categorization of all projects on all variables was completed. For each project, all variables were classified as:

4 - strongly present/achieved,
3 - partly present/achieved,
2 - weakly present/achieved,
1 - absent/not achieved.

The results of this classification are presented in Table 2. Projects are presented in random order. This display is referred to by Miles and Huberman (1984) as a "Site-Ordered Descriptive Meta-Matrix." Though the "values" are the result of qualitative assessment and therefore include a certain unavoidable level of judgement, almost all are based on multiple sources of information. The agreement between sources was generally very compelling.

Using the proposed research conceptualization, project outcomes (direct and indirect) would logically represent dependent measures. Environmental and methodological variables

would be the multiple predictors. If the data were interval, and the n of projects greater, the analysis of choice would be multiple regression. In a multiple regression paradigm, critical factors that should be attended to in any replication would be those that accounted for the most variance in the dependent measure (program outcomes).

However, the data presented in Table 2 is qualitative, and the n of projects is sixteen. Nevertheless, the problem is conceptually the same. One must identify the variables that were consistently associated with project effectiveness. The task is to determine which predictor variables most consistently co-vary with outcomes. Good predictors are those whose qualitative categorization is most consistent with the qualitative categorization of project outcomes.

Because a project's relative success should not be judged by a single outcome variable, and because there should be some resistance to the temptation to over-analyze qualitative data, outcomes were combined. Subsequent analyses were conducted using: 1) the average of all outcomes, 2) the average of outcomes categorized as direct outcomes, and 3) the average of indirect outcomes (refer back to page 6 for a precise listing of these outcomes).

The next step necessary to enable comparison across variables is a standardization of scores. Though the "scale" used for classification of all predictor and outcome variables was the same (1 through 4), the mean and standard deviation of

the resulting distributions for each variable was different. This was resolved by transforming all scores to z-scores. These scores represent the project's deviation above or below each given variable's mean in standard deviation units.

"Consistency" between predictors and outcomes was assessed by computing the squared deviations between each standardized score and the average standardized "outcome" (overall, direct, & indirect) for the project associated with that score.

Finally, these squared deviations were summed across project sites, and divided by the number of projects to produce a value conceptually similar to variance (the difference being that the source of deviation was between each predictor score and its project's outcome score rather than between each predictor score and the average of that predictor score across sites). The resulting "variance with outcomes" across sites will be smallest for those variables that were most consistently related to outcomes. Larger values indicate that the classifications assigned to that variable were not as predictive of the project outcomes.

Results of this analysis are presented in Tables 3, 4, and 5. Because of the limited nature of the data, there can be no assessment of statistical probability or significant differences. The predictor variables are simply ranked in the order of their consistency with outcomes: overall, direct, and indirect. Top-ranked variables are those whose classifications were most consistent with project outcomes.

These results are summarized in Table 6. This table enables comparison of the relative importance of predictors across different combinations of project outcomes. Predictors are also organized into groups by similarity.

RESULTS/DISCUSSION

ENVIRONMENTAL PREDICTORS

Faculty Involvement Variables

Two faculty variables were consistently toward the top of the respective rank orderings. "Faculty Participation" and "Perceived Faculty Workload" appear to be important indicators of assessment success. The first is most closely associated with those outcomes identified as "direct" outcomes. The second is more closely associated with "indirect" outcomes. "Faculty Ownership" and "Faculty Consensus with Plan" were also relatively good indicators, especially for direct outcomes. "Faculty Participation in Planning" appears to have little to do with project outcomes.

It was expected that faculty involvement would be critical to project outcomes. Consequently, it was no surprise that faculty participation in the project was ranked number one in its association with the direct, intended outcomes of each project. Faculty consensus with the project plan, ownership of the project, and perceived workload were also ranked in the top ten in reference to direct outcomes.

Perceived workload appeared especially critical to indirect outcomes. Perhaps as workload increases, it becomes less likely

that indirect outcomes will be realized. Workload would also seem especially salient to the development of attitudes toward outcomes assessment (one of the indirect outcomes).

