

Curriculum change as learning: In search of better implementation

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Curriculum change is a learning process for teachers and for their schools. Good understanding of change and clear conception of curriculum are necessary conditions for improved implementation of new curriculum into practice. The key message of this presentation can be crystallized into three conclusions.

- (1) *Successful curriculum development requires better use of 'change knowledge' - failure is often a result of neglecting it.* Policy-makers, education leaders and teachers need to know more about the drivers of successful curriculum change in schools. Therefore, learning about educational change and its key features should become integral elements of any serious curriculum reform process.
- (2) *Re-conceptualizing curriculum.* Many curriculum reforms are based on how the curriculum has traditionally been organized. As a consequence, many curricula have become overloaded, confusing and inappropriate for teachers and students. Therefore, curriculum orientation should shift from a *curriculum as product* model to a *curriculum as process* model. This would also transform the role of the curriculum from a purely technical document into a more comprehensive idea that also serves as guideline for school improvement.
- (3) *Changing the way teachers teach and students learn requires specific approaches.* In-service training of teachers is not enough. If curriculum reform aims at changing the ways students learn and teachers teach, more sophisticated implementation strategies are required. Therefore, helping teachers to create professional learning communities and schools to learn from each other are recommended approaches.

The myth of change

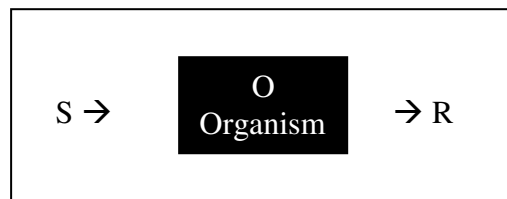
Curriculum reforms are all about change. Nations, states, local communities and schools renew their curricula because their existing ones are not what they should be, or simply because there is a belief that changing the curriculum will also bring expected improvements into classrooms. Whatever the drivers for the global curriculum reforms are, every reform architect is facing the question of how change eventually will happen. Only a few of those who initiate and authorize these reforms will be asked later on why the intended change didn't happen as expected.

Change is learning. Undermining this characteristic of change – or learning – has led many education developers in general and curriculum reformers in particular to adopt over-simplistic approaches in trying to change the existing practices and modes of thinking in schools. Curriculum change efforts are typically labeled as implementation or transmission of intended curriculum into classroom practice in schools. A common means of this transmission is the diffusion of information to raise the awareness of reform, in-service training of teachers to improve their knowledge and relevant skills and dissemination of support materials, such as teachers' guides and educational pamphlets to parents, to back-up the intended change. In many ways the problem of curriculum change is similar to the problems related to understanding human learning through behaviorist or positivist perspectives.

For a long time human learning was explored and explained using positivist scientific models, especially experimental behaviorist psychology, as a deterministic and externally observable change (Pinar et al., 1995). This means that by knowing and manipulating the stimuli, or input of the learning process, we are able to control the response, or output of the learning process. In this way, complex learning was reduced to a simple sequence of stimulus and response, in other words, learning was explained through multiple linear stimulus-response sequences. What

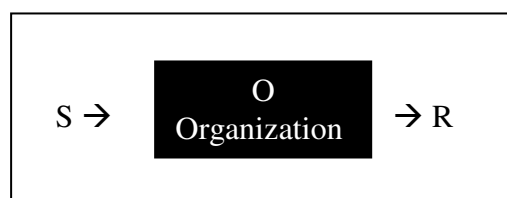
is significant in these concep-tions of learning as deterministic and *reductionist* change is that very little or no attention was devoted to the learner – or organism as it was called in this model – or intellectual, emotional or social characteristics of the organism. The learner and the mental processes of her mind constituted a ‘black box’ that was beyond the reach of the methods of positiv-ist science. Later in the 20th century this model of learning has come under continuous criticism and contemporary learning paradigms based on cognitive psychology, cognition science and brain research has increasingly been accepted as a dominant perspective on learning. Figure 1 illustrates the nature of the behaviorist model of learning.

Figure 1. *Linear model that describes the behavioral change (i.e. learning) of the organism. In this model S refers to stimulus influenced into the organism O and R refers to the responses occurring as a reaction to the stimulus.*



Let’s use this same analogy in the context of curriculum reform. I argue that in many education reforms the conception of educational change has been strongly influenced by the individual learning paradigm presented in Figure 1. Changing schools has proved to be a complex process. Therefore *reductionist* and simplified change models have been common in many large- and small-scale education reforms. Improvement in the quality of schooling has been sought by breaking the complex system of school into manageable elements, such as curriculum, assessment, management, teaching materials, learning re-sources and so on, and targeting change efforts on these isolated elements. In this analogy organism is replaced by organization, stimulus by school improvement efforts (often training of individuals) and response by observable or visible changes in school (or class-room). In Figure 2 the organization remains a ‘black box’ that available knowledge and methodologies of educational change were not able to explore or understand.

Figure 2. *Linear model that describes the observable change (i.e. improvement) of the school. In this model S refers to external actions influenced into the organization (school) O and R refers to the externally observable responses occurring as a reaction to the stimulus.*



Similarly, the limitations of the behaviorist learning theories that are presented in a simple way in Figure 1 to explain the complex mental, physiological and social processes related to human learning, the limitations of the linear organizational change models for understanding school change have led to new models of change that are based on con-temporary systems and organization theories. The criteria of change are often limited to observable reactions, or visible behaviors in schools and in teachers. More concretely, the results of curriculum implementation are sometimes reported as the number of teachers who have participated in the in-service training courses rather

than prevalence and level of use of new ideas that the curriculum reform was supposed to bring to schools and classrooms.

