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Valuing Assessment: Cost-Benefit Considerations

Randy L. Swing and Christopher S. Coogan

Foreword by George D. Kuh



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Abstract

Valuing Assessment: Cost-Benefit Considerations

Nearly every U.S. accredited college and university allocates resources to support assessment of student learning outcomes, satisfaction, and other measures of institutional effectiveness. But with only limited data about best practices in budgeting for assessment, colleges are left guessing how much they should spend on assessment to achieve the best return on their investment. The complexity of planning assessment budgets is increasing as institutions engage in a growing array of assessment activities and select from a rapidly expanding field of assessment service providers and instrument publishers. Whether deciding on direct or indirect resource allocations, there are many more opportunities for spending than resources available. So how can a campus know when enough spending is really enough?

There are no simple answers or even simple ways to calculate which expenditures should be counted, or not counted, as assessment costs. Certainly there are direct costs that are easy to identify and indirect costs, such as faculty time, that are far more difficult to estimate and that should be counted. Unfortunately, campuses may focus too much on controlling their spending on assessment without equal focus on maximizing the value of the benefits derived from assessment. The true cost of assessment is determined by comparing costs relative to benefits. As such, there are two opportunities for a campus to influence the cost of assessment; prudence in using campus resources (controlling expenditures), and assurance that assessment results produce tangible benefits (increasing the value). The application of basic cost accounting principles, good practices such as intentional design of assessment initiatives, and application of cost-saving approaches can inform decisions about resource allocations in support of assessment.



Foreword

As the saying goes, if you want to know what an institution values, follow the money. Over the past year, more people have become more interested in understanding to what ends institutional resources are being used as both public and private colleges and universities make do with less.

Following the money has its own connotation when looking at the assessment landscape. While some categories of institutional expenditures are essential – faculty and staff salaries, utilities, student financial aid and such – other expenditures are discretionary. Up until the past decade, assessment of student learning outcomes often fell into the latter category. But with unrelenting external pressure to provide evidence of student and institutional performance, the resources targeted to assessment activities now total non-trivial sums on many campuses. At the same time, campus administrators have been pretty much left up to their own devices to determine how much their institution should spend on various kinds of assessment approaches.

In this NILOA Occasional Paper, Randy Swing and Christopher Coogan examine the “what should assessment cost” question. It’s hard to imagine a duo with better credentials and perspectives to tackle the issue. Now the executive director of the Association for Institutional Research, Swing was a campus assessment coordinator for many years and later helped scores of campuses develop assessment schemes working with John Gardner and others at the Policy Center for the First Year Experience. Coogan’s work in financial affairs in both the private and public sectors gives him a reality-tested perspective on how cost accounting can be used to understand what organizations spend on various activities and whether those expenditures are mission relevant. The fusion of their conceptual understandings and front-line experiences produced a compelling, accessible analysis of what should be considered when estimating the costs of assessment.

As Swing and Coogan point out early in the paper, the field does not have data showing what institutions spend on assessment and what they get for the investment. As a result, it’s not possible to suggest appropriate or desirable expenditure amounts for various assessment activities in different types of institutional settings. Indeed, so little is known about actual assessment expenditures and benefits that any attempt to recommend what, for example, a small independent college should spend compared to a large university is an abstract exercise, intellectually interesting but possibly devoid of practical significance.

But there are many other questions that when addressed can help faculty and staff responsibly determine whether resources should be devoted to certain assessment activities. Among the more important of these topics is fairly estimating the direct and indirect costs of assessment. Another is deciding what should and should not be included when calculating what student outcomes assessment actually costs. A third is if and when assessment can appropriately be considered an expense or an investment. This naturally leads into a discussion of the benefits of assessment, a topic that eludes easy resolution. Even so, Swing and Coogan insightfully suggest helpful ways to think about this and related issues.

We are grateful to Swing and Coogan for systematically unpacking what needs to be taken into account when allocating resources to the assessment of student learning outcomes. The value of their contribution will only increase over time as campus leaders and others more consistently account for the costs and benefits of assessment efforts.

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Valuing Assessment: Cost-Benefit Considerations

Randy L. Swing and Christopher S. Coogan

Assessment in postsecondary education has come of age. Abstracts from assessment and institutional research conferences indicate that good practices in assessment have deepened and broadened as the array of measurement, data collection, and reporting tools has expanded and the scholarship of assessment has grown over the past two decades. Educators and policy makers are asking increasingly sophisticated questions about how best to address improvement and accountability goals in postsecondary education settings (Ewell, 2009). They also are asking whether institutional spending on assessment is really cost effective.

Only limited information exists on institutional spending on assessment. The National Institute for Learning Outcomes Assessment (NILOA) found that campuses are undertaking a wide array of assessment activities and that most are doing so on a shoestring budget (Kuh & Ikenberry, 2009). Although the study did not capture detailed cost data, a corollary follows that demands are increasing at institutions for resources to mount these new and diverse assessments of student learning outcomes, satisfaction, and measures of institutional effectiveness.

It is tempting to call for a national study of spending on assessment, but even if such data existed it would lead to further questions about whether the resources were being used wisely. We hold that it is not how much institutions spend, but the ratio of their spending to the benefits gained that should be the focus of campus conversations about spending on assessment activities. In this paper we explore the cost-benefit dynamic of assessment to provide a foundation for campus conversations about budgeting for, and investing in, assessment activities. Whether those assessments are conducted to meet accountability demands or for institutional improvement, the focus should remain on the relative benefits of the assessment activity. To do so requires good financial estimates of how much is spent (instruments, personnel time, technology support, etc.) and the value gained by the use of assessment results.

