Assessment to transform competency-based curricula

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Objectives. Apply Kotter’s eight steps to transforming organizations as a framework for the role of assessment in competency-based curricular reform by analyzing the literature and a case study and providing recommendations about how to use assessment in transforming curricula.

Methods. Two analyses were conducted including (1) environmental scan of the literature focused on use of assessment in curricular reform and (2) qualitative analyses of data from a college of pharmacy which instituted curricular reform.

Results. The importance of several stages, including creating a sense of urgency, forming a powerful guiding coalition, the importance of short-term wins, and the process of consolidating improvements and producing still more change were noted. A set of recommendations (PREPARE) were developed.

Conclusions. Assessment is an enabling and valuable element in each stage of curricular transformation when guided by Kotter’s model.
INTRODUCTION

The education of health care practitioners including pharmacists exists within a complex and constantly changing healthcare environment. External and internal pressures on Colleges/Schools of Pharmacy (COP/SOPs) reinforce the need to consider how we teach student pharmacists. Such reports as Standards 2007 and CAPE 2004, along with the dynamics of public accountability, economic turbulence and unsafe medication practices are provoking serious revisions in expectations for the performance of pharmacists for the next 40 years of practice. One other paper in this series identifies the critical competencies that should be considered in our future professional curricula.\(^1\)

Perhaps the most direct pressure derives from Standards 2007, with curricular requirements such as Introductory Pharmacy Practice Experiences and student portfolios and assurance of the achievement of student-learning and organizational outcomes. Ensuring achievement of student-learning outcomes requires continuous plans and processes that describe the outcomes, gather the assessment data and use these data to inform changes, i.e., assessment that “closes the loop”. These trends and changes in pharmacy education parallel those of higher education in general. The assessment movement in higher education began in the mid 1980s with a series of reports that asked the public and institutions to examine student learning. In 1988, Secretary of Education William Bennett required all federally approved accreditation organizations to include evidence of outcomes in their standards.\(^2\) Over the next twenty years, the number of colleges and universities engaged in campus wide assessment continued to grow. A history of the assessment movement is presented by Ewell and the context of assessment in pharmacy education has been reviewed by Abate et al and Anderson et al.\(^3-7\)

As faculty, we believe that student learning is a primary goal of pharmacy education. Yet, how do we know that learning is taking place? How do we know if curricular changes have been successful? Just as we require evidence for clinical decisions or data to confirm/disconfirm research hypotheses, assessment data helps determine whether educational objectives have
been met. In this context, assessment can be defined as “the systematic collection, review, and use of information about educational programs for the purpose of improving student learning and development”. Two important elements in this definition are (1) assessment focused on improving student outcomes and (2) assessment used to gather information about educational programs. This paper focuses on the assessment of programs or curricula and student learning outcomes. Figure 1 depicts a framework showing how course and program assessments are both necessary to inform the achievement of student-learning outcomes, and that evaluation of these data reflects a continuous improvement process (Figure 1).

In addition to improving curricula, assessment can also be used to fulfill accountability agendas, by providing external stakeholders or accrediting bodies with information for decision-making purposes. Assessment for accountability purposes often causes faculty a great deal of angst, given a perception that assessment is something that is done to faculty or that assessment data will somehow be used against faculty. By contrast, the intent of this paper is to describe how assessment has been and can be used by faculty to improve programs and student learning, and to show external stakeholders the value of our programs.

External pressures and internal interpretation of assessment data may lead to curricular changes. Curricular change can take many forms and, for most attentive faculty, is an on-going process of incremental revision to courses and even programs. Typically program level curricular revision is prompted by a more systematic analysis and interpretation of data, formally and informally collected. More broadly-based, transformational change is contemplated when faculty, practitioners and administrators sense that incremental change will no longer accommodate the more substantial content or procedural differences presented by a rapidly-changing context and environment. At that point educators and practitioners consider creating new logic for curricula and programs, such as outcomes-based assessment. This paper is based on the proposition that the situation in pharmacy education has reached a “tipping” point when incremental change no longer suffices, and there is a need to evaluate curricular
assumptions from new perspectives. The scope and content of programs may need substantial revision as well as pedagogy that is consistent with the development of new competencies and skills. As a consequence, many courses are likely to need modification; faculty may be seeking new teaching methods; colleges may need new kinds of space, and seek partnerships with other segments of the medical education and partner communities. The type of curricular transformation that appears imminent is of a scope and nature that requires the level of planning and management usually associated with major organizational change.

Productive, well-orchestrated change efforts allow organizations to adapt to shifting conditions and position themselves for a better future. In the March –April 1995 issue of Harvard Business Review, Kotter described a framework which identified eight stages fundamental to the success of organizations undergoing significant change (Table 1). The article, “Leading Change: Why Transformation Efforts Fail”, was the result of 15 years of organizational analysis. Kotter followed this article with Leading Change which describes the eight stage change framework in more detail. COP/SOPs display many characteristics similar to the organizations described in Kotter’s work when undertaking significant curricular reform.

Not all curricular reform/transformation flourishes and not all attempts to incorporate new assessment methods are successful. Mistakes are made resulting in delays, wasted resources, less than hoped for results, burn-out and frustration. Common errors include, for example, allowing too much complacency, under-communicating the vision, permitting obstacles to block the new vision, failing to create short term wins and neglecting to anchor changes firmly in organization culture. Kotter’s framework can guide organizations to create processes where assessment of student learning outcomes can transform and then continuously improve our curricula and ultimately our graduates.

