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Richard J. Rexisen
University of St. Thomas, Minnesota, rjrexeisen@stthomas.edu

Michael J. Garrison
University of St. Thomas, Minnesota, MJGARRISON@TTHOMAS.EDU

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Closing the Loop in Assurance of Learning Programs: Current Practices and Future Challenges

Richard J. Rexeisen and Michael J. Garrison

University of St. Thomas, St. Paul, Minnesota, USA

Although it has been 5 years since the Association to Advance Collegiate Schools of Business (AACSB) expressed the expectation that schools should be demonstrating a high level of maturity implementing their assurance of learning programs, the authors' results indicate that most accredited programs are in the early stages of developing their closing-the-loop practices. Among assurance of learning leaders there is disagreement as to what constitutes a closing-the-loop activity and there are serious challenges to systematically implementing curricular responses including the time necessary to develop, initiate, and then reevaluate effectiveness. Faculty ownership, a crucial feature of the assurance of learning process, is reported as the number one challenge confronting accredited programs.

Keywords: AACSB, assessment, assurance of learning standards, closing-the-loop

The systematic assessment of student learning outcomes has become a widely accepted practice at institutions of higher education, and particularly in schools of business (Kelly, Tong, & Choi, 2010; Martell, 2007; Pringle & Michel, 2007). The need to demonstrate outcomes from the higher education system was driven by a range of social, economic, and political changes and pressures, resulting in calls for greater accountability by the public. The Association to Advance Collegiate Schools of Business International (AACSB) has been instrumental in the movement to student learning assessment in management education. Under the accreditation standards adopted by AACSB in 2003, business schools are required to have a systematic and ongoing process to assess student learning and to make curricular improvements in response to assessment results.

BACKGROUND

The assurance of learning process begins with the identification of mission driven learning goals and culminates with the critical closing-the-loop (CTL) stage—the development and implementation of curricular changes designed to improve student learning (AACSB, 2012). Assurance of learning (AOL) involves a cycle of continuous improvement of curricula, with schools regularly assessing and improving their programs to ensure essential student competencies. It focuses on outputs of the school's programs (knowledge and skills of students) rather than inputs (faculty qualifications and course content). Under the AOL standards, assessment must be conducted at the program level, faculty ownership of the AOL process is critical, and schools must document and report their assessment activities and progress in improving student learning.

Given the magnitude of the change in standards, and the difficulty of developing and implementing a comprehensive AOL process, business schools were provided a three-year transition period to establish their AOL systems. In 2007, Martell reported that AOL challenges were evolving as faculty and administrators acquired knowledge of the standards and experience in the development and implementation of the assessment process. For example, in 2004 deans were most concerned about the lack of faculty knowledge concerning assessment. These concerns are understandable given that the 2003 AOL standards required a substantial shift in focus from inputs to mission centered outcomes measurement, the emphasis on direct versus indirect measures, and to program level assessment. By 2006 most schools were reporting that they had established learning goals and objectives, committed resources to AOL training and support, and had developed a range of assessment measures. Only a few schools had collected data on all of their goals and objectives, but close to 50% had assessed three or more of their goals (Martell, 2007).

Lack of progress in CTL was, however, evident in 2006 with 46% of the deans citing this as a major concern compared to only 29% in 2004 (Martell, 2007). Similar concerns were expressed in a 2008 *BizEd* (Bisoux, 2008, p. 22) article where those interviewed commented: "Although most business schools have begun assessment in earnest . . . many have yet to take an all important next step: 'closing the loop.' That is they fail to use the data they collect to make tangible improvements." These concerns, however, stand in sharp contrast to expectations expressed by AACSB: "For 2007 and beyond, schools should be demonstrating a high degree of maturity in terms of delineation of clear learning goals, implementation of outcome assessment processes, and demonstrated use of assessment information to improve curricula" (AACSB, 2012, p. 69).

Even though Pringle and Michel (2007) reported that 89% of schools were making use of assessment results, they acknowledged that many schools rely on indirect measures as a basis for making improvements and that faculty resistance to the process is still evident. These observations call into question the meaning of what constitutes a mature AOL system. Our comment is intended to neither be a criticism nor dispute that important progress has been made, but rather to suggest that as our familiarity and sophistication with the AOL process develop, our expectations will also need further clarification.

