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Taking a Systemic View of the Role of Student Selection Processes in Undergraduate
Curriculum Development and Assessment

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ABSTRACT

Using a systems thinking approach, this paper uses The Three Question Improvement Model to
provide a conceptual overview of the role that undergraduate business program student
selection processes play in curriculum development and assessment of learning outcomes. At
a macro-level, the university’s admission processes influence decisions related to a separate
program specific admission process. At a micro-level, the interactions between student
selections processes and program components influence the efficiency and effectiveness of the
program. The Three Question Model for Improvement is used to evaluate the appropriateness
of five categories of student selection processes.

KEYWORDS: Causal Loops, Systems Thinking, Admission Processes, Improvement Model

INTRODUCTION

Undergraduate business programs work to attract, retain, and graduate students who will be
successful in their careers. Few would question that the characteristics of the students entering
the program will have a profound impact on the resources needed to move them through the
coursework required to graduate. The Association to Advance Collegiate Schools of Business
(AACSB, 2013, p. 32), The Association of Collegiate Business Schools and Programs (ACBSP,
2013, p. 23), and The European Quality Improvement Systems (EQUIS, 2013, p. 26) all include
standards related to effectively aligning student admissions with expected program and learning
outcomes for the program.

Even though many undergraduate programs have developed program specific admission
processes beyond those for admitting students to the university, there is little published
research on selection of the most appropriate process for any given program. The little research
available on undergraduate business admission processes deals with 1) whether the policy and
processes adopted by an individual program work for that program in terms of retention and
graduation rates or 2) which elements of the admission criteria used by that program were most
highly correlated with student grades or graduation rates. This paper takes a broader view and
illustrates how student selection processes are positioned within an individual undergraduate
program and within the environment of the larger university.

LITERATURE REVIEW
In this paper we focus on student selection processes for undergraduate business programs. Although there are many articles related to selecting students for graduate programs in business and other disciplines, articles related to admitting students to the university as new freshmen, and articles related to admitting transfer students to the university, there are few studies related to selecting students for undergraduate business programs.

The most cited article related to undergraduate business (Dohrman, 1962) was written at a time when business programs lacked status at universities and provides limited directions for today’s programs. The more recent studies focus on the effectiveness of a single policy in a specific program rather than whether that policy would apply in other programs (or even whether that would be the best policy for the current program). Effectiveness is often measured in terms of retention and/or graduation rates or correlations between specific criteria and student success (Brown, McCormick, & Abraham, 2002; Lawrence & Pharr, 2003; Pharr & Bailey, 1993; Truell & Woosley, 2008). A number of studies have addressed predictors of student success in specific business courses or majors, but these studies do not tie to the development of student selection policies for a program (Anderson, Benjamin, & Fuss, 1994; Borde, 1998; Borde, Byrd, & Modani, 1998; Marcal & Roberts, 2001).

UNDERGRADUATE BUSINESS EDUCATION VIEWED AS A SYSTEM

Taking a systemic view of student selection processes recognizes that these processes are nested in systems of increasing scope. If the aim is to develop a successful undergraduate business program, the student selection process is a subcomponent of this system; and the undergraduate business program is typically one component of the larger system composed all programs in the university. As Senge (1990, p. 68) systems thinking is a framework for seeing interrelationships rather than things, for seeing patterns of change, and for seeing wholes. Systems thinking uses synthesis (rather than analysis) to first address the purpose of the larger/containing system. The role of the components that make up the larger system are derived to support the larger purpose (Ackoff, 1999; Gharajedagi, 1999). Figure 1 shows undergraduate business programs as the containing system for the student selection process and as a component of the larger university. We will explore these the implications of these nested relationships as we look at how a program can develop the best student select process for their situation.

![Figure 1: Student Selection Processes as a Component of Undergraduate Business Programs and the Larger University](image)

**Business Program as a Component of the University – Macro-level**

Deming (1986, p. 4) illustrated production viewed as a system showing suppliers, production, assembly, distribution to customers, and a feedback loop involving consumer research that led to design and redesign for improvement. Langford (1992) created a similar view of formal
education at the K-12 level as a system with external and internal suppliers and customers where the students moved through the system (as work-in-progress). Higher education was an external customer of this system.