OBJECTIVES

This project uses Kotter’s framework to analyze the role of assessment in curricular
reform by analyzing the literature and one case study to generate recommendations about how to use assessment in transforming COP/SOPs curricula. In this paper, the terms outcomes-based curricular reform, competency-based assessment, outcomes assessment, and curricular assessment are used interchangeably to refer to the large-scale curricular reforms that incorporate an outcomes-based evaluation.

Two analyses were conducted to inform the recommendations: (1) a scan of the literature about the use of assessment in curricular reform and (2) a qualitative analyses of interview data from faculty in a college of pharmacy who had instituted curricular reform.

First, after describing the search strategies, each step of the Kotter model is described along with the findings from the literature that illustrate its application. Each of the eight steps is discussed in turn but the process is rarely linear. Second, an analysis of the experience of one college with curriculum reform is presented. Third, within Kotter’s framework, the role of assessment in curricular reform for COP/SOPs is outlined. These analyses provide insight into strategies that COP/SOPs can implement to use assessment in transforming curricula and form the basis for recommendations.

ASSUMPTIONS

The following assumptions were made during these analyses. First, developing competency-based statements of student outcomes and systematically utilizing student or institutional assessment data represent new approaches and therefore significant change in the process of curricular reform for COP/SOPs. Second, most faculty and administrators are unfamiliar with the details of curricular assessment, therefore the process entails a familiarization stage and considerable training. Third, substantial or transformative curricular reform challenges assumptions and existing teaching strategies and is likely to be disruptive. Finally, transforming curricula is a resource intensive and lengthy process.
LITERATURE SCAN

Procedures

First, scans of the literatures were conducted in health science education, education and engineering education to identify articles that included models, theory or empirical evidence related to assessment in curricular reform. Four successive ERIC searches were undertaken each using somewhat different terms: (1) total quality management, continuous quality improvement, higher education, curriculum, professional education, engineering educational, medical education, accreditation, assessment and curriculum-based assessment (54 articles); (2) curriculum change, curriculum reform, assessment, higher education, medical education, nursing education, engineering education as search terms (49 articles); (3) curriculum research, program evaluation, instructional effectiveness, medical education, nursing education, engineering education, pharmaceutical education, higher education, professional education (23 articles); and (4) curriculum evaluation, higher education, medical education and professional education (18 articles). A Pubmed search including curriculum/*standards, organizational innovation, program development/*methods, program evaluation/*methods, education medical undergraduate/* organization & administration/standards, curriculum reform and educational assessment produced 35 articles. Two authors independently reviewed the collection of 179 articles and abstracts and together selected the articles to include for analyses. Ultimately, 38 articles were retrieved for further analyses (list available upon request).

Kotter’s eight steps to transform an organization provided the analytic framework. After developing a detailed article review template, all five authors were assigned articles for review. Each provided ratings as well as comments about how Kotter’s steps were exemplified in the article and the possibility of application to curricular reform in pharmacy. Ratings were collated so that each of the 8 steps across the 38 articles could be considered (Table 1).

Results
1. **Establish a sense of urgency.** Reforming curricula requires college-wide involvement in a multi-step process over many years. Kotter states that success in such an endeavor will be determined, in part, upon the sense of urgency that is created for this change.\(^9\) Complacency can squelch the efforts of highly energetic and well meaning individuals seeking to reform curricula. As described by Kotter, complacency can result from: (1) absence of a major and visible crisis; (2) human nature’s capacity for denial, especially if people are busy and/or stressed; (3) kill-the-messenger-of-bad-news and/or a low confrontation culture; and (4) lack of timely, specific performance feedback from external sources.\(^9\) Strategies to increase urgency may include sharing the experiences of dissatisfied or ill-prepared students, using consultants to ensure more honest, focused discussion of problematic issues and circulating straightforward, direct communication about difficulties.

Nine articles provided insights into this step.\(^{10-18}\) Whether it was called needs assessment,\(^{10}\) need for change\(^{11}\) or sense of urgency, these articles clearly identified source/s and/or processes that created urgency for changing curricula in their institutions. Assessment data were specifically mentioned as a source to create urgency. For example, internal reviews,\(^{10,12-14}\) survey data of students or new graduates,\(^{10,14}\) and survey data from faculty\(^{10,13,14}\) were all used to justify curricular reform. Other influences that added to the sense of urgency were new accreditation standards\(^{10,15,16}\) and availability of grants.\(^{17,18}\) For faculty, increasing demands for clinical services and/or grant funding were important stimuli to identify better ways to deliver curricula.\(^{18}\) General social trends such as economics constraints and changes in healthcare delivery were also mentioned, e.g., a renewal of the social contract with the public to prepare better practitioners who can adapt quickly to change.\(^{17}\) Sponsoring faculty and students to visit leading schools spawned urgency by highlighting new opportunities and potentially encouraging a competitive spirit.\(^{13}\)

2. **Form a powerful guiding coalition.** Guiding coalitions must be powerful in terms of titles, information, expertise, credibility, leadership and relationships.\(^9\) While many curricular task
forces may be laden with innovators, those passionate for change, and often, volunteers, the membership of guiding coalitions must be constructed to position the reform initiative for success. Three key considerations in the forming of powerful guiding coalitions to lead change were: (1) having strong leadership from Dean and senior administrators such as department chairs; (2) using small groups of innovators; and (3) incorporating early the leaders or voices of opposition.

Strong leadership is necessary to support curricular transformation and associated assessment activities. Specifically, participatory leadership is mentioned as congruent with higher education because it focuses on respect and engagement and seeks to create shared responsibility for actions and outcomes. Deans or senior administration provided vision, motivation and resources. Alternatively, weak leadership slowed down or impeded change.

