Sustaining Community-Based Programs for Families: Conceptualization and Measurement*

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A conceptual model for evaluating community-based program sustainability is presented, along with a 53-item Program Sustainability Index (PSI). Structural equation modeling (SEM) and principal axis factor analysis indicate strong support for each of the seven elements of the PSI. When considered as an overall model, six of the seven framework elements were retained. Internal consistency for each subscale was acceptable, and acceptable performance validity was demonstrated when the subscales were contrasted with middle-range program results. These findings are discussed with regard to next steps in the conceptualization and measurement of program sustainability, as well as implications for planning and implementing community-based programs for families.

Community-based programs are important in the service delivery system in many communities; yet there is a lack of knowledge about how programs are sustained (Lerner, 1995), including inadequate systematic conceptualization and associated measurement of sustainability. Funding providers and the professionals who receive their funds are obligated to work toward sustaining programs. The poignancy of this obligation was expressed by a service provider who said,

> We have a responsibility to our program recipients; they've had so many losses in their lives and for us to come in for a year or two or three and give them hope, only to have the program go away, we've just caused another loss and a further loss of hope in their lives. (Akerlund, 2000, p. 353)

Our purpose in this article is to present a community-based program sustainability conceptual model and a multifactor measure that corresponds to the model.

Toward a Theory of Program Sustainability

There are three dimensions in our conceptual framework logic model: elements associated with sustainability, middle-range program results, and an ultimate result of the program being sustained (see Figure 1). We assume that sustainability elements lead to desired middle-range program results and that these desired results increase the chances of a program being sustained (ultimate result). Sustainability elements also may be related directly to the ultimate result of a program being sustained. We examine linkages between sustainability elements and selected middle-range program results in the course of discussing the Program Sustainability Index (PSI), a measure of the sustainability elements.

Sustainability

Sustainability is the capacity of programs to continuously respond to community issues. A sustained program maintains a focus consonant with its original goals and objectives, including the individuals, families, and communities it was originally intended to serve. Programs ebb and flow and wax and wane regarding the breadth and depth of their programming. Some contract and others expand, whereas others maintain original program activities. Some become aligned with other organizations and established institutions, whereas others maintain their independence (LaFond, 1995; Shediac-Rizkallah & Bone, 1998). Certain programs offer the same prevention activities for years, and others introduce different activities that remain focused on their general goals and objectives. The key element of sustainability is providing continued benefits, regardless of particular activities delivered or the format (institutionalization versus

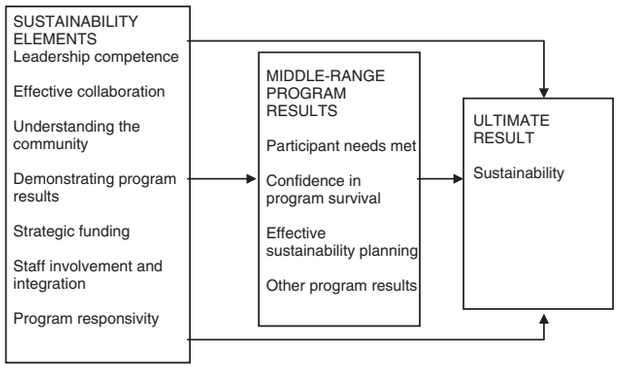

Figure 1. Model of community-based program sustainability.

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independence) in which they are delivered. Thus, it is more important to sustain benefits to families and communities than to sustain program activities per se.

Elements of Sustainability

Our framework contains seven major elements of sustainability: leadership competence, effective collaboration, understanding the community, demonstrating program results, strategic funding, staff involvement and integration, and program responsivity. These elements are mainly within the control of program leaders and stakeholders, but a program may have limited life because of factors outside the control of the program, such as state or local budget shortfalls or the emergence of other programs and organizations.

Leadership competence permeates most aspects of an organization, because leaders are the designated instigators for initiatives and provide quality control. Activities that contribute to high-quality programs are the responsibility of leadership and include: clearly developing and articulating a program's vision and objectives; performing regular needs assessments; ongoing program planning and adaptation; program evaluation; securing funding; fiscal management; supporting and supervising staff; and providing staff training (Akerlund, 2000; Blythe, Tracy, Kotovsky, & Gwatkin, 1992; Bossert, 1990; The Finance Project, 2002).