Somewhat surprising was the apparent unimportance of involving faculty in the early stages of project planning. In the general management literature, it is often suggested that participative planning of projects is a good strategy for insuring project participation. Apparently in these academic settings, it was only critical that you do an adequate job of "selling" your plan once it was developed.

Training/Experience with Student Outcomes Assessment

Project outcomes were associated with the project director's efficacy in outcomes assessment, especially indirect outcomes. Faculty training and the project director's general academic background and experience were not as closely tied to project results.

Of the three factors describing the training and background of project participants, only the project director's training and experience specific to student outcomes assessment ranked very high in association with outcomes. This factor was especially critical to the attainment of indirect outcomes. This result is logical given that the director was generally responsible for the adequacy of project goals and methods.

Support Variables

Administrative support was closely tied to project outcomes, both direct and indirect. Adequacy of budget, supplies, and

other institutional resources was not closely tied to project results. Student support appears only moderately associated with direct outcomes.

Nothing happens without administrative support. In all hierarchies, policy tends to come from the top down. Though a goal of the CSU system is to establish faculty-initiated outcomes assessment, these initiatives will most likely fail without the support of academic administrators. These individuals are in the position to set the "tone" in reference to the academic legitimacy of such efforts. Unless outcomes assessment efforts are rewarded, it will be difficult to maintain motivation to assess student outcomes.

Student support did not rank high. Though this source of support was assessed through the eyes of the project directors rather than from the students themselves, this result does not appear unreasonable.

What does seem somewhat surprising is the apparent unimportance of adequate budget and supplies. Some insight into this result was obtained in discussions with project directors about how much of their project was coming "out of their hide." The efforts of some directors clearly went beyond what might have been expected given the modest budgets they were receiving for their administration of each project. This phenomenon was more likely to occur if the director was working in a content area for which outcomes assessment research could be considered legitimate professional development or for senior faculty members who were

no longer struggling to achieve tenure or promotion.

Another possible explanation for the inconsistency between the adequacy of budget/supplies and project success would be the inherent differences in requirements for adequate assessment procedures across different content areas. It may be possible that adequate assessment can be achieved for relatively small costs in some disciplines, but will tend to be very expensive in others. Consequently, adequate results might be obtained for some even when resources are tight while others will find assessment prohibitive without adequate budgetary support.

Existing Student Outcomes Assessment Procedures

Whether or not the project was initiated in an environment that currently included some type of formal outcomes assessment did not appear to have a critical impact on project outcomes. The good news of this result is that projects breaking new ground do not necessarily have to anticipate damaging levels of resistance. The bad news may be that previous experience with outcomes assessment apparently may not guarantee that new initiatives will be welcomed with open arms.

Project Focus

The content area in which the project occurred had little to do with the relative success of the project. However, the intended breadth of the audience (who and how many individuals/organization I expect to learn about the results of my project) was very closely associated with outcomes, especially indirect outcomes.

There was some expectation that perhaps the content area in which the project occurred might have considerable impact on the relative success of the project. This may disappoint some educational or behavioral science researchers who might have liked to assume they had a corner on this part of the research market. This is a good result for a system that hopes to initiate outcomes assessment across a universe of content domains.

The tight association between the intended breadth of the audience for the project's results and project outcomes is somewhat surprising. In general, this association is logical in that the excellence of project outcomes should be related to how many individuals or organizations with which the director intends to share the results. This result may also reflect the director's experience and enthusiasm for student outcomes assessment. As previously observed, project director efficacy in outcomes assessment was closely associated with project outcomes.

METHODOLOGICAL PREDICTORS

General Procedural Adequacy

The single most critical variable from this category was the development of good measures of student outcomes. The creation of good measures was predictive of project results, direct and indirect. Appropriate selection of outcomes to measure was also closely associated with project outcomes.

"Project Goal Definition and the adequacy of "Statistical Analyses" conducted were moderately tied to indirect outcomes. These variables along with "Data Collection/Reporting" and the

reporting of "Measurement Properties" did not appear to co-vary tightly with direct project outcomes.