Small groups of innovators committed to reform, innovation and the common good were central to success, whether they were termed Tasks Force, a Deliberative Group or functioned under some other name. Among the members were individuals with power and influence in the organization. The inclusion of assessment coordinators, institutional researchers, as well as faculty, was particularly effective in leading changes in curricula, and they were also critical to reporting the progress of changes and impacts leading to short-term wins (step #6 short-term wins). Another necessary element was the incorporation of individual faculty and department/division chair voices.

Finally, assessment-based transformational curricular change will have its detractors and opponents. Slow recognition of these voices or a failure to incorporate powerful individuals or factions into the process only led to later confrontation. Resistance arises from faculty because of personal and professional uncertainty. Giving faculty sufficient opportunity to disagree as things move ahead can be positive, improving communication (step #4 communicate the vision) and the subsequent outcome.
To construct this team optimally, judgment is required to ensure that the membership has the requisite information, expertise, credibility, position power, leadership and relationships to truly lead the reform effort. In general, this group will operate outside the normal hierarchy, typically an appointed Task Force. The group begins its efforts by developing a shared assessment of the problems with the current educational system and opportunities given a school’s particular environment and mission. Trust and communication are often developed through one or more off-site retreats.

3. Create a vision with strategies to achieve it. In the articles commenting about successful curriculum reform in a medical, dental or pharmacy school, it was clear that at the beginning of the process, and in continuing communication, the leader or leadership group conveyed a picture of what the curriculum would look like at the end of the process. In failed transformations, there is often a plethora of plans, goals, phases and timelines for the curricular reform process, but little vision to inspire the broader organization toward implementation. An effective vision is imaginable, desirable, feasible, focused, flexible and communicable. In fact, it should be possible to articulate a vision in five minutes or less and obtain a response that signifies both understanding and interest. Without this vision, there may be significant disagreement over particular reform strategies in addition to confusion over direction and problems with motivation.

If curriculum development and revision are viewed as an on-going process, with data for process and impact evaluations, then assessment is central to curriculum reform. Extensive literature reviews, an environmental scan and internally collected data were useful in forming a vision for a new curriculum. Such a vision for the curriculum could provide a clear and flexible plan that can be implemented with senior administration’s organizational and administrative structure and appropriate resources.

Once the vision is established, specific strategies for curriculum reform may be developed. There appeared to be less evidence about strategies to implement the vision than
the importance of having a clear vision. Some literature suggests that smaller schools are able to take on broader innovations, while larger schools will need to narrow the scope of their innovations.\textsuperscript{11,19} The literature yielded several descriptions of assessment strategies in curricular reform, including implementation of specific goals arising from a self study\textsuperscript{13} and creation of a feedback loop as implementation occurred to monitor its progress.\textsuperscript{24} More specifically, Desmarchais described a clear 17-step process to guide formative curricular evaluation cycles.\textsuperscript{16} Soundarajan described a Course Group Report, used to gather information from course instructors about data collected and subsequent changes made to courses.\textsuperscript{25}

4. Communicate the vision. Curricular reform requires the efforts of faculty, preceptors and students. To be successful, they may make short-term sacrifices, such as participating in working groups, double-teaching and piloting new initiatives. Communication is critical to mobilizing the organization. While only 5 articles\textsuperscript{11,13,19-21} provided insight and assistance with this step of transformational change, there was general agreement among them. Bottom line, any plan or innovation must be widely communicated via numerous forums and in different settings so that faculty, staff, students and others prepare for and accept innovation.\textsuperscript{11,13,19,21}

A wide array of communication channels were used to communicate with faculty, staff, students, alumni and others, including retreats,\textsuperscript{21} committee meetings,\textsuperscript{13,19-21} newsletters,\textsuperscript{13,20} informational roll outs and open forums\textsuperscript{13,19,20,21} as well as individual meetings\textsuperscript{20} and reference lists.\textsuperscript{20} Faculty surveys\textsuperscript{13} and subsequent data dissemination with customization to audiences\textsuperscript{19} was also used. As mentioned in step #2 (guiding coalition), communication with powerful negative individuals or factions is critical in moving change forward.\textsuperscript{13,21} In sum, simplicity, use of multiple forums and repetition are key elements in effective communication of a vision.\textsuperscript{9}

Leadership by example is also critical and is one important mechanism of non-verbal communication. As stated by Bland, “the leader must model enthusiasm and commitment”.\textsuperscript{11} The behavior of the guiding coalition must be consistent with the vision or it undermines all other communication. In addition, the leaders of curricular reform must make opportunities for two-
way communication, which can assist in addressing seeming inconsistencies that may undermine the initiative.⁹

Often the most powerful communication is a metaphor, analogy or example. From the literature, one of the most powerful examples used to communicate the need for change in a medical curriculum was a demonstration to department chairs. Students who had just completed a traditional course were hand-picked by department chairs and given a case with a problem to solve using the information from that course. Students could recite pertinent information, but they lacked the ability to apply the information. This demonstration captured the department chairs’ attention and they recognized the curriculum had to change.²¹

5. Empower others to act on the vision. Communicating the vision for the role of assessment within curricular reform is not sufficient. While the vision may be attractive, real or imagined barriers will block progress. Obstacles may include a lack of needed skills, structures that make it difficult for faculty and staff to act, lack of alignment of support systems with the vision and individuals that are undercutting the reform efforts.⁹ Early on, no college/school has the ability to remove all obstacles, but the big obstacles must be identified and removed.⁸