Campuses must certainly make realistic budgeting decisions about assessment costs, and a lot of opportunities exist to spend on assessment activities. The development of commercial assessment products and services—from survey instruments and data collection processes to analytics and report dissemination software—has grown into a major industry in support of higher education. Higher education spending on assessment activities has clearly caught the eye of for-profit businesses, which have responded with data management, collection, and reporting systems as well as surveys and assessment instruments (Hutchings, 2009). Even organizations and companies that focus primarily on providing other educational support services are adding assessment components to their lines. Blackboard, a provider of course delivery software, for example, has added the “Blackboard Outcomes System” to collect electronic portfolios, manage surveys, and track standards of performance at the course level (Jaschik, 2007). Victor Borden (2010), in a project supported by the American Council on Education (ACE), the Association for Institutional Research (AIR), and NILOA, located over 250 assessment instruments and services specifically designed for purchase by higher education entities (see www.airweb.org/measuringquality).

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Concerns about the cost of assessment are not new. Noting that questions about cost were on the agenda of regional accreditation agencies as early as 1991—when NCA made the statement that assessment programs should be cost effective—Cecilia López (1999), former Associate Director of the Higher Learning Commission of the North Central Association of Colleges and Schools (NCA), said, “NCA has explained that by ‘cost-effective’ it means the program must be designed so that maximum information is gathered for the time and money given to all assessment staffing and activities” (p. 29). Early debates about whether campuses should devote resources to assessment activities have largely been settled. Assessment is not an optional activity for regionally accredited colleges and universities. Campuses must invest resources in assessment activities. But how much spending is enough?

We will explore this question by focusing on ways to determine the optimal balance of an institution’s spending on assessment (cost) and its return on investment (benefit)—a dynamic that will vary for each institution at particular points in time. That state of balance lies between two undesirable states of imbalance: 1) a deficient model with too little assessment conducted to be meaningful or 2) an excessive model with data collections and assessment findings that overwhelm the institution’s capacity to absorb and use them.

To that end, this paper does not define a specific dollar amount that campuses should spend on assessment. In fact, at the base of the assessment movement is a rejection of *input only* or *counting-based measures* of quality such as the number of books in the library, the number of faculty with Ph.D.s, or the number of student applications (see Rogers, 1986, for example). To rank institutions on the amount they spend on assessment would be tomfoolery. This paper focuses, rather, on assessment cost as the ratio between the resources used and the benefits gained. We begin by applying standard financial metrics to the unique work of assessment—describing what to count (and not to count), how to classify what counts, how to measure what counts, and how to know when enough is enough. Finally, we provide guidance about how to control costs and improve the value of assessment results. At the end of the day, improving the cost side of the equation or the benefit side can have drastic effects on the overall cost-benefit ratio. Restated, while spending matters, it is equally important that the results gained yield a positive return on investment.

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What Counts?—Direct and Indirect Spending on Assessment

Answering “What counts?” is difficult because colleges and universities seldom employ the activity-based costing systems that allow clear tracking of expenses for specific programs (Wellman, 2010). In the absence of the requisite knowledge, training, and/or accounting systems, there is little hope of determining the precise cost of assessment. Theoretically, it is possible to identify every direct and indirect cost associated with assessment, but the institutional resources that would be required to accomplish such accounting would be greater than the potential benefit. Even with rough estimates of benefits derived from assessment efforts and correspondingly rough estimates of expenditures, we can have enough precision to develop a useful measure of cost-benefit.

The difficulty of answering “What counts?” is compounded in that assessment is an educational activity without clean edges. Some assessments might rightly be considered feedback to students, a core aspect of good teaching, as well as measurement of student learning. Other assessments are based on data that must be collected and reported for other reasons (e.g., enrollments and completions by race and gender) but are also useful for measurement of student learning, satisfaction, and the impact of college experiences. And,

in terms of faculty development and training, there is considerable overlap between professional development in assessment concepts and good teaching/grading practices in general (e.g., use of multiple data sources and collection points).

In establishing the cost of an assessment program, Ewell and Jones (1986) proposed counting four categories of expenses: 1) instrument costs, 2) administrative costs, 3) analysis costs, and 4) coordination costs (salaries/benefits and overhead). Picus (1994), building on lessons learned from K–12 testing programs, specifies expenses associated with training and program evaluation as unique assessment cost categories. The main focus in both sets of categories is on identifying *direct* costs—with the acknowledgment that *indirect* costs are significant but difficult to estimate.

The State Council of Higher Education for Virginia (SCHEV) proposed a process to systematize accounting for assessment costs across institutions (Harper, 2009). Using a variation of the categories proposed by Ewell and Jones, SCHEV identified five categories of direct costs: 1) instrument costs, 2) data analysis costs, 3) delivery costs, 4) software licensing costs, and 5) stipends for faculty or assistants. SCHEV also provided recommendations for establishing the indirect costs of assessment based on a portion of the cost associated with “loaning” an existing resource to an assessment activity. The value of a loaned resource is largely determined by the amount of time the resource spends on assessment as a proportion of an annual salary (see further discussion later in this paper).

What IS NOT Included in an Assessment Cost Model?

To answer “What counts?” the place to start may be to decide which expenditures are not worth the effort to quantify and should not be included in the cost model. Assessment’s opportunity costs, i.e., the value of activities that could be conducted if assessment is not pursued, are worth acknowledging but they are not worth calculating. The absence of opportunity costs in this model should be noted only as a limitation—not a fatal flaw.

This assessment cost model also does not include implementation costs. Ewell and Jones (1986) recommended that the cost of implementing improvement should be estimated. Certainly some assessment findings will call for additional expenditures on improvements, but other findings might be addressed with little or no new resources. Still other findings may suggest eliminating certain activities, resulting in a budgetary gain.

Assessment is commonly assumed to be about finding problems and then fixing them with new initiatives, but not all assessment activities create costs. Good assessments also identify effective practices already in place and guide educators in protecting and maintaining those practices—often with no new expenditures. Identifying and protecting effective practices can be as important a function of assessment as identifying and improving areas of weakness. No matter the outcome, the resources to implement assessment findings should be anticipated and assured even without implementation costs in the model.

