

A Research-based Approach to Continuous Improvement in Business Education

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The growing emphasis on improving performance in business school programs relies on a continuous improvement model designed for manufacturing and business service organizations. However, the complexity of learning assessment and the lack of expertise in learning processes suggests that change is needed to adapt this model for application in higher education. We propose integrating a research basis into the current continuous improvement model that will result in educational and instructional processes shaped by scientific research. Issues associated with implementation are discussed.

Key Words: Continuous Improvement, Business Education, Learning Assessment

In schools, colleges, and universities across America there is a growing emphasis on improving performance. Just as American businesses had their attention abruptly turned to their performance problems by the reality of global competition in the 1980s, educational institutions in the U.S. increasingly are being held accountable for demonstrating that they create and develop the environments and conditions that enhance student learning.

In public education across America, for example, there is an increasing emphasis on the use of statewide standardized testing to assess student educational attainment at various grade levels, often culminating in a final test that students must pass to be eligible to receive their high school diploma (DeBard & Kubow, 2002; Meyer, 2004). In contrast, in higher education the tendency is toward processes that certify quality performance on the basis of compliance with standards established by national or international accrediting organizations.

There are a number of organizations that currently certify business school programs. One is the Association for the Advancement of Collegiate Schools of Business (AACSB) which accredits candidate business schools or programs on the basis of strategic management processes of the school of business; standards related to students, faculty members, and other stakeholders; and quality management and learning assurance standards (AACSB International, 2004). Another is the European Quality Improvement System (EQUIS) that qualifies business schools that meet international standards of quality in management education and integrate needs of the corporate world into programs, activities, and processes (European Foundation for Management Development, 2003). A third, the Association of MBAs (AMBA), is a United Kingdom-based organization that confirms the quality of MBA programs at business schools (Stoddard & Tams, 2004). Although the AMBA accreditation process and criteria are similar to the other two agencies, the scope is entirely on full-time and part-time MBA programs.

Each of these organizations specify standards of quality relative to curriculum, faculty composition and deployment, instructional resources, and intellectual contribution by the faculty, among other areas, arguably all key performance areas in any discipline in higher education. Accreditation is then contingent upon the achievement of these standards and evidence of an effectively functioning, ongoing process of continuous improvement in each of these dimensions.

Given the importance of the mission of educational institutions, an emphasis on improving quality is justified. Even without the push provided by accrediting organizations, the intensity of global economic competition makes the continuous improvement of learning effectiveness an important challenge for higher education. Given the unique level of responsibility of faculty for the quality of learning experiences, it is reasonable to suggest that faculty have primary responsibility for shaping the response to this challenge. Further, the commitment of higher education professionals to the value of scholarship in their fields of study suggests that faculty should have a high level of interest in pursuing an improvement methodology that similarly values a commitment to scholarship.

The question that arises is whether the business-type continuous improvement model as it is typically practiced is sufficient as a means for enhancing quality in educational institutions. The purpose of this paper is to discuss two of the problems inherent in the use of the traditional continuous improvement model to enhance quality in business education, and to suggest changes to that approach that would respond to those problems and strengthen current efforts to achieve higher levels of quality in educational institutions.

CONTINUOUS IMPROVEMENT IN HIGHER EDUCATION

The effectiveness of the continuous improvement approach to improving quality rests on two conditions: readily available information relating to the quality of the targeted product or service—both initially and ongoing—and expertise among the continuous improvement participants relative to the processes they are seeking to improve.

Learning Assessment

First and foremost, the intended outcome of the educational process—learning—is the product of a complex set of factors. These include not only the design of the course, but also the learner's cognitive readiness, motivation level, and skill in the mode of assessment, among other factors. As a consequence, it is difficult to assess the impact on learning of any given factor or change in the educational process. For example, perhaps the learner's cognitive readiness or level of motivation is such that s/he is able to overcome what might actually be lesser quality relative to the educational process. Conversely, perhaps the learner is not cognitively ready or sufficiently motivated to learn even given a high quality educational process. In other words, to the extent that the quality of a learning process is measured by evidence of students' learning, it seems reasonable that there would be both false positives relative to the quality of that process as well as false negatives. Although it may be possible to use evidence of improvements in learning as evidence of improvements in quality, an objective assessment of learning is such a complex and demanding task that it is beyond the capabilities of all but the most research-oriented institutions of higher learning.

