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Linking Theory & Practice

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Abstract
As participants in the process of exploring how to formalize and develop undergraduate online education at the University of Connecticut, the authors share their experiences relative to the challenges of identifying and addressing the diverse factors involved in such an endeavor. Recognizing the importance of multi-level organizational change in building, integrating, and sustaining an online learning environment, they utilize systems theory as a unifying framework to better analyze the nature and impact of the changes required to create an environment to support online education within a university.
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Introduction

Online education is becoming an established modality of teaching and learning in higher education (Arbaugh and Duray, 2002; Dykeman and Davis, 2008). In fact, some say that – assuming quality implementation – technology-based learning has the potential to revolutionize higher education (Alavi and Leidner, 2001). A number of research studies have been conducted on various aspects of planning, implementing, and managing online education. Some have focused on the technology – its ease of deployment and use (Jones, 2008); others on methods of teaching (Grant, 2004; Whitelaw et al., 2004); and still others on faculty and student motivation (Shea et al., 2001; Howell et al., 2003). There is a plethora of advice to be found on how to optimize the promise of online teaching and learning, as well as how to avoid the pitfalls. The information available at this point in time is both broad and rich, offering – it would seem – everything needed to ensure a successful outcome in creating or improving an online learning system. However, as in most human endeavors involving change, particularly in a large institutional setting, things are never as simple as they seem.

Such was the case with our experience as members of a task force created by the Provost's Office at the University of Connecticut (UConn). Our collective goal was to develop a road map for university-wide quality undergraduate online education. Up to this

point, online education at any level had been offered in various pockets throughout the institution in the form of one-off courses and a few degree programs. Despite the resources and research available to the task force, or perhaps because of them, we struggled with creating the appropriate vision, identifying the best direction to take in the context of our particular environment, and developing actionable system-wide recommendations to reach our goal.

Reflecting on our experience as two of the task force members, we seek to offer advice to those who might find themselves in similar circumstances or facing similar challenges. The purpose of this paper is to suggest, based on our learning, an organizing framework for conceptualizing a strategy for undergraduate online education within an institution of higher learning, such as the University of Connecticut. The absence of a theoretical framework or reliance on models that do not consider the many and diverse factors impacted in establishing an online learning environment is likely to impede or limit success (Menchaca and Bekele, 2008: 236). Online education programs at any level, which are designed without a coordinated strategy, are likely to lead to a hodgepodge of course offerings, inconsistent methods of online teaching, and inadequate support for faculty and students. The fact that there are several successful programs in existence suggests that the designers and implementers have either intuitively or based on past experience addressed each of the critical dimensions of some appropriate model.

The framework we chose is that of Jay Galbraith's *et al* star model (2002) of organization as a system. A system is a set of interrelated elements. In the case of the star model, they are strategy, structure, processes, people, and rewards. We have modified the Galbraith model to include a sixth component, that of culture. We use this modified systems model to identify and describe the options and issues in each dimension that need to be addressed in shaping an online education initiative, recognizing that attention to an organization's environment and to the interdependence among the six dimensions is significant to the success of such an initiative (Figure 1).

A view of systems thinking: everything starts with the environment

In order for a system to endure, it must be in touch with its environment, adapting to changes and responding to feedback from external stakeholders.
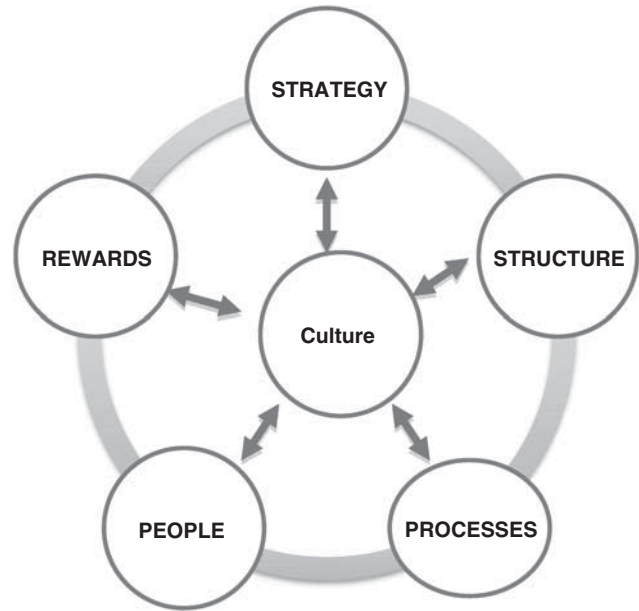