Kelley et al. (2010) suggested that schools are making progress implementing the AOL process although they also note that financial resources to support AOL activities continue to be relatively low with 54% of the schools reporting an investment of $10,000 or less in assessment activities. A moderate level of faculty resistance to AOL is also reported. The faculty time devoted to assessment and fear of the use of AOL data for performance evaluations continue to be major faculty concerns. Nearly 90% of the faculty also reported that they lacked sufficient knowledge on how to conduct assessment.

Although the literature is beginning to document potential responses to identified learning weaknesses (Kelly et al., 2010; Martell, 2007; Pringle et al., 2007) there has been little discussion of how the process of CTL is implemented in business schools. Martell suggested several CTL initiatives designed to improve students' communication, writing and quantitative skills. These vignettes are useful to business schools but the mission of the school and the characteristics of the target audience for each program will continue to moderate curricular responses.

What the literature has not addressed is how the process of closing the loop is implemented in business schools. Who is engaged in developing the ideas for curriculum interventions and which groups evaluate the various alternatives for responding to identified weaknesses? What types of formal or informal processes are used to develop and evaluate CTL responses? Is there a common understanding as to what constitutes a valid CTL activity? Do schools appreciate the

distinction between changes designed to improve student learning and changes designed to improve the assessment process? How long does it take to implement a curricular change, reassess to determine if there are any changes in performance, and then change or modify the curricular intervention? Our study addresses these issues, and provides a detailed description of the current practices around CTL and the implications for AOL implementation.

METHODOLOGY

A systematic random sample of 100 U.S. AACSB-accredited business schools were selected for this study, representing approximately 20% of all AACSB-accredited schools in the United States. Data were collected in two phases. The dean of each school was contacted to ask permission for the study and then to identify the most knowledgeable AOL person (key informant) in their program. Two follow-up reminders were sent resulting in a response rate of 45%.

In the second phase of the research key informants were again asked for their cooperation and were told that their dean had identified them as the most appropriate person to contact concerning the assurance of learning activities in their school. As with phase one, two follow-up reminders were automatically sent to subjects who had not previously responded to the Qualtrics (Qualtrics, Inc., Provo, UT) generated survey.

The survey instrument comprised 17 4-point Likert scales measuring sources of CTL ideas, processes used to assess the merits of CTL ideas, and respondent beliefs concerning the appropriateness of specific CTL activities. Unlike the Pringle et al. (2007) and Kelly et al. (2010) studies that asked what types of CTL activities schools were using, we wanted to probe further and assess the strength of respondents' beliefs concerning the appropriateness of potential CTL activities. We also surveyed respondents about how long it takes to generate, approve, and implement a CTL activity as well as the length of time to evaluate the impact of a given AOL response.

RESULTS

Nine schools declined participation and eight key informants never replied resulting in a usable response rate of 28%. Administrators were identified as the key informant most frequently in schools where the AOL program was less than four years old (83%) and in mid-sized programs characterized by 26–75 full-time faculty members (77%). Designating a faculty member as the key informant is most prevalent in business schools with 25 or fewer full-time faculty members but then only after the first three years of establishing the AOL program (50%).

TABLE 1
What Actions Constitute a Closing of the Loop?

Appropriateness of a given closing-the-loop action	Disagree	Neither agree nor disagree	Agree	M	SD
Changing an objective after establishing satisfactory performance	46%	18%	36%	2.82	1.12
Raising admission standards to address an AOL weakness	57%	18%	25%	2.46	1.20
Changing the assessment methodology	68%	18%	14%	2.29	1.05
A change in delivery technology	11%	14%	75%	3.79	0.96
Piloting or other experimental test of a learning intervention	21%	11%	68%	3.46	1.07

What Actions Constitute a Closing of the Loop?

Key informants expressed a wide range of opinions as to what constitutes a CTL exercise (Table 1) with no clear consensus for any given activity. Some of the CTL activities in our questionnaire clearly satisfied AOL standards (e.g., change in a delivery technology or raising admission standards; AACSB, 2012) while others clearly do not (e.g., changing the assessment methodology). Yet no more than 75% of the schools agreed on the appropriateness of any given CTL activity. The larger and older AOL programs exhibited as much variation in opinion as did the smaller or younger AOL programs.

Who Generates Ideas for Curricular Responses?

