Evaluating Solutions for Improving Program Assessment

Authors:

Nathan C. Anderson, Ph.D.
Minot State University

Alaric Williams, Ed.D.
Minot State University

Daniel Ringrose, Ph.D.
Minot State University

ABSTRACT

This paper demonstrates how a small, public, master's level university in the midwestern United States identified and responded to areas for improvement related to their implementation of program assessment. An overview of a program evaluation framework is provided based on five categories of assessment that the university uses as a frame of reference to guide its program development and assessment work. The university's methods are described for assessing needs to identify areas for program assessment improvement, assessing the theory of potential solutions to ensure that they would be appropriate to meet demonstrated needs, and assessing the efficiency of suitable solutions to ensure that they could be implemented within the parameters of the institution's available resources. Results are discussed through the lens of a newly proposed model, ALTMAP, which synthesizes established, practical, and transferable frameworks and tools to collectively support a comprehensive approach to program planning and evaluation.

Correspondence E-mail: nathan.c.anderson@minotstateu.edu

In a society that often encourages the use of quality evidence to guide important decisions (e.g., Stufflebeam & Coryn, 2014; Rossi et al., 2004; Yarbrough et al., 2011), higher education institutions generate evidence through ongoing program assessment to inform decisions that promote student development (Allen, 2003; Banta & Palomba, 2015; Miller & Leskes, 2005; Tucker et al., 2020). Effective assessment can help a program understand whether it is being implemented as intended, its intended outcomes are being achieved, and its resources are utilized responsibly (Banta & Palomba, 2015). Implementing an assessment model can be challenging, however, as several tasks are required to ensure it is feasible and produces meaningful results (Banta, 2002; Hutchings, 2019). Additional barriers may result from inconsistent interpretations of assessment purposes, definitions, and methods (Ewell, 2002), including pessimistic perspectives that potentially impede the effectiveness of its implementation (Greene, 2023). Evaluating program assessment practices and systems at an institution can help identify and alleviate these and other types of barriers to ensure assessment provides evidence for logical decisions that support high-quality, relevant learning opportunities for students.

Purpose

This study demonstrates how a small, public, master's level university in the Midwest operationalized three categories of assessment within a comprehensive program evaluation framework to generate and use multiple forms of evidence to improve their program assessment system. It provides an overview of a comprehensive evaluation framework comprising five assessment categories related to program needs, theory, processes, outcomes, and efficiency. Then, it explains how the university applied needs, theory, and efficiency assessment methods to generate evidence related to areas for improvement to their program assessment system, potential solutions that would be appropriate to meet their needs, and available resources that could be utilized to implement the solutions. The goal was to develop a common model that would be appropriate to the needs of diverse programs and to identify available resources that could be utilized to implement possible programmatic changes. The study is guided by three research questions:

- RQ1: What are the university's needs related to program assessment?
- RQ2: What solutions could be appropriate responses to the needs?
- RQ3: Which of the appropriate solutions would be the most feasible to implement within the parameters of the university's existing resources?

RQ1 addresses the needs assessment category of assessment. RQ2 addresses the theory assessment category. RQ3 addresses the efficiency assessment category.

Significance

Effective program assessment is essential for universities to continually provide relevant, high quality academic programs to their students. However, assessment can sometimes seem burdensome because it requires substantial allocation of time, attention, energy, and resources toward the generation and utilization of useful evidence related to programmatic needs, design, implementation, outcomes, and resources. Assessment

systems can help alleviate some of the burdens by leveraging technology to improve the efficiency of processes related to planning and reporting.

Several assessment system options are available for universities to purchase or build on their own. Many factors are important to consider when identifying which system will be the best fit for the institution. Considering potential assessment systems through a comprehensive evaluative lens can help a university choose a relevant system that addresses their specific needs and is feasible to implement within the scope of its available resources.

Theoretical Framework

Evaluation may be implemented as a systematic means of generating evidence to guide improvements to something and to inform a judgment on the merit or worth of something (Fitzpatrick et al., 2011; Stufflebeam & Coryn, 2014; Yarbrough et al., 2011). This study is guided by Anderson's (2022) *Program Evaluation Framework*, which describes where program development, implementation, assessment, and reflection phases may occur within a program's life cycle. The framework subsumes five categories of assessment: needs, theory, process, outcome, and efficiency (Figure 1). The assessment categories are directly informed by Rossi et al.'s (2004) five types of assessment questions. The categories also align with common elements of logic models (e.g., Kekahio et al., 2014; W.K. Kellogg Foundation, 2004; Wyatt Knowlton & Phillips, 2013) and Banta and Palomba's (2015) definition of assessment: "the process of providing credible evidence of resources, implementation actions, and outcomes undertaken for the purpose of improving the effectiveness of instruction, programs and services in higher education" (p. 2). Table 1 depicts alignment between the five assessment categories in Anderson's (2022) *Program Evaluation Framework*, five types of assessment questions (Rossi et al., 2004), common elements of logic models, and Banta and Palomba's (2015) definition of assessment.

Figure 1. *Five Categories of Assessment for Comprehensive Program Evaluation*

Table 1. *Assessment Category Alignment*

Anderson's (2022) Program Evaluation Framework	Rossi et al.'s (2004) five types of assessment questions	Common elements of logic models	Banta and Palomba's (2015) definition of assessment
Needs assessment	Needs assessment	Needs	for the purpose of improving the effectiveness of instruction, programs, and services
Theory assessment	Assessment of program theory	Activities	
Process assessment	Assessment of program process	Outputs	credible evidence of implementation actions
Outcome assessment	Impact assessment	Outcomes/ Impact	credible evidence of outcomes
Efficiency assessment	Efficiency assessment	Resources	credible evidence of resources

A needs assessment can help reveal gaps to provide rationale for implementing a program (Fitzpatrick et al., 2011; McCawley, 2009; Witkin & Altshuld, 1995). It reflects "a series of procedures for identifying and describing both present and desired states in a specific context" (Witkin & Altshuld, 1995, p. 4). Needs assessments focus on "(a) establishing whether a problem or need exists and describing that problem, and (b) making recommendations for ways to reduce the problem" (Fitzpatrick et al., 2011, p. 26). They are "often conducted for a specific group, organization, or business in order to improve effectiveness or productivity of the group related to its mission" (McCawley, 2009, p. 4). A couple of questions that may be considered when assessing needs include "What are the needs of the population?" and "What are the nature and magnitude of the problem to be addressed" (Rossi et al., 2004, p. 77).

A theory assessment can help reveal which potential solutions may be appropriate responses to the identified needs (Calley; 2011; Halpern, 1998; Main, 2011; Rossi et al., 2004). "The theory of a program is the set of imputed links between program operations and program results" (Halpern, 1998, p. 6). Assessing theory is "necessary to establish an empirical basis for the program" (Calley, 2011, p. 13). "When a program design is rooted in a strong empirically-supported theory, it increases the probability that the desired outcomes will occur for clients and that the program will be the most obvious explanation for the achievement of those outcomes" (Main, 2011, p. 13). A few questions that may be considered when assessing program theory include, "What services should be provided? What are the best delivery options for the services?" and "How should the program be organized?" (Rossi et al., 2004, p. 77).