Figure 1 Modified star model.

A university, when considered as an open system, must be cognizant of those environmental factors specific to its environment that can be viewed as new opportunities, those that create new demands, or those that pose threats and constraints (Nadler and Tushman, 1987).

The growing interest in online education in a university's environment can be attributed to a number of developments. Improvements in Internet access and speed, learning management systems, and multimedia technologies have provided the means to produce, deliver, and participate in the online environment. It has been reported that over 4.6 million students in the United States were taking at least one online course during the fall 2008 term; this represents a 17% increase over the number reported the previous year (3.9 million). In fact, online education is now assumed to be critical to the long-term strategy of many universities, particularly public institutions (Allen and Seaman, 2009). A recent report by *The Chronicle of Higher Education*, "*The College of 2020: Student*" predicts that students will increasingly demand the flexibility and convenience of online classes and non-traditional degree programs, that is, 3-year programs. A model based on full-time residential higher education is getting too expensive for many students. More students will be working full or part time, and many will be older – and likely to have family responsibilities. This student demographic

will want and need options for learning when and how they want (Chronicle Research Services, 2009).

You can assess your institution's particular environment by asking questions such as the following: Where do our peers stand with respect to online education? What opportunities exist for online learning? What external resources can we leverage to start up or grow online education? Who or what might impede our ability to pursue online initiatives?

Establishing internal congruence to support an online strategy

The star model emphasizes the internal components of an organizational system and questions whether or not these components are supportive of the organization's strategy and congruent with each other. It is this process of examining a system's components with which we are most concerned and that constitute the focus of the remainder of this paper.

Does the strategy fit the environment?

An environmental assessment, done well, informs the creation of an organization's strategy or determines how its existing strategy needs to be adjusted or changed as a result of environmental change. Strategy sets the direction for the organization and identifies its competitive advantage. It stipulates the goals and objectives to be achieved, as well as how the organization's values and mission will be furthered by them. Strategy delineates the products or services to be provided, the markets to be served, and the value to be offered to the customer. For an organization to be successful, its strategy must be congruent with its environment (Galbraith, 2005).

Since learning is obviously at the front and center of the mission statement of any and every institution of higher education, it ought to be considered first in linking the strategy for online education to that of the overall university or college academic plan. Research by the Alliance for Higher Education Competitiveness (Abel, 2005) discovered that *consistency with mission* was one of the two top factors that had the strongest correlation with the perceived success of online initiatives. An example that illustrates this connection is that of DePauw University. From the beginning, DePauw's programs were designed to align with the institution's historic culture, values, and mission – a dedication to effective teaching and learning. There would

be no technology for technology's sake (Trinkle, 2005).

Traditional colleges and universities have experienced greater success when online programs are built in a way that is consistent with their academic mission. Staying true to its mission and working with traditional academic structures and faculties (Moloney and Tello, 2008), contributed to the much-lauded University of Massachusetts (UMass) Lowell Online program, which has won numerous awards for excellence from The Sloan Consortium, an international leadership organization dedicated to integrating online education into higher education.