Most schools use a standing committee or a faculty group to generate CTL ideas. The curriculum committee tops the list at 33% followed closely by the faculty meeting as a whole (29%), teaching teams (24%), and designated faculty working groups (19%). Smaller programs reported the highest frequency of meeting as a faculty of the whole to discuss ideas. Although most respondents (75%) agreed with the proposition that departments should be allowed to generate CTL responses, only 14% mentioned departments as a source of CTL ideas. We were also somewhat surprised that individual faculty initiative and the use of outside advisory groups were mentioned by fewer than 15% of the respondents. In most cases schools appear to be using multiple sources of ideas.

Who Evaluates Alternative Closing-the-Loop Responses?

We find a similar pattern emerging with regard to the process of evaluating alternatives for closing the loop. College-wide committees and teams including the curriculum committee (33%), designated faculty working groups (33%), and the AOL committee (24%) dominate the evaluation landscape. Departments and faculty meeting as a whole round

out the more common methods of screening ideas for CTL. In a few schools, leadership groups are engaged in this process, including directors, administrative advisory groups and tenured faculty. Schools also reported using multiple sources or a layered review process.

How Are CTL Responses Generated?

The use of a formal method for generating curricular interventions varied significantly with the age of the AOL program. During the first three years respondents indicated moderate formality ($\bar{x} = 3.33$, $SD = 1.033$). In years 4–6 there is a reported decline ($\bar{x} = 2.77$, $SD = 1.092$) followed by a significant increase in formality in year 7 and beyond ($\bar{x} = 4.00$, $SD = 0.500$, $p = .002$).

Brainstorming is common, with most schools reporting that they systematically develop ideas to close the loop. Most schools report that they are engaged in a regular review of methods to improve their AOL process (Table 2). The few exceptions came from schools that are in the early stages of implementing their AOL programs.

Thirty-two percent of the schools reported using no expert resources, either internal or external to the business program, nor do they rely on the literature when generating ideas for CTL. Moreover, 90% of the schools report that they are not using a formal cost–benefit analysis when screening ideas to address identified AOL weaknesses.

Many schools appear to be confident in their ability to identify the reasons for student weaknesses and develop

TABLE 2
Closing the Loop: Idea Generation and Evaluation

Survey question	Disagree	Neither agree nor disagree	Agree	M	SD
We use outside experts to generate ideas.	29%	32%	39%	3.25	1.04
We use literature to generate curricular improvement.	50%	32%	18%	2.61	0.88
We use a very formal system of idea generation.	29%	18%	53%	3.29	1.05
We use AOL faculty specialists to generate ideas for "closing the loop."	50%	18%	32%	2.71	1.05
We systematically catalog all of our ideas for how to "close the loop."	32%	25%	43%	3.18	1.19
We use a formal screening method that includes a cost/benefit analysis to evaluate ideas designed to "close the loop."	93%	7%	0%	1.68	0.61

TABLE 3
Assurance of Learning and Closing the Loop Practices

Survey questions	Disagree	Neither agree nor disagree	Agree	M	SD
We regularly evaluate ways to improve assurance of learning.	0%	7%	93%	4.39	0.63
We are very good at isolating cause and effect relationships in our assurance of learning program.	29%	25%	46%	3.21	0.92
After "closing of the loop" we intensively evaluate the merits of the decision in order to retract or modify learning intervention as needed.	26%	41%	33%	3.00	0.92
Each department should be allowed to generate individual responses to identified assurance of learning weaknesses.	18%	7%	75%	3.86	1.24

appropriate responses. Just under half of the schools felt that they were good at isolating the cause and effect relationships in their AOL program (Table 3). However, only a third of schools reported that they intensively evaluate their CTL initiatives to see if they are addressing identified weaknesses. As one informant observed, "There is no clear mechanism for fine tuning the assessment process to demonstrate whether a particular closing of the loop response had the direct effect that we were intending."

The time necessary to complete a CTL cycle is a serious challenge for schools. It takes on average 4.2 years for a school to generate, approve, and then reevaluate a CTL learning intervention (Table 4). The larger schools (more than 80 full-time faculty) reported the least amount of time at 3.25 years, and mid-sized schools (>26 but <80 full-time faculty) took the longest at 4.6 years. Small schools (<25 full-time faculty) took 4.2 years on average. It is noteworthy that 28% of the respondents were unable to estimate how long it took their school to complete one full CTL cycle.