In reference to general procedural adequacy, the most important aspect of the assessment projects appeared to be the adequacy of the measures they developed or adopted. It is highly logical to expect that project success would hinge on the ability of the measures used to reliably and validly measure student outcomes. This process begins with the selection of appropriate outcomes to measure.

Other variables in this category, though not highly ranked in their association with direct outcomes, were toward the top of the list in relation to indirect outcomes. Much of this relationship appeared dependent upon the association with the indirect outcome of external adoption. Those projects bound for adoption were generally the most precise in the definition of project goals and most ambitious and accurate in the production of statistical analyses.

Project Comprehensiveness

The "Development of Multiple Measures" of student outcomes and "Sensitivity to Multicultural Issues" appeared moderately associated with project outcomes. The comprehensiveness of the reports made available were not closely related to project outcomes.

The relatively high ranking of "sensitivity to multicultural issues" and the development of multiple measures may again reflect the sophistication of the project director in reference

to good outcomes assessment. It is also reasonable to expect projects that developed or used more than one form of assessment to be more successful.

Sensitivity to multicultural issues would appear especially relevant to the potential for recruitment and retention of under-represented students. This would partially explain this variables relatively high ranking in reference to indirect outcomes.

The nature of final project reports varied widely. The low association between the comprehensiveness of project reports and project outcomes might indicate that much occurred that was not completely reported. Many directors indicated that deadlines fell before they had time to adequately process the project results. Some compensated by disseminating results via other channels (regional and national presentations, journal publications). Though this project followed up and received many of these reports, it appears that much information from successful, comprehensive projects was lost to the CSU system due to the fact that final reporting was required before assessment procedures could be adequately evaluated.

Cost Effectiveness of Project

The "Utility/Economy" of the projects' assessment procedures was near the bottom of the rank ordering. Apparently expensive projects in terms of their dollars spent to students assessed were not always the richest in results.

This result is a perfectly reasonable result given the

experimental nature of these projects. Directors "tried out" a wide variety of assessment procedures. There will also always be some cost differences across disciplines necessitated by the different nature of assessment processes that must occur. Some content areas may be able to conduct excellent "cheap" assessment, while other areas may only achieve moderate results despite a high price tag.

Nevertheless, there is some logic to the assumption that efficient assessment will produce more desirable results. As more data is collected, this relationship should be reassessed within content areas.

Though qualitative analysis does not enable the same level of precision as might be obtained from more quantitative data, the observations made in this study were systematic, relatively objective, and almost always based on multiple sources. Additional testing and replications of this study's conclusions is suggested, and could occur within the CSU's continuing program to develop and monitor programs of student outcomes assessment.

MAJOR CONCLUSIONS

The major conclusions drawn from an overview of the project's results are organized in terms of the conceptual model's environmental and methodological variables.

Environmental Variables

The environmental variables critical to project outcomes were human resources. First, recruiting and maintaining faculty

support was a key variable, but one which showed high variability across projects. The factors underlying this variability are difficult to detect in the quantitative measures, but they appear in the interview data from project directors. One concern in nearly all faculty groups is "the intended primary use of the outcomes data," particularly where data suggest evidence of teaching/program effectiveness. Another might be described as the worry over the human capital costs of department-level assessment activities. This turned up as a particular concern for junior faculty. Many junior faculty perceive that research on teaching and learning is regarded as "second-tier" research which may not be counted in the tenure/promotion process. As several respondents indicated, assessment activities favor two faculty groups: 1) those in social/behavioral disciplines, and 2) those whose professional research activities "fit" with assessment research.

Drawing from the experiences of the project directors, there appear to be several general guidelines for establishing and maintaining faculty participation:

1) **Educate participants about the value of assessing student outcomes.** The motivation required to commit to outcomes assessment is dependent upon a general perception that this effort will provide payoffs. The general descriptions of outcomes attained (refer to survey results) provide more than adequate examples of the benefits achieved by effective programs. On an individual basis, participation will be enhanced if assessment activities are an integral part of the faculty performance criteria.

