Resources vs. Processes in Quality Management

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Bogota, Colombia
Abril, 2011
Components of HEI and Quality Definition

Mission and Vision

Internal Consistency

Actors: Students

Actors: Faculty

Academic Processes

Academic Products

External Consistency

Physical and Information Resources

Institutional Government and Administration

Market (local and global)

Academic Community (national and international)

Social and Economic environment
### Quality Factors

System components which can affect quality in a significant way once they are affected

<table>
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<tr>
<th>Faculty</th>
<th>Curricula</th>
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| - Faculty size and qualification  
- Faculty academic production  
- Appropriate working conditions:  
  - Competitive salaries  
  - Transparent evaluation procedures  
  - Adequate and balanced incentives for research and teaching | - Appropriate curricula for offered programs.  
- Programs aligned with professional market  
- Programs aligned with Mission Statement  
- Alignment of learning outcomes and competences with required professional profile |

<table>
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<tr>
<th>Students</th>
<th>Resources</th>
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| - Quality of high school education  
- Admission procedures  
- Capacity of students for self regulated study previous to admission.  
- Engagement of students with academic activities previous to admission. | - Appropriate physical and information resources.  
- Use of physical resources which contribute to significant learning of students. |

**Level 0 factors**: Concentrate the attention of quality processes in the initial stages, but they can turn up to be the only matter of attention in long term quality processes.

**Level 1 factors**: Not considered explicitly in short term quality plans.
-Faculty
-Students
-Curricula
/Resources

Faculty:
- Characteristics of classroom activities
- Characteristics of homework activities
- Self-regulated learning capacities of students.
- Engagement of students with academic activities.

Curricula:
- Evaluation procedures aligned with expected learning outcomes
- Alignment of teaching processes with learning categories of a given course.
- Alignment of physical and information resources with proposed learning categories and learning outcomes

Students:

Resources:
Law of diminishing returns in education

For quality factors under certain thresholds, no satisfactory quality levels can be achieved.
Above certain levels of saturation of quality factors, no substantial increase in quality can be achieved.

*Investment below threshold levels are ineffective.*
*Investment above saturation levels are inefficient.*
Quality Factors

- High drop-rates
- Extremely selective admission procedures
- Low learning achievement as compared with expected learning categories (procedural learning vs. analytical and integrative learning)
- Low academic compromise of students
- Low compromise of faculty with excellence in teaching
How processes are conducted potentiate saturated resources.
A common problem in education: Differences in learning rates

Inclusive education cannot afford selecting students on the basis of different—but perfectly normal—learning rates.
Experimental program in teaching-learning effectiveness
Universidad de los Andes, Bogota, Colombia

Students compromise:
What is the nature of the “academic life” of students?

New formats for class work:
How to increase the engagement of students during class periods?

Development of IT tools for students work out of class (TIC)
How to increase teaching-learning efficiency out of class?

Study of educational value of evaluation procedures:
Evaluation procedures contribute to learning or distract attention from main issues?
Study of students “academic compromise”

- Performed on 3 average students of all undergraduate programs, for a period of 3 weeks. (“Shadowing” technique)

How students deal with their academic responsibilities

• How many hours per week students dedicate to each subject.
• How does it differ from one subject to another, and why.
• How students work patterns change along the academic term.
• How students handle learning difficulties in a given subject.

-The “academic compromise studies” reveal – in most cases - that class work and home work does not engage students in time or intensity as expected by their lecturers. Students operate in a way completely different of what faculty expect.

- Students optimize their time allocations in order to cover properly the different course demands. Such process turns up into a non balanced hierarchy of interests and efforts.

Although this studies are not systematic nor statistically relevant, they are important in the process of formulating strategies which can attack important deficiencies in overall teaching-learning processes.
Objective: Construct an enriched learning environment associated to a given subject
• Increment lecturer-student and student-student interaction
• Access to enriched contents
• Use of simulators and virtual reality for better understanding of contents and/or training in specific abilities.

An important by product:
- Lecturers who contribute to the design of VLE adopt a critical and constructive position about their own teaching practices
Experimental program to modify the teaching of science courses.
Presently applied to introductory physics for scientists, engineers, and medical doctors.

- Previous reading and on-line questionnaire
- Lecture and active follow up
- Group problem solving in class
- Follow up of lecture comprehension using "response cards"
- Group problem solving of problems stated during the lecture session. ("peer teaching")
- Individual problem solving
- Integrative projects carried out in small groups
- Individual work
- Previous reading and online questionnaire
- Lecturing and active follow up
- Group problem solving

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- 90'
- 30'
A study of “learning evaluation procedures” carried out in 60 courses of most undergraduate programs reveals that there exists a general lack of correspondence between expected learning categories (and outcomes) and the evaluation procedures.
Familiarity with a theory and associated techniques
Ex: Basic knowledge of definitions, theory and techniques of probability theory

Problem solving within a given theory
Ex: Solving probability problems with relevant applications.

Knowledge appropriation
Ex. Making probability knowledge part of your way of thinking and handling problems. (Capstone activities)

Knowledge categories
- Integrative knowledge
- Analytic knowledge
- Procedural knowledge
- Memory knowledge

Familiarity with a theory and associated techniques
Ex: Basic knowledge of definitions, theory and techniques of probability theory
Teachers' problems cannot be entirely solved by teachers. Experts in education should help lectures devise an efficient way - from the point of view of learning - of handling their duties. Most probably this will change radically the role of the lecturer.

Students should be properly engaged in their academic activities. This requires a better understanding of “how students work”.

Physical and information resources should be used to enlarge the learning environment. IT are very well suited for this purpose: But this requires technical expertise in IT, educational expertise, and disciplinary expertise, all collaborating in a common direction.

HEI should have a higher awareness of the alignment between what they expect and what they really achieve in terms of learning of their students.