Contrast this with the large and small business organizations where continuous improvement has yielded demonstrable improvements. In virtually every instance, these businesses and organizations are capable of assessing the quality of their key processes using immediately available data relating to the observable and measurable quality/performance of a product, or in the case of service businesses, the response of the customer. Continuous improvement makes sense in situations such as these where the impact of attempted improvements in processes can reliably be assessed. It makes much less sense in the case in higher education where the impact of attempted improvements cannot as readily or reliably be measured. Outcomes data both assists in the identification of the areas needing improvement and provides evidence of the effectiveness of attempted improvement actions. Because developing reliable assessment data is beyond the capability of the vast majority of schools and programs of business, their continuous improvement efforts, while well intentioned, do not achieve the assessment of learning that is a critical component of the continuous improvement approach.

Need for Expertise

Another problem with attempting to adapt the continuous improvement model to higher education is the fact that, by and large, the faculty-participants in the improvement process are not experts in the educational processes they are attempting to improve. The continuous improvement model for the enhancement of quality in the production of goods and many services is effective because the frontline personnel involved in continuous improvement efforts are considered experts in at least some aspect of the process they are seeking to improve. That is, the participants in the typical continuous improvement effort have expertise in the processes they are attempting to improve due to a combination of training and experience. In a sense, this is nothing more than an affirmation that task specialization has achieved its intended purpose.

This is not the case in higher education. Even a Ph.D. in a discipline cannot necessarily be argued to confer on its holder expertise in how that discipline can best be taught because the focus of most doctoral programs is on research in a discipline rather than on learning processes (Gale & Golde, 2004). Most Ph.D.'s simply do not possess the level of expertise necessary for meaningful participation in an effort to improve educational or instructional processes. For this reason, where individuals in most businesses and organizations who are involved in continuous improvement efforts are well trained in the processes they are seeking to improve, most college faculty members are not.

To the extent that this analysis is accurate, it suggests that higher education is today where manufacturing was 100 years ago, pre-Frederick Taylor, with practices shaped more by "rules of thumb" than by anything more substantive. In the absence of expertise in educational/instructional practices combined with an absence of reliable knowledge of results, the potential effectiveness of even the most carefully structured continuous improvement process is severely limited. Fortunately the Frederick Taylor reference provides not only an analogy for the current status of performance processes in higher education, it also points to a direction for moving forward. Just as scientific management represented a means for improving production levels in manufacturing organizations a century ago, a model of improvement based on scientific research may have the potential similarly to enhance the performance of educational institutions.

Research in Course-based Learning

There is a well-developed body of research on learning. Theories about classical conditioning (Pavlov, 1902), operant conditioning (Skinner, 1971), social learning (Bandura, 1977), and cognitive theory (Bruner, 1960) provide insights that explain and predict how learning modifies behavior. More specifically, there is much that we know about the conditions of practice, and of the generalization and transfer of learning.

Over the past several decades there has been an increasing amount of research on course-based learning. A common starting point for many researchers has been the recognition that the cognitive processes associated with higher learning appear to exist in a hierarchical structure that develops with experience over time (Perry, 1968).

Nilson (2003) goes beyond stages of cognitive development to identify other areas in which course-based research exists. These include such areas as developing student motivation and selecting teaching strategies that reflect student learning styles and personality characteristics.

Although we will reference specific course-related research in the sections that follow, the important point here is that research on learning in higher education has been ongoing for decades and could serve as a foundation for a research-based approach to continuous improvement in schools and colleges of business.

A RESEARCH-BASED CONTINUOUS IMPROVEMENT MODEL

There are four changes that mark the adoption of a research-based approach to quality improvement in higher education.

Clarity of Learning Goals

The first change is the clear identification of the specific, desired outcomes of the learning process. The value of well-defined goals in facilitating learning is the same as in any performance arena: Goals clarify expectations, provide direction and a basis for organizing activities (Nilson, 2003), facilitate assessment (Diamond, 1998), and make possible the kind of feedback that enhances performance.

Traditionally, course goals have been defined primarily in terms of the content areas to be covered by the course. However, Martin and Briggs (1986) have gone beyond a focus on content to outline higher education learning goals in three process areas: cognitive, psychomotor, and affective. A brief consideration of the cognitive domain is instructive.

More than five decades ago, Benjamin Bloom (1956) developed a taxonomy of educational objectives that identified student behaviors which represented educational outcomes. According to Bloom, the six levels of cognitive processing are knowledge (or recall), comprehension, application, analysis, synthesis, and evaluation. What these represent for educators are the potential

types of cognitive process goals or learning objectives that might be selected for any given course. Similar distinctions might be made for affective or behavioral learning goals.