An online education program that is not aligned with the institutional mission can have disastrous results. Corporate collaborative online ventures with major universities have yielded some well-publicized and expensive failures. Columbia University and New York University (NYU) in particular, suffered severe financial consequences when their online programs followed a for-profit model driven by booming employer demand, without analysis of end-user demand (Ryan, 2002). These programs both utilized external resources to develop their online courses, which were expensive; more importantly, faculty regarded this externalization as a threat. Both Columbia (Carlson, 2003) and NYU (Ryan, 2002) lost over $20 million by the failings of NYU online and Columbia's Fathom.com. Deep differences between the organizational cultures of the academic and the business worlds explain part of the problem in some of the joint ventures (Guri-Rosenblit, 2003).

A recent re-assessment of Columbia and NYU's online education endeavors reflects an approach that uses "homegrown" online courses, that is, courses designed and developed utilizing university faculty and resources. For example, Columbia University now offers Columbia Interactive, a repository of electronic learning resources, including e-seminars and semester-length e-courses available free of charge to the university's students, faculty, and staff and to the public for a fee. Courses offered through Columbia Interactive are largely non-credit courses; however, for-credit courses and online degree programs can be accessed through the portal. Courses are taught by Columbia faculty using Columbia University resources such as The Columbia Center for New Media Teaching and Learning, Columbia University Digital Knowledge Ventures, and The Electronic Publishing Initiative at Columbia. At NYU, the School of

Continuing and Professional Studies is the gateway to several online undergraduate and graduate degree programs.

In higher education, the academic plan of an institution generally describes its strategy. Thus, you first need to ask how online education is viewed by your institution's existing academic vision and plan. Is it crucial to its mission? Or is it a discreet agenda tucked into the section of the plan on the school's teaching mission, related but not integral? How evident to stakeholders, particularly students and faculty, is the relationship between the academic mission and online education? Does it require the support of institutional leaders, such as deans and department heads, in their organizational strategies? Most importantly, does the academic plan stress that the motivation for developing online education "is not about technology; (but) about service and mission" (Abel, 2005: 44).

Structure

An organization's structure assigns people to tasks and links the activities of people and groups in some form of hierarchical arrangement. It defines the composition of organizational units and their reporting relationships and the connections among them. Structure determines how decision-making authority is allocated. The structure of an organization should support its strategy. Successful online education requires that specific responsibilities for the identification, design, development, and implementation of online courses be clearly stated, consistently applied, and effectively supported.

In most institutions of higher education, there is a continually negotiated position of whether to centralize or decentralize activities and the decision-making authority that accompanies them. This is certainly true of decisions relative to online education where quality in design and implementation requires a balance between an academic unit's freedom to manage the learning associated with its discipline and the need for institutional support and oversight.

Effective online education generally requires the application of a variety of skill sets to the design and delivery of a course or program. These skills are embodied in the craft of instructional designers, technicians, production specialists, administrative staff, and faculty. Where these skills reside, how they are developed and enhanced, whether they operate in concert or in an *ad hoc* manner are among the questions to be asked.

In determining the optimal structure for your university's online education initiative, you will want to consider the nature and location of faculty support services. In some instances, such as that of Michigan State University, course producers and instructional designers are centralized, thereby ensuring that faculty who work with the staff take a standardized approach to course design and assessment. A similar approach is employed by Dallas Baptist University, where the training of faculty who want to teach online is centralized (Abel, 2005).

Texas A&M recently restructured their approach to online education by choosing to decentralize distance education operations. Individual colleges at the university will now be responsible for developing, implementing, and managing their online courses and programs. Online course tuition and fees will also stay within the individual colleges, presumably to help offset the costs of maintaining and growing the online programs (Parry, 2010).

Once agreement has been reached on what decisions to centralize, it does not hurt to review the nature of operational decisions that will end up decentralized by intent or omission. For instance, how much horizontal coordination will be necessary for effective university-wide delivery, and what linking mechanisms need to be in place? Technical support might be a good candidate for this type of decision. As technical support has been recognized as crucial to the success of online education, the accessibility and location of support services must be addressed. The State University of New York (SUNY), for example, made the decision to set up a professionally staffed Help Desk that is shared by all 40 colleges within the network. A secondary rationale for this centralized support service was the desire to avoid redundancies and reduce costs (Shea *et al.*, 2005).