Sunk costs—incurred expenditures that cannot be recovered—should not be included in the assessment cost model for current or future assessment efforts. Postsecondary institutions often erroneously include these costs in their assessment decisions. Such costs are particularly relevant in assessment decisions about longitudinal data collections. Past costs associated with collection and storage of assessment data and/or unique systems designed to support longitudinal studies are examples of sunk costs in that they have no recoverable expenditures. More importantly, on many campuses there is an aversion to the perceived loss in ending existing practices, especially if there have been

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significant past investments in them. In decisions about spending, a formative evaluation of existing assessments should consider the future gain from continued expenditures rather than only considering the total of past expenditures. Particularly difficult are decisions related to closing down a longitudinal data collection effort. Avoiding the “loss” of sunk costs is a poor reason to continue spending on assessments that are of questionable or declining usefulness.

Lastly, the time-costs of administrators who use assessment findings for planning and improvement should not be counted. Using assessment to inform institutional decisions is a normal part of campus decision making and not a unique assessment activity. Some of the highest paid college administrators are certainly frequent consumers of assessment findings, but their time should not be considered in estimating the cost of assessment.

What IS Included in an Assessment Cost Model?

Direct costs should be counted in the total costs for assessment. These costs are often easy to identify although they are not always easy to isolate and recover from accounting records. Institutional expenses that clearly meet the definition of unique assessment expenditures can be traced to a voucher or procurement order and the direct payment to outside sources. Example purchases include

- surveys and tests
- software and hardware for assessment tracking, scoring, and analysis
- postage
- student incentive awards
- third-party scoring and/or reporting services
- access to benchmarking/peer comparison data (for example, the National Student Clearinghouse)

It is unlikely that these direct costs have been assigned to a specific “assessment cost” account code, however they do exist in the institution’s general ledger and could be identified as direct costs.

Personnel time—a significant portion of both a university’s budget and assessment costs—should also be counted, although higher education accounting systems are not organized to answer questions about the full personnel costs of any particular activity (Jenny, 1996). A portion of faculty time committed to the assessment of student learning is often considered part of the normal instructional load and, therefore, not a unique assessment-related expenditure. When faculty are involved in managing assessment or assessment activities aimed at institutional goals beyond their own classrooms or departments, however, their efforts should be considered *unique* assessment expenditures. While most faculty would have some assessment-related time commitment, only a portion of them would be engaged in assessment oversight and administration that should be included.

As a model, SCHEV (Harper, 2009) proposed that about 30% of an administrator’s time is needed to conduct a campus-wide assessment of a learning outcome goal. Faculty time ranges in that model from 10%, if the faculty role is limited to consulting and advising; to 30%, if new/specific assessment instruments are developed by the campus; to 50%, for assessments requiring faculty evaluation of live performances, portfolio reviews, and other labor-intensive methods.

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The time commitment of administrators and staff involved in the direct management or conduct of assessment activities should also be included. We suggest that such units estimate the percentage of their yearly time devoted to assessment and that the equivalent costs be included as a percentage of the department's personnel budget.

In addition to time, institutional cost for on-the-job professional development of faculty and staff for assessment should be included in the cost model. The most common of these costs are for staff from faculty development centers and external consultants who provide workshops and planning assistance.

Another category of cost to monitor for the future is assessment costs transferred to students. While still an infrequent occurrence, some institutions have required students to purchase clickers (used in classroom assessment techniques) and access to assessment instruments. These costs, while not captured by institutional records, are still part of the direct costs of assessment.

Are Assessment Costs Expenses or Investments?

Is assessment spending an “expense” or an “investment?” The finance literature defines an expense as a cost that delivers a short-lived benefit and an investment as a cost that offers a long-term benefit. Differentiating expenses from investments depends on the intentions for the spending and the life expectancy of the results.

If assessments fell neatly into the two paradigms of “accountability” or “improvement,” it would be reasonable to consider assessment for accountability to be an expense and assessment for improvement to be an investment. Unfortunately, it was too common in past decades to use fear of the regional accrediting body as the driver for assessment—strengthening the view that assessment is an expense of getting over the once-every-ten-years accreditation hurdle.

Rather than viewing assessment as a dichotomy of *either* an investment *or* an expense, our view is that assessment spending is best construed as a point on a continuum of expenses and investments. For most institutions, assessments are not conducted solely for accreditation or purely for a long-term payoff in institutional improvement. As such, nearly all assessment activities are, to a degree, an investment in a hoped-for future return.

How to Measure: Costs for Weighing the Pig

Costs for assessment should be measured with a ruler rather than a micrometer. The goal is a practical model that is useful in determining when enough spending is enough. This can be achieved by less than an absolutely full accounting of all resources used in support of assessment or all benefits gained.

An English farmer's proverb proclaims, “You don't fatten a pig by weighing it.” While polemics have applied the proverb to the assessment of student learning, by confusing means with ends it does not actually fit the context of assessment. The focus should not be on weighing the pig but rather on using the information obtained to gain desired outcomes. The relevant question for the weighing-the-pig analogy concerns how much we spend on the scale to weigh the pig in comparison to how much the information gathered in the weighing is worth. What is to be gained from a scale that is top of the line in terms of accuracy (reliability and validity)? Would a scale that produces the exactly correct weight 95% of the time, for example, be good enough? Because of the natural tendency to equate higher cost with higher quality, does purchasing an expensive scale increase the credibility of the results and

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the likelihood of their being used? At what level of cost can we be sure that assessment instrumentation and methodology are good enough?