A process assessment can help reveal whether a selected solution is being implemented as intended (Berkel et al., 2011; Durlak & DuPre, 2008; Saunders et al., 2005). "Different dimensions of implementation influence program outcomes" (Berkel et al., 2011, p. 29), and accurately interpreting a program's outcomes requires knowing which of its aspects "were delivered and how well they were conducted" (Durlak & DuPre, 2008,

p. 328). Therefore, process assessment "is used to monitor and document program implementation and can aid in understanding the relationship between specific program elements and program outcomes" (Saunders et al., 2005, p. 134). A few questions that may be considered when assessing program processes include "Are administrative and service objectives being met? Are the intended services being delivered to the intended persons?" and "Are there needy but underserved persons the program is not reaching" (Rossi et al., 2004, p. 77).

An outcome assessment can help reveal whether an implemented solution is having its desired effects (Kekahio et al., 2014, p.2; Main, 2011; Rossi et al., 2004; U.S. Government Accountability Office, 2011). Outcome assessments focus on "the extent to which a program achieves its outcome-oriented objectives" (U.S. Government Accountability Office, 2011, p. 2). Outcomes may include "changes in program participants' knowledge, beliefs, and behavior," "adjustments in organizational practices or system design," or "a program's lasting influences" (Kekahio et al., 2014). If a program is not designed with outcomes in mind, it becomes difficult for a program to prove its effectiveness" (Main, 2011, p. 13). A few questions that may be considered when assessing program outcomes include "Do the services have beneficial effects on the recipients? Do the services have adverse side effects on the recipients?" and "Is the problem or situation the services are intended to address made better?" (Rossi et al., 2004, p. 77).

An efficiency assessment can help reveal whether resources for implementing the solution are being utilized responsibly (Levin & Belfield, 2015; Rossi et al., 2004; U.S. Government Accountability Office, 2011; Yates, 2009). Efficiency assessments can help "decision makers select the most effective interventions they can afford for a given budget, or the least costly interventions that result in a desired outcome" (Levin & Belfield, 2015, p. 401). An efficiency assessment may occur in the form of cost-benefit and cost-effectiveness analyses, which "compare a program's outputs or outcomes with the costs (resources expended) to produce them" (U.S. Government Accountability Office, 2011, p. 2). When conducting an efficiency assessment, "the value of resources used to implement a program may be compared to the value or amount of outcomes for that program" (Yates, 2009, p. 54). A few questions that may be considered when assessing program efficiency include "Are resources being used efficiently? Is the cost reasonable in relation to the magnitude of the benefits?" and "Would alternative approaches yield equivalent benefits at less cost" (Rossi et al., 2004, p. 77).

The five categories of assessment can support evaluation of a program, project, or other evaluand by collectively informing its improvements or judgments to its merit or worth. For example, if there is a need for a program (needs assessment), the program is theoretically appropriate to meet the need (theory assessment), the program is being implemented as intended (process assessment), the program is achieving the desired results (outcome assessment), and the program is operating responsibly within the parameters of its available resources (efficiency assessment), then the program could likely be deemed to have adequate merit or worth to warrant its implementation. If any of the inverses are true (i.e., there is not a need for a program, the program is not theoretically appropriate to meet a need, the program is not implemented as intended, the program is not producing the desired outcomes, or the program is not operating efficiently), then its merit or worth is likely to be weakened. This study specifically addresses the needs, theory,

and efficiency categories of assessment to help inform a judgment on the merit or worth of a new assessment system.

Method

This section describes methods related to the three research questions and their corresponding assessment categories. Methods related to the first research question reflect needs assessment processes. Methods related to the second research question reflect theory assessment processes. Methods related to the third research question reflect efficiency assessment processes.

Needs Assessment Methods

The university's Director of Institutional Assessment (DIA) facilitated a mixed methods needs assessment to gain a better understanding of strengths and weaknesses related to its annual program assessment procedures as well as recommendations for improvements. Methods included interviewing department chairs, engaging with assessment leaders on campus, analyzing internal and external content related to assessment, and surveying faculty.

The needs assessment was initially conducted for the university's internal purposes to support its continuous improvement efforts. After the needs assessment methods were implemented and synthesized with other program evaluation methods (theory assessment and efficiency assessment), the authors realized that adapted versions of the methods may be useful in other settings and, therefore, would be worthwhile to disseminate via scholarly channels. The university's Institutional Review Board reviewed the needs assessment study and approved it with exempt status (protocol number 2463).

Department Chair Interviews

The DIA conducted one-on-one interviews with fifteen Department Chairs representing all but one department at the university over a two-week period during September 2021. The purpose of the interviews was to gain a better understanding of their perceptions related to strengths and weaknesses of program assessment as well as recommendations for improving program assessment. Each interview lasted around 30-60 minutes. The DIA recruited participants for the interviews by sending individual emails to each chair. The interviews were guided by a semi-structured script that allowed for relaxed, conversational dialogue with probing questions as needed (Adams, 2015). The semi-structured interview script included the following questions:

- What is your approach to program assessment?
- Which attributes of the assessment process seem to be working well?
- Is there anything about the assessment process that is unclear?
- Is there anything about the assessment process that frustrates you?
- Do you have any recommendations for changes to the assessment process?
- How can I support the assessment process for your program?

The DIA collected qualitative data by collecting field notes (Phillippi & Lauderdale, 2017) during the interviews and then compiling and analyzing more detailed notes in a Microsoft Word document after the interviews concluded.

Assessment Leadership Observations

The DIA observed assessment leaders at the university through formal and informal interactions between September 2021 and January 2022. Individuals were not formally recruited for participation, as opportunities for observation naturally presented themselves through everyday interactions. Assessment leaders observed included current and former members of the Academic Assessment and General Education Committees, the former Director of Academic Assessment (DAA), and the Vice President of Academic Affairs (VPAA), among others. Formal ways of engaging with assessment leaders included participation in Academic Assessment and General Education Committee meetings. Informal ways of engagement included email, phone, virtual, and in-person correspondence. The DIA collected qualitative data by collecting field notes (Phillippi & Lauderdale, 2017) related to program assessment strengths, weaknesses, and improvement strategies as appropriate during the interactions and later reflected on the notes in greater detail.

Content Analysis

The DIA implemented content analysis techniques between September 2021 and January 2022 by compiling, reading, and interpreting several documents to draw inferences in relation to the research questions (Krippendorf, 2004). He utilized a two-pronged approach to analyzing content: the first prong focused on reviewing internal documentation relevant to academic assessment, while the second prong focused on reviewing external documentation relevant to academic assessment. The purpose of analyzing internal and external resources was to gain a better understanding of whether assessment guidance strategies implemented or recommended by other professionals or organizations may be appropriate to consider at the institution where he worked to improve the ways in which academic program assessment guidance is organized and disseminated internally. Internal content analysis included reviews of several resources, such as institutional webpages, informational documents, assessment reports, and other resources relevant to assessment (Table 2).