Effective collaboration involves identification of relevant stakeholders who actively support program goals and who have clearly identified responsibilities (Bamberger & Cheema, 1990). A community's most desired results usually are best accomplished by organizational collaboration (Altman et al., 1991). It is important that the various organizations involved have a shared vision in order to sustain the community effort (Goodman & Steckler, 1989). Collaborative efforts build a broad base of support in the community and of key stakeholders for program implementation, program success, and program sustainability (Altman et al.; Bamberger & Cheema; O'Loughlin, Renaud, Richard, Gomez, & Paradis, 1998; Ponzio, Peterson, Miller, & Kinney, 1994).

Understanding the community entails having knowledge of community needs and resources, having respect for community members, and involving key community members in programs. Understanding the community context in which programs function has an important influence on program sustainability and success. Programs that are unable to "connect" with the community fail to serve the people whom they ostensibly aim to serve (Altman et al., 1991). Capacities of a community and of programs are increased when connections are substantial, and when the community is committed to its programs (Mancini, Martin, & Bowen, 2003). The community's commitment level can be a facilitator or an obstacle in sustaining a successful program (Altman et al.; Mancini et al.). Factors in the community environment important for sustaining programs include socioeconomic and political considerations, community participation in programs themselves, honoring community values and cultural relevance, cultivating key community leader support, and using indigenous staff (Holder & Moore, 2000; Laken & Hutchins, 1995; Pentz, 2000; Shediac-Rizkallah & Bone, 1998); these assist a community-based program in becoming community engaged.

Demonstrating program results is the evaluation of program processes and outcomes using acceptable research methods and informing stakeholders of the results of those evaluations. Demonstrating program results often is difficult for community-based programs; yet the outcomes of including evaluation of program activities can become important for program success (Mancini, Marek, Byrne, & Huebner, in press). To support sustainability, evaluation must assess the intervention and subsequent program modifications, focusing on measurable program results (The Finance Project, 2002; O'Loughlin et al., 1998). Evaluation findings can then be used to leverage current successes for securing future funding and for establishing program professionals among experts in the community (Holder & Moore, 2000; Laken & Hutchins, 1995).

Strategic funding includes having plans and resources in place to support current and prospective program requirements. Strategic funding provides an essential basis for program continuity, particularly for those programs that are not associated with a larger organization (Goodman & Steckler, 1989). Intentional planning for continued funding includes an analysis of short-term and long-term funding needs, developing a range of financing options, and recognizing that sustainability is enhanced when there is diversity in funding support (Akerlund, 2000; The Finance Project, 2002). Diverse sources of funding increase the odds of having sufficient funding for short-term and long-term program development and implementation (Goodman & Steckler).

Staff involvement and integration is the inclusion of committed, qualified staff in program design, implementation, evaluation, and decision making. Staff involvement develops a culture that values broad-based participation in working toward program sustainability and success (Goodman & Steckler, 1987–1988). Supporting program goals occurs more readily when staff are important components in the organization and make the organization their own. Having staff who are indigenous to the community being served strengthens the ties between staff and the environment (Holder & Moore, 2000). Further, program longevity is increased when staff education and training are matched with program goals and needs, and when staff possess competent performance levels (O'Loughlin et al., 1998).

Program responsivity is the ability of a project to adapt programming to meet changes in community needs. Sustained and successful programs are flexible rather than static (Bamberger & Cheema, 1990; The Finance Project, 2002), and although programs may maintain their overall program goals, activities and priorities may need adjustment to address evolving issues and contexts (Holder & Moore, 2000; Laken & Hutchins, 1995). An important consideration in program development is the degree to which it can be modified to continually meet changing community contexts (Akerlund, 2000).

Middle-Range Program Results

We also include middle-range program results in our model, those results intermediate to a program actually being sustained. These results are aligned with a program being sustained, but because they are not end points, they are objectives (short term) rather than goals (long term). Here we assessed certain middle-range program results: continuing to provide and focus on the original program goals (in our case, meeting the needs of at-risk children, youth, and families), planning for sustainability, and having confidence in project survival. These are not the only viable middle-range program results, but they exemplify results closely associated with ultimate sustainability. Other examples

include the degree to which a particular program within a host organization is perceived as permanent by leadership (Goodman, McLeroy, Steckler, & Hoyle, 1993), and the number of years that funding is in place (Shediac-Rizkallah & Bone, 1998).

Ultimate Result: A Sustained Program

Whether a program is sustained is the ultimate outcome in our model. We already noted our assumptions about how ultimate sustainability may be related to the sustainability elements and to the middle-range program results. It is important to clarify exactly what sustainability means and how it is measured. For example, Goodman and associates (1993) found that the number of years of existence in the organization was related to a program becoming part of the organizational routines, but unrelated to whether the program was functioning to full capacity. In the former case, it might be concluded that a program was sustained, but in the latter case, it might not be considered sustained. In our model, either sustainability elements or middle-range program results are directly related to sustainability. What is ultimately important is whether a program is sustaining benefits to families and communities. Thus, our goals were to develop a model-based valid and reliable assessment tool for planning and implementing programs, as well as an index useful for research on programs.