Building on the assumptions of a centrally coordinated, paper-and-pencil-based assessment program (appropriate in 1986), Ewell and Jones (1986) developed sample budgets for four assessment programs. Their four case studies showed annual assessment budgets of \$29,200 to \$130,000—varying by institution size and type of control. Checking their assumptions, they found they were within 15% of actual spending by a small sample of 11 institutions. Table 1, with amounts converted to 2010 dollars, summarizes their assumptions.

In considering assessment costs, Marc Chun (2006) posited an inherent tension between the three points of “better, cheaper, and faster,” such that movement toward any one of the three comes at the detriment of the other two. In other words, “faster” is unlikely to be “better” or “cheaper,” and “cheaper” is unlikely to be “better” or “faster.” Chun believes “better” should rule in assessment decisions since cheaper and faster are unlikely to produce results that have the greatest utility. Hutchings (2009), however, notes that many campuses are just getting around to developing quality assessment efforts and are now under time constraints to move quickly. When campuses wait until they are under great pressure for assessment results (e.g., facing reaffirmation of accreditation or other external mandates), “better” and “cheaper” may not be real options. Delaying assessment, and thus being forced to play the “faster” game, will drive up costs – akin to the economics of deferred maintenance of a leaky roof that leads to more extensive emergency repairs later.

Postsecondary institutions vary in their willingness to intentionally use data to support decision making which in turn impacts how assessments are designed and conducted – especially the number of stakeholders involved in decisions about design.

Table 1: 1985 Assessment Cost Estimates

Institution Type	Instrument¹	Admin. of Survey¹	Salaries and Benefits¹	Overhead¹	Total 1985¹	2009 (estimated)²
Private Liberal Arts College	\$8,175	\$713	\$18,788	\$1,525	\$29,201	\$77,091
Major Public Research University	\$60,739	\$5,860	\$53,680	\$9,795	\$130,074	\$343,395
Regional Comprehensive University	\$15,440	\$2,333	\$13,493	\$1,520	\$32,786	\$86,555
Community College	\$24,078	\$4,243	\$13,115	\$1,650	\$43,086	\$113,746

1 The costs for each of the categories for 1985 are pulled from the 4 case studies in The Costs of Assessment (Ewell and Jones, 1986): Instrument - costs to develop and/or purchase survey instruments and to score the surveys; Admin. of Survey - costs to announce, administer, and mail surveys; Salaries and Benefits - costs for salaries and benefits of testing/measurement specialists, secretaries, and student workers; Overhead - costs for consulting visits (fee and travel), data analysis, reports, and office expenses.

2 The costs for 2009 are calculated based on the Common Fund’s (www.commonfund.org) Higher Education Price Index (HEPI), which had a total increase of 164% between 1985 and 2009 (actual through 2008 and estimated for 2009), multiplied by the totals from Ewell and Jones, 1986

The “how much” question is only one part of the dynamic of determining when enough spending on assessment is really enough. The far more important consideration is the cost-benefit ratio of assessment. Considerations of cost must go beyond calculating the direct and indirect costs. An appropriate conversation would include consideration of the amount of return for the amount invested, classic return on investment financial analyses.

Answering the question of how much investment is “enough” means acknowledging that there is not one answer, nor a fixed answer that uniformly applies across higher education. Postsecondary institutions vary in their willingness to intentionally use data to support decision making which in turn impacts how assessments are designed and conducted – especially the number of stakeholders involved in decisions about design. As institutional leadership and opportunities for organizational change vary from year to year, institutional capacity to use assessment data to inform improvement will vary as well. For these reasons, decisions about resource allocations for assessment must include some degree of perennial decision-making.

Foundational to any discussion of resource allocation for assessment is the view that assessment is conducted with the intention of receiving benefits as a result of using resources. Whether assessments are viewed as investments or expenses, the reality is that resources are needed to support the growing array of assessment efforts expected of American colleges and universities. As difficult as it is to identify the full direct and indirect costs of assessment, the cost side of the return on investment calculation may be the easier problem to overcome.

The benefit side of the equation is more difficult to calculate – especially when the focus is on learning outcomes rather than considerations that have financial outcomes for the institution such as student persistence to graduation. Those of us who hold great passion for education are easily convinced that learning is priceless. But as economic pressures increase, postsecondary institutions are increasingly finding the need to choose some missions and educational priorities over others. It is not just in assessment that we must learn how to assign value to our work in the absence of profit and loss statements.

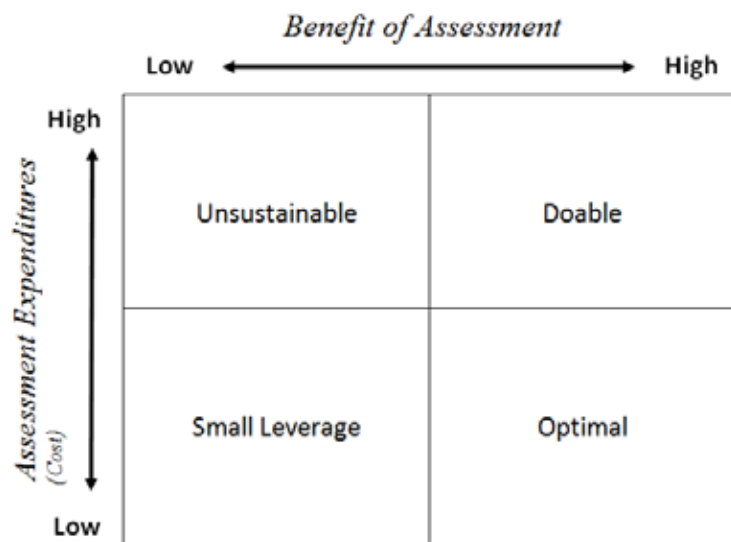
It may be useful to look to actuarial sciences for guidance in determining the value of “priceless” attributes such as learning. Before rejecting the notion as ridiculous, consider your decision to purchase a life or accident insurance policy with accepted values for loss of human life, limb, eye, and ability - check your policy to see the values assigned. We acknowledge that placing a value on reading, writing, mathematical and other skills is difficult, but cannot be written off as impossible. For example, Cliff Aldeman’s (1999) findings show that continuous enrollment, completion of 20 credit hours in the first college year, and an increase in grade point average are predictive of higher rates of student success. Logically, the value of these benchmarks can be estimated for students or their institutions. When students are retained colleges receive the benefit of their tuition or state funding associated with those individuals. And the individuals advance toward their degrees. Using the College Board’s estimate that a bachelor’s degree is worth approximately \$300,000 more than the cost of the degree, a rough guess of the value for successful completion of a three hour course (approximately 2.5% of a bachelor’s degree) would be about \$7,500 above the cost of the course (Baum & Ma, 2007). The value of an assessment that increases the percentage of students earning credits could be based on the portion of the change attributable to that assessment, the amount of improvement observed, and the number of students affected. We posit that actuarial techniques can be employed, as these examples demonstrate, to develop standard estimates of the value of core educational metrics for individuals, institutions, and the larger society.

