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**Introducing Technology in the Classroom: Patterns of Resistance to
Change and Innovations.**

Abstract

This presentation explores the process of innovation implementation regarding new technologies in the school setting. A review of what change involves, and how it is experienced by the different social actors involved in the process, is included. Reports from actual educators and students on how they went through the change process, as well as what the key elements for successful implementations are, will be dealt with.

Introduction:

The field of education has been experiencing, in the last decades, a series of changes in its structure, its goals, and its organization. Better results and more efficiency are the objectives of these changes, and educators realize that the system has to keep up-to-date with learning theories, as well as technological advances, if it is to suit the needs of society as a whole.

However, most teachers, professors, and administrators know that change is not an easy task to carry out, and there are a number of elements to take into account when change (interpreted as "improvement of current standards") is attempted.

In this presentation, I will focus on the kinds of processes that take place when a change like introducing technology in the classroom is attempted.

What change involves:

The starting point is recognizing that introducing technology in the classroom occupies at least three spheres: the "personal" sphere, that involves a change in teaching methodologies, techniques, and above all, attitudes; the "environmental" sphere, that includes the corresponding hardware that new technology requires, and finally the "institutional" sphere, that involves administrators, and administrative rules.

As it can be seen, the problem occupies not only our system (the classroom), but also the suprasystem (the institution) with its corresponding subsystem (the area in charge of providing the hardware).

At this point, it is useful to review different accounts of the different stages both students and teachers go through when immersed in a change process. McGonigle & Eggers have published their "Stages of Virtuality" based on internet activities that had them and their students having their first experience with virtual learning. The interesting aspect of this article is that they include both their perspective, and that of their students'. The reader can see, then how this process of change affects not only teachers and instructors, but also learners, who have to accommodate their learning structures too, in order to deal with new methodologies and new challenges.

Also, a literature review of the psychology of change, and the two kinds of fears present in any process of is most useful to try to understand some of the reasons for resistance to the implementation of new procedures. A person who is faced with an important change in his/her life experiments at least two kinds of fear: fear to leave well known, comfortable structures in which he/she has based his/her activities up to that moment, and fear to fail in accommodating to unknown, yet-to-learn-about structures. There will be a point in time, between the "acceptance of change" and the "accommodation to a new environment" stages, in which that person will feel at a loss, and extra elements like self confidence, expectancy of rewards, support from the suprasystem, will play very important roles, so that this person evolves to the accommodation stage, or experiments a regression to the previous status quo.

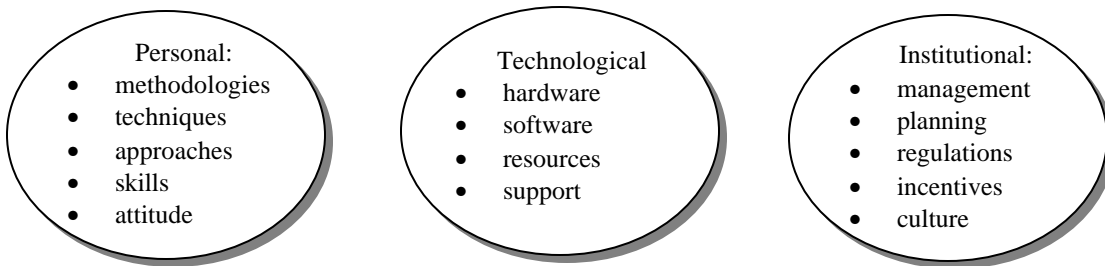
Finally, individual teachers' accounts from electronic forums will be quoted, in which a regularity is seen on what it takes to overcome resistance to change in the system, and what may crack down on frustration, disappointment and failure to carry out change.

As for the suprasystem, Don Ely's eight conditions for change, that include elements in the suprasystem and the different subsystems, provide an excellent reference that covers key issues regarding change and innovation implementation. He deals with the concepts of adoption in connection to actual implementation, and with the conditions that have been identified as essential for technology innovations to be implemented successfully. Again, these views have special importance, since regularity of occurrence of these eight conditions have been observed in different cultures and different countries, which undoubtedly validates his ideas and conclusions.

Conclusion:

The implementation of innovations has never been an easy task for educators. These tasks become more complex as the amount of social actors (administrators, technicians, etc.) increase. The aim of this presentation has been to introduce key concepts that help us understand the process of change, the reasons for resistance to it, and the possible ways to overcome this resistance.