2) **Maintain local control of the project.** Support was never achieved in one project partly because the

program was perceived as "someone else's grand plan that got shoved down our throats." Support for another project was in jeopardy when the local faculty senate returned the project's proposal as an external mandate.

3) **Overcome the "threat" associated by many faculty with assessing outcomes.** Many directors reported the suspicion expressed by their faculty concerning the intended use of the data collected. Faculty often saw the potential for information obtained to be used as a club to punish programs or individuals rather than as a constructive tool for self-development.

The importance of the development of administrative support was consistently reported across projects. Data from the majority of respondents suggested that "in-kind" resources, publicity, campus-level coordination, and establishing a climate receptive of assessment initiatives were important positive contributions of administrative offices. Even in this positive environment however, data indicate that more concrete evidence of integration of the assessment agenda in campus-level policy and in concrete recognition of assessment activities for professional development are needed.

Two general prescriptions can be made on the basis of director responses. The first deals with the establishment of administrative support, the second partially defines the nature of the support sought:

1) **Educate administrators about the value of assessing student outcomes.** Just as executives of business organizations value economic indicators for their companies, educational administrators need to understand the potential value of performance feedback inherent in the assessment of student outcomes. They must also be sensitized to the need for discretionary, constructive use of such data. The validity of departmental reports will quickly erode if messengers delivering "bad news" are shot.

2) **Administrators should recognize and reward the development of outcomes assessment in one's field as legitimate professional development.** Many directors reported that contribution of time to outcomes assessment was unrealistic for all but senior, tenured faculty who could afford to "waste some time." The term "waste" was used only in reference to the potential for recognition of these efforts by chairs, deans, and department/school/university evaluation committees in control of the retention, promotion and tenure process.

Finally, project directors' training/experience in measurement and analysis was key to project effectiveness, and here there were important differences. Some project directors reported dismay over the difficulties in learning assessment procedures as the project progressed. A number of respondents echoed the sentiments of one director who felt that the project lost momentum "just as experience and proficiency began to develop."

These observations clearly suggest the importance of training in outcomes assessment for those administrating assessment development. Two general prescriptions flow from the comments made by project leaders:

1) **Assess the training/experience of project directors specific to assessing student outcomes.** General knowledge and experience as an educator is not enough. This report's "assessment" of relevant knowledge was dependent upon self-report. This approach appeared satisfactory, producing large variance in the levels of described outcomes assessment expertise.

2) **Provide continued opportunities for training in and exposure to outcomes assessment.** Many of the directors reported that the system-wide conferences and reports on outcomes assessment had been responsible for kindling their interest in the process. If faculty-based outcomes assessment is to be "institutionalized" within the CSU, we must continue to share knowledge.

Methodological Variables

The key methodological variable was the development or adoption of adequate measures of student outcomes. Adequacy of measurement implied several aspects. The first is the simple psychometric properties of the assessment. This involves the reliability and validity of the assessment procedures. As an example of awareness of measurement adequacy, several directors did an excellent job of assessing the inter-rater reliability of judges producing qualitative assessments of student projects or papers. Others spent considerable time and consulted widely with their peers to evaluate the content validity of their assessments. This process often had positive, retroactive impact on curriculum and teaching strategies.

Multicultural sensitivity also contributed to the adequacy of measurement, especially in reference to the inferences drawn from assessment scores. A critical question for directors to ask was, "what assessment procedures will provide all students with an equitable opportunity to demonstrate their competence?" This consideration should result in the production of multiple, more creative indices that would provide a more comprehensive picture of student achievement.

Multiple types of assessment also enabled directors to obtain feedback on more than one type of outcome. Rather than focusing solely on content or cognitively-based outcomes, additional measures of affective and attitudinal variables resulted in a much richer, more complex basis for judgements of

program adequacy.