Processes and technology

The Processes dimension of the Processes and Technology component of the Star Model has to do with the work to be done by the organization and its parts. If structure is thought of as the anatomy of the organization, processes are its physiology or functioning. Processes are both horizontal and vertical (Galbraith, 2005). Within a university, for example, the core process of teaching online contains several sub-processes (Paulson, 2002) that can be identified by unbundling the

faculty instructional role. These five distinct sub-processes include:

1. The process of designing the course or degree or certificate program.
2. The process of selecting the instructional methods to be used, as well as how the materials will be designed.
3. The process of delivering the content.
4. The interactive process between instructor and student relative to aiding/identifying learning problems, tailoring learning to individual needs, coaching, etc.
5. The process of assessing student achievement to assure achievement of learning outcomes.

To illustrate the congruence challenges between Process and Strategy, let us consider point number five – assessing student achievement. More specifically, let us consider it in light of the structure of online learning that may even negate traditional methods of evaluation. Methods for evaluating online learning outcomes are very different from methods used in traditional evaluation models. While the learning goals and objectives may be the same as those in a traditional classroom, the methods for assessing learning are not. Traditional testing can be tricky to implement online – the inability to visually observe students and deter cheating as one would in the classroom is not possible.

Online course design must look at alternative ways for assessing learning appropriate to that particular discipline. Activities that allow students to make their learning visible – such as online discussion forums, journaling or blogging, working on a collaborative project or simply explaining their approach to solving a problem instead of just giving an answer – are just a few ways online learning results can be gauged. Quality standards and best practices must be created to provide a framework for evaluating online course design and materials. This is critical to building and maintaining the institution's reputation and "brand" as a superior online educator, which would be central to Strategy. Even better, discipline-specific criteria should be considered when evaluating course design and technology. For example, courses such as mathematics or statistics that involve problem solving through a step-by-step approach may need to incorporate animation and narrated guidance to optimize learning.

Returning to our experience on the UConn task force, one recommendation that emerged was the need for uniform quality in online initiatives. It resulted in charging a committee of individuals from around the university involved in online learning to produce a set of quality standards against which units across the school might benchmark. Another recommendation made to insure quality was to increase the level of instructional design support to faculty. In fact, faculty who are teaching designated "key courses" across the university are now expected to utilize a centralized instructional design team and adhere to recently issued university quality standards for online education. A further recommendation was made to implement a standardized teaching evaluation instrument that assesses those areas unique to the nature of online learning (McCaffrey and Cooper, 2009).

The technology aspect of the Processes component of the Star Model includes the hardware, software, and network systems that must be identified, purchased, implemented, and maintained to support the 24/7 availability of the online learning environment. This is especially important in a large institution with multiple locations or regional campuses. For example, UConn has a web-based learning management system (HuskyCT) that is managed and supported centrally and used for the bulk of online education offerings. However, at the time the task force convened, other delivery methods were being used around the University including hosting servers, streaming servers, and data storage. In some cases, these resources were developed to support other services as their primary goal, not online education (McCaffrey and Cooper, 2009). The delivery processes provided by such resources need to be reexamined as the need for online education grows.

Finally, student support processes associated with enrolling in classes, as well as accessing and using the necessary technology must also be considered. Key to the success of online programs, such as UMass Lowell Online, was a rethinking of student services (Moloney and Tello, 2008). Processes that enable student connectivity and access, as well as advising, tutoring, and technical support, among others, need to be in place to provide the same level of service for an online student as they do for a student on campus. At UMass Lowell, technical staff partnered with student services staff to develop an online orientation program detailing technical and pedagogical considerations for online courses (Moloney and Tello, 2008).