External content analysis included reviews of program assessment manuals from higher education institutions, assessment guides prepared by professional organizations, journal articles, reports, videos, podcasts, and other sources to gain a better understanding of guidance that is available in the field of higher education program assessment as well as how guidance may be organized.

Survey

The university's Academic Assessment Committee recruited participants using a convenience sampling strategy (Cohen et al., 2017) by inviting faculty to complete a survey at the institution's annual spring assessment day in February 2022 to gain a better understanding of the extent to which faculty perceive potential areas for improvement to academic program assessment to be priorities. The potential areas for improvement were based on an initial list of areas revealed through the department chair interviews, assessment leadership engagement, and internal and external content analysis. The survey asked: "In terms of academic yearly program assessment at the university, mark the extent to which you consider making improvements to each of the following six areas to be a

Table 2. *Examples of Resources for Internal Content Analysis*

Type of Source	Name of Source
Institutional Webpages	Academic Assessment Academic Assessment Liaisons Assessment of General Education
Informational Documents	Academic Assessment Policy and Procedure Assessment Terminology Academic Assessment Calendar Assessment 101 Basics Assessment Planning Diagnostic Arranging Assessment of Student Learning Outcomes University Student Learning Goals
Assessment Reports	Yearly Program Assessment plans and reports Ad Hoc Student Learning Assessment Committee report General Education Assessment report
Other Resources	Assessment planning and reporting templates Minutes of assessment-related committees

priority: template consistency, efficiency, relevance, comprehensiveness, institutional memory, assessment guidance." Participants rated each priority area on a seven-point scale ranging from "Not a Priority" to "Essential Priority." An online version of the survey was created in Microsoft Forms. Faculty were recruited to participate in the survey in person toward the conclusion of an academic assessment update presentation delivered by the DIA to faculty on the university's spring assessment day. The survey remained open through March 2022. Twenty-five of the institution's 150 (17%) full-time faculty members representing 14 of its 16 academic departments participated in the survey. It should be noted that the low response rate and convenience sampling technique illuminate non-response and self-selection biases that weaken the generalizability of the survey results (Groves et al., 2009).

Theory Assessment Methods

After the university established needs related to program assessment, the DIA—along with support from the institution's Vice President for Academic Affairs and members of assessment-related committees—implemented theory assessment strategies to identify potential solutions that could help respond to the needs. The team identified a few vendor-based program assessment systems for consideration. Then, they explored the features and functionality of each system in relation to the identified areas for improvement and the university's yearly program assessment (YPA) requirements, which reflect a program's annual documentation of its assessment plan, results, and utilization of results. This exploration included meeting with vendors, viewing product demonstrations by vendors, meeting with end-users of systems, and viewing product training videos, manuals, and other related resources. As the team explored potential solutions, they identified attributes of the systems that could support the university's YPA planning and reporting requirements and help respond to the areas for improvement identified through the needs assessment. For example, specific areas in the system were

identified where the following student learning and operational assessment details from their MS Word YPA template could be entered:

- Goals
- Outcomes
- Methods
- Target
- Gather, review, and discuss
- Recommendations and implementation

Efficiency Assessment Methods

After the university established a list of potential solutions that aligned with the institution's program assessment requirements and could help respond to identified needs, officials implemented efficiency assessment strategies to identify which solution would be the most feasible to implement within the parameters of their available resources. In their exploration of efficiency, they examined costs of product implementation, networks of users within the state's university system, existing contracts between vendors and the state's university system, and technical assistance available through the vendor and the state's university system.

Results

This section presents the results of the needs, theory, and efficiency assessments.

Needs Assessment Results

The needs assessment results revealed evidence of program assessment areas that are working well, areas that could be improved, and recommendations for strategies that could potentially support improvements.

Working Well

Results revealed that several improvements had been made to the university's culture of academic assessment in recent years. The institution had made substantial strides to advance support for program assessment and the relevance of assessment. Examples of support include common templates, guidance documents, and technical assistance for YPA requirements and processes. Establishing a common language and a YPA template that was the same for all academic programs had been considered helpful. Feedback from some Department Chairs indicated the template clearly outlined the requirements of details to be provided in the report and plan. They expressed gratitude for having a YPA document that allowed them to write the report and plan in a single file, the prompts for documenting their closure of the assessment loop by describing decisions that had been informed by assessment results, and efforts that had been made to simplify the YPA template. Previous Academic Assessment Directors worked extensively on cultivating a collective energy across the institution that tended to understand the value of assessment. In addition to providing templates, guidance documents, and technical assistance, they created sustainable opportunities for the broader campus community to inform the development and refinement of academic program assessment methods, which led to the establishment and implementation of the Academic Assessment Liaisons group and Student Learning Assessment Committee (SLAC). Interviews with department chairs

revealed that the YPA process seemed to be much more intentional than it was in the past. For accredited programs, the details provided on the YPA tended to align well with the assessment requirements of their accrediting bodies. Some feedback suggested that the annual program assessment process used to feel like checking a box, but it now seems to serve a relevant purpose.

Areas for Improvement

Results of the Department Chair interviews, assessment leadership observations, and internal and external content analysis revealed potential areas for improvement through themes of template consistency, efficiency, relevance, comprehensiveness, institutional memory, and assessment guidance. The survey findings (*n*=25) helped validate these results as each item was considered one of the three highest priority levels (moderate, high, or essential) on a seven-point priority-level scale by at least two-thirds of the respondents (Figure 2).

Template Consistency. Template consistency refers to the uniformity of the YPA template format requirements across time. Use of a common template for YPA reporting and planning has worked well for many programs; however, it has changed multiple times over the past few years. These changes were implemented as needed based on feedback from faculty, but frequent revisions have led to some frustration and confusion about which template is the correct version and whether reporting and planning requirements have changed from year to year.

Efficiency. Efficiency refers to the amount of time, energy, and resources required to prepare, submit, and organize YPAs. In terms of preparing YPAs, locating YPAs and supplemental documentation from prior years can be cumbersome, and copying and pasting details from the prior year to the current year is monotonous. In terms of submitting and organizing the YPAs, the current process requires authors to email the YPAs to their Chair. Then, the Chair reviews and emails the YPAs to the DIA to be uploaded to SharePoint folders that the DIA creates each year. The DIA replies to Chairs via email to confirm receipt of the files. If changes are made to any of the files, similar steps are taken to submit and organize the files. This is effectively a manual and rather technical process that relies on multiple people (e.g., Department Chairs, DIA) executing it correctly every year. While free, the cost lies in incomplete reports, lost files, use of email as a transfer mechanism, and reliance on many individuals to know the system and execute it correctly every year. Other institutions have implemented program assessment information systems to increase efficiency by streamlining the preparation, submission, and organization of annual reports and plans.