➤ **The spheres of change in relation to technology: what needs to be changed**



➤ **The objects of change: what is/can be affected by change** (Connor, 1994)

	Individual Task Behavior	Organizational Process	Strategic Direction	Organizational Culture
Method of change				
Structural	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Technological	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Managerial	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
People	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

➤ **Change can be:**

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| <i>Gradual</i> (one step at a time) | or | <i>Radical</i> (changes try to be made overnight) |
| <i>Self-chosen</i> (a person is convinced a new way is needed) | or | <i>Formally imposed</i> (administration decides a new way is needed) |
| <i>Systemic</i> (the whole system has to be changed) | or | <i>Piecemeal</i> (only some patches are applied) |

➤ **Who encourages changes: the agents of change**

There are several roles they can perform, to produce change: (Dalziel, 1988)

- entrepreneur: focuses on efficiency and effectiveness, identifies critical issues
- inventor: turns data into concepts, models, plans, and processes
- integrator: gains acceptance for the project, forges alliances
- expert: responsible for technical information and resources
- manager: coordinates efforts, delegates responsibilities
- sponsor: at the higher levels of the organization, provides support and advertises the project.

They may share some basic characteristics: (Connor, 1994)

- interest in change (to be convinced and convince others)
- vision of the future (to realize about the benefits of change)
- persistence (to counteract the "nay-sayers")
- anticipation of problems (to plan accordingly)
- sense of timing (knowing when to push and when to ease back)
- ability to secure cooperation (to ensure participation from all actors involved)

➤ **Who is affected by change: the targets of change** (Connor, 1994)

- Change targets are people who are expected to change when the organization changes.
- Changing the people in an organization can be a primary method of changing the organization as a whole.
- People-oriented methods of change involve education, training and organization development interventions.

However, changes that look minor in the big picture, mean everything to the individual faced with them. Resistance to change:

- 1) is a universal phenomenon
- 2) can be anticipated, if it is adequately understood
- 3) can be planned for, so that strategies to cope with it are developed

Three main causes of resistance to change are *barriers to understanding*, *barriers to acceptance* and *barriers to acting*:

- Barriers to understanding:
 - the targets are not aware of the need for change
 - no reasons for carrying out change are given
 - the targets do not see "the big picture"

- Barriers to acceptance: (these are more emotional barriers)
 - the "unknowns" are still too many to be accepted
 - uneasiness about the future has not been dealt with
 - anxiety about loss of power
 - uncertainty about the new "rules of the game"
- Barriers to acting:
 - no training has been provided to the change targets
 - lack of resources to carry out the proposed changes
 - change processes slowed down by "inertia"

➤ **How to counteract these patterns of resistance to change** (Connor, 1994)

Barriers to understanding:

- ✓ Make sure targets understand the need to change
- ✓ Make sure targets have a clear vision of the overall aim / big picture

Barriers to acceptance:

- ✓ Make sure targets participate in planning and carrying out plans
- ✓ Make sure targets objections and fears are listened to
- ✓ Make sure targets are fed by facts, not rumors
- ✓ Let targets enough time to develop acceptance

Barriers to acting:

- ✓ Make sure targets have the necessary training, skills and knowledge
- ✓ When resources seem to be failing, reassess the situation
- ✓ Look for alternative ways of gaining the resources needed for the change process
- ✓ If inertia slows down the process, go back to strategies in 2 previous sections

➤ **Features of successful change:** (Ely, 1990)

- Dissatisfaction with the status quo
- Existence of knowledge and skills
- Availability of resources
- Availability of time
- Existence of rewards or incentives
- Participation
- Commitment
- Leadership

➤ **Features of unsuccessful change:** (Kotter, 1988)

- A great enough sense of urgency was not established
- A powerful enough guiding coalition was not established
- Lack of systematic planning to create short-term wins
- Victory was declared too soon
- Changes were not anchored in the organization's culture

➤ **An instructor's view: stages of virtuality** (McGonigle & Eggers, 1998)

This is an account of the different phases two instructors went through when changing from a traditional, F2F to a virtual, internet-mediated teaching/learning environment.

- Excited stage
- Apprehensive stage
- Questioning stage
- Determined stage
- Overstimulated stage
- Questioning stage revisited
- Exhausted stage

➤ **Students' views: stages of virtuality** (McGonigle & Eggers, 1998)

This is an account of the phases those instructors' students went through when changing from a traditional, F2F to a virtual, internet-mediated teaching/learning environment.

- Confused stage
- Shock stage
- Timid stage
- Frustrated stage
- Eureka stage

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