In developing a university-wide plan for online education, the design of supportive Processes and sub-processes, as well as Technology may vary from unit to unit within the school, but their quality and integration have strategic implications for the organization as a whole. A plethora of questions such as the following need to be addressed at both the university and unit levels in order to ensure congruence among Environment, Strategy, and Processes. To what extent does the current design of each learning delivery and support process decrease the quality outcomes expected by the university in its redesigned online learning initiative? What improvements are needed? To what extent does the current design of each learning and delivery process conflict with current university values and norms? What changes are needed? Is the course management system or website environment highly accessible and user friendly? Are technologies and processes in place to provide extensive phone and online help for both faculty and students?

People

In light of the congruence hypothesis of a system, human resources policies may also need to be reconfigured to develop or enhance the skills required by the integration of online education with the overall strategy of the organization policies and practices needed to support faculty and staff proficiency as well as to foster the positive disposition toward online teaching necessary to successfully implement the institution's mission.

Preparing faculty to effectively teach online represents the most significant change to existing paradigms. In fact, studies show that the acceptance of online education within an academic institution hinges on the extent to which "faculty concerns and obstacles in assimilating distance education" are addressed (Howell *et al.*, 2004: 2). While mastering a certain level of technological literacy is necessary, it is only part of the faculty development equation. Online teaching requires the introduction of different pedagogical approaches that fundamentally redefine the faculty role. Many faculty development programs fail to make changes to teaching itself because they focus on the technical side of teaching online, breaking it down into skill sets rather than addressing the importance of change in philosophy and pedagogy (Taylor and McQuiggan, 2008). In fact, it is possible that faculty may perceive their most significant learning gap as technological. In a survey of faculty

conducted by the UConn online education task force, of the 180 respondents who indicated interest in teaching online, the most significant concern of those with no experience in online instruction was related to learning the technology – truly a red flag signaling the importance of clarifying such a misperception (McCaffrey and Cooper, 2009). Attention to the need on the part of faculty for pedagogical process change is quite significant; some studies point out that students' perceptions of learning, as well as their satisfaction with online coursework have more to do with *instructor behavior* – particularly the nature of interactivity with students. This speaks to the doubt expressed by some faculty who believe that the benefits of face-to-face interactivity as in traditional courses cannot be replicated in distance learning. In fact, a whole set of "online behaviors," if enacted, can actually raise the level of student satisfaction with online learning over that which is referred to as traditional or classroom-based (Arbaugh and Duray, 2002; Marks *et al.*, 2005).

Furthermore, course quality and the opportunity for interaction between students and instructors appeared to be the most significant concern among students (Wilkes *et al.*, 2006). Researchers at SUNY have studied online student satisfaction and learning in detail. Their survey of online students was formulated based on socio-cognitive principles that underlie best practices for effective learning. The SUNY findings show a direct correlation between high levels of instructor/classmate interaction and high levels of satisfaction and learning (Shea *et al.*, 2001). This is consistent with a more recent study at Tarleton State University where a positive relationship was shown between instructor presence and student learning, cognition, and motivation (Baker, 2010). Thus, student satisfaction and ability to learn effectively from online learning is related directly to the level of pedagogical and technical preparedness of faculty for teaching online courses.

The nature of faculty development support should be guided by the answers to questions such as the following: Are faculty perceptions of what it takes to become proficient with online teaching confined to learning to use the software of the particular learning platform of the university? To what extent are faculty aware of the differences between the pedagogy of the bricks-and-mortar classroom and that of the virtual learning space? To what extent do current faculty lack expertise in the design and delivery of course materials for online

teaching? What level of instructional design and technical assistance is currently available to faculty to help them learn to design, implement, manage, and assess online courses? What are the best methods to promote faculty development in view of faculty needs and the university's goals for online education?

To address both technological and teaching needs, faculty support services should cover a range of assistance options for designing, developing, and delivering courses online. Recognition of the range of competencies needed is reflected in the faculty support system at The University of New England. Its approach to faculty development for online teaching centers on a continuum model that identifies various teaching frameworks and associated technologies. Instructors can choose what they are willing to take on in light of their students' needs and their own level of commitment, reflect on their skill needs and resources, and work with a staff developer in a relationship that supports their choice on the continuum. This option leaves the decision as to whether to teach online and what to teach to the academician. However, by defining the pedagogy required at each level of technology integration along the continuum, instructors acquire the appropriate skill sets necessary to deliver the content that is consistent with their choice (McLoughlin, 2000).