The bottom line is that measures cannot be haphazardly developed or selected. Future faculty initiators of student outcomes assessment should not be told if, when, and what to assess, but most may benefit from technical support in reference to how to assess.

The following summary prescriptions are derived from observations related to procedural and measurement adequacy:

1) Clearly define educational objectives. The nature of the assessment tools cannot be determined until the desired outcomes are described. Several directors reported that healthy re-evaluations of their curriculum and program goals were a necessary precursor to the development of the actual assessment instruments.

2) Assess multiple outcomes. Directors indicated that since educational objectives were seldom unidimensional, it made little sense to attempt to assess educational criteria with a single measure. The richest data sources enabling the clearest assessment of program outcomes involved combinations of content tests, performance-based demonstrations, attitude assessments, affective measures, etc.

3) Sensitivity to test fairness across constituent groups. Not all directors dealt with this issue, but those who did provided ample evidence of differential performance across groups. Though some differences may validly reflect the results of disadvantaged preparation for higher education, assessment procedures must minimize performance deficits related to native language differences and/or content that contains cultural/socioeconomic bias.

4) Assessment of measurement reliability/validity. The importance of this recommendation cannot be over-emphasized. If an assessment instrument does not possess adequate psychometric properties, it provides no basis for meaningful inference concerning the relative performance of the student or the success of the academic program. No amount of faculty and administrative support will save a project based on faulty measurement.

Outcomes

The adequacy of project outcomes to provide direction for future assessment initiatives is a critical dimension of project effectiveness. Evidence for many of the direct and indirect outcomes anticipated in the model for the study proved difficult to evaluate, in part because some of the target outcomes are long-term effects which would require longitudinal measurement. In addition, some data on outcome variables were still being collected as project final reports fell due, so did not get included as outcomes.

The outcome which may be the best index of project effectiveness appeared to be dissemination of results. Project directors' verbal reports consistently underscored the importance of information sharing as an outcome of project involvement. Moreover, the projects with explicit descriptions of plans for dissemination to an identified audience in their early goal definition continue to be active in publishing results. Further study of these projects and their results should provide additional direction for future strategies in faculty-initiated assessment programs.

REFERENCES

Ewell, P.J. (1991). To capture the ineffable: New forms of assessment in higher education. In G. Grant (ed.), Review of Research in Education, 17, 00. 75-125. Washington, DC: American Education Research Association.

Miles & Huberman (1984). Qualitative Data Analysis: A Sourcebook of New Methods. Beverly Hills: Sage.

Table 1 : CALIFORNIA STATE UNIVERSITY PILOT PROJECTS IN STUDENT OUTCOMES ASSESSMENT

Campus	Project Title & Focus
CSU Hayward, San Francisco SU, and San Jose SU	Assessment of Majors: A Three-Campus, Three Discipline Model Focus: Development of comprehensive examinations for seniors biology, economics, and mathematics
CSU Fresno	Assessment of Undergraduate Reading Competence Focus: Assessment of student reading strategies and competence related to course assignments and library skills
CSU Fresno	Assessment of Undergraduate Writing Competence Focus: Assessment of student performance on the Upper Division Writing Exam as a function of course exposure and language proficiency
CSU Bakersfield	Knowledge and Attitudes in General Education: A CSU-Community College Joint Assessment Focus: Assessment of impact of GE course in Western Civilization on students' knowledge and values
CSU Fullerton	Student Outcomes Related to Curricular Variety in Gerontology Focus: Development of a model for cross-campus assessment of outcomes for interdisciplinary programs in gerontology
CSU Hayward	Assessment of Student Outcomes: A Basic Writer's Writing Program Focus: Development of a model for assessing outcomes in the Intensive Learning Experience writing course sequence
CSU Northridge	Student Outcomes Assessment in Academic Program Improvement in Theater Focus: Development of a performance-based mastery test for summative and formative assessment of student achievement in theater