Foundational to any discussion of resource allocation for assessment is the view that assessment is conducted with the intention of receiving benefits as a result of using resources.

With the improved ability to estimate costs and benefits, using the 2X2 decision matrix becomes possible. A simple visual arrangement of assessment expenditures as low or high and of assessment benefits as low or high provides guidance about which assessment activities to continue and which to end. More importantly, it drives home the point that knowing the level of spending on assessment without also having a measure of its benefits results in an incomplete calculation of assessment's value.

If all we know is the amount of resources used in support of an assessment activity, we can easily be misled about the true cost of the effort. Likewise, a limited view of benefits as high or low can be misleading. In the standard use of the 2X2 decision matrix, the idea is to avoid future investments in high-cost/low-benefit options, to reduce reliance on low-cost/low-benefit activities, and to steer investments toward low-cost/high-benefit activities by only selecting a limited number of high-cost/high-benefit activities. “Cheap” (low expenditure) is good only when it still reaps meaningful and useful assessment results (a wish seldom realized within the constraints of “better, cheaper, and faster”).

Figure 1: 2X2 Chart



Focusing on Benefits

The irony of assessment cost-benefit calculations is that the area most controllable by an institution is the benefit side of the equation. Nothing negatively impacts the cost-benefit ratio more than collecting data that are never analyzed, failing to close the loop in implementing improvements, or engaging in “interesting questions” outside of the institution’s control. In such cases, costs are incurred but no benefits are gained. Controlling spending on assessment has less potential for improving the cost-benefit dynamic than does assuring that assessment results are used to benefit the institution directly (for example, by bringing gains in retention) or indirectly (for example, by improving students’ learning).

The assessment focus of accrediting bodies has complicated the cost-benefit calculation. The huge benefit (avoiding a negative consequence can be a benefit) from gaining or renewing accreditation creates an artificially high value for any assessment conducted to meet accountability demands, even if it

Nothing negatively impacts the cost-benefit ratio more than collecting data that are never analyzed, failing to close the loop in implementing improvements, or engaging in “interesting questions” outside of the institution’s control.

proves to have little or nothing to do with creating improvement. Resources spent on meeting accountability standards that do not also produce better learning and student success outcomes, however, are clearly missed opportunities and costly.

In a NILOA-commissioned paper, Jane Wellman (2010) reviewed what is generally known about spending in higher education and the resulting cost-effectiveness of spending decisions. Finding a weak link between levels of spending and effectiveness, she posited that “intentionality matters as much as or more than money alone” (p. 16). Although there has been only limited research on college spending on assessment, it is reasonable to speculate that Wellman’s findings would apply to assessment as well as to teaching/learning and other areas of institutional performance. Assessment shares a common development process with many other institutional efforts included in her study, such as those to improve the first year of college, in that each effort was

- launched despite a thin theoretical base
- often initiated as a “grass roots” improvement effort by campus-based advocates
- started with few or no financial resources
- “bolted-on” or marginal, rather than fully integrated
- justified as an investment as opposed to an expense
- slowly institutionalized, even becoming formalized with line structures and budgets over time

For these reasons, we suggest that how an institution spends its assessment dollars likely matters more than how much it spends. Building on that hypothesis, we present the following guiding principles as prompts for campus conversations about creating a balanced model of assessment costs.

Intentional Design Improves the Cost-Effectiveness of Assessment

Cost-effective assessments begin with a clearly defined purpose and intentionally designed means to achieve the intended purpose. A starting place is to establish the degree to which the intended purpose is to inform improvement and/or address mandated accountability. Peter Ewell (2009) concludes that these two purposes are not a dichotomy, as suggested in the early literature on assessment, but rather a continuum on which an assessment may serve the two purposes to varying degrees simultaneously. Still, clarity about the intended outcomes of the assessment process is core to the intentional design of any assessment.

Assessment for improvement (Palomba & Banta, 1999; Suskie, 2009) has to 1) accurately evaluate the current state, 2) provide insight into what should be continued or changed to improve performance, and 3) motivate individuals to take action (Swing, 2004). In other words, assessment for improvement has to intentionally balance the scientific side of measurement and the political reality that being right—alone—does not always motivate individuals to change their behavior. To achieve a positive return on investment, assessment for improvement has to create action—either to change or to protect existing practices.