What about student readiness? Research suggests that many students are open to taking courses online (Wilkes *et al.* 2006; Shea *et al.* 2001). Our UConn task force survey not only confirmed these conclusions, but indicated that students believed that a higher priority ought to be given to the creation of courses taught online (McCaffrey and Cooper, 2009). A distinction should be made between students' willingness to take online courses and their actual satisfaction with online courses. The majority of students are open to online courses because of perceptions of flexibility and convenience. However, actual student satisfaction with online learning is influenced by other factors including the level of student readiness. Student readiness includes familiarity with and ease of using the technology required by the course and instructor presence and interaction. It also has to do with the ability of a student to learn in an online format, as well as on students' proficiency at actively managing their learning. Online learning requires self-discipline and effective time management.

Rewards

The purpose of an organizational reward system is to align the goals of the employees with the institution. A reward system defines policies regulating salaries, promotions, bonuses, profit sharing, and stock options, as well as providing recognition for desired attitudes and behaviors. In higher education, the reward system is a key component for promoting and sustaining interest in online education among faculty and involved staff. Motivation research distinguishes between intrinsic rewards such as challenge, achievement, and the opportunity to learn, over extrinsic rewards such as compensation. To illustrate, Schifter's study cited the "desire to use technology and the opportunity to motivate" as the primary reasons faculty become involved in distance education (Howell *et al.*, 2004: 36). Other studies point to faculty concern and apprehension about online teaching in the form of increased workload, lack of financial support, intellectual property rights, and the value of online teaching to the promotion and tenure process. Thus, the incentives for faculty involvement or lack of interest relative to online education are both intrinsic and extrinsic (Howell *et al.*, 2004). This implies that if a university wants to build or sustain a successful online education initiative, it is critical to tackle both sets of factors.

Among the questions to be considered in assessing the Reward component of the star model are these: What is the position of the administration, business deans, and department chairs with respect to the role of online teaching in faculty evaluation? How are faculty compensated for developing and teaching online courses? How consistent is the approach across the institution? How are intellectual property rights handled in the case of online course designs? How can the university assist faculty in finding time to develop and teach online courses? How can online teaching success be factored into the promotion, tenure, and review processes? What other barriers can be removed to promote faculty interest in online teaching?

Culture

Unlike the strategy of an organization, its culture is not something found in a document. Organizational culture consists of the values, beliefs, and attitudes of members which form and shape behavior. An organization's culture affects and is impacted by its strategy, structure, processes, people, and rewards.

As the establishment of online education in a university requires changes in existing practices, policies, and values within an institution – in other words its culture – such changes are often resisted, and the initiative fails to fulfill expectations. Even when online education is endorsed by the university administration, the autonomy of units within the institution may vary in their degree of interest and support. The sub-cultures of units within an institution can subvert a so-called corporate initiative if perceived as threatening or without merit. When online education is perceived as offering few advantages, competing with existing goals, or suggesting incompatibility with normative academic practices and systems, it is less likely to succeed (Olcott, 1996).

The key is to build a learning environment where the norms and values of teaching and learning online education are shared and acknowledged at every level of the institution. In those programs that report the most progress in online education, senior-level leadership facilitates the growth and health of grassroots leadership from faculty. Each level of the organization recognizes that there is a long-term commitment to online education, and that significant resources – financial and otherwise – will be devoted to it (Abel, 2005).

Assess your environment's support for online learning by conducting a "culture audit" that includes these questions. What existing values, norms, and practices will be threatened by the institution and growth of online education? What existing values, norms, and policies relative to teaching standards, faculty recognition, and cross-departmental teamwork will contribute to the support of online education? Where do administration and faculty stand with respect to their support for online education?