Method

The Sample

Data were collected in spring 2001 at the annual meeting of USDA's Children, Youth and Families at Risk (CYFAR) initiative. Human development and family life professionals who work at local, regional, and national levels of program development and evaluation voluntarily completed a structured survey ($N = 243$). Over three quarters (77%) of respondents were associated with the USDA Children, Youth, and Families at Risk State Strengthening, Youth at Risk, or New Communities initiatives, that focus on community-based programs. Twelve percent of respondents were associated with family support programs in the military, and 11% were other civilian service providers not associated with USDA-sponsored community-based programs.

Measurement

The Program Sustainability Index (PSI) includes 53 items reflecting seven sustainability elements (number of items in parentheses): leadership competence (7), effective collaboration (12), understanding the community (9), demonstrating program results (7), strategic funding (5), staff involvement and integration (10), and program responsivity (3). These seven elements were determined through a series of earlier studies using mixed methods. Between 1996 and 1998, interviews were held with over 100 community program personnel. Interviews were open-ended so diverse descriptions of sustained programs could be elicited (Mancini & Marek, 1998). In 1998, a parallel set of open-ended questions was asked of over 4,000 program professionals who participated in a study of organizational change (Betts, Peterson, Marczak, & Richmond, 2001). Questions included in these preliminary studies focused on definitions, descriptions, and elements of sustainability. Qualitative results were used to inform a survey that focused on sustainability and was implemented from 1999 to 2003 with 153 community-based programs across the United States and its territories. Throughout this process of qualitative and quantitative research, the seven elements were identified as consistently contributing to sustainability.

Survey instructions on the PSI were: "The following is a list of project attributes. Using the scale provided, please circle the most appropriate response for your project. For those of you involved in more than one project, please choose the one with which you are most familiar and respond in reference to that project." Response choices were *not at all*, *somewhat*, and *very much*. Table 1 contains all 53 items in the PSI, with results from the final factor analysis to be discussed later. We have included items in the table that were not deemed suitable according to results of the fit between data and model (items not numbered), because within-factor analyses indicate that they are strong individual measures (see Table 2).

To address PSI construct validity, three middle-range program results items were included from Figure 1. The first question asked, "To what extent does this project's current programming meet the needs of at-risk children, youth, and families?" Response choices were *not at all* (chosen by 1% of respondents), *somewhat* (9%), *moderately* (60%), and *fully* (30%). A second question asked, "When did program leaders begin actively planning for this project's survival (post-funding)?" Response choices were: *during the initial program proposal phase* (chosen by 35% of respondents), *during the first* (26%), *second* (14%), *third* (16%), *fourth* (3%), or *fifth* (4%) year of funding, and *after the initial funding period had ended* (chosen by 2%). The third question asked, "How confident are you that your project will still be active in five years?" Response choices were *not at all* (chosen by 7% of respondents), *somewhat* (50%), and *very confident* (43%).

Data Analysis

Data were primarily analyzed using confirmatory factor analysis using the EQS structural equation modeling program (Bentler & Wu, 2003). This program imputes missing data using maximum likelihood (ML) estimation with the expectation and maximization (EM) algorithm (Jamshidian & Bentler, 1999), permits correlated measurement errors, and provides a test of model to data fit (Bentler & Wu). One case was missing data on all 53 variables and deleted, leaving 242 cases. In the estimation of all models in EQS, we requested both ML estimation and robust estimation (Yuan & Bentler, 1998). Robust estimation indices of fit were better than those provided by the more customary ML estimation methods, but we report the ML results to err on the conservative side.