Consistent with expectations, a positive relationship was found between the number of years to generate an AOL response and the number of years it took to modify a curricular change if proven unsuccessful ($r = .537$, $p = .015$). The number of years it took to generate a response to a curricular weakness is negatively correlated with cataloging AOL ideas ($r = -.542$, $p = .009$), formality of idea generation system ($r = -.471$, $p = .027$), and a school's ability to isolate cause and effect ($r = -.469$, $p = .021$). Restated, this suggests that a more formal AOL structure is positively related to improved efficiencies in responding to shortcomings in student learning.

TABLE 4
Time to Respond

Survey question	Minimum years	Maximum years	Don't know	M	SD
How many years does it take to generate, approve, and then implement a response to an identified assurance of learning weakness?	1	3	18%	1.68	0.78
How many years does it take to retract or modify a curricular change once it has been implemented?	1	6	14%	2.37	1.21
Total time to generate, approve and then evaluate assurance of learning intervention.	2	9	29%	4.20	1.82

Three issues dominate key informant's view of future AOL challenges (Table 5). Faculty ownership of the process (71%) is overwhelmingly the biggest concern. This finding is particularly noteworthy given the importance of faculty participation in the AOL process. Closing the loop (25%) and resource constraints (21%) round out the remaining issues confronting AOL programs.

Brief Summary of Responses to Open-Ended Questions

At the conclusion of the survey respondents were given the opportunity to comment further on (a) the length of time it takes to respond to an identified weakness, (b) the process used to generate CTL responses, (c) the evaluation and screening process, and (d) the greatest AOL challenges still facing their program. Although comments varied, the following response is representative of the general sentiment expressed by respondents:

> The proper approach to generating ideas for responding to an identified weakness in student learning depends on the circumstance. For example, changes made within a course [such as] a change in emphasis, teaching methodology, etc.

TABLE 5
Biggest Challenge Facing Your School With Regard to Assurance of Learning

Observed challenge	n	%
Faculty ownership of the assurance of learning process	17	71%
Closing the loop	6	25%
Resource constraints	5	21%
Focus	1	4%
Interdisciplinary programs	1	4%
Denial	1	4%

would not need to be approved by the faculty as a whole, but would be agreed upon by the teaching team with input from the faculty as a whole. Changes not restricted to a course, for example, a push to improve writing across the curriculum, is generally agreed upon and adopted by the faculty without any official curricular changes through a series of informal discussions/meetings. Other changes outside a course, such as the addition of a new course in business ethics, would go through our curriculum committee, be presented to the faculty as a whole as a curriculum proposal and voted upon.

This sentiment is encouraging because it suggests that CTL processes are evolving organically and that faculty are deeply involved in the curricular change process.

With regard specifically to future challenges, representative comments include:

> Some faculty are excited about the opportunity for innovation and improvement and some are resistant to change, extra tasks, or they feel that [the process] is an assessment of them as an instructor instead of the curriculum and program.

> How to get people to think AOL is part of our work, and not something to get done and get over with.

> The sheer size of the AOL process given the number of programs we offer and our large enrollment numbers.

And finally, the seminal comment that seemed to capture much of the sentiment of the respondents, "[There are simply too many] distractions!"

DISCUSSION

The *raison d'être* for having an AOL system is to create an environment of continuous improvement whereby institutional stakeholders can be ensured that students are learning a well-defined set of business skills and knowledge. Programs set mission driven goals and objectives, assess students to determine the level of student competency, and then make adjustments to improve student performance when there are identified weaknesses. The CTL stage is therefore critical because it represents the tangible actions that are taken to improve student learning.

Our survey results suggest that schools are in the early stages of developing their CTL practices and processes. This is consistent with other surveys of current AOL practices that have found schools developing minor changes to courses or changes in objectives as the most common CTL actions, rather than implementing major curricular interventions. The lack of consensus on what constitutes a CTL action reflects the current stage of CTL processes.