A matter of congruence

According to systems theory, the greater the degree of congruence or fit among system components, the more effective the system will be. In other words, when an organization's strategy is supported by, and congruent with, each of the other components and they with each other, the organization's actual results will be similar to its expectations (Nadler and Tushman, 1987). The congruence hypothesis is integral to the design of an online education initiative. For example, taking a team approach (Structure) to course design requires the availability of quality instructional support and service (Structure/People) and retooling the role of

faculty (People/Culture) in a manner (Process) that enhances faculty status (Rewards) and student learning outcomes (Strategy).

The star model, when applied from a congruence perspective, can define low and high congruence within the current institutional system. It can identify potential problems as well as highlight areas for change.

Conclusions

On the basis of our experience and that of others involved in designing undergraduate online learning initiatives, we have concluded that the path is a complex and often rocky one. Contrary to what some believe, one size or approach does not fit every situation. Online education, regardless of the level, must be designed and configured to meet the needs of a school's particular environment and its consumers. As such, it should be linked to the academic plan as a driver, not an afterthought. The internal environment must also be examined and changed to support e-learning at any level. This applies to processes and services involved in designing and supporting e-learning. In particular, instructors must be challenged to rethink the methods and practices applicable to traditional classroom settings when they move courses to online learning platforms. Changes to faculty roles and acquisition of new skill sets must be accompanied by a restructured reward system. Students, too, are in need of perspective transformation in terms of the challenges of self-management in order to function and learn effectively in an online environment.

If all of these issues are attended to in a planned and systematic manner when undertaking the design of online education, then success is attainable. The outcome will only be sustainable, however, if the values and norms of the organization promote and support online education.

Recommendations

This article makes a case for using a systems model as a design framework for conceptualizing online education in a university setting by stressing the perspective of university as an open system. A supportive alignment among all dimensions of the system will contribute to the success of starting up or maintaining an online initiative (Figure 2).

Those institutions that recognize the significance of such alignment will strive to:

- include online education within the institutional vision or mission (Strategy);
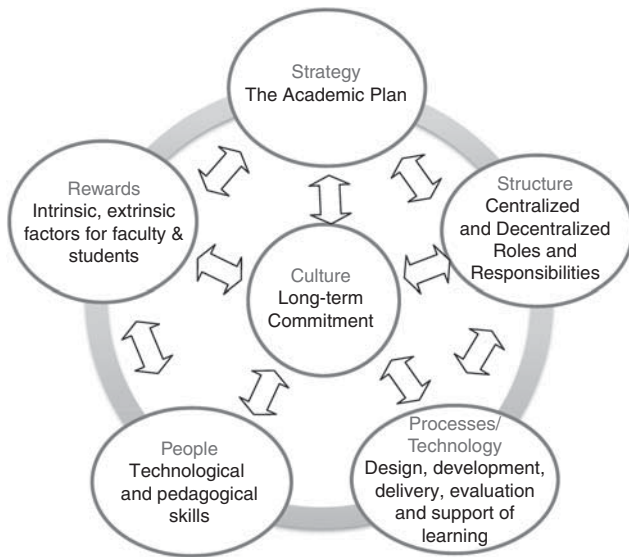
Figure 2 Modified star model for planning online education initiative identifying key areas of change.

- identify and create the infrastructure, roles and responsibilities, and collaborative mechanisms

necessary to support faculty and students within various schools and departments across the institution (Structure);

- reengineer course design and development processes for online courses and programs in a manner that enhances teaching and learning outcomes (Processes);
- invest in faculty and student training to ensure that faculty develop comfort and proficiency with the technologies required to teach online and students with the skills to approach learning online in a constructive manner (People);
- incorporate online competencies in faculty job descriptions as appropriate while providing faculty incentives for the acquisition and practice of online competencies in merit, promotion and tenure evaluation (Rewards);
- ensure that executive and academic leadership at all institutional levels emphasize the importance of online education as an institutional mission by setting the requisite priorities in resource investment and by nurturing and recognizing best practices (Culture).

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