Clearly identifying the type of learning that is the target of the course is critical for converting learning goals into appropriate course objectives. For instance, in an introductory management course, where the emphasis is primarily on cognitive process at the comprehension level, the course objective could be for students to explain the key elements of an effective decision making process. In contrast, where the learning goals are more behavioral in focus, as in a management skills course, the course objective could be for students to demonstrate competency in managing conflict.

As noted earlier, learning processes are a well developed area of scientific inquiry; only when an institution's specific learning goals and course objectives are clear is it possible to identify and apply the research findings most relevant to those types of outcomes.

Changes in the Role of the Course Instructor

A shift to a more research-based process of improvement would also require significant changes in the role of the course instructor. For centuries, the instructional role of the professor has been that of explicator, of synthesizer, and of advance scout. It has been the professor's role to be at the forward edge of the discipline, to be in contact with the most recent findings and developments in the field, to select information from a wide range of sources and to synthesize a coherent and integrated course in the subject area. It has then been the professor's role then to find the means to explain and clarify key concepts and relationships in the course for the purpose of enhancing student understanding. This traditional definition of the instructional role has been characterized as that of "sage on the stage." It suggests the primary instructional role of the professor is to achieve and maintain knowledge in a subject area and to impart that knowledge to students, through student reading of information determined to be essential by the professor, through the professor's explanations of the information, and less frequently through guided processes of problem solving (e.g., quantitative or case oriented). Conversion to a research-based improvement model in higher education requires a substantial and fundamental redefinition of this role. In addition to serving as the sage on the stage, the course instructor would now have to a) diagnose key variables of student learning readiness relative to the course objectives, b) select teaching and learning strategies appropriate to that diagnosis, and c) perform the broader range of in-class roles required by those strategies.

Diagnosis In moving to the research-based model of improvement in learning, the first instructional responsibility of the professor is to understand the student's potential for learning, not in some global, stereotypical sense of students in an introductory management course, for example, but in a much more specific sense. In adopting the research-based model, the task of the instructor would be to understand the range of students in the course on key dimensions of personality, for example, or cognitive development, or other characteristics known to be critical for learning of the type required in the specific course.

In this sense, the instructor must become, at least in part, a diagnostician. According to Perry (1968, 1985), the cognitive processes associated with higher learning exist in a hierarchical

structure that develops with experience over time. More specifically, Perry's theory identifies nine positions through which students move as they achieve higher levels of cognitive maturity. Perry's model is an example of an effective tool for assessing the current level of student cognitive readiness for learning in a course.

More recently, it has become clear that cognitive maturity is not the only determinant of students' learning readiness. The work of Hogan and Warrenfelz (2003), for example, identifies individual levels of self-control, self-confidence, insightfulness, and rationality as sources of potential difficulty in the learning process. In addition, Kolb's learning style model (1984) and others have identified individual student learning style as a key variable relative to student learning readiness. In the research-based model of improvement, information of these types would be available on each student prior to the design of the course.

It is important to recognize that the course instructor would not necessarily be responsible for generating this kind of information. Just as in health care, the actual assessment of individual characteristics critical to learning might be performed by others in the system. The point here is that in the research-based model it is the responsibility of the instructor to use this information to achieve a level of understanding of the profile of the class relative to a range of learning readiness factors sufficient to enable appropriate course design.

Course design The link between student learning readiness and course design has become more widely recognized in recent years. Gallos (1993), for example, suggests:

Individuals at various developmental stages react to (courses) differently. Their reactions are heavily influenced by stage-related filters, limitations, and expectations. These developmentally based student reactions and differences are predictable and suggest the importance of taking developmental differences into account in course design and management. (434)

Traditionally, as noted earlier, the greatest emphasis in terms of course design was on content coverage, and the lecture-based design was viewed as the most efficient methodology for achieving the content coverage goals of courses especially in higher education (Bligh, 2000). Perhaps reflecting the growing recognition of the importance of the areas in which the lecture approach is more limited in effectiveness (in developing thinking and problem solving skills, for example), a number of alternative course design elements have emerged in recent years. These include the broad category of experiential learning designs, group-based learning designs, skills learning models, and computer-assisted learning. It is significant that a growing body of research has accompanied the appearance of these alternatives to provide insight into the conditions under which each approach seems most effective.