Seven articles mentioned the notion of developing broad support for change and/or strategies for empowering faculty, staff and students.¹¹,¹³,¹⁵,¹⁷⁻²⁰ With regard to providing the necessary training, Mennin acknowledged that faculty development via workshops, visits by outside experts and presentations may be viewed as a means of empowerment.¹⁸ Providing incentives and rewards to faculty for their development were key in the face of increasing clinical or research demands, yet it was often piecemeal and department dependent.¹⁸

Empowering others to act also appeared to be predicated upon a climate of respect and cooperation.¹¹ In particular, broad internal participation in designing, implementing and evaluating student assessment efforts was seen as fostering a positive assessment climate.¹⁹ Other specific strategies to gain broad support included addressing negative attitudes (also steps #2 and #4),¹¹,¹⁷ focusing on quality and improvement of education rather than quantity,¹⁷
emphasizing science of the new curriculum\textsuperscript{17} and emphasizing assessment for the purpose of institutional improvement over internal and external accountability.\textsuperscript{19}

Peterson and Einarson specifically addresses the reward structures that may be influencing action and asserts that “the predominant stance among scholars is that student assessment results should not be tied to faculty performance evaluation” (emphasis ours).\textsuperscript{19} However, rewarding participation in assessment efforts could be included as performance criteria in evaluation for tenure, promotion and post-tenure review. In addition, incentives, such as release time, office assignments, stipends, travel perks, public recognition and clerical support could be considered.\textsuperscript{19}

Empowerment may also be facilitated by aligning support systems with the vision. In particular, Peterson and Einarson assert that institutions must address resources allocated to support assessment activities.\textsuperscript{19} They suggest that “consistent and adequate fiscal, physical and staff resources” need to be committed to: (1) establishing and maintaining an assessment office, (2) developing, implementing, analyzing and responding to specific student assessment measures and (3) supporting assessment related professional development opportunities for administrators, faculty and staff.

6. Plan for and create short-term wins. Establishing a culture of assessment to support continual curricular reform will take time. Kotter suggests that sustaining change efforts requires compelling evidence of progress within 12-24 months.\textsuperscript{8} Short term wins must be actively demonstrated through clear performance improvements. While there may be complaints about being held accountable for producing short term wins, the pressure to produce these wins forces detailed analytical thinking that can help refine the vision.\textsuperscript{8}

Nine articles had some focus on identifying short-term wins during curricular reform.\textsuperscript{11-13,17,18,24,26-28} Starting small with pilot projects was deemed effective by several authors. As an example, improvement in student performance on national exams was confirmed after curricular changes started with 2 pilot projects.\textsuperscript{13} In another report, selected faculty participated in faculty
development by attending a liberal arts college where student learning outcomes and their assessment was the focus. These faculty recognized they could not change the entire management curriculum, so they focused on a specific skill that stakeholders indicated was lacking and determined how it could be incorporated more systematically into the curriculum. They initiated change in the management curricula with three faculty in a specific class (not every faculty and not every class) who were willing to change their course to focus on writing skills. A shared rubric to assess students’ writing performance was developed, and this change was viewed by faculty as a short-term win.26

Short-term wins were best exemplified by explicit gathering of assessment data. The actual analysis of one curriculum’s content was a short term win, as that analysis called for further action via recommendations.27 Stakeholders were asked for recommendations, in one example, and these data were used to make changes. Importantly, the changes were communicated back to stakeholders.28 In another example, about mid-way through a curriculum revision, external visits and student feedback were positive and also identified some improvements that were needed.12

The definition of short-term wins depends on organizational context; a “win” in one organization may not be a win in another. One article offered an example of a short term attainable goal namely, the implementation of a computer network to support community-based faculty and collaboration with other regional academic medical centers that resulted in valued partnerships and fostered permanent change in the future.17 Similarly, the development of more open communication among all participants was viewed as a key win in one organization (also step #4 communicate the vision).18 Recognizing participation in curriculum reform via public opportunities was also considered a short-term win for those involved because of the recognition of new efforts (also step #5 empower others).11

Short term wins boost the credibility of the change effort by demonstrating progress. The collected evidence is crucial in addressing the concerns of reluctant participants and
responding to naysayers. Short term wins also reward change agents with positive feedback, keep bosses on board and build momentum.⁹

7. Consolidate improvements and produce still more change. After a salient “win”, it can be tempting to declare victory. However, successful transformation requires successive changes over many years. Without continued effort, initial progress can regress. Until changes penetrate the organization’s culture, which can take five to ten years, new initiatives are fragile.⁸ Sustained focus and increased effort are key.

Organizational structure and human resources were used as ways to support and produce more change in the seven articles that informed this step. Administrative restructuring provided continued viability for program revisions¹⁵,¹⁷ as did changes in organizational policy related to teaching loads and rewarding participation in curricular change for salary increases and promotion and tenure (also step #5 empower others).¹³,¹⁵,²²

Faculty development, another strategy, assisted in gaining new teaching skills necessary for maintaining curricula changes.¹¹,¹⁸,²⁰ Student development may also be required to help them become independent learners.¹³ Bringing in new people during change helped to keep moving it forward, as new hires embodied new teaching strategies or values.¹¹ Finally, leaders with diverse skills were identified and nurtured to help sustain changes over time.¹⁸

This stage is characterized by more change, not less. The guiding coalition uses the short term win(s) to tackle bigger curricular projects. In addition, rather than sending consultants home, more help is brought in. Promotions and faculty development become a focus, in order to help with all the change. A growing number of faculty lead individual change initiatives, while senior administrators sustain urgency and help maintain clarity of purpose.⁹

8. Institutionalize new approaches. With time and effort, a new curricular-assessment model becomes “business as usual” supported by new individuals, faculty and organizational norms. Two factors are important in anchoring the changes in the college/school culture. First,
faculty and students must be repeatedly shown how the new approach has helped to improve performance. Second, the next generation of leadership must personify the new approach. Leadership and assessment data were critical in institutionalizing new approaches. Leaders used administrative authority to create structural changes that supported innovations in curricula. Another type of leadership mentioned was based upon a “core of faculty” who would continue innovation when administrative personnel changed.