Relevance. Relevance refers to the relationship between YPAs and new knowledge or decisions that support continuous improvement of a program. The relevance of program assessment can be unclear at times. For example, faculty do not always understand how to analyze the data they collect, connections between assessment results and budgetary decisions sometimes seem vague, and some programs struggle with quantifying learning in meaningful ways (e.g., establishing performance benchmarks based on criteria for success related to what they intend for students to learn and then identifying how many students demonstrated the success criteria). Furthermore, although

Figure 2. *Moderate, High, or Essential Priority by Improvement Area*
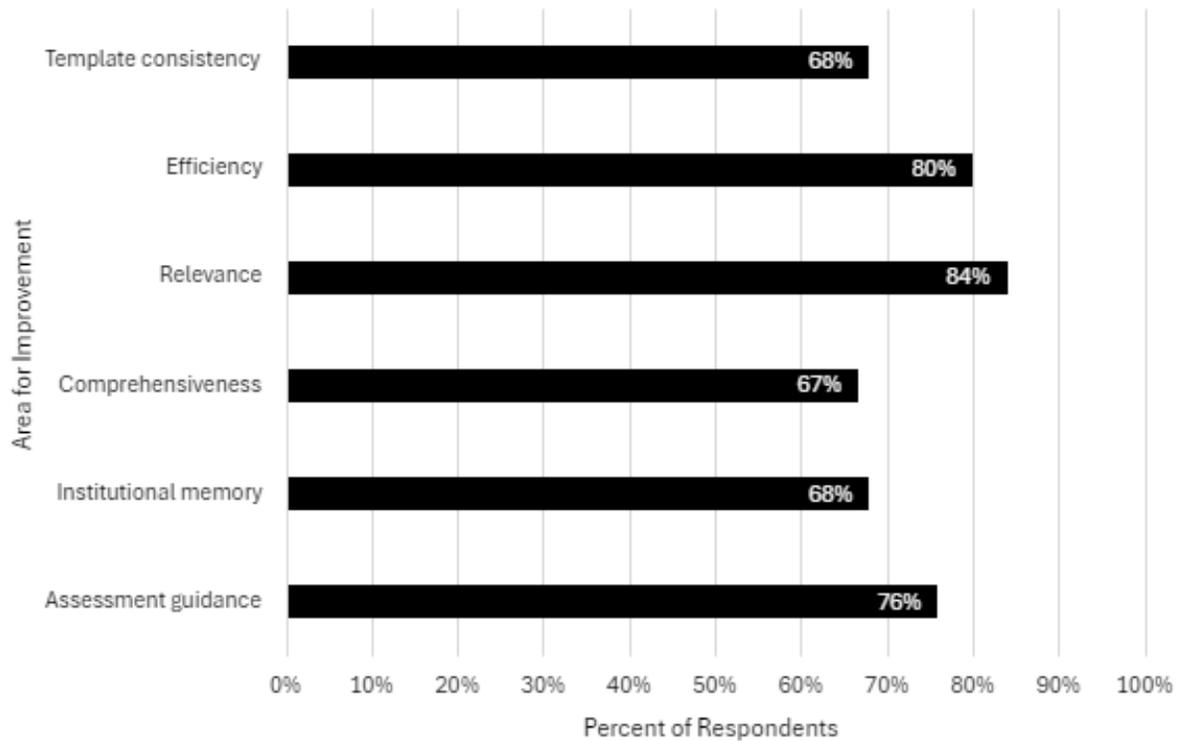
a balanced program assessment strategy includes both quantitative and qualitative methods, some faculty seem to perceive there to be an overemphasis on quantitative measures that impedes their opportunity to address critical qualitative measures.

Comprehensiveness. Comprehensiveness refers to the thoroughness of the methods, targets, and results for each outcome, including the instrument title, type of measure (e.g., locally developed exam, standardized exam, behavioral intervention, focus group, survey, portfolio, etc.), indication of whether the measure is direct or indirect, courses associated with each measure, criteria for success on each measure, quantifiable target relevant to each criterion, actual results compared to targets, and other related details. The comprehensiveness of information provided in the reports and plans varies. Although the template includes sections for describing methods, targets, and results, some programs do not always sufficiently address all required areas.

Institutional Memory. Institutional memory refers to the accessibility of knowledge generated through YPAs and the transferability of knowledge to new employees. The university has been using SharePoint to compile and organize YPAs. Navigating the system to retrieve historic reports, plans, and other related information, as well as compare YPA information between years, is not always intuitive or feasible. In addition to presenting challenges related to the university's operational uses of the resources, inadequate institutional memory has a significant hidden cost when preparing materials for external accreditation review.

Assessment Guidance. Assessment guidance refers to technical assistance and instructional resources for writing mission, goal, and outcome statements; describing

methods, targets, and results; preparing and submitting YPAs; and implementing other related tasks. Program assessment guidance exists, but it is often siloed in separate files and, consequently, may be challenging to locate and review. Other institutions have developed manuals as central access points to improve end-user navigation of resources with definitions, templates, examples, and other assessment-related guidance and tools. Feedback from chairs and other faculty suggests that additional guidance may need to be developed on clarifying assessment language, condensing data into reportable metrics, establishing targets, writing operational goals, completing the YPA forms, and clarifying due dates.

Recommendations

Transitioning to an online assessment system for preparing and submitting YPAs could support improvements in consistency, efficiency, relevance, comprehensiveness, institutional memory, and assessment guidance. Recommendations stemming from the identified potential areas for improvement included: creation of a YPA dashboard as a single point of access to efficiently retrieve YPA plans and reports; development of an academic program assessment manual; and transition to a vendor-based online program assessment system for preparing and submitting YPA plans and reports. A YPA dashboard should improve institutional memory by facilitating efficient access to historical files. The program assessment manual will clarify program assessment guidelines and improve consistency.

Theory Assessment Results

As the university explored potential assessment systems, assessment leadership considered the congruency between the features of the systems and the university's YPA requirements as well as the areas for improvement identified in the needs assessment. The DIA conducted a detailed alignment between the university's YPA MS Word template and three assessment systems and shared the results with members of its assessment-related committees. All three systems included areas for entering information that would otherwise be written in the YPA MS Word template. A preliminary review of other systems suggested that they would also be likely to include areas for entering information required by the university's template.

All the assessment systems they reviewed seemed as if they could help alleviate, to at least some extent, the program assessment needs related to consistency, efficiency, comprehensiveness, relevance, institutional memory, and assessment guidance. The consistency of the reporting process would be likely to improve because the interface of an online assessment system would be less likely to change from year to year than the structure of a MS Word template. Efficiency would be likely to improve because information would be entered directly into the system and there would be automated workflows to facilitate submission, review, and approval processes. Comprehensiveness of information would be likely to improve because data entry fields in an established online system would help ensure that required details are provided for each outcome. Relevance would be likely to improve because there would be a common format for reporting targets and actual values that would facilitate answers to the following key questions that were not possible to efficiently answer at various levels within the institution using its MS Word template reporting solution:

- To what extent are targets being met?
- Which areas of learning appear to be the strongest and weakest?
- Which areas of learning appear to be showing positive, negative, or neutral trends across time?
- Which areas of learning appear to be meeting and not meeting targets?