Consider, for example, the experiential learning design option. Experiential learning is recognized as a generally effective teaching approach particularly for supporting the learning of young adults (Greenberg & Rollag, 2005). More specifically, the Kolb model, which matches the delivery of a learning experience to the learning style of the student, is considered to be particularly relevant to management and other courses in schools of business, where students need to acquire experience in translating concepts and theories into everyday behavior and lasting skills (Grein-

er, Bhambri & Cummings, 2003). In a further refinement, however, McEvoy (1998) reports findings that suggest a behavioral learning model based on social learning theory is superior to experiential learning for developing what he terms, management action skills.

Or consider learning in the cognitive domain. Gagne (1977), for example, identifies nine “events of instruction” (gaining attention, explaining the learning objective, stimulating recall of prerequisite learnings, etc.) that facilitate learning at each level (Martin & Briggs, 1986, p. 60). Working with this model, Nelson (1993) developed a learning design that showed excellent results in facilitating students’ movement through Perry’s “positions” or stages of cognitive development. Also in the cognitive domain, Nadkarni (2003) studied the relative efficacy among several instructional designs for achieving the more complex mental models associated with solving complex problems.

In summary, in the area of course design, the research-based improvement model emphasizes the importance of structuring the course to reflect not only the content coverage requirements of the course, but also the learning needs and readiness of the student as well as the level or type of learning being targeted. When course objectives are clear, research is increasingly available to guide the instructor to develop a course design that balances the logic of those goals with the logic of the learner.

Course delivery At the beginning of this section, we characterized the traditional understanding of the role of the college course instructor as that of a “sage on the stage.” On the basis of years of study of a particular area of knowledge, the instructor was expected to “profess” to the students, to communicate to them the most important components that were the product of that study. A different understanding of the course delivery role of the instructor now exists. With the emergence of the multiple instructional design options listed above, designs that better meet the needs of the course in terms of learning objectives and learner readiness, the need is greater for the instructor to master instructional skill sets other than those required for lecturing.

These emerging designs require the course instructor to serve as a “guide on the side,” as some have described the role. Leading discussions; managing group learning activities; integrating computer-based, web-based, and media resources into courses all represent challenges in terms of course delivery. Each takes the instructor out of the class-as-lecture model and into less familiar course delivery formats which research suggests will better meet course learning goals and levels of learner readiness.

In summary, a research-based model of learning improvement requires that teaching professionals have the broader range of course delivery competencies necessary to match the twin demands of course objectives and student learning readiness.

Ph.D. Coursework in Learning

In addition to the clarity of learning goals and the changes in the role of the course instructor, a third area of change is in the way teaching professionals are prepared. More specifically, Ph.D. programs in all disciplines for professionals whose career responsibilities involve teaching would include coursework focusing specifically on an understanding of learning processes and educa-

tional best practices. Currently, most Ph.D. programs focus almost entirely on in-depth knowledge and research capabilities within the individual's field of study. It is rare that there is any significant emphasis in these programs on knowledge about learning. This reflects the assumption that research will be the core activity of virtually all of the recipients of this degree.

There is a growing recognition, however, that most Ph.D.s join faculties at institutions with teaching, rather than research missions (Magner, 2000); and as such doctoral programs should incorporate learning and educational best practices at least comparable to the traditional focus on best practices in research in the discipline. And although AACSB International standards do not specify that faculty members must have formal training in teaching pedagogy and techniques, it is recommended that doctoral graduates from AACSB accredited business schools should have teaching preparation as a requirement of the academic program (AACSB, 2006). It makes sense that professors-in-training should engage in coursework in learning theory and research-based educational practices to enhance their understanding of various educational interventions and the effect of these interventions on the learning process, especially if they also will be responsible for ensuring and enhancing the effectiveness of these processes.