Campus	Project Title & Focus
San Francisco SU	Assessing Outcomes for English Teacher Candidates Focus: Development of an "assessment course" to evaluate the subject-matter competency of teacher credential candidates in English language arts
CSU Chico	Outcomes Assessment of Four Classes of Nursing Graduates Focus: Development of a multi-measure assessment of nursing program graduates to identify trends in program effectiveness from 1983 - present
Sonoma SU	Integrating Student Outcomes Assessment into the Curriculum Focus: Development of a portfolio system to assess formative and summative outcomes for students in an interdisciplinary liberal studies program
CSPU, Pomana	Enhancing Quality by Assessment: A General Education Project Focus: Development of a comprehensive assessment program for an Interdisciplinary General Education Program
CSU Bakersfield	An Empirical Evaluation of Five Baccalaureate Social Science Programs Focus: Development of a model to conduct longitudinal assessments of student performance and perceptions of degree programs in anthropology, economics, political science, psychology, and sociology
San Diego SU	Student Outcomes Assessment: Liberal Studies Major Focus: Development of a multi-measure assessment program for student outcomes in liberal studies

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Table 2: Project Raw Scores on All Variables

VARIABLES	PROJECTS 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PLANNING PARTICIPATION	1	2	2	1	2	3	1	2	3	1	4	2	1	1	4	4
FAC PART IN PROJECT	2	4	2	1	2	2	4	2	3	2	4	3	2	4	4	4
FACULTY OWNERSHIP	1	4	2	1	1	2	3	1	3	1	4	2	1	2	1	4
CONSENSUS WITH PLAN	3	4	2	1	3	2	2	3	3	3	4	3	1	3	1	3
PERCEIVED WORKLOAD	3	4	3	1	1	2	2	2	3	4	2	4	4	4	1	1
DIRECTOR'S TRAINING	3	3	3	1	2	3	3	3	4	4	4	3	4	2	3	3
FACULTY TRAINING	2	4	1	1	1	3	2	1	3	1	4	2	1	1	1	3
DIRECTOR'S ACAD EXP	4	4	3	4	1	3	4	3	3	3	2	4	2	2	3	3
BUDGET & SUPPLIES	3	3	3	3	2	3	1	1	3	4	1	4	4	4	2	3
ADMINISTRATIVE SUPPORT	2	3	4	1	4	3	4	3	3	4	4	3	4	4	3	4
STUDENT SUPPORT	3	3	4	1	4	3	3	2	4	2	3	2	3	4	2	4
PREVIOUS ASSESSMENT	1	4	2	4	1	1	1	3	4	2	4	4	4	1	1	1
MESH WITH EXISTING PRGS		3	3					1	3	4	2	2	3			
CONTENT DOMAIN	1	1	1	1	2	3	3	1	1	2	1	3	2	2	3	3
BREADTH OF AUDIENCE	2	2	2	2	2	3	2	3	2	4	2	3	4	2	1	4
GOAL DEFINITION	2	2	2	2	2	3	3	2	4	4	4	2	4	2	4	4
SELECTION OF OUTCOMES	2	2	2	2	2	3	3	2	4	4	4	2	4	4	4	4
MEASURES DEVELPED	2	2	2	2	2	1	3	3	3	4	3	2	4	4	3	3
DATA COLLCTN/REPORTING	2	2	2	2	2	1	3	2		4	3	2	4	4	3	3
MEASURMENT PROPERTIES	1	1	1	1	1	1	1	1		3	2	1	3	3	2	4
STAT ANALYSIS	1	1	1	1	1	1	1	2		3	1	2	3	3	2	3
MULTICULTURAL ISSUES	1	1	1	1	1	1	2	1		4	3	4	4	4	3	4
DEVELOPMENT OF MULT MEAS	3	4	3	3	3	1	4	4	4	4	4	4	4	4	4	3
REPORT COMPREHENSIVENESS	2	2	2	2	2	2	2	3		4	3	3	4	3	3	3
UTILITY/ECONOMY	2	2	2	2	2	1	2	2	3	2	2	2	2	2	3	2
PROJECT CONTINUING	3	1	3	1	1	1	4	4	3	4	4	3	3	1	1	3
ADDITIONAL FUNDING	3	1	1	2	1	1	4	1	1	3	4	1	1	1	1	3
GAINS IN STUDENT ACH	1	2	1	1	4	1	3	2	1	1	2	1	1	4	1	2
CURRICULAR IMPACT	2	3	1	2	2	3	4	3	3	3	1	3	3	4	1	3
BETTER TEACHING	2	2	2	1	4	3	3	3	3	3	3	3	3	4	1	
FEEDBACK TO STUDENTS	3	4	1	3	4	1	3	3	4		4	3	3	4	1	
NEW MEASURES DEVELOPED	3	3	3	2	3	1	3	3	4	4	4	3	4	4	1	3
BETTER DATA USE	1	2	1	1	3	1	3	1	4	4	1	4	4	4	1	1
DISSEMINATION OF RESULTS	1	4	1	1	1	3	4	3	4	4	3	3	4	4	1	4
RECRUITMENT/RETENTION	1	2	1	1	1	2	3	2	1		2	1		1	1	2
ATTITUDES TOWARD ASSMNT	1	3	2	1	2	2	3	2	3	3	3	3	3	3	1	
MONEYS FOR ASSESSMENT	1	2	1	1	1	2	1	2	1	2	1	1		1	1	
VISIBILITY OF ASSESSMENT	1	3	3	1	1	2	4	4	3	4	4	3	4	4	1	
EXTERNAL ADOPTION	1	2	1	1	1	2	1	1	1		3	3	4	1	1	
AVG DIRECT OUTCOMES	2.11	2.44	1.56	1.56	2.56	1.67	3.44	2.56	3.00	3.25	2.89	2.67	2.89	3.33	1.00	3.17
AVG INDIRECT OUTCOMES	1.00	2.40	1.60	1.00	1.20	2.00	2.40	2.20	1.80	3.00	2.50	2.20	3.67	2.00	1.00	2.00
OVERALL AVG OUTCOME	1.56	2.42	1.58	1.28	1.88	1.83	2.92	2.38	2.40	3.13	2.74	2.43	3.28	2.67	1.00	2.58