When higher education is viewed as a system there are many interconnected components. The most often recognized part of the system is the progression of students though the academic curriculum. In this part of the system, the instructor of the earlier courses has a responsibility as a supplier to the instructors of later courses. There are other customer supplier relationships outside of the curriculum chain between academic departments and administrative units of the university (e.g., the Registrar’s Office, Admissions, and Human Resources).

When we view the undergraduate business program as a component in the university, we recognize that policies and procedures at the university level have some bearing on activities at the program level. For example, contractors and support services (e.g., LMS providers, housekeeping, public safety) work across all units of the university. In addition, the relationships between components can be symbiotic. For example, without University Admissions, programs have no students; but without good programs, University Admissions cannot attract students.

**Business Program as the Containing System for Student Selection Process – Micro-level**

As we move to the program level, some of the two-way relationships between components of the system become more functional in nature (e.g., programs and curriculum, assurance of learning, faculty, support services, physical resources). Some of the most obvious connections are to functions with easily recognized ties to student learning (e.g., curriculum and assurance of learning). If the student selection process is very liberal while the curriculum is very academically demanding and sequenced, achieving learning goals in line with the demands of the program will require extra-ordinary support services and the associated financial resources to fund these. In addition, if the expectations are perceived by students as too onerous, future students may opt for different majors and make it difficult for the program to justify budget requests and (at the extreme) continued employment for some faculty.

On the other extreme, if curriculum and learning goals are set too low, business may become the “trickle-down” major for weaker students and make recruitment of academically strong students difficult; and (potentially) drive away faculty candidates looking for strong programs with students who will continue their education beyond the undergraduate level.

**Causal Loops**

Although these two-way relationships are quite common, sometimes the underlying cause and effect structures are more difficult to recognize. This is the case when it comes to the relationship between a program’s mission and some of its activities. To most people the term “mission driven” implies that activities are designed to accomplish (or make progress toward) the desired mission. So, the strategies adopted and actions taken depend on the mission [Mission ==> Activities].

In terms of a student selection process, the mission driven approach would lead a program to establish a mission, identify the characteristics of students that would be appropriate to enroll in a program, recruit and select students with the desired characteristics, reject those not possessing the desired characteristics, and move forward. We could think of this as a pro-active mission driven approach.
The likelihood that enrollment and resources will align perfectly is slim—especially on a long-term basis. Trade-offs will need to be made between the size of a program that can be effectively managed and characteristics of the student body. Most student selection processes grapple with mismatches between demand and student body characteristics. Whether programs are capacity driven (i.e., depend on maintaining enrollment) or criteria driven (i.e., depend on maintaining academic standards), the characteristics of the students will vary based on interest and the admission standards of the university. At this point, mission-driven will shift into a reactive mode—where emphasis will be placed on allocation of the resources needed to help students achieve the desired learning goals.

In Figure 2, the upper arc represents the proactive mission-driven approach while the lower arc shows the shift to the reactive mission-driven approach. Effectively, recruitment follows the upper arc and deployment of resources is tied to the lower arc. The closer the match of student selection processes with the mission, the easier the planning, budgeting, and allocation of resources will be.

Figure 2: Recognizing That Cause and Effect Relationships Go Both Ways

CONTINUUM OF STUDENT SELECTION PROCESSES

All programs have some form of student selection process—even if the process is an ad hoc process that caps enrollment when classes fill or continues to add seats as demand increases. Figure 3 provides a continuum of options for a business admission policy, ranging from an open door policy to a structured cohort-based policy. The first two options represent policies that do not involve separate admission to the business program; the third option allows more complex criteria for students to advance in a program; and the last two options require a separate, formal application process.