Clinical Experience

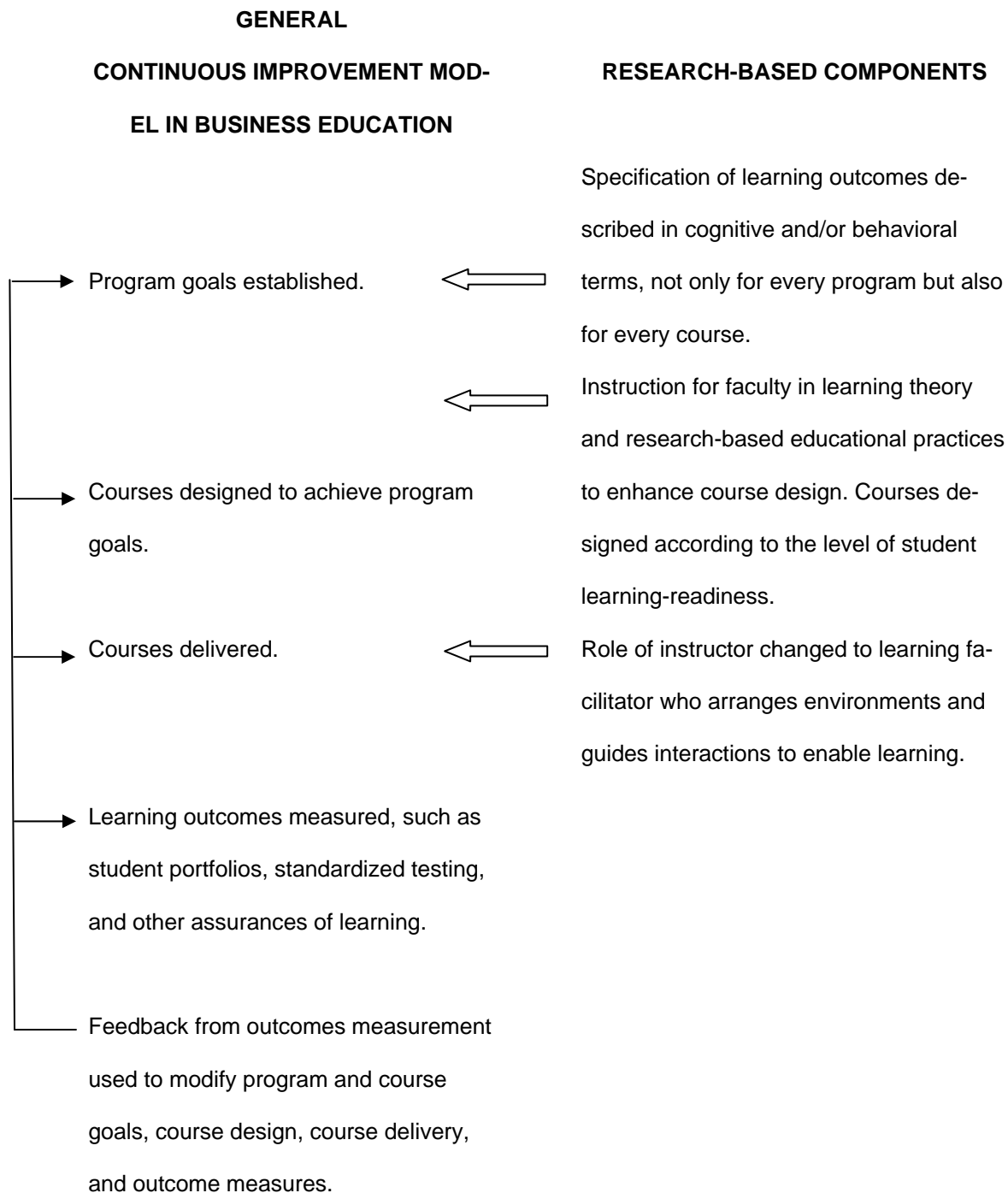
A final area of change suggested by a research-based approach to improvement would be the addition of an internship requirement for Ph.D. candidates who expect to be teaching (Burke, 2001). Once medical school students have completed their academic preparation, they move to clinical settings, to hospitals and other direct care facilities, where they become fully engaged in the challenges of the delivery of research-based care. As interns, these young professionals are constantly and purposefully exposed to the processes of diagnosis and prescription that they are required to master, and to skilled practitioners who have mastered these processes and who are committed to developing mastery in the interns assigned to them.

The traditional practice in Ph.D. programs is to assign doctoral students as teaching assistants to senior faculty who have designed the course. These senior faculty members are often only mildly concerned about the development of teaching competence by their teaching assistants. A research-based improvement approach would require recognition by both the lead faculty member and the teaching assistants that one of the key goals of teaching assistantships is the development of competency in the teaching assistants in terms of the practices associated with effective learning. In this model, teaching interns would be purposefully exposed to a wide range of learning challenges and teaching formats, not unlike the experience of medical interns.

Taken together, these changes redefine the continuous improvement model. Figure 1 illustrates how the integration of a research basis enhances the continuous improvement process and ensures a) the incorporation of scientific data or best practices on which to base learning assessment; b) course design based on learning theory and research-based best practices; and c) instructors that not only communicate information but more importantly arrange environments and guide interactions to enable learning.