Intentional design should assure that the individuals with the power to initiate change find the assessment results credible. Take, for example, the challenge of assessing gains in writing skills. An inexpensive measure is a multiple choice test of grammar skills and writing strategies (e.g., CAAP and CollegeBASE, at \$3.00–\$4.00 per student; see Table 2 for details). A more expensive measure is a rubric-based evaluation of individual student writing samples (e.g., CollegeBASE and CAAP essay scoring at \$13.50 per student). Because of the high

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correlation between grammar skills and other aspects of writing, the multiple choice test of writing arguably produces a reasonable proxy of writing skills. Measuring writing with a multiple choice test is counter-intuitive for many academics, and so, such assessment activities may produce little momentum to change existing practices. The choice between essay-based assessment (high face-validity) and multiple-choice testing (low face-validity)—both of which produce useable information (benefits) about student writing skills—is not as simple as selecting the method with the least direct cost if the results of the less costly method are not motivating. Rather than focusing on direct cost, the true value proposition is best considered as a ratio of cost to benefit. A change in either side of the equation changes the resulting ratio. Assessments whose results are not used have costs but no benefits, and the resulting ratio is still undesirable, regardless of whether the original “investment” was inexpensive.

Intentional design improves the cost-benefit ratio by focusing on practices and conditions institutions control or can influence. Because educators are by nature intellectually curious, we have a tendency to pursue “interesting questions”; yet return on investment is undermined when assessments focus on matters that cannot be changed. Assessments that mostly measure input variables—entering students’ attitudes, behaviors, skills, and so forth—can easily address interesting research questions outside of institutional control. Three questions that can help focus assessment efforts on the potential return on investment are

- What would we do if we knew that X has an impact on our institutional goals for students? (Where X is the dependent variable of the assessment.)
- Who would care about the finding? (Who would be willing to take action?)
- Does the institution have influence/control over X? (Could we change it if we knew that doing so would improve learning and student success?)

The choice between essay-based assessment (high face-validity) and multiple-choice testing (low face-validity)—both of which produce useable information (benefits) about student writing skills—is not as simple as selecting the method with the least direct cost if the results of the less costly method are not motivating.

Table 2: Examples of Prices for Assessment Instruments

Instrument and Company	Sample Pricing
College BASE – <i>University of Missouri</i> http://arc.missouri.edu/CB/Scoring%20order%20form%20Sept%2009.pdf *	Scoring of four multiple choice tests per students is \$13.90 (subjects - English, mathematics, science, and social studies). Scoring of written essays costs \$13.50 each.
CAAP – <i>ACT, Inc.</i> www.act.org/caap/pdf/09PriceList.pdf *	Scoring of five multiple choice tests per students is \$20.50 (subjects - reading, writing, mathematics, science, and critical thinking). Scoring of written essays costs \$13.50 each.
CLA – <i>Council for Aid to Education</i> www.cae.org/content/pdf/CLABrochure2008.pdf *	Cross-sectional administration of assessment to freshman (100 at beginning of fall term) and seniors (100 at end of spring term) in the same year costs \$6,500.
Major Field Tests – <i>ETS</i> www.ets.org *	The test and standard report for the online version administered to undergraduates costs \$25 each (1-99 students tested).
NSSE – <i>Indiana University, Bloomington</i> http://nsse.iub.edu/faq/ifaq.cfm#surveycost *	Survey costs \$4,800 (including \$300 participation fee) for an institution with 4,000 to 7,999 students (600 paper surveys or 2,400 web surveys).

*Collected March, 2010 from respective company’s website. Sample pricing is shown for illustration purposes: additional discounts and pricing considerations are contingent on options selected and number of students served.

Applying the questions above to each factor or survey prompt of a proposed assessment instrument can be eye opening when selecting an assessment instrument. Several popular assessment tools were originally developed for data collection by researchers to use in aggregated national research. It is surprising how often these instruments, especially those that collect significant demographic variables or attitudinal measures, contain elements of little interest at the campus-level. In terms of return on investment, the level of interest and ability to use assessment results by the department/campus/system paying for the assessment must take priority. Contributing to the higher education general knowledge base is commendable, but it is secondary among the assessment investments by colleges and universities.

The Cost of Assessment Will Vary Over Time

Anecdotal evidence suggests that spending on assessment has varied over time within individual institutions. Unfortunately, this variance may be mostly attributable to the conducting of assessment in episodic cycles for the wrong reasons. Ramping up spending on assessment in the years immediately before reaccreditation is not the kind of variance we propose. Rather, we hold that there are natural cycles of best opportunities for campus improvement that determine the amount of assessment information that can be successfully used at a specific point in time. While an adequate base of spending on assessment would be expected as part of any effective, ongoing, and stable postsecondary institution, it is legitimate to expect that some spending should peak after significant events such as the introduction of a new general education curriculum, the establishment of a new student affairs program or academic policy, shifts in the entering characteristics of new students, or other significant institutional changes.

Most of the truly important improvements colleges desire—like gains in student learning, retention, and attributes for educated citizenship—do not happen overnight. Likewise, characteristics of entering students tend to change only incrementally over time. Whether assessments are intended to measure inputs or outcomes, there is little reason to believe that measuring the same constructs annually will provide important new information each year. An assessment plan of merit acknowledges the time it takes to create changes large enough to measure. It is difficult to conceive of a reason to repeat an assessment every year unless a very active change strategy is being implemented. An assessment plan to measure progress intentionally at key points is a wiser investment than annual measurements (with their costs) conducted just to establish a stable, repeated cycle of spending and reporting.

The False Economy of “Home Grown”

Independence and autonomy are hallmarks of the academic life, but uniquely designed assessment instruments may not be cost-effective. Developing assessment instruments from scratch is time-consuming and demanding. A false economy of savings can develop if the cost of purchasing a commercially available product is compared to a perceived “free” product developed locally. Of course, “free” is never so. Good assessment instruments undergo an iterative process of development, editing, pilot testing, statistical analysis, and production. Even if it has the resources to produce an outstanding assessment instrument, a campus has limited ability to consider its findings in the context of other institutions and student populations in the absence of benchmark or normative data. Data without clear contexts are difficult to use in an accountability or improvement paradigm. Anything that reduces the usability of results and does not increase the benefits derived from an assessment negatively impacts the cost-benefit ratio.