Reporting target and actual values as percentages of students meeting the criteria of success in an online assessment system could facilitate efficient answers to these questions at course, outcome, program, department, and institution levels. Furthermore, relevance would be likely to improve in an online system that allows connections to be established between student learning, program planning, accreditation criteria, and budget requests. Institutional memory would be likely to improve by having a single system for accessing current and historic YPA plans and reports. Assessment guidance would likely improve because assessment systems tend to include training resources that align with best practices in the field. Discussions with a variety of assessment professionals at other institutions revealed that some institutions utilized homegrown assessment systems while others utilized vendor-based systems. Most seemed to be able to identify strengths and challenges associated with their current system. Some of the institutions experienced challenges comparable to those addressed in the Needs Assessment Results section in this paper. Existing end users and potential end users of the three vendor-based systems under consideration indicated that the respective systems were supporting or had potential to support effective implementation of their program assessment policies.

All three systems appeared to be able to help respond to the university's needs that emerged through utilization of its current MS Word template. Therefore, they were considered, in theory, to be more appropriate solutions than the MS Word template.

Efficiency Assessment Results

After the institution identified solutions that would be theoretically appropriate to meet their needs, they identified which of the solutions would be the most efficient to implement within the scope of its resources. Table 3 summarizes the efficiency assessment results in terms of product implementation costs, networks of users, existing contracts, and technical assistance. As a standalone piece of evidence, a system with a lower product implementation cost is considered more efficient than one with a higher cost because it requires fewer financial resources for the institution to implement the solution. A system that has a network of users within the state's university system is considered more efficient than a system that does not have a network of users because it provides more opportunities for the institution to learn best practices for implementation and other relevant lessons from institutions that operate within the scope of similar academic policies and procedures. A system that has an existing contract between its vendor and the state's university system that includes the institution is considered more efficient than one that does not have an existing contract because it reduces the volume of administrative resources required by the institution to procure and navigate the contract. A system with technical assistance provided by the state's university system is considered more efficient than a system without because it provides additional opportunities for training and support. A system with technical assistance provided by the system's vendor is considered

more efficient than a system without vendor-provided technical assistance because it would be likely to reduce the amount of time required for troubleshooting unforeseen challenges encountered by users.

Table 3. *Efficiency Assessment Evidence*

Evidence	System 1	System 2	System 3
Product implementation costs for the institution	$0	Approximately $30,000/year + onboarding	Approximately $30,000/year + onboarding
Network of users within the state's university system	Yes	Yes	No
Existing contract with the state's university system that includes the institution	Yes	No	No
Technical assistance provided by the state's university system	Yes	No	No
Technical assistance provided by the system's vendor	Yes	Yes	Yes

The institution did not assign formal weights to each efficiency factor; however, they did consider certain factors to be more important than others. Technical assistance provided by the vendor was considered among the most essential factors to ensure that the system could be rolled out smoothly and that issues could be troubleshooted effectively. Given the context, implementation costs and the existing contract with the state's university system seemed to be the next most important factors. They felt like they were being better stewards of their financial resources by selecting a theoretically appropriate solution that costs $0 per year through an existing contract compared to other theoretically appropriate solutions that would cost tens of thousands of dollars per year. Even if the difference in costs between systems would not have been so steep (i.e., $0 to tens of thousands of dollars), the university would likely have still considered cost one of the most important factors. Technical assistance provided by the state's university system and an existing network of users in the state were added bonuses.

Taking all the presented efficiency assessment evidence into consideration, System 1 seems to be the most efficient, System 2 appears to be the second most efficient option, and System 3 seems to be least efficient of the three options. It should be noted that, although the amount of effort required to initially set up programs in the systems was not compared, all three systems would require extra time and energy to be spent building the programs. Continuing to use the university's MS Word template would not require extra time and energy for building programs in a new system; however, the one-time expenditure of effort to build the programs in any of the systems seemed to be worthwhile because they would be more efficient after the initial build and help alleviate needs that would likely persist through continued utilization of the MS Word template.

Discussion

Successful program assessment promotes the ongoing development and implementation of relevant, high-quality programs through intentional generation and utilization of multiple forms of evidence to support continuous improvement (Banta & Palomba, 2015). The effectiveness of program assessment processes may be impeded by various barriers, which could inhibit faculty buy-in for the practice (Ewell, 2002; Greene, 2023). Identifying and appropriately responding to the barriers could improve program assessment buy-in and effectiveness.

The institution in this study addressed three categories of assessment within a comprehensive program evaluation framework (Anderson, 2022; Rossi et al., 2004) to identify barriers to optimal program assessment implementation and a solution to help reduce the prevalence of the barriers. Its needs assessment revealed areas for improvement related to template consistency, efficiency, relevance, comprehensiveness, institutional memory, and assessment guidance. The needs assessment process also produced recommendations for improvement. Theory assessment revealed three vendor-based assessment systems (System 1, System 2, and System 3) that aligned with the institution's program assessment requirements and that could help meet its identified needs. Efficiency assessment revealed one assessment system (System 1) that seemed notably more efficient than the others (System 2 and System 3). Considering the results of the needs, theory, and efficiency assessments, the DIA—along with support from the institution's Vice President for Academic Affairs and members of assessment-related committees—decided to proceed with transitioning programs to System 1 on a voluntary basis. The institution intends to implement comprehensive planning strategies to help strengthen the likelihood of a successful transition to the new system (Herroelen, 2005; Meredith & Shafer, 2022).

ALTMAP

The authors of this paper propose the ALTMAP model, based on Anderson's (2022) synthesis of established tools and frameworks for developing an evaluation plan, as a lens for comprehensively planning, implementing, and evaluating assessment systems or other purposeful initiatives. In the case of this paper, ALTMAP serves as a framework for supporting the planning, implementation, and evaluation of a relevant, efficient, and effective assessment system. Its components include (A)ssessment, (L)ogic model, (T)heory of change, (M)etrics tracker, (A)+ Inquiry, and (P)roject schedule (Figure 3). AlALTMAP components relate to the five categories of assessment mentioned in this paper (i.e., needs, theory, process, outcome, efficiency).