Figure 3: General Types of Program Specific Student Selection Processes (from least restrictive to most structured)

<table>
<thead>
<tr>
<th>Open Door</th>
<th>Prerequisite Driven</th>
<th>Hybrid</th>
<th>Individual Admission</th>
<th>Cohort Admission</th>
</tr>
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An “Open Door” policy permits any student admitted to the university to register for any course in the program. A “Prerequisite Driven” policy identifies the specific knowledge needed prior to enrolling in a course and would require students to complete the prerequisite course(s) before
registering for advanced courses. A “Hybrid” policy resembles a prerequisite-driven process with the addition of more complex rules for certain courses. An “Individual Admission” policy requires students to apply and be admitted formally to the program before taking courses limited to majors and allows admitted students to select courses on a term-by-term basis. A “Cohort Admission” policy requires students to apply and be admitted formally to the program before taking courses limited majors; and once admitted, students progress through the program as a group.

EVALUATING OPTIONS

The Three Question Model for Improvement

Since the Three Question Improvement Model (Langley et al, 1996, p. 10) is consistent with evaluating options within the context of the larger system, we will use this to direct our analysis. As the name implies, analysis and improvement are guided by three questions: 1) What are we trying to accomplish, 2) How will we know that a change is an improvement, and 3) What change can we make that will result in improvement? Answering the third question leads to identification, implementation, and evaluation of changes through the PDSA (Plan-Do-Study-Act) Cycle.

What Are We Trying to Accomplish?

We assume that the mission of the individual program will dictate what the program is trying to accomplish. In terms of student selection processes, programs will need to make a conscious choice between the whether they will strive for a stable sized program (in terms of capacity) or a stable student aptitude program (in terms of student characteristics).

Maintaining a manageable capacity is important to programs where demand tends to be highly variable. Rapid increases and rapid declines in demand pose resource problems for such programs. But, attempting to maintain a fixed number of students in a program requires allowing the characteristics of the student body to vary. Placing a primary focus on capacity will help with scheduling and planning and with maintaining relationships across campus while increasing the variability of academic preparation present in the class.

If the focus is on maintaining a student body with certain identified characteristics, the size of the program will vary. Placing primary focus on characteristics will ease alignment with the mission, increase the likelihood that students are prepared to take courses in a logical order, and will be easy to communicate. At the same time, this approach will make forecasting demand more difficult and will result in larger swings in how resources need to be allocated to match the enrollments.

How Will We Know That a Change is an Improvement?

All programs have some method (even if that method is unwritten) that determines which students will be able to enroll in specific courses or programs. Periodically, most programs question if the current approach is the best choice or if a change is in order. A change in the student selection policy can be considered an improvement when any of the following criteria are met:

1. The program mission is more easily achieved.
2. The students are better prepared for coursework and more likely to take courses in a logical sequence.
3. Scheduling and planning for future program needs is easier due either to stable enrollment levels or to greater ability to predict/control enrollment changes (robust predictive ability).
4. The relationship between the business program and other sectors of the university is maintained or enhanced.
5. The new policy is easier to understand and communicate to students and other stakeholders.
6. The new policy is more robust to changes in students demand and changing resource availability.
7. The benefits of the new policy exceed implementation costs, such as administrative staff, communication expenses, and unintended consequences.

What Changes Can We Make That Will Result in Improvement?

Changes to a student selection process can be related to the type of system used (e.g., moving from a “Prerequisite Driven” process to an “Individual Admission” process) or can be a related to changes in the way the current process is implemented (e.g., changing prerequisites or changing deadlines). We concentrate on the first of these.

When all student selection criteria are contained on the academic record of the student and any student meeting the established criteria will be allowed to enroll in a course or program, human intervention is not necessary. The “Open Door,” “Prerequisite Driven,” and “Hybrid” approaches to student selection processes have low initial implementation costs in these cases.

When programs want to include non-academic criteria in the selection process or when programs need to vary the academic criteria (e.g., to maintain a stable enrollment), human intervention becomes necessary. The “Individual Admission” or “Cohort Admission” approaches offer a method for addressing the additional needs.

Major Advantages and Disadvantages of the Five Options

The “Open Door” policy cannot robustly respond to shifting demands and has little ability to predict enrollment or to allocate resources efficiently. Because all classes are on a first-come-first-served basis, business majors might have difficulty enrolling in courses they need for timely graduation. The fact that the policy is easy to communicate and consistently applied to all students does not offset the drawbacks.