An assessment plan to measure progress intentionally at key points is a wiser investment than annual measurements (with their costs) conducted just to establish a stable, repeated cycle of spending and reporting.

Use Existing Data First

A basic tenet of cost-effective assessment is to use existing data first, if possible, rather than to undertake new data collection initiatives. The value of using existing data is easily understood as a cost saving arrangement even though there are costs associated with finding and cleaning existing data (Paulson & Siegel, 2003). Still, it is important to evaluate the degree to which data collected for another purpose is appropriate for double duty. It does not matter that data are available at low cost or no cost if these data discourage the institution from conducting a targeted assessment study or fail a face-validity test. As with much about assessment, it is rarely a case of all or nothing. Existing data from multiple sources can often be linked to reduce the size and cost of new data collection effort.

An additional cost-saving approach is to create additional opportunities for using data by adjusting how it is collected for its first use. For example, the placement tests given to new students at many institutions commonly produce three-level results used for placement: developmental, “regular,” or honors. These three broad categories may serve placement needs well, but they are not calibrated finely enough to serve as a pretest for a later posttest measure of skills gained. A student who starts at the lowest end of placement into a regular college-level course may experience a great deal of growth and yet not achieve honors-level placement status. Rethinking this scale can change the usefulness—and raise the value—of placement data. Consider a placement test that has three levels within each of the three major categories, for a total of nine levels. The first three placement positions may still define placement at the developmental level, the fourth through sixth at the entry level for a regular college course, and the seventh through ninth for placement in an honors course. But the increased scale provides capacity to measure change within each placement category - which greatly improves the value of test scores as an assessment tool. It does so without limiting or reducing the original use of the data. It is often possible to develop additional levels of data with only limited additional cost, especially if the dual use is intentional from the start.

Sampling is cost effective

Testing only some students carries a lower initial investment than testing all students. The purpose of assessment determines if a sampling methodology can be sufficient or if whole population testing is required. For program-level and institution-wide assessments, total population testing (census sampling) will not improve precision of findings compared to a carefully crafted sample-based initiative. “...[A] representative sample can yield information that is almost as accurate as information from everyone” (Suskie 2009, p. 4). The down side of sampling is that subgroups can be too small to provide useful information. The decision to test the entire cohort to assure adequate size of subgroups, however, may be easier to make when using a multiple choice test of writing at under \$5.00 per student than an essay writing test at \$13.50 or more per student.

Returning to the earlier theme that assessments have to be believable to be successful in stimulating change, sampling can prove to be a barrier. The assessment plan must be intentional and clear about how and why sampling is used. Assessment leaders must show that sampling produces a representative set of data. When sampling is used, anticipate the need for a thorough, user-friendly explanation of why the method was chosen, how it works, and what can (and cannot) be assumed from its results. While sampling saves on the costs of the instrument, it can increase the costs of analysis and reporting—because a sample never perfectly reflects the total population. To help minimize these costs, think of defending an assessment methodology as providing a case of findings illustrating a preponderance of evidence. A convincing case can often be constructed using an array of demographic data comparing the sample respondents to the total population.

A basic tenet of cost-effective assessment is to use existing data first, if possible, rather than to undertake new data collection initiatives.

Sampling may reduce net costs, but it should not be assumed that it improves return on investment. Assessments are often a delicate blend of solid research methodology and political wisdom. If contention over the appropriateness of the sampling process reduces the believability of the results—and, thus, the use of them—then sampling can prove to be a poor cost-saving device in that it reduces the benefit side of the cost-benefit equation. In the end, decisions that focus a campus's attention on the assessment methodology distract it from focusing on understanding and using the assessment results. Alternatives to whole-cohort testing include stratified sampling, assuring the adequate representation of identified subgroups, and oversampling, testing a larger-than-needed sample to meet statistical standards and to increase “believability.”

Start-up Costs Will Be Greater Than Costs to Maintain Assessment Efforts

The past may not predict the future in terms of assessment costs for start-up operations. Initial investments are likely to be greater on the cost side and lighter on the benefits side of the cost-benefit equation. During the start-up phase of most higher education initiatives, there are extra costs associated with initial research and development efforts. A common “launch” effort in higher education includes professional development of key staff—often in the form of travel to conferences and workshops, release-time for other activities, and books and webinars for additional information and training. The value of investing in professional development as part of an assessment plan was documented in a 1999 study (López) of over 900 institutions accredited by the Higher Learning Commission, summarized in this statement: “Institutions that have been successful in educating their faculty about assessment have high rates of faculty involvement in the assessment program at both the institutional and departmental levels” (p. 17).

Because assessment crosses lines of faculty, staff, and administration, it is common to find a large planning committee involved in a start-up effort and just as likely that the large committee will spend many hours deciding the scope and limits of assessment. The combined costs of faculty and staff time increase the cost of mounting an assessment effort, but the value of that critical mass of support increases the potential benefits by assuring stakeholder investment in the process. Another common element among start-up assessment efforts is the purchase of commercially available instruments—because doing so allows for a faster start than building instruments from scratch. For all these reasons, it is likely that initial start-up costs for assessment programs may require more spending than maintaining existing assessment operations.

Using our definition of cost, start-up assessment operations are initially likely to have a less-than-desirable cost-benefit ratio. As assessment processes are institutionalized, however, and move from being “bolted on” accessories to normal elements of the institution's education process, the cost-benefit ratio should accordingly rebalance.

Some Assessments Will Fail to Produce Useable Results

Not all investments, even in assessment, are proven by the test of time to be wise investments. Assessment technologies and tools will continue to evolve, and some of them will become obsolete or produce disappointing results. When considering an assessment effort it is important to remember that institutions take informed risks about all kinds of other investments. Some of the assessments that many institutions risk undertaking will likely yield little useable information. This possibility should be anticipated and not used as an example to prove that assessment “doesn't work here.”