Assessment

Assessment refers to the five categories of assessment (needs, theory, process, outcome, efficiency) previously introduced in this paper (Anderson, 2022; Rossi et al., 2004). This study addressed the needs, theory, and efficiency categories. The needs assessment relied on Department Chair interviews, assessment leadership observations, content analysis, and a survey to generate evidence of gaps in the institution's program assessment consistency, efficiency, relevance, comprehensiveness, institutional memory, and assessment guidance. The theory assessment relied on meetings with vendors, viewing product demonstrations by vendors, meeting with end-users of systems, and

Figure 3. *ALTMAP Diagram*
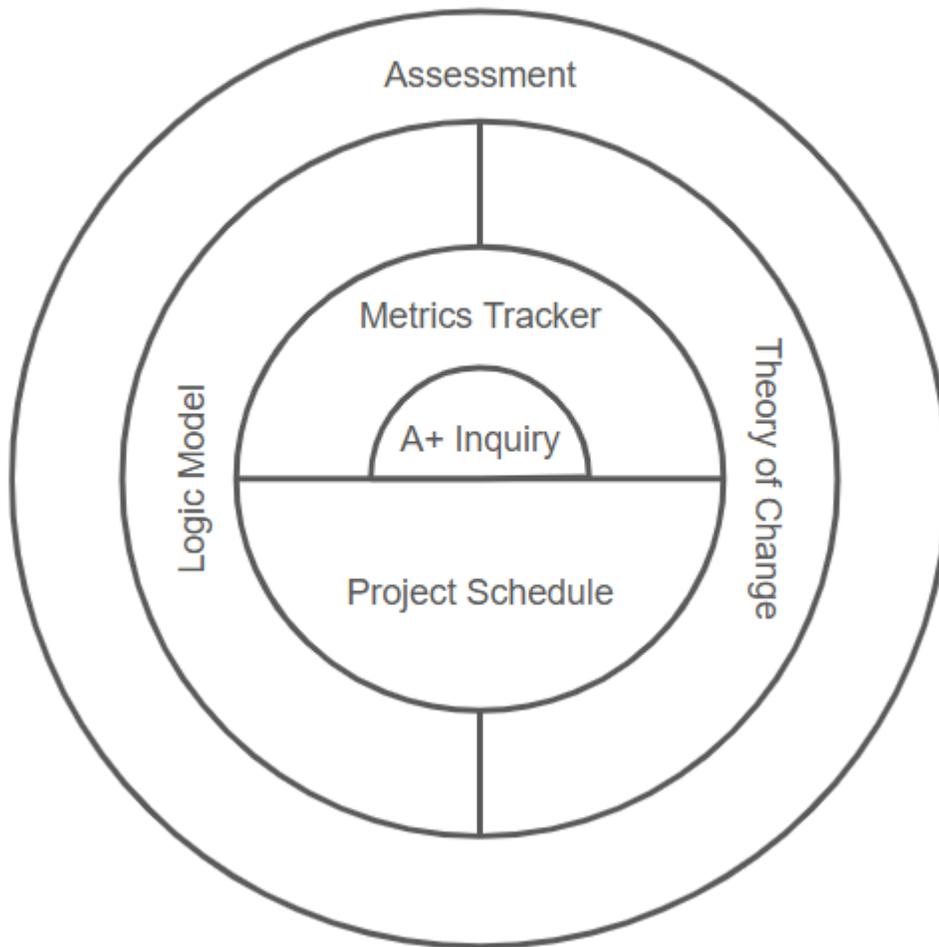
viewing product training videos, manuals, and other related resources to generate evidence of three systems being theoretically appropriate responses to the institution's assessment needs related to consistency, efficiency, relevance, comprehensiveness, institutional memory, and assessment guidance. The efficiency assessment relied on product implementation costs, a network of users within the state's university system, an existing contract with the state's university system, technical assistance provided by the state's university system, and technical assistance provided by the system's vendor. Other institutions may consider using similar or other types of sources to generate evidence for their needs, theory, and efficiency assessments.

This study did not focus on the process or outcome categories of assessment. However, moving forward, the institution intends to utilize a variety of data sources to generate evidence related to the assessment system being implemented as planned and producing the desired effects. Process assessment evidence of implementation may include the number of assessment systems selected for utilization, number of system guidance materials, number of training sessions conducted, the number and percentage of faculty trained on the system, the number and percentage of faculty with access to the system, the number and percentage of faculty signing in to the system, the number of

programs with assessment plans in the system, and the number of programs with assessment reports submitted in the system. Outcome assessment evidence addressing effects may include changes in knowledge of assessment, skill in assessment implementation, satisfaction with program assessment processes, time required to complete assessment plans and reports, timeliness of submissions, comprehensiveness of assessment plans and reports, institutional memory, utilization of data to improve student learning, and student achievement. Qualitative data related to implementation and effects may be collected and analyzed to help contextualize quantitative process and outcome assessment indicators. Other institutions may consider using similar or other types of evidence sources to support their process and outcome assessment efforts.

Logic Model

A logic model depicts an overview of a program or project, typically in a one-page snapshot. Logic model elements often include the title of a project or program, its context and related needs, its expected goal, the target population, resources, activities, outputs, and short-, mid-, and long-term outcomes (Kekahio et al., 2014; W.K. Kellogg Foundation, 2004; Wyatt Knowlton & Phillips, 2013). Some of the logic model elements are related to the five categories of assessment.

The context/need element, related to the needs category of assessment, helps establish a foundational rationale for a program or project. The resources element, related to the efficiency category of assessment, outlines resources required for its implementation. The activities element, related to the theory category of assessment, represents strategies intended to be implemented with the resources. The outputs element, related to the process category of assessment, represents verification of activity implementation. The short-, mid-, and long-term outcomes elements, related to the outcome category of assessment, represent the effects of implementing the project's activities. Figure 4 depicts a logic model related to the needs, theory, and efficiency assessment evidence in this study and the process and outcome assessment evidence that the institution could track moving forward. The figure is color-coded to demonstrate its alignment with the colors depicted in the five categories of assessment in Figure 1.
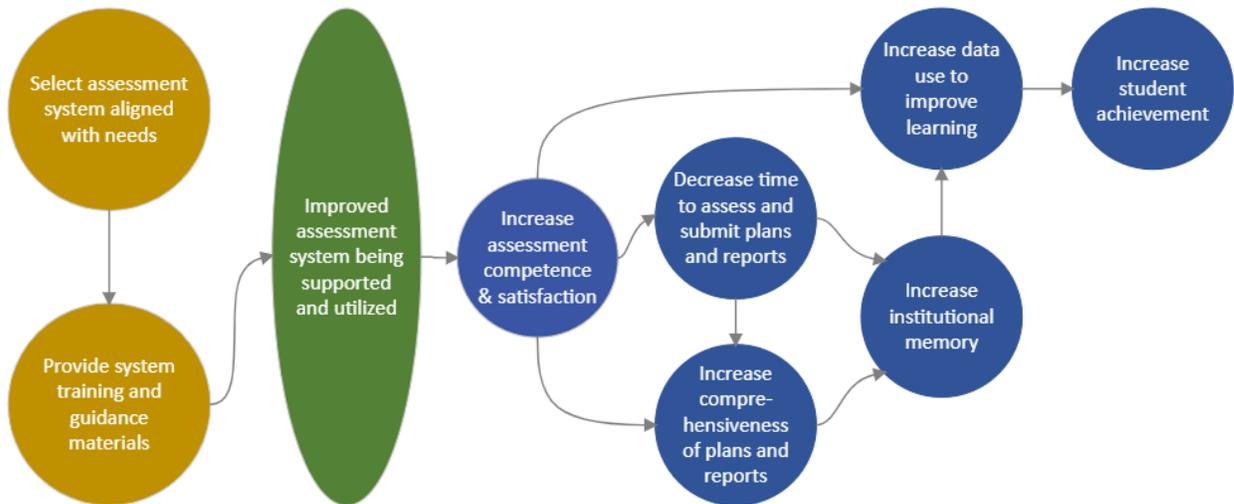
Theory of Change