In terms of what constitutes a CTL action, a distinction is recognized under the AOL standards relating to the different types of changes that schools can make in response to as-

sessment results. In some situations, schools make changes to improve the assessment process. For example, schools may adopt a more effective course-embedded measure when a measure fails to adequately capture student performance on a specific dimension. Such a change does not represent a closing of the loop since it is clearly not designed to improve student performance. On the other hand, changes in core courses that are designed to address identified student weaknesses constitute a closing of the loop. The degree to which minor curricular changes satisfy the requirements of CTL, which empirically goes to the issues of stimulus intensity and duration, undoubtedly merit further conversation in the literature especially given our findings concerning the length of time to reevaluate CTL actions.

Survey respondents appear to appreciate this basic distinction. Thus most but not all AOL school leaders understood that a change in delivery technology can constitute a closing of the loop and most but not all understood that changing the assessment methodology does not constitute a closing of the loop.

The changing of an objective, however, we believe is unique in that it spans the boundary between making an improvement to the assessment process as well as potentially having an impact on student learning. AACSB standards provide that the use of achievement measures or CTL activities " . . . must show how results impact the life of the school. Such demonstration can include uses to inform and motivate individual students and uses to generate changes in curricula, pedagogy, and teaching and learning materials" (AACSB, 2012, p. 68). We would argue that changing an objective arbitrarily or without establishing adequate performance does not meet the test of CTL and falls into the category of process improvements. On the other hand, altering an objective because students have achieved a desired level of performance establishes a new area of focus for faculty and students.

Such a change in emphasis naturally results in greater attention on the skills and knowledge embedded in the revised objective and motivation to achieve the new learning outcome. Granted, the impact on the curriculum and student learning is indirect, but such changes in objectives are primarily designed to improve student learning, rather than merely to improve the assessment process.

In effect we are taking the position that it is insufficient to satisfy either just the letter or just the spirit of the AOL standards. It is our opinion that a school must satisfy both conditions in order to achieve sustainable excellence in their educational programs. Schools need to be both focused on achieving and maintaining accreditation as well as being encouraged and given reasonable license to explore the processes associated with quality control as well as a broad range of curricular innovations. Continually raising student outcome expectations based on demonstrated student achievement of current objectives should not only be encouraged but also supported as a legitimate closing of the loop response. AOL systems should not be static, but constantly evolving

based on assessment results. System integrity, by any reasonable definition, is the standard by which an assessment process must be measured.

We do find it encouraging that schools have developed formal processes to generate ideas for closing the loop and evaluating alternative interventions. Although systems vary across schools of different sizes and missions, faculty groups appear to be integrally involved in developing curricular responses to identified weaknesses in student performance. However, we were surprised to find that 93% of the schools surveyed indicated that they are not using any form of cost/benefit analysis to evaluate the ideas they are considering when closing the loop. Perhaps this analysis is implicit, but certainly advisable given the need to prioritize curricular improvements.

We are, of course, sensitive to the time it takes to develop, implement and reassess a CTL action. As a consequence we would encourage schools to consider the piloting of curricular interventions as part of their overall CTL process. Interestingly, most schools considered experimental testing to constitute a closing of the loop activity (Table 2). We also believe that the piloting of CTL activities has the potential to (a) reduce faculty skepticism of the AOL process by empirically demonstrating how specific CTL recommendations will *a priori* impact student learning, (b) encourage faculty engagement in the AOL process by connecting the opportunity to publish high-quality CTL research with the maintenance of academic qualifications, and (c) help schools to manage the time and cost associated with closing the loop. To what extent schools are currently engaged in piloting as a regular part of their CTL processes is, however, unclear from our current study.

AACSB (2012, p. 69) standards state "schools should be demonstrating a high degree of maturity in terms of delineation of clear learning goals, implementation of outcome assessment processes, and demonstrated use of assessment information to improve curricula." Given the findings of our study, we encourage further examination of what constitutes maturity in the ongoing design and implementation of CTL processes and practices. We also suggest further exploration on the best practices to ensure AOL and CTL system integrity, including questions relating to independence and reliability. Other CTL research questions to consider: to what extent would deeper analysis of assessment results (e.g., results by major or student characteristics) enhance the effectiveness of CTL actions? To what extent are schools using assessment data from individual courses as opposed to program-level data to drive CTL activities? And to what extent are schools developing CTL actions consistent with the level of the competency in the stated objective based on Bloom's taxonomy?

In closing, we believe that future research and publication of CTL activities will go a long way toward improving the overall AOL process. Greater attention must also be devoted to understanding the dynamics of faculty ownership and the identification of strategies and tactics for improving faculty engagement.

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