Implementing a successful feedback loop for assessment was important. In one report, student self-assessments regarding their preparation to enter practice was highest in the country following significant curricular reform, and these positive data helped sustain change. For new programs, developing evidence regarding the impact of curricular changes on student learning outcomes may be difficult to determine until future graduates are in practice.

Connecting new behaviors among faculty, staff and student with the organization’s success was critical. When everyone understands the goal, i.e., student learning outcomes by way of the curriculum map/content, because it has been articulated throughout the change process, then discussion of assessment data and corresponding decisions become logical. Yet, having flexibility in the implementation of reformed curricula is required for sustainability, particularly when assessment data suggest necessary changes. This step in the organizational change process is likely among the most difficult, as it requires the establishment of new behavioral norms of faculty, staff and students as well as the passing of time.

THE EXPERIENCE OF ONE COLLEGE – QUALITATIVE ANALYSIS

Procedures

Data from a larger study, conducted by two of the authors, of faculty involvement in curricular change at a college of pharmacy were analyzed using Kotter’s framework. The larger study was designed to examine the dynamics of faculty involvement in major curricular reform, their motivations, perspective on purpose and impacts on faculty work and productivity. Thirteen
individuals serving on two college standing committees that were central to the curricular change, were interviewed over a six month period beginning in September 2005: 9 faculty and 4 administrators (including the dean), faculty at all ranks, serving at the institution from 2 to 20 years. Interviews were semi-structured around a 20-question interview guide, and lasted between 60 to 90 minutes. The two investigators were present at all interviews, which were tape-recorded with permission. A thematic analysis focusing on the dynamics of faculty involvement in curricular reform and the preparation of a manuscript are underway at this time. Data pertinent to this paper have been drawn from twelve of the twenty interview questions. In spring 2009, the college and its faculty continue to engage in curricular assessment and reform efforts which have transformed the logic and sequence of its PharmD curriculum.

Results

A College of Pharmacy had been three years into a transformational curricular reform effort (shift from BS Pharmacy to PharmD) when two investigators noticed that faculty at this research institution appeared to have been substantially and continuously involved for many years in an activity that typically goes unrewarded in research university contexts. While there is notable congruence with Kotter’s steps, other considerations appear to have affected the sustainability of the effort in this institution.

1. Establish a sense of urgency. Two interview questions related to this point: First, “Without the accreditation mandate how much of this curriculum reform would have been attempted?” According to respondents, accreditation played a significant role in prompting the broad-based curricular change and their comments revealed a nuanced view. Most indicated that the change would likely have occurred even without the mandate from the accreditation process: “It reflects where the profession wants to be … training a professional who wants to take on more responsibility”. However, they also commented that “if it were not mandated, it could have been a very difficult road.” Or it “would have happened, but much later.” The change
would more likely have been incremental, “evolutionary” or far more limited in its scope. “Accreditation tipped the balance” was the way one person phrased it. “Nobody got serious until the accrediting body said it would no longer accredit programs that did not change.”

Second, “In your view, how important was this curricular change?” To a person, all thirteen respondents used words like “essential,” “very important”, “vital”, “HUGE”, “terribly important” to characterize the value of the curricular change. Others said: “It will save the profession” or is “vital to the future of the profession”. These comments give more credence to the notion that accreditation “tipped the balance” and created the necessary urgency.

2. Form a powerful guiding coalition. The composition of the participants as well as comments about personal commitment to the change (see step #4 communicate the vision), and the roles of college committees, pertain directly to this point. Study participants were all members of two standing committees in the college that dealt with curricular matters and which were given responsibility for guiding the change. While many expressed some confusion about apparently overlapping committee responsibilities, the legitimacy of the committees did not appear to be in question when participants were asked about the role and importance of the committees during the change process. The committees clearly created a focal point. Committee membership represented about one quarter of the faculty.

3. Create a vision with strategies to achieve it. Responses to questions about the role of the two standing committees suggest that the creation of a vision may have been more of an evolutionary process than a clearly articulated target or end-point. This college was in the vanguard nationally of those attempting to use outcomes assessment as a primary tool for getting into the specifics of the curricular changes. In an initial round of curricular revision prior to using outcomes assessment, participants said the committees handed the framework “back” to the academic divisions, who tended to rearrange existing course material in a typical effort some characterized as “protecting turf”. Only after the first and second rounds of assessment data became available were faculty able to frame the discussion in different terms and to see
how particular elements, such as clinical competence, might need to be addressed through more far-reaching restructuring. “I think it would have been useful to have competency statements when we started, but it was not possible at that time.”

4. Communicate the vision. Kotter’s framework provides an interesting perspective on communicating the vision. In addition to comments about using communication channels, there is an emphasis on “teaching new behaviors by the example of the guiding coalition” (Kotter, 1995). In this college, the thirteen study participants represented almost one quarter of the faculty, and their participation on the two standing committees clearly provided behavioral evidence of their commitment to the vision. When asked directly about their commitment, ten of the thirteen replied “I am very committed” in so many words. The other three used slightly softer language, saying the objectives were important, or that they felt part of team effort. Their continued involvement over several years in a process they later described as “laborious” provided unequivocal behavioral evidence to colleagues of the value they placed on the vision.