A theory of change is a high-level depiction of how change is likely to occur through a project (Dhillon & Vaca, 2018; Wyatt Knowlton & Phillips, 2013). Theories of change may depict causal relationships that help further contextualize the information provided in logic models. The design of a theory of change is likely to be different for each project. Figure 5 illustrates an example theory of change related to the logic model in Figure 4. Its elements are color-coded to align with the theory, process, and outcome categories of assessment in Figure 1 as well as with the activities, outputs, and outcomes elements of the logic model in Figure 4. The theory of change suggests that selecting an assessment system aligned with needs and then providing training and guidance materials on the system will lead to an improved assessment system being supported and utilized, which will lead to increased assessment competence and satisfaction. Higher levels of competence and satisfaction are expected to decrease the time required to complete assessments and to submit plans and reports, increase comprehensiveness of reports, and increase data use to improve student learning. Increasing comprehensiveness of plans and

Figure 4. *Logic Model Example*

Project Title		Expected Goal		Target Population	
Program Assessment System Enhancement		Improve Program Assessment		Faculty	
Context/Need					
Academic programs are required to regularly implement assessment and to submit yearly program-level assessment plans and reports. Various barriers weaken the institution's assessment system and inhibit assessment effectiveness. Evidence suggests that the institution has room for improvement in the areas of template consistency, efficiency, relevance, comprehensiveness, institutional memory, and assessment guidance.					

Resources	**Activities**	**Outputs**	**Outcomes**		
			Short-Term	**Mid-Term**	**Long-Term**
Technology infrastructure Funding System user network Technical assistance by university system Technical assistance by vendor	1 Select assessment system 2 Provide system guidance materials 3 Provide system training 4 Utilize system	1 # assessment systems 2 # system guidance materials 3 # training sessions # and % faculty trained 4 # and % faculty with access # and % faculty signing in # plans entered in system # reports entered in system	Increase faculty assessment knowledge Increase faculty assessment skill Increase faculty satisfaction with assessment	Decrease time to complete assessment Decrease time to submit plans and reports Increase comprehensiveness of plans and reports	Increase institutional memory Increase use of data to improve student learning Increase student achievement

Figure 5. *Theory of Change Example*

reports and decreasing time required to assess and submit plans and reports is expected to increase institutional memory, which is expected to also increase data use to improve student learning. Increases in data use to improve student learning are expected to promote increases in student achievement.

Metrics Tracker

A metrics tracker is utilized to compile values reflecting measurable output and outcome indicators (Anderson, 2022). It may include fields to indicate whether a metric is an output or outcome, identify the metric's associated activity category, provide a description of the metric, and enter target and actual values for the metric. Figure 6 shows an example metrics tracker with a few indicators aligned with the outputs and outcomes in the logic model in Figure 4. It is color-coded to align with the process and outcome assessment categories in Figure 1, output and outcome logic model elements in Figure 4, and related theory of change elements in Figure 5. Sample target values that the institution could consider are provided. Actual values are to be determined (TBD).

**Figure 6**. *Metrics Tracker Example*

Logic model section	Activity category	Metric description	Target value	Actual value
Output	3 Provide system training	Number of training sessions	5	TBD
Output	3 Provide system training	Percentage of faculty program assessment report authors trained on system	100%	TBD
Output	4 Utilize system	Percentage of faculty program assessment report authors with system access	100%	TBD
Short-term outcome	N/A	Percentage of faculty self-reporting satisfaction with assessment processes	90%	TBD
Mid-term outcome	N/A	Percentage of program assessment plans and reports submitted on time	90%	TBD

A+ Inquiry

A+ Inquiry is a broadly applicable inquiry framework that may be utilized to operationalize output and outcome metrics as needed (Anderson, 2022; Anderson et al., 2014). A+ Inquiry uses visualization (Gilbert, 2008; Tufte, 1990; Ware, 2000) and alliteration (Bryant et al., 1990; Lea et al., 2008; Stoll, 1940) to promote understanding of common stages in various disciplined inquiry cycles (e.g., evaluation, assessment,

research) and how the stages support one another. It may be utilized as a conceptual lens for planning or implementing a study, establishing common language for discussing inquiry methods, identifying gaps in inquiry processes, telling an evidence-based story, or providing rationale for action. A few examples of its use include training teachers in methods of utilizing data (Anderson et al., 2018), facilitating discussions on data utilization in schools (Statewide Longitudinal Data Systems Grant Program, 2015), developing a thesis-alternative capstone course for M.Ed. students (Anderson et al., 2025), conducting a study to enhance the development of a holistic teacher evaluation tool (Tenam-Zemach et al., 2024), assessing program assessment workload needs of faculty (Pontenila et al., 2024), and developing outcome assessment plans (Anderson, 2022). The cyclical framework includes eight stages (Absorb, Ask, Accumulate, Access, Analyze, Answer, Announce, Apply) connected in the center by a hub of Awareness (Figure 7).

Figure 7. *A+ Inquiry Diagram*
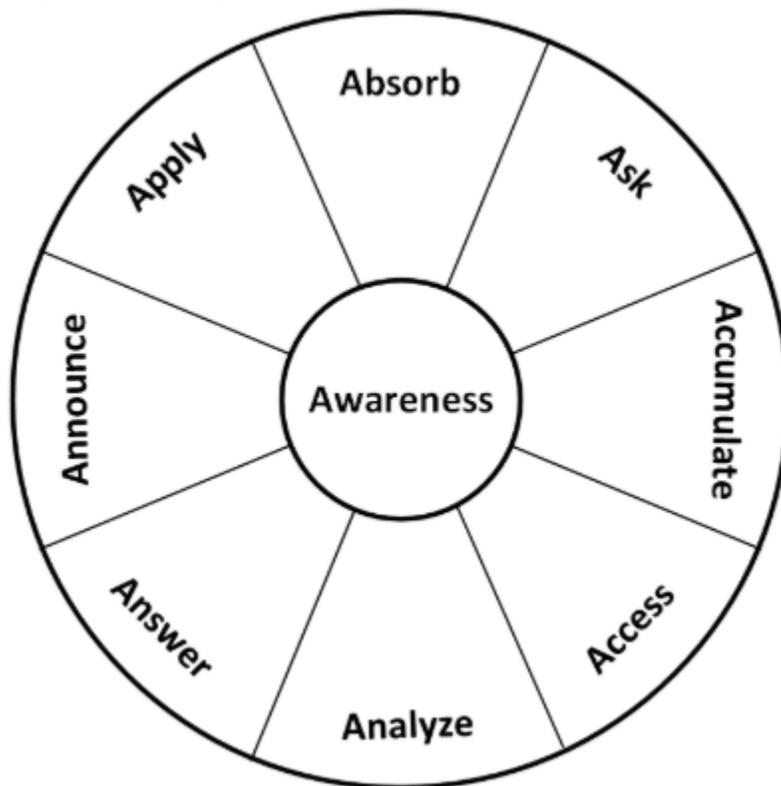
In the Absorb stage, identify what is already known about a context and identify a need to know or understand more about something. In the Ask stage, formulate one or more questions that, if answered, could help close the knowledge gap established in the Absorb stage. In the Accumulate stage, collect new data or verify the collection of existing data that could be analyzed to help answer the question(s) posed in the Ask stage. In the Access stage, retrieve the collected data from where it is stored in preparation for analysis. In the Analyze stage, analyze the data using applicable quantitative and/or qualitative methods. In the Answer stage, respond to the questions posed in the Ask stage based on the analysis results. In the Announce stage, distribute the results to applicable