Because the “Prerequisite Driven” approach allows all students with the prerequisites to enroll in a course, the demand for courses and programs will depend on the popularity of the program and the knowledge base of the interested students. The demand for resources will follow the demand for the classes. As long as the prerequisites are published, (a) communication of the policy should be simple, (b) direct administration costs for the policy should be low, and (c) if the prerequisites build through the program (e.g., students are expected to take particular courses in a pre-defined sequence), business majors would face less competition from non-majors for advanced courses.

The advantages and disadvantages of the “Hybrid” option will depend on the specific rules established by the program. With clear communication and carefully selected rules, this approach would allow faculty in advanced courses to assume previous content instruction in
courses that might not rise to the level of prerequisites but might still be useful for the current
course. This design could help programs with a mission to provide an integrated, systemic view
of business. Based on the nature of the rules, a hybrid approach could improve enrollment
forecasting for specific courses, helping manage capacity. Communication of the rules in this
option might be difficult to communicate.

Both of the separate admission application options share many of the same advantages and
disadvantages. Both allow non-academic criteria to be included in the selection process, assure
that students meet the requirements for courses, control the quality of admitted students when
demand varies, and better forecast enrollment and demand for resources. At the same time,
both of these options require special human intervention when some advanced courses are
offered to non-business majors and can lead to some awkward transfer situations for students
entering the university.

Although scheduling for the cohort option is easier to manage once students are selected, most
undergraduate business programs with a separate admission process do not use cohorts. A
cohort approach must deal with problems that arise when students change majors, switch
between full-time and part-time enrollment, or do not successfully complete a course.
Furthermore, many students favor the flexibility of a “pick-and-choose” scheduling approach.

CONCLUSIONS

The selected approach will have substantial impact on the demand and allocation of resources
(financial, physical, and personnel) and on the ability of the program to offer a curriculum
consistent with the mission. As a result, the task of choosing a student selection process might
appear to be overwhelming. Even though each business program is unique, answering the
following three questions will help most programs decide whether a separate admission process
is appropriate:
1. Does the mission of the program require selection of students based on unique criteria not
captured in the student database?
2. Does the demand for certain programs or limited resources require enrollment caps?
3. Can the program design a schedule for a separate application process that will “fit” within
the university’s current operating processes? (e.g., if admission to the university is required
prior to application to the program, will new students (including transfers) be able to meet
the deadlines for program application?)

If the primary desire is to maintain incoming requirements for each course, then any of the
options beyond the “Open Door” model could be considered. If all criteria can be assessed by
information available in the student database, then the “Prerequisite Driven,” or “Hybrid” models
are the easiest to administer. The desired structure of the curriculum will determine which of
these two academic criteria-based admission policies is most appropriate. Will the curriculum be
broad (i.e., each course stands on its own or builds on a limited base of previous courses), or
will the curriculum attempt to address interactions between disciplines and between multiple
courses within a single discipline? If the curriculum is broad, the “Prerequisite Driven” approach
would be appropriate for programs that do not need to control program enrollment. An
integrated program would require faculty to know that all students in advanced courses have
had exposure to a wide-range of knowledge. In this case, the “Hybrid” model could check the
necessary criteria.
If the mission cannot be fulfilled without a review process to select specific students from the university student body, then only the individual or cohort admission policies will work. In addition, only the individual and cohort policies will provide a means to capping program enrollment. To select between these two policy types, the program will need to assess the tradeoffs between student flexibility in scheduling (individual approach) and the advantages of structured planning (cohort approach). The key questions are whether the chosen policy will significantly enhance the quality of the student experience, improve allocation of limited resources, and make achievement of the mission more likely.

Once an appropriate approach is identified, the details for implementation will need to be developed. This effort will include determining the specific evaluation criteria to be used, the timing for evaluation, and the administrative processes needed to carry out the policy. Further research is needed to assess how various implementation processes work in different academic settings.

REFERENCES