5. Empower others to act on the vision. The two standing committees clearly played a central role in guiding the change. In addition, responses to another question suggest that the “character” of faculty within academic institutions impacts change dynamics. Participants were asked, “What factors made it possible for you to engage the way you did?” Five people indicated that the role was part of their jobs, and that the Dean or others expected them to do it. The eight others offered comments like these: “I just decided to do it and allocated time to do it.” “My commitment to students”. “There something about me that’s different than some faculty. …I value teaching and education.” “I’m willing to invest time and effort”. Generally, it can be said that success in a faculty role depends upon a certain degree of independence of thought and action. And while that independence could undermine a change effort, in this instance these individuals used their independence to support the effort.

There were, however, serious obstacles to participation. Among the most often mentioned were responsibilities to teach graduate students and to write the grants that
supported graduate students. Participants discussed the tension and costs that resulted from trying to give research grant proposals priority while allocating significant time to committee work. Ironically, as one person said, “a cost is now that we have information, we need to revise the course and that takes time and energy.”

6. **Plan for and create short-term wins.** As a tool, outcomes assessment produces information that is useful to individual faculty. In the short run, several participants noted “… the students are satisfied and we have the validation that we’re on the right track.” And we heard comments like these: “#1, we talk to each other. #2, you discover what’s happening. … A sense of enhanced collegiality.” Several others discussed how they used the results to help them revise their own courses, and two more mentioned that the process demonstrated to students that their inputs were valued.

7. **Consolidate improvements and produce still more change.** This question was not asked directly. However, a director of assessment was hired as a full time staff member devoted to assessment during the period of the interviews, and major curricular restructuring occurred. For example, clinical experience, which had been limited to 400 hours in the third year of a student’s program, now begins in the first year, and is carried throughout the program, involving a total of more than 1700 hours. Competency statements were substantially augmented and revised, and one round of formal curricular mapping was completed. The maps and other outcomes assessment data were used as the foundation of another round of curricular revisions. By the spring of 2009, the college and its faculty have successfully engaged in continuous and annual outcomes assessment since the previous self-study for accreditation in 2004. Therefore, combined with the change from the BS to the PharmD, this college, its faculty, administrators and students have sustained this effort for about 8 years.

8. **Institutionalize new approaches.** Connecting new behaviors to success has been the most important element of this stage. The majority of comments indicated powerful impacts at the individual faculty level. Comments about changes at the program level were more mixed.
Within the curriculum, people gave us many examples. As one person stated, “…[course A and course B] are key areas. I knew we weren’t doing this well in training. It was a no-brainer that we knew. But accreditation forced the faculty to make room for that to happen and the opportunity to carve out 3 credits for a course to be offered.” “At the course level, for [this division], the fact that the surveys show disconnects between [two subject areas] … we’ve taken that seriously and gotten people together to talk about it.” “… we made changes to actual courses based on what we found.” “I didn’t think strategically early in the process. … we need to create continuity for the students.”

**Beyond Kotter’s framework.** Two elements of the curricular change process that seemed fundamental to participants about outcomes assessment and curricular change efforts were not addressed through Kotter’s framework and bear mentioning here.

First, both literally, and in the perceptions of study participants, this college had been involved with curricular change for more than 20 years. Some respondents indicated that an inclination toward leadership in curricular change could be identified as long as 100 years ago. Bland et al, (2000) identified the history of change in the organization as one of the key success factors in their survey of the literature on change in medical schools. Whether it is called culture, climate or a predilection toward change, an underlying attitude that change is a natural and acceptable aspect of life for the teaching faculty creates a context where change is more likely to be sustainable and successful.

Second, the value of outcomes assessment as a tool for curricular change and the complexity of it were both the subject of comment. Several comments typify the way participants viewed the value of outcomes assessment at that point: “Overall it’s positive. A big ‘gap’ assessment.” “It makes people think about what we do.” “It strengthened the self-study.”

These same individuals offered different types of responses to a general question “How do you view the outcomes assessment process?” Many of their words attest to the complexity and difficulty of the concepts and process. “If I were asked to do it without [name of assessment
director], I wouldn’t know where to start.” “Lot of hard work. “Phew, painful. … trying to reach consensus in a diverse college regarding outcomes is painful” “I can see how some faculty might be nervous or feel threatened that this might shine a light on what they are doing and that might not be favorable.” “It’s a laborious process, layered on whatever else you’re doing.”

Summary. Reviewing the data from this study using Kotter’s framework underscores the importance of many of the stages: creating a sense of urgency, forming a powerful guiding coalition, the importance of short-term wins, and the process of consolidating improvements and producing still more change. It also draws attention to two other elements which may be particularly salient in the context of curricular change involving so complex a process as outcomes assessment: (a) the relationship between the potential for success and the climate of the institution or its history of dealing with change, and (b) the criticality of involving individuals with specific expertise as part of the leadership group.

ROLE OF ASSESSMENT IN CURRICULAR REFORM

Table 2 summarizes the relationship between specific assessment-related processes and the stages of Kotter’s model. The table also incorporates findings from the scan of the literature and the case study. Kotter’s model offers an opportunity to observe the points where assessment might be most useful and how it can further strengthen this planned change process. At each step, assessment activities can make a substantial contribution, illustrated in the table with specific activities and processes.

RECOMMENDATIONS

Research and experience shows that major curricular transformation is a long, iterative process involving many stages of detailed review and evaluation. While Kotter’s model helps understand the role and timing of assessment activities, it does not fully address the complex aspects of curricular transformation. This section provides recommendations from a slightly
broader perspective on curricular transformation, taking into account the different perspectives of stakeholders who view curricular reform and assessment through their own lenses. Thus, it is essential to provide general as well as specific recommendations.