FIGURE 1

Integration of a research basis for the continuous improvement model



DISCUSSION

The possibility of implementing a research-based approach to improvement in higher education is confronted by challenges on at least two fronts. The first is that this model seems to necessitate a more individualized approach in terms of instruction. It would appear to be an overwhelming task first to diagnose the specific learning needs of each student and then, based on the individual diagnosis, to design and coordinate a different course of learning for each. However, the true requirements of this approach might be considerably less. In all likelihood, the diagnoses of the individuals in a class would reveal a fairly limited range of patterns or tendencies among the class members. These would require greater accommodations in terms of course design than is typical at present, but it is unlikely that this demand would rise to the level of an individualized course design for each student.

The second challenge is the feasibility of implementation. The changes described in this paper might appear to be so dramatic that a successful conversion to a research-based approach may not seem realistic. However, the changes could be achieved incrementally, without discarding the continuous improvement efforts already underway at many colleges and universities. In fact, the integration of the research-related changes described above might reasonably be viewed simply as an expansion or enhancement of the continuous improvement requirement that is already required by a growing number of accrediting organizations.

Actually, a number of accrediting organizations already require a clear articulation of learning goals or learning objectives in all programs for the unit seeking accreditation. Extending this requirement to the course level is a logical extension of this requirement.

Unlike the present requirements, however, institutions seeking accreditation or re-accreditation would be required to demonstrate that current members of their faculties were in the process of enhancing their understanding of learning theory and research-based best educational practices. Ideally and over time this standard could be satisfied by documenting that some significant percentage of faculty came from doctoral programs that included both coursework and clinical practice in these areas. More immediately, however, the institutions themselves could accomplish this by providing professional development opportunities in these areas in seminars and workshops, or by supporting faculty participation in courses, conferences, or other programs focusing on these issues.

Moving toward a research-based approach to continuous improvement processes does represent a significant challenge; however, the process of meeting that challenge can be evolutionary rather than revolutionary in its pacing. A first accreditation or re-accreditation could simply require plans and evidence of initial progress relative to faculty professional development in the area of learning and educational practices, as well as the capability to assess students' key learning characteristics, and the development of research-based course designs. Subsequent reaccreditation would then require significant progress in each of these areas. In essence, the pattern described here is exactly the kind of transitional process followed by accrediting groups in the business education area. Where traditionally these groups focused on standards relating to the inputs assumed to be associated with quality education (faculty degrees and scholarship, availability of library and instructional resources, etc.), over time they added a continuous improvement requirement as a critical means toward that same end.

The other key point is the realization that for this change even to be attempted, it will need to be recognized by accreditors as critical to efforts genuinely to enhance the quality of instructional processes in higher education. Only achieving or maintaining accreditation is likely to provide sufficient motivations for schools and programs in business, for example, to do the work required to base their instructional processes in research.

SUMMARY

The pursuit of quality through continuous improvement in higher education has clearly resulted in a heightened sensitivity to quality and in the identification of deficiencies in our current systems. However, the great majority of college faculty members are not sufficiently knowledgeable about theories and research on learning, nor do they have training in the instructional processes they are expected to improve. Also, the effects or outcomes of any improvement efforts are not easily measurable or visible to those involved in these efforts. Both these conditions—understanding of the process, and knowledge of results—are essential for an effective continuous improvement process, and neither, as we have explained, are currently present in higher education.

This paper suggests modifying existing improvement efforts to make them more research-based. This would require more carefully articulated learning goals and a faculty that is broadly knowledgeable about learning theory and research-identified educational best practices, and ultimately with clinical experience in following these practices.

Achieving research-based improvements would also require an expansion of the role of the course instructor to include not only that of professor in a discipline, but also that of diagnostician of student learning needs, architect of student-responsive course designs, and facilitator of the learning process.

Shifting paradigms is never an easy task; no significant change ever is. However, the business school sector of higher education demonstrated several years ago its willingness to shift paradigms in pursuit of quality with the adoption of the continuous improvement model. What is needed now to achieve true advances in quality in higher education is the application of science to the process of teaching. Fields of human endeavor from manufacturing to medicine have made the commitment to a science-based approach to ensuring quality, and the benefits of this commitment are clear.

Accrediting organizations provide the demonstrated means for operationalizing this commitment, but that responsibility is not theirs alone. Faculties in higher education have a unique level of responsibility for the quality of the learning experiences in their institutions. Certainly the commitment to make the design of these experiences research-based is only consistent with our commitment to scholarship in the other dimensions of our roles as professional educators. The work needed to make continuous improvement efforts in higher education science-based is more than justified by the potential impact on the learning of our students.

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