stakeholders. In the Apply stage, make decisions based on the results. The Awareness hub serves as a reminder to ensure that when someone is working on tasks in one stage of the process, they are aware of how it integrates with the other stages. Table 4 depicts an example of how A+ Inquiry could be utilized to operationalize the output metric in Figure 6 that focuses on the percentage of faculty program assessment report authors trained on the system.

Table 4. *A+ Inquiry Example*

A+ Inquiry Stage	Example
Absorb	*What is known?* The university is implementing a new assessment system. They set a target to train 100% of their faculty program assessment report authors on the system. *What is not known?* They do not know the extent to which their target is being achieved.
Ask	To what extent is the target being achieved for training faculty program assessment report authors?
Accumulate	Compile a list of program assessment authors by requesting program assessment report author names from department chairs. Add the names to a spreadsheet as they are submitted. Compile a list of faculty participating in the training by asking them to complete an online sign-in form. As participants submit the form, their names are automatically compiled in an online data source connected to the report.
Access	Retrieve the list of program assessment authors from the spreadsheet where they are compiled. Retrieve the names of training participants from the online data source where the names are automatically compiled upon submission of the form.
Analyze	Cross-reference the list of program assessment report authors with the list of training participants. Identify which authors participated in training. Count the total number of authors and the number of authors who completed training. Divide the number of authors who completed training by the total number of authors to calculate the percentage of authors who received training. Calculate the difference between the target percentage and the actual percentage of authors receiving training.
Answer	The percentage point difference between the target and the actual percentages illuminates the extent to which target is being achieved. Note the names of authors who participated and names of those who did not participate.
Announce	Share the results with the team responsible for implementing the new system. Also, share the results with the department chairs to inform them of the extent to which training has been completed by report authors for the programs in their department. Include names of the training participants and non-participants for reference.
Apply	Follow up with training participants to inquire about their needs for further support. Plan and implement a strategy for training report authors who have not yet been trained on the system.

Project Schedule

Project scheduling helps facilitate optimal implementation of a project's activities across time (Herroelen, 2005; Meredith & Shafer, 2022). A project schedule tool can be utilized to detail a sequential scope of specific activities required for operationalizing the project and to track progress toward completion of the activities. Project schedules may evolve over time as new information becomes available and tasks need to be added, revised, or removed. Components of a project schedule may include a code for each item in the schedule, descriptions of activities with associated tasks and subtasks, the implementation status, target start and end dates, responsible parties, and comments related to progress and challenges. Figure 8 depicts an example of a project schedule template related to the third activity category (3 provide system training) in the logic model in Figure 4. It is color-coded to demonstrate its alignment with the theory assessment category in Figure 1, the activities element of the logic model in Figure 4, and related theory of change elements in Figure 5.

Figure 8. *Project Schedule Example*

Code	Description	Status	Start Date	End Date	Responsible	Comments (progress, challenges, etc.)
3	Provide system training	Not started	mm/dd/yy	mm/dd/yy	Assessment Director	
3.1	Develop training	Not started	mm/dd/yy	mm/dd/yy	Assessment Director	
3.1.1	Develop draft content	Not started	mm/dd/yy	mm/dd/yy	Assessment Director	
3.1.2	Collect feedback on content	Not started	mm/dd/yy	mm/dd/yy	Assessment Director	
3.1.3	Analyze feedback	Not started	mm/dd/yy	mm/dd/yy	Assessment Director	
3.1.4	Make edits based on feedback	Not started	mm/dd/yy	mm/dd/yy	Assessment Director	
3.2	Recruit participants	Not started	mm/dd/yy	mm/dd/yy	Assessment Director	
3.3	Deliver training	Not started	mm/dd/yy	mm/dd/yy	Assessment Director	

The ALTMAP examples in this section are specific to the study presented in this paper; however, the tools and frameworks reflected in the ALTMAP model are highly transferrable and may support other institutions' adaptations of the methods in this study for promoting assessment quality within their unique contexts.

Conclusion

Consideration of various pieces of evidence through lenses of needs, theory, and efficiency helped the institution in this study determine which assessment system would be the most appropriate to implement. The next steps will be to formalize and implement a plan to begin transitioning programs to the new system on a voluntary basis, to provide general and targeted support for faculty using it, and to critically evaluate the system's value. A successful transition will depend on a variety of factors characterized in Venkatesh et al.'s (2003) *Unified Theory of Acceptance and Use of Technology* model, including performance expectancy, effort expectancy, attitude toward using technology,

social influence, facilitating conditions, self-efficacy, anxiety, and behavioral intention to use the system. As programs move to the new system, assessment leadership will need to be prepared for challenges that may accompany a transition, such as resisting change, learning terminology of a new system, and acquiring new skills for navigating the system.

The institution in this study should continue to periodically assess its needs related to program assessment, the theory of its assessment system, and the support required to ensure the system works efficiently. It will also be important for the DIA to implement process assessment to know whether the institution's assessment system is functioning as intended and outcome assessment methods to provide a better understanding of whether the system's implementation is helping meet its identified needs and supporting achievement of assessment policy requirements. If their assessment system effectively organizes assessment plans and results, faculty will have readily accessible and analyzable assessment information for decision-making related to providing high quality, relevant programming that promotes student learning.

In addition to the institution in this study continuing to utilize evidence generated through multiple categories of assessment to evaluate its program assessment system and supports, other institutions may consider adapting the methods and frameworks presented in this paper to support the evaluation of their program assessment tools and practices. The newly proposed ALTMAP model provides a lens for discussing and organizing essential components of comprehensive evaluations by synthesizing common evaluation-related frameworks and tools into a cohesive package. While institutions may find value in addressing each ALTMAP component in the planning, implementation, and evaluation of their own program assessment platforms, the ALTMAP model could help inform programming and judgments on the merit or worth of a wide array of initiatives beyond the scope of program assessment and the field of higher education.

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