It is recommended that AACP continue its role of providing resources to support COP/SOPs in transforming curricula. The Curricular Summit, Institutes, Curriculum Quality Surveys and PEAS (Pharmacy Education Assessment Services) are all important in developing faculty, assisting with measurement and prompting innovation. ACPE can provide a sufficiently flexible interpretation of Standards 2007 so that innovation by COP/SOPs can be achieved. Their recognition of pilot projects and well planned but lengthy timelines to achieve transformation to competency-based and assessment-driven curricula is required.

The following additional audiences are included in the specific recommendations: Academic Health Science Center or university administration, assessment-focused administrators in colleges of pharmacy, pharmacy educators including experiential faculty and student pharmacists. The recommendations from these analyses can be summarized using the acronym: PREPARE.

P = Prepare the Process. Curricular reform of any type is a detailed, continuous and iterative process. For faculty who consider themselves educators, it touches upon one of the most sensitive aspects of self-image. It is time-consuming. It is likely that 5 to 10 years of careful data collection, curricular modification and assessment will be necessary to achieve effective results. Initiating an outcomes-based curricular reform will take faculty and the institution down a new learning-curve. Careful planning to identify and prepare for each step of the way will pay off. Having a clear sense of the characteristics of the results is fundamental to developing strategies to achieve them, and to adjusting strategies when the process appears to go off-course. Therein lies the critical importance of crafting and articulating a vision.

R = Recruit teams. Responsibility for leading the effort certainly begins with the administration but also needs the long-term involvement of leadership drawn from every
teaching unit within the institution. A group of people need to be identified and recruited who can take a broad view of the curriculum while being sufficiently familiar with the details of department teaching to be effective. Conversations and discussions about the stimulus for and potential value of a curricular reform are essential at this stage. Existing curriculum, strategy or program committees may be appropriate for this purpose, and may bring the added benefit of long-standing legitimacy within the organization. However, the timeframe and detailed work that will be required during the early years of the reform should be discussed with each committee member to assess potential impacts on other responsibilities. It may be appropriate to think in terms of committee “rotations” at the outset, to maintain continuity and modulate the impact on any single individual. Identifying and engaging the individuals who will be part of this guiding coalition is a second critical step. Staff support for the committees, including graduate students or others who can assist with data collection or analysis, will be essential.

**E = Expertise.** Assessment-based curricular reform involves data collection and detailed analysis of current program and course offerings within an outcomes-based conceptual framework that needs to be developed and articulated by the college. Instruments for data collection must be selected or developed. Specific expertise is required both to lead or guide the effort and to sustain it. An individual with this type of expertise should be appointed to a named administrative role at full or half-time assignment. Time should be set aside for team/committee members to attend conferences, visit other institutions experienced with assessment-based efforts, and engage in the lengthy conversations at home that will be essential to developing the conceptual framework and outcomes statements at the core of the assessment effort. They, too, need to develop more detailed expertise related to assessment, the change process and other dimensions of curricular reform. Building a broad base of assessment expertise might best be conceived as a series of educational events which involve first a small group and then successively broader groups of faculty within the college.
**P2 = Produce useful results.** In any long-term undertaking, particularly one which may involve completely unfamiliar methodology, participants need to see useful results in the short-run. An initial round of data analysis may offer faculty the first insights into the match between desired outcomes and current offerings, of student satisfaction with the curriculum and/or their perceptions of achievements. If this information were made accessible to faculty in forms which allow them to translate results into course modifications, they will experience the process as useful. As value and credibility for the process builds, it will be easier to sustain and broaden the kind of involvement required to achieve long-term results. Broad-based engagement and empowerment tend to be achieved when organizational members, e.g., the faculty, understand the vision, the steps that lead to its achievement, and can see the value of their efforts.

**A = Accentuate progress.** Few busy people can think effectively about activity more than 2 or 3 years in advance. Having put time and effort into, perhaps, touchy and drawn-out conversations with colleagues about their teaching, faculty need to feel that there has been progress. Members of the leadership group or curricular reform team need to communicate examples of mid-stream achievements and change across the college so that others not only can appreciate them, but might be able to emulate them. Some institutions might want to consider starting the reform effort with a “pilot” study addressing some segment of the curriculum or college. That choice depends to a large degree on the institution’s experience or history with previous curricular change. If previous efforts have been particularly contentious or if there has been a particularly visible example of a major reform that fizzled, a pilot program might be advisable. Results from the pilot effort should be made widely available to larger college audiences so that progress is visible and the process is accessible to those who may question the value of broadening the effort to the “rest” of the college. Visible short-term wins help sustain momentum and encourage skeptics to reconsider.

**R2 = Review.** Monitor, review, recalibrate, adjust, and communicate. Few organizational change efforts of any scale proceed without troublesome “glitches”, whether the
implementation of a new technology like a course management system or accreditation standards. Review data collection instruments to assure that they are measuring the intended elements (check for validity). Review the data collection and analysis process to ascertain whether continued use in the present form is manageable (check for survey fatigue among participants). Review committee assignments, staffing and the circumstances of individuals to assure that the support is in place to sustain the activity essential to continuing the reform.

**E = Evaluate.** Bring the core leadership team together at least once each year and ask the hard questions: To what degree is the assessment-based transformation achieving the intended results? If not, why not? What indicators are needed to get the answer to that question? Exam results? Accreditation preparation and results? And if so, how can the change be sustained over the long haul? What unintended results are we seeing as by-products? And how do we address them? Should committee structures be modified? How does the new curriculum affect faculty hiring priorities? Curricular reform is never-ending. However, it should evolve from a major, watershed transformational effort into a more continuous improvement model. The goal is to create the momentum, expertise and commitment that will enable the college to recognize indications that more substantial change may be required again, at some point in the future. In assessment terms, the goal is to develop a mental habit among administrators and faculty, a culture, that perceives the activities associated with the elements of the assessment loop as “business as usual”.