Table 3: Predictor Variables Rank Ordered by Consistency with Overall Outcomes

Predictor Variables	Rank Order	Variance with Overall Outcomes
Adequacy of Measures Dev.	1	.73
Intended Breadth of Aud.	2	.75
Administrative Support	3	.76
Faculty Part. in Project	4	.77
Director's Training in SOA	5	.91
Perceived Faculty Workload	6	.95
Sensitivity to Mult Issues	7	1.06
Development of Mult Measures	8	1.10
Selection of Outcomes	9	1.12
Measurement Properties	10	1.22
Statistical Analysis	11	1.25
Faculty Consensus with Plan	12	1.27
Project Goal Definition	13	1.28
Faculty Ownership of Project	14	1.31
Data Collection/Reporting	15	1.39
Existence of Previous SOA	16	1.50
Faculty Training in SOA	17	1.60
Student Support of Project	18	1.60
Adequate Budget/Supplies	19	1.71
Content Domain	20	1.79
Report Comprehensiveness	21	1.80
Utility/Economy of Project	22	2.32
Director's Academic Exper.	23	2.41
Fac Participation in Planning	24	2.43

Table 4: Predictor Variables Rank Ordered by Consistency with Direct Outcomes

Predictor Variables	Rank Order	Variance with Direct Outcomes
Faculty Part. in Project	1	.56
Adequacy of Measures Dev.	2	.80
Administrative Support	3	.89
Faculty Consensus with Plan	4	1.00
Intended Breadth of Aud.	5	1.09
Development of Mult Measures	6	1.09
Faculty Ownership of Project	7	1.23
Selection of Outcomes	8	1.23
Perceived Faculty Workload	9	1.25
Sensitivity to Mult Issues	10	1.27
Student Support of Project	11	1.31
Director's Training in SOA	12	1.32
Measurement Properties	13	1.37
Statistical Analysis	14	1.48
Project Goal Definition	15	1.54
Faculty Training in SOA	16	1.63
Data Collection/Reporting	17	1.64
Content Domain	18	1.83
Existence of Previous SOA	19	1.85
Adequate Budget/Supplies	20	1.86
Utility/Economy of Project	21	2.07
Report Comprehensiveness	22	2.38
Director's Academic Exper.	23	2.41
Fac Participation in Planning	24	2.45