It is likely that initial start-up costs for assessment programs may require more spending than maintaining existing assessment operations.

Having permission to fail can stimulate the development of innovative and creative new assessment techniques. If they must minimize costs, however, institutions just ramping up assessment efforts may find it safer to lean on the tried-and-true.

Conclusion

There are no simple rules for determining how much a college or university should spend on assessment. Even for a single institution, the amount of assessment information that can be successfully consumed varies from year to year depending on the institution's pace of innovation and change. Also, an institution's needs related to the assessment's level of precision and type of information change over time with the institution's shifting strategic needs. Beyond the important function of monitoring the use of precious resources, there are other important reasons for campuses to study the costs and benefits of assessment. Good practice in assessment includes evaluating the process itself. For this purpose we posit two distinct components of evaluating the costs of assessment. The first is a combination of basic accounting and estimating techniques. Quantifying the direct expenditures for assessment requires calculating spending on instruments, software, scoring, personnel time for administration, and management of assessment and other costs that can be specifically tracked to assessment processes. In addition, indirect costs such as faculty time for supporting assessment, building instruments, and participating in scoring as part of their duties are part of assessment expenditures. The expenditures total, however, is only one side of the cost-benefit equation.

Equally important is the second distinct component of evaluating the cost of assessment: determining the value of benefits gained from assessment—in institutional improvement, achievement of accreditation, or successfully meeting external mandates for accountability. The value of a completed three-hour class as a portion of the life-long benefit gained from earning a college certificate or degree could be estimated for individuals. Likewise, the benefit to institutions from that class's contribution to student persistence and to the larger society from another college graduate's contributions can be quantified and included in a cost-benefit ratio. While assigning a price to a “priceless” education may seem crass, doing so makes it possible to determine whether spending on assessment is producing the desired level of return on investment.

An absence on either side of the cost-benefit equation creates an incomplete model for establishing the true cost of assessment. Without information on the benefit side, it is impossible to show whether higher expenditures are better or worse than lower expenditures. Without information on the cost side it is impossible to determine if the benefit gained was worth the cost of achieving it.

Finally, acknowledging the need to be good stewards of resources, we propose that most assessment processes can benefit from a careful review of expenditures and the use of cost-saving methods such as sampling and collecting enough—but not too much—data for analysis. Furthermore, the benefit side of the equation can often be enhanced by assuring that data collected becomes data used. A full model, even if based on rough estimates and with some potential economic indicators purposefully excluded (e.g., opportunity costs), is the best test of the true cost of assessment. What ultimately matters most is not the amount spent on assessment but the amount gained compared to the amount spent. Colleges and universities can impact assessment's cost-benefit by improving their use of assessment and by deriving greater utility from their investments.

While assigning a price to a “priceless” education may seem crass, doing so makes it possible to determine whether spending on assessment is producing the desired level of return on investment.

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Glossary of Terms

activity-based costing – an accounting model that identifies activities in an organization and assigns the resource cost (direct and indirect) of each activity to products and services according to the actual consumption by each.

cost - monetary value of expenditures for supplies, services, labor, products, equipment, and other items purchased for use. In economics, a cost is an alternative that is given up as a result of a decision.

cost-benefit – the comparison of the monetary cost of an intervention compared to the monetary benefit of the intervention's outcome.

cost-effectiveness – a measure of efficiency typically used when a particular benefit is difficult (or insensitive) to quantify. The ratio of the cost (in monetary value) of an intervention is compared to a relevant measure of its outcome or effect.

direct cost – costs for activities or services that benefit specific projects and are easily traced to specific projects.

expenditures – a payment or the promise of a payment.

expenses - a cost that delivers a short-lived benefit.

indirect cost – costs for activities or services that benefit more than one project and are difficult or impossible to trace to a specific project.

investments – a cost that offers a long-term benefit.

opportunity cost - the value of other activities that could be conducted if a particular activity was not pursued.

return on investment – the ratio of money (or value) gained or lost on an investment compared to the amount money (or value) invested.

sunk cost - an incurred expenditure that cannot be recovered.

value proposition – a quantified analysis where value equals the benefits (less the costs) that an entity can deliver to its customers.

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NILOA Mission

NILOA's primary objective is to discover and disseminate ways that academic programs and institutions can productively use assessment data internally to inform and strengthen undergraduate education, and externally to communicate with policy makers, families and other stakeholders.

NILOA Occasional Paper Series

NILOA Occasional Papers are commissioned to examine contemporary issues that will inform the academic community of the current state-of-the-art of assessing learning outcomes in American higher education. The authors are asked to write for a general audience in order to provide comprehensive, accurate information about how institutions and other organizations can become more proficient at assessing and reporting student learning outcomes for the purposes of improving student learning and responsibly fulfilling expectations for transparency and accountability to policy makers and other external audiences.

Comments and questions about this paper should be sent to sprovez2@illinois.edu.

About NILOA

- The National Institute for Learning Outcomes Assessment (NILOA) was established in December 2008.
- NILOA is co-located at the University of Illinois and Indiana University.
- The NILOA web site went live on February 11, 2009.
www.learningoutcomesassessment.org
- The NILOA research team reviewed 725 institution web sites for learning outcomes assessment transparency from March 2009 to August 2009.
- One of the co-principal NILOA investigators, George Kuh, founded the National Survey for Student Engagement (NSSE).
- The other co-principal investigator for NILOA, Stanley Ikenberry, was president of the University of Illinois from 1979 to 1995 and of the American Council of Education from 1996 to 2001. He is currently serving as Interim President of the University of Illinois.
- Peter Ewell joined NILOA as a senior scholar in November 2009.

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