Throughout the steps of the PREPARE process, there is one underlying dimension common to all and that is the need for **communication**. Communication begins with conversations about how to prepare for a 5-10 year effort, continues with individual discussions about committee and leadership roles and moves into workshops and conferences to engage individuals in developing the expertise that is required for an assessment-based effort. Communication also extends into broad-based presentation of results so that the entire community can become fully involved with the process. Communication means newsletters
recognizing achievements and it means unappealing conversations with colleagues who may not welcome the news that their course requires major modification. Communication means developing an attitude that “information is good”, and “disagreements” met in the process of developing new ideas “need not be disagreeable”. Communication is the lifeblood of transformational change.

**FINAL COMMENT**

Incremental changes in pharmacy curricula characterize most of the change in COP/SOPs over the past 20-30 years, since the introduction of clinical pharmacy. The premise of this analyses is that a “tipping” point has been reached where transformational change is now required to meet the volume and speed of changes in our technology, healthcare system, pharmacotherapeutics and, even, the psychology and cognitive sciences related to learning. This transformational change must be complemented with on-going, incremental changes based upon external and internal data generated via assessment. Assessment processes, then, provide the data to feed the engine of curricular transformation. Such a transformation of the curriculum requires organizational changes consistent with those described by Kotter.

The PREPARE recommendations were developed by synthesizing and summarizing the literature and a live case through the lens of Kotter’s framework by a group of five individuals in a 3-month timeframe. Translation of the framework or these recommendations into “plans of action” for individual colleges of pharmacy properly belongs in the hands of those on-site who best understand the missions and programs of their institutions. This White Paper is intended to provide input and insights for those who will accept that important responsibility.
References


20. Williams B. Initiating curricular change in the professions: a case study in nursing. *ERIC Digest.* 1997;ED411718:1-10s


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<thead>
<tr>
<th>Steps</th>
<th>Number of reviewed articles with focus</th>
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<tbody>
<tr>
<td>1. Establish a sense of urgency via examination of market realities and opportunities.</td>
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<td>2. Form a powerful guiding coalition with sufficient power to lead change.</td>
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<td>3. Create a vision with strategies to achieve the vision.</td>
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<td>4. Communicate the vision in every vehicle and teaching new behaviors by example.</td>
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<td>5. Empower others to act on the vision, with a focus on changing systems (including information technology and data management) or structure that undermines the vision.</td>
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<td>6. Plan for and create short-term wins and providing reward for these visible improvements.</td>
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<td>7. Consolidate improvements and produce still more change and reinvigorating the process with new projects or change agents.</td>
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<td>8. Institutionalize new approaches with explicit connections between new behaviors and success as well as developing leaders to carry on.</td>
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<td>Phases</td>
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<tr>
<td>1. Establish a sense of urgency</td>
<td>• Evaluate need to create alignment with Academic Health Center (AHC) and/or University initiatives</td>
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<td>• Conduct COP/SOP Strategic Planning</td>
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<td>• Share curricular/student performance data/results with all stakeholders</td>
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<td>• Visit leading schools in curricular transformation and innovation</td>
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<td>2. Form a powerful guiding coalition</td>
<td>• Commission task force on curriculum reform&lt;br&gt;• Re-commission current committee or group of committees and broaden their objectives&lt;br&gt;• Involve opinion leaders and other influential constituents</td>
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<td>3. Create a vision with strategies to achieve it</td>
<td>• Develop an Educational Philosophy&lt;br&gt;• Create a vision for a new curriculum (or a continually evolving curriculum)&lt;br&gt;• Outline a work plan</td>
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<td>4. Communicate</td>
<td>• Convey vision thru leaders, such as Dean or opinion leaders</td>
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<td>• Ensure guiding coalition “Walks the talk”</td>
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<td>• Conduct launch events/make announcements</td>
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<td>• Produce emails, newsletter articles or an Annual Report</td>
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<td>• Hold meetings and retreats</td>
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<td>• Use examples, metaphors and analogies to described needed change</td>
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<td>5. Empower</td>
<td>• Reward innovations in curricular design</td>
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<td>others to act on</td>
<td>• Reward participation in curricular reform and assessment activities</td>
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<td>the vision</td>
<td>• Provide incentives for faculty development/training in new teaching approaches</td>
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<td>6. Plan for and create short-term wins</td>
<td>• Inventory current activities</td>
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<td>• Identify “low hanging fruit”</td>
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<td>• Conduct pilot projects</td>
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<td>7. Consolidate improvements and product still more change</td>
<td>• Show stakeholders the impact of their suggestions (i.e. how they influenced change)</td>
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<td>• Hire new faculty with educational values similar to reform</td>
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<td>• Change organizational structure for Assessment</td>
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<td>• Develop a “Core of faculty” who continue innovation when administrative personnel leave</td>
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<td>• MORE faculty development and continued incentives</td>
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<td>8. Institutionalize new approaches</td>
<td>• Celebrate successes</td>
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<td>• Train new faculty, committee members and students about changes</td>
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Figure 1. Framework for curricular change and assessment.

- Health Care Environment
- Professional and Regulatory Bodies
- Program Mission
- Program-Level Outcomes
- Course-level outcomes
- Course-level assessment
- Courses
- Curriculum
- Program-Level Assessment