It is customary to use χ^2 as a first-level indicator of fit, with a nonsignificant result being desirable. Because this statistic is sensitive to sample size, and consequently, a model may be mistakenly rejected, we employed several alternative fit analyses. Two incremental fit indices were used: the Tucker-Lewis index (TLI) and the comparative fit index (CFI). The TLI also is known as the nonnormed fit index (NNFI) and can exceed 1.0 for well-fitting models. Two absolute fit indices also were used, the standardized root mean squared residual (SRMR) and the root mean squared error of approximation (RMSEA). Detailed discussions of these indices are found in Kline (1998) and Hu and Bentler (1999), and an example of their application in multivariate research on families can be found in Bowen, Mancini,

Table 1
Program Sustainability Index Items, Unstandardized Regression Coefficients (B), and Standardized Regression Coefficients (β)

Sustainability Elements and Items	*B*	β
Leadership Competence		
1. Leaders clearly established the project's mission and vision	1.00	.57
2. Leaders planned within the first 2 years for sustaining the project	1.64	.69
3. Leaders continue planning for sustainability	1.45	.67
4. Leaders developed and followed a realistic project plan	1.43	.69
5. Leaders have identified alternative strategies for project survival	1.62	.71
Leaders are committed to the long-term project goals	—	—
Community institutions (e.g. schools, social service agencies, etc.) are involved in program leadership	—	—
Effective Collaboration		
6. Local decision makers are project collaborators	.77	.58
7. Community service agencies are project collaborators	.83	.64
8. Collaborators are involved in program design	1.05	.73
9. Collaborators are involved in program implementation	1.00	.71
10. Collaborators are involved in program evaluation	.88	.62
11. Collaborators share responsibility for providing program resources	.91	.69
12. Collaborators share credit for project success	.94	.70
13. Collaborators have clearly defined roles and responsibilities	.73	.57
14. There is a shared vision among collaborators	.91	.68
15. Turf issues are resolved	.78	.58
Representatives from businesses are project collaborators	—	—
This project is part of the mission of participating institutions	—	—
Understanding the Community		
Community needs are regularly assessed	—	—
Community resources/assets are regularly assessed	—	—
Community resources are used by the project	—	—
Project goals are matched with community resources	—	—
The project accounts for diversity in the community	—	—
Community members are involved in program design	—	—
Community members are involved in program implementation	—	—
The project addresses key community needs	—	—
The project has strong local governmental support	—	—
Demonstrating Program Results		
16. Evaluation plans are developed prior to implementing programs	1.09	.75
17. Project effectiveness is demonstrated through evaluation	1.02	.80
18. Evaluations are conducted on a regular basis	1.08	.80
19. Evaluation results are used to modify programming	1.00	.73
Project successes are made known to the community	—	—
Project successes are made known to funders	—	—
Public relations (marketing) strategies are in place	—	—
Strategic Funding		
20. Current funding is sufficient for project operations	.65	.59
21. Funding is available on a long-term basis (at least 2 more years)	.71	.60
22. There is adequate funding for hiring and retaining quality staff	1.00	.90
There are plans in place for obtaining additional funding	—	—
There is a person responsible for grant proposal writing	—	—
Staff Involvement and Integration		
23. Staff are involved in program design	2.06	.78
24. Staff are involved in project decision making	2.03	.79
25. Staff are committed to the project mission, vision, and goals	1.22	.54
26. Staff are qualified to work on the project	1.00	.45
Staff are involved in program evaluation	—	—
Staff turnover is a problem	—	—
Staff are flexible and creative	—	—
Staff are recognized and rewarded for their work	—	—
Staff are adequately trained	—	—
Staff are from the community that the project serves	—	—
Program Responsivity		
27. Programs are eliminated when they do not meet community needs	1.00	.49
28. New programs are developed when community needs change	1.55	.85
29. Sites are consolidated as necessary	1.25	.55

Note. All 53 items of the Program Sustainability Index are contained in this table. Only items that were retained in the best fit between the model and data are numbered and have unstandardized coefficients and factor loadings beside them.

Table 2
Summary of Fit Indices for Program Sustainability Index Elements (N = *242*)

Factors	χ^2	df	TLI	CFI	SRMR	RMSEA
Leadership competence	10.79	9	.99	.99	.03	.03
Effective collaboration	53.29	47	.99	.99	.03	.02
Understanding the community	23.93	22	.99	.99	.03	.02
Demonstrating program results	6.05	10	1.01	1.00	.02	.00
Strategic funding	2.58	3	1.00	1.00	.02	.00
Staff involvement and integration	22.88	26	1.01	1.00	.04	.00

Note. All subscales are included except program responsivity, which contained only three items and consequently had an insufficient number of degrees of freedom to estimate measurement error correlations. All χ^2 results were nonsignificant.

Martin, Ware, and Nelson (2003). According to Hu and Bentler, the recommended fit standard for the TLI and the CFI is $\geq$.95. The TLI adjusts for model complexity by accounting for the number of parameters estimated in the model, and the CFI adjusts for sample size. The SRMR reports the average difference between the observed correlations and the correlations estimated by the model; its acceptable criterion level is $\leq$.08. The RMSEA also accounts for model complexity by paying attention to degrees of freedom; its level of acceptability is $\leq$.06. Kline noted that there is not a single clear standard for what qualifies as good fit and added that better fit is indicated when the model satisfies a number of fit index criteria.