Table 5: Predictor Variables Rank Ordered by Consistency with Indirect Outcomes

Predictor Variables	Rank Order	Variance with Indirect Outcomes
Intended Breadth of Aud.	1	.66
Director's Training in SOA	2	.72
Perceived Faculty Workload	3	.86
Administrative Support	4	.89
Adequacy of Measures Dev.	5	.92
Sensitivity to Mult Issues	6	1.06
Project Goal Definition	7	1.17
Selection of Outcomes	8	1.17
Statistical Analysis	9	1.20
Faculty Part. in Project	10	1.22
Measurement Properties	11	1.24
Existence of Previous SOA	12	1.25
Development of Mult Measures	13	1.29
Data Collection/Reporting	14	1.36
Report Comprehensiveness	15	1.44
Faculty Ownership of Project	16	1.53
Adequate Budget/Supplies	17	1.62
Faculty Training in SOA	18	1.66
Faculty Consensus with Plan	19	1.69
Content Domain	20	1.80
Student Support of Project	21	1.96
Fac Participation in Planning	22	2.32
Director's Academic Exper.	23	2.33
Utility/Economy of Project	24	2.49

Table 6: Variance between Predictors and Outcomes with Predictor Variable Rank Orders*

Predictor Variables	Varnce with All Outcomes	Varnce with Dir Outcomes	Varnce with Ind Outcomes
Fac Part in Planning	2.43 (24)	2.45 (24)	2.32 (22)
Faculty Part. in Project	0.77 (4)	0.56 (1)	1.22 (10)
Fac Ownership of Project	1.31 (14)	1.23 (8)	1.53 (16)
Fac Consensus with Plan	1.27 (12)	1.00 (4)	1.69 (19)
Perceived Faculty Workload	0.95 (6)	1.25 (9)	0.86 (3)
Director's Training in SOA	0.91 (5)	1.32 (12)	0.72 (2)
Faculty Training in SOA	1.60 (17)	1.63 (16)	1.66 (18)
Director's Academic Exper.	2.41 (23)	2.41 (23)	2.33 (23)
Adequate Budget/Supplies	1.71 (19)	1.86 (20)	1.62 (17)
Administrative Support	0.76 (3)	0.89 (3)	0.89 (4)
Student Support of Project	1.60 (17)	1.31 (11)	1.96 (21)
Existence of Previous SOA	1.50 (16)	1.85 (19)	1.25 (12)
Content Domain	1.79 (20)	1.83 (18)	1.80 (20)
Intended Breadth of Aud.	0.75 (2)	1.09 (5)	0.66 (1)
Project Goal Definition	1.28 (13)	1.54 (15)	1.17 (8)
Selection of Outcomes	1.12 (9)	1.23 (7)	1.17 (7)
Adequacy of Measures Dev.	0.73 (1)	0.80 (2)	0.92 (5)
Data Collection/Reporting	1.39 (15)	1.64 (17)	1.36 (14)
Measurement Properties	1.22 (10)	1.37 (13)	1.24 (11)
Statistical Analysis	1.25 (11)	1.48 (14)	1.20 (9)
Sensitivity to Mult Issues	1.06 (7)	1.27 (10)	1.06 (6)
Develpmnt of Mult Measures	1.10 (8)	1.09 (6)	1.29 (13)
Report Comprehensiveness	1.80 (21)	2.38 (22)	1.44 (15)
Utility/Economy of Project	2.32 (22)	2.07 (21)	2.49 (24)

* Rank Orders in ( )

FIGURE 1: Conceptual Model