After the initial confirmatory test of the model failed, we switched to an exploratory (or descriptive) approach to the data (principal axis exploratory factor analysis [EFA]); we felt that this data analysis would provide useful information to determine possible next steps. Several different solutions were estimated, and the results were compared. Once the best combination of variables was discerned, internal consistency was examined using alpha (Cronbach, 1951). Alpha is an estimate of the correlation between the mean of the items and the mean of another set of items randomly drawn from the same domain. The analysis program (Statistical Package for the Social Sciences, 2002) also indicates how reliability changes as each variable in a measure is excluded, so item influences on alpha changes can be recognized and scales improved as indicated. Construct validity was addressed by using bivariate correlations (one-tailed test of significance).

Results

The initial examination of the PSI indicated an unsatisfactory fit between the data and the model, $\chi^2[1304, N = 242] = 2428.17$, $p < .001$; TLI = .78; CFI = .79; SRMR = .08; RMSEA = .06. Even though SRMR and RMSEA were reasonable, the other fit indices were well below the standard of .95. Covariances and regression weights indicated correlated errors and double loading of variables on factors. Because the overall model did not fit well, a factor-by-factor analysis was conducted using a confirmatory factor analysis (CFA) approach to examine the internal structure of each scale. Each scale was analyzed separately. First, the model was estimated as indicated by the prior conceptual model. Modification indices were requested to identify correlated measurement errors as the scale items were presented together in the survey. The Lagrange multiplier tests provided by EQS suggested several pairs of correlated measurement errors. (Because the Program Responsivity scale had only three items, degrees of freedom were insufficient to estimate measurement error correlations, resulting in a saturated or just identified model.) In most instances, the correlated measurement errors were between adjacent items. Final fit indices for each factor are summarized in Table 2. For each scale there was excellent model fit. After assessing and improving the fit within each factor of the conceptual framework, the complete model was again analyzed, incorporating the correlated errors. Even allowing for correlated errors, there were many multiple loadings of variables, indicating complex relationships among variables. The model was still unsatisfactory, $\chi^2(1272, N = 242) = 1942.40$, $p < .001$; TLI = .87; CFI = .89, SRMR = .08; RMSEA = .05, though SRMR and RMSEA indices were reasonably acceptable.

After finding inadequate fit of the overall model, we turned to EFA so we could more precisely discern which variables were strongly attached to more than one factor and to identify items that did not load strongly on any factor. Using SPSS Version 11.5 (SPSS, 2002) we ran several principal axis analyses with oblique rotations, using all 53 items of the PSI. The principal components analysis was completed to provide an initial examination of the data. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy was .866, suggesting that the data were suitable for factor analysis. Fourteen of the eigenvalues were greater than 1.0; an inspection of the scree plot suggested that the number of factors might be between four and eight. Solutions of 4, 5, 6, 7, and 8 factors were estimated, followed by oblique (oblimin) rotation. After examining the results, we concluded that the 6-factor solution best described the data. This conclusion was based on several criteria: the original conceptual model, the magnitude of the factor loadings, the presence or absence of double loadings on factors, and the magnitudes of the eigenvalues following rotation.

An inspection of the loadings suggested that 29 of the 53 items clearly loaded on a distinct factor—that is, items loaded at least .30 on a factor, and this highest loading was at least .30 higher than their loading on any other factor. To be consistent with the CFA, if variable loadings were close to the criteria they were designed to reflect, they were retained; conversely, if a variable loaded marginally on a factor that it was not designed to reflect, it was not retained. Although use of these decisions introduces some error in the process, it has merit by being consistent with examining the fit between model and data. The results of this exploratory analysis were used in the final CFA analysis.

The 29 items that comprise the trimmed PSI were those that clearly loaded on six factors in the exploratory analysis. An entire element of the PSI was subsequently excluded from the final analysis. The nine items intended to measure "understanding the community" did not load clearly on any one factor. Several of these variables loaded about equally on three to four factors, indicating their lack of relevance to a single dimension of the conceptual framework. For most of the remaining six factors, internal consistency was acceptable: leadership competence (α = .81, 5 items), effective collaboration (α = .88, 10 items), staff involvement and integration (α = .76, 4 items), demonstrating program results (α = .85, 4 items), strategic funding (α = .76, 3 items), and program responsivity (α = .67, 3 items).

Six factors containing a total of 29 of the original 53 PSI items were entered into a final confirmatory factor analysis. We used a confirmatory approach so we could provide a description of the 29-item PSI, using indices that were comparable to those

resulting from the initial test of the full 53 items. This analysis, as with all previous CFA, accounted for correlated measurement errors. Results indicated that this final model was generally satisfactory and an improvement over earlier models, $\chi^2(353, N = 242) = 522.91$, $p < .001$; TLI = .91; CFI = .93; SRMR = .07; RMSEA = .05. Though the chi-square was still significant, the TLI and CFI were close to the standard of .95, and the SRMR and RMSEA exceeded standards of fit.

Table 1 includes the raw score regression weights and standardized regression weights for each of the variables in this final model. An inspection of the standardized regression coefficients (β) indicates that most factor loadings were in the .60 to .80 range, and only two loadings were below .50. These high loadings reflect the success of identifying variables and factors that were clearly related and that most closely corresponded to our conceptual model. The PSI is a new measure designed to assess elements of sustainability, and the findings show that the data fit the model reasonably well. However, the variability across the fit indices suggests that the measure, as well as the conceptual model, warrants further refinement.

Table 3 contains the interfactor correlations among the PSI factors, which range from .15 to .54, nine of which are .30 and above. These results indicate that sustainability elements are substantially interrelated. Leadership competence correlated most highly with all other factors. To examine the possibility that these correlations between factors might be indicative of one factor, we reparameterized the model and constrained the 15 correlations to be equal to 1.0. The fit for this model was as follows: χ^2 (368, $N = 242$) = 1317.11, $p < .001$; TLI = .56; CFI = .62; SRMR = NA; RMSEA = .10. As these models were nested, they were compared as the difference between the two χ^2 statistics and distributed as χ^2 with *df* equal to the difference in df: $\chi^2(15, N = 242) = 794.20$, $p < .001$. Thus, these results do not support a one-factor model.

As a final examination of the merits of the PSI, we inspected several middle-range program result variables as a method of addressing construct validity. In our conceptual model, the sustainability elements (measured by the PSI) were associated with several middle-range program result variables, including meeting the needs of children, youth, and families, the sustainability planning process, and confidence in project long-term survival.

Table 3
Factor Intercorrelation Matrix and Descriptive Statistics for Program Sustainability Index (PSI)

Factors	1	2	3	4	5	6
1. Leadership competence						
2. Effective collaboration	.44					
3. Demonstrating program results	.54	.26				
4. Strategic funding	.41	.16	.31			
5. Staff involvement and Integration	.39	.32	.37	.19		
6. Program responsivity	.44	.42	.28	.14	.37	—
M	1.45	1.28	1.37	1.13	1.67	1.28
SD	.46	.45	.53	.63	.39	.50
Alpha	.81	.88	.85	.76	.76	.67
Skew (z-score)	−4.00	−2.06	−4.70	−1.05	−6.14	−1.89
Kurtosis (z-score)	−1.20	−1.32	.22	−3.07	.37	−.93

Note. All PSI subscales are included except understanding the community, which was excluded based on results of the confirmatory factor analysis. Range for all factors was 0–2.

Items within each of the six PSI subscales were averaged to create scores. Table 4 contains the correlations among each of the six sustainability elements and these middle-range program results. Two types of correlations were computed. Pearson's *r* is a measure of linear association, and eta is a measure of nonlinear association. Any apparent discrepancies in levels of significance are a result of having to use more degrees of freedom to compute the eta coefficients. The primary question was whether the PSI factors were related to the middle-range program results in expected ways. We expected that each of the factors would be positively related to meeting the needs of at-risk families, to planning for sustainability, and to confidence that the project would be active in 5 years. Specifically, leadership competence, staff involvement and integration, and strategic funding were consistently related in the expected direction to these three program results. However, effective collaboration and program responsivity were related only to meeting the needs of at-risk children, youth, and families, and demonstrating program results was related only to meeting the needs of at-risk children, youth, and families and sustainability planning. Our expectations were fully supported with regard to meeting the needs of at-risk children, youth, and families (focus consonant with our original

Table 4
Pearson Correlations between PSI Elements and Middle-Range Program Results

Factors	Meeting At-Risk Needs ($N = 224$)	Planning Process ($N = 193$)	Confidence in Program Survival ($N = 223$)
Leadership competence	.18**	.22**	.20**
	(.20*)	(.25*)	(.33**)
Effective collaboration	.11*	.08	.04
	(.14)	(.11)	(.20*)
Demonstrating program results	.22**	.13*	.11
	(.27**)	(.21)	(.13)
Strategic funding	.17**	.24**	.18**
	(.17)	(.26*)	(.27**)
Staff involvement and integration	.19**	.19**	.16*
	(.23**)	(.28*)	(.32**)
Program responsivity	.12*	.05	.10
	(.17*)	(.19)	(.17*)

Note. Understanding the community is excluded in this table because of its lack of fit with the final CFA model. Nonlinear correlations, eta, in parentheses.
*$p < .05$. **$p < .01$. (one-tailed)

goals) and partially supported with regard to sustainability planning, and having confidence in long-term project survival.

Discussion

Sustainability Conceptual Model

Our model was conceived from the nexus of qualitative and quantitative research, the extant literature, and our experience as social and behavioral scientists—all elements that are important for the development of program theory (Mancini, Huebner, McCollum, & Marek, in press). Most of our research effort thus far has been focused on specifying the sustainability elements and variables that reflect those elements. Although recognizing that the sustainability elements should be interrelated to some degree, we also worked toward specifying elements that had a unique contribution to our model. The model and its PSI indicators reflected both independence and interdependence. Some items were distinctly related to a sustainability element, and some were not. Because an item did not load distinctly on an element does not mean that it was not an important discussion point concerning sustainability. Instead, from an empirical standpoint, it means that the item did not cluster sufficiently with a particular set of items.

Of particular note is the demise of the element titled ''understanding the community'' and its nine items. Although our analysis indicated its merits as a standalone measure, it was not a good fit within our overall model. Though attractive heuristically and conceptually, researching community-related elements and their effects is challenging (Coulton, 1995). The representation of the community element in the PSI was diffuse rather than distinctive and loaded modestly on many other elements (factors) in the overall model. Items from all elements except ''program responsivity'' were dropped from the final model. The element labeled ''staff involvement and integration'' also suffered relatively more item attrition, with more than half of the items failing to load distinctively or substantially. Moreover, the elements of ''leadership competence'' and ''effective collaboration'' survived the series of analyses relatively intact.

Sustainability Element Interrelationships

Thus far, our work did not focus on the interplay between sustainability elements, but our findings provide insight into these interrelationships. The sustainability literature suggests that leadership competence is an element that permeates most (if not all) facets of a program (Blythe et al., 1992; The Finance Project, 2002). An inspection of the factor intercorrelation matrix supports this contention. Leadership competence was substantially correlated with all other sustainability elements (4 of the 5 correlations above .40 involve leadership competence), and especially with demonstrating program results. Programs that have leaders who establish clear goals and actively plan and implement those goals, involve collaborators in the program in meaningful ways, implement evaluation findings, have funding in place for operations and for retaining quality staff, have staff who are thoroughly involved in the program, and that are able to respond to community changes are more likely to be sustained.

The only other factor intercorrelation above .40 that did not involve leadership competence was between effective collaboration and program responsivity. The ability of a program to respond to changing community issues is furthered by the collaboration it has with other organizations in the community. Conversely, it also may be that collaborations themselves are enhanced when programs are flexible and responsive, as opposed to static. There were several quite modest factor intercorrelations: those between program responsivity and strategic funding, those between effective collaboration and strategic funding, and those between effective collaboration and demonstrating program results. Though we often assume that aspects of program funding are always the most important element in sustaining a program, our results suggest that funding is not so closely related to elements of collaboration or to the ability of a program to respond to community change. Although we may assume that collaboration is another all-encompassing factor in program success, our results suggest that it has relatively little to do with either demonstrating program results or strategic funding. However, questions about the interrelationships among these sustainability elements cannot be adequately addressed in the absence of an analysis that examines pathways and linkages.

Middle-Range Program Results

Our study provides substantive information about how sustainability elements are linked to certain middle-range program results (i.e., meeting the needs of at-risk families, the sustainability planning process, and confidence in program survival). We indicated how our results provide some support for the performance (construct) validity of the PSI. Even though the correlation magnitude was less than desired, the direction of the coefficients is consistent with expectations; that is, all dimensions of sustainability were important for accomplishing a primary program goal of meeting the needs of at-risk children, youth, and families. However, this analysis does not permit us to address the relative importance of the sustainability elements.

Relationships between sustainability elements and the sustainability planning process measure were also in the expected direction, with four of six elements being significant. For example, higher scores on leadership competence, demonstrating program results, strategic funding, and staff involvement and integration were related to earlier planning for program sustainability. This finding is consistent with our advice to program professionals of the significance of early sustainability planning for program success. We also expected that the sustainability elements would covary positively with having confidence in the future of the program. This expectation was supported with regard to leadership competence, strategic funding, and staff involvement and integration. These findings have substantive importance, because leadership, funding, and staffing are likely the primary linchpins in program success and sustainability. Programs may be able to survive without strong collaboration, without demonstrating program results through research, and without being responsive to community changes, at least in the short term. However, they are less likely to be successful with poor leadership, little funding, and poorly involved staff.

Next Steps

Our theory and method require further thought and analysis. From a content validity perspective, our sustainability elements reflect other models in the literature; in general, we did not neglect a major area. The analysis yielded a multivariable measure that validly taps these elements. Interestingly, items that at face value should be consonant with the elements were found to

be less important. Our sample contained fewer than 250 respondents, and these respondents were fairly homogeneous. Because our results regarding the PSI are promising but not definitive, we recommend that future research retain all 53 items. Our analyses showed that each subscale measure was internally strong, and that when viewed holistically, certain items did not strongly connect with a particular element. However, the PSI response format should be modified to a 5- or 7-point scale so item variance expands. The current three-choice response format is likely incapable of capturing the nuances of program activity, leaving a wide gap between the total absence and total presence of a program characteristic.

Our conceptual model also requires additional consideration, especially with regard to the interplay among sustainability elements. We positioned all elements as equal in their relationship to middle-range program results and to ultimate sustainability. However, it is likely that one or more of them actually precede other factors. We might expect that leadership competence is prepotent and the primary element in the multiple pathways that lead to sustaining a program. Further consideration also should be given to a broader array of middle-range program results, such as shorter term results that enhance the likelihood of a program being sustained. So far, we have not examined our model and our measure against more objective criteria, which could include staff retention rates, participant outcomes (participant benefits that emanate from sustained, successful programs), and actual funding support. Ultimately, our model and measure should be examined against whether a program is sustained and at what level. We believe the conceptualization of sustainability itself is more complex than simply the question of whether a program continues to provide services. Rather than being seen as a dichotomy, sustainability might be more accurately measured via levels of program activity or via an assessment of the degree that current program goals are consonant with original program goals and the degree to which program benefits are available to communities. We recognize that diverse programs may present different sustainability profiles and that programs have life cycles (Marek, Mancini, & Brock, 1999). Consequently, sustainability models and measures must be flexible to allow for this diversity to avoid static approaches to program longevity and success. In summary, our findings support the merits of our emerging conceptual model and the merits of the Program Sustainability Index.

From Theory and Research to Professional Practice

Our findings suggest a roadmap for being intentional about sustainability efforts by virtue of the development and implementation of a sustainability plan. Intentionality is particularly important in light of research that discusses how early sustainability planning is an important step toward actually sustaining programs (Goodman & Steckler, 1987–1988; Laken & Hutchins, 1995; Shediac-Rizkallah & Bone, 1998) and that argues for the need to be ethically responsible for continuing programs once begun, particularly for those in the neediest communities (Akerlund, 2000). A major benefit for program professionals is the use of the PSI as a mechanism for program teams to develop, implement, and monitor a sustainability plan. We have used the PSI as an interactive assessment process to assist program teams in this planning (Marek & Mancini, 2001). As part of training, we transposed the PSI into a program sustainability checklist and requested that each team member complete it. We used a performance indicator approach by asking workshop attendees to respond to each item using three levels of assessment of their programs, in effect treating each item as a program goal, and then asking if the goal was met *fully*, *somewhat/partially*, or *barely/not at all*. After this individual assessment was completed, team members reported their perceptions of how their programs were responding to each of the elements based on the items for each element. Workshop attendees reported that, although they may have spoken of the need to sustain their programming efforts, they never did so as specifically as the PSI requires. Each team reached consensus on gaps in sustainability efforts and decided, as a group, what needed to be done, when it needed to be done, how it would be done, and who would be doing what to intentionally plan and implement a sustainability plan. Through asking and answering these questions, the framework for a sustainability action plan emerged.

Developing a sustainability plan is an entry-level activity rather than an endpoint. Once a program is implemented, the PSI can be used to monitor program supports and to continue to focus on sustainability elements. Using the PSI as a monitoring tool helps to appraise and prioritize the sustainability process, including strengths and gaps. Intentional efforts toward sustaining programs are dynamic and evolving, much like programming efforts. Sustaining programs is a process that benefits from continual monitoring and adaptation to meet individual, family, program, and community needs. The sustainability conceptual model and Program Sustainability Index provide program professionals with grounded, reliable, and valid information on which to build their sustainability efforts in an intentional, cohesive, comprehensive, and efficient manner.

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