Adopting a new curriculum is a learning process for a school as an organization similarly to understanding a new knowledge of physics is for a student. Understanding the 'black box' in implementing changes in schools is a necessary condition for sustain-able improvement. According to the contemporary educational change knowledge, school is a *learning organization* that has different capacities to learn and change. Con-structivist learning theories view the learner as an active builder of knowledge and un-derstanding based on what are her previous knowledge structures, belief systems and life experiences. Analogically, system thinkers view school as an organization that can learn and change based on its traditions, capacities and beliefs, in other words an organiza-tional culture. If implementation of curriculum or any other pedagogic change in schools is seen from the system thinkers' point of view, then it should be understood as an or-ganization's learning process as much as an individuals' learning process that requires changing the culture of that organization.

A lack of appreciation and understanding of the change process is the most com-mon reason for implementation disappointments. The presence of educational change knowledge does not guarantee success. However, failure to understand change means that the best ideas and good intentions have limited impact in schools (Sarason, 1996). One fundamental realization is that change involves grappling with new beliefs, under-standing, skills and behaviors which inevitably implies that implementation will not go smoothly, especially in the beginning. This is true to any individual who is seriously learning something new. Reality becomes much more complex when many people simul-taneously are involved. The crucial dimension of change is changing the culture of school simultaneously with improving the individuals' knowledge and skills. The ways in which curricula are implemented depends on what are our perspectives of the curricu-lum.

Curriculum and the legacy of modernism

The organization of schooling has long been associated with the idea of a curriculum. Therefore, another necessary aspect involved in planning successful curriculum imple-mentation is to understand what we mean by the curriculum. Comprehensive analysis of different curriculum theories and their practical implications is beyond the scope of this presentation. What follows, instead, is a brief narrative on the evolution of curriculum thinking in order to understand why the curriculum is what it is, and how the broader conception of the curriculum would be more suitable to contemporary educational knowledge and research on school improvement.

The origin of modern curriculum thinking relates back to the first half of the 20th century when two American writers Franklin Bobbitt (1918) and Ralph Tyler (1949) pub-lished their works on curriculum that were the most dominant in terms of laying the ground for curriculum theory and practice. Two exerts from these early authorities in the field of curriculum thinking hopefully show the essence of the modernist conception of the curriculum. The first exert is from *The Curriculum* (1918) in which Bobbitt writes that:

The central theory [of curriculum] is simple. Human life, however varied, consists in the performance of specific activities. Education that prepares for life is one that prepares definitely and adequately for these specific activities. However numerous and diverse they may be for any social class they can be discovered. This requires only that one go out into the world of affairs and discover the particulars of which their affairs consist. These will show the abilities, attitudes, habits, appreciations and forms of knowledge that men need. These will be the objectives of the curriculum. They will be numerous, definite and particularized. The curriculum will then be that series of experiences which children and youth must have by way of obtaining those objectives.

The rise of the scientific management movement, with significant contributions from Fredrick Taylor, heavily influenced the way of thinking about curriculum theory and practice. The three basic principles of scientific management were all involved in the modernist conceptions of curriculum that are included in Bobbitt's theory: greater division of labour with jobs being simplified, an extension of managerial control over all elements of the workplace, and cost accounting based on systematic time-and-motion studies. For example, the separation of education planning and guidance from teaching and learning in schools led to the curriculum becoming an externally designed, mandated and controlled bureaucratic instrument to schools. Alternative conceptions of the curriculum, for example curriculum as a process or curriculum as an experience, never really found room in the expanding world of education that was dominated by rational, scientific education thinking (Pinar et al., 1995).

The seminal work of Ralph Tyler in 1949, titled *Basic Principles of Curriculum and Instruction* has made a lasting impression on curriculum theory and practice until today. His curriculum thinking relied on Bobbitt's emphasis on rationality and relative simplicity. Tyler's curriculum theory was based on four questions:

1. *What educational purposes should the school seek to attain?*
2. *What educational experiences can be provided that are likely to attain these purposes?*
3. *How can these educational experiences be effectively organized?*
4. *How can we determine whether these purposes are being attained?*

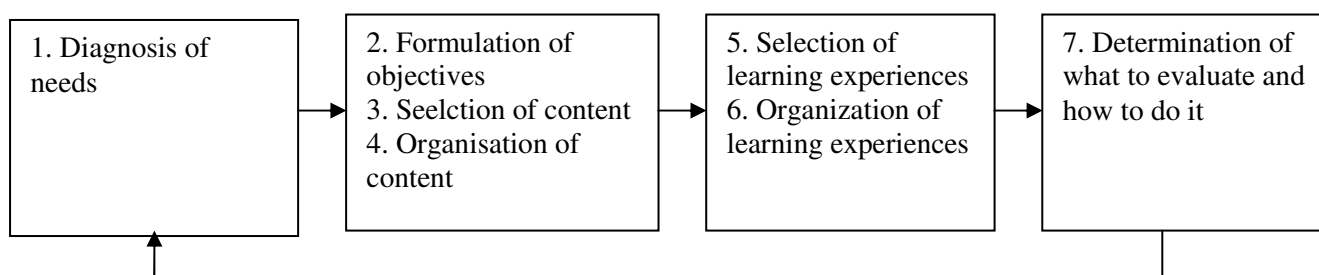
This conception of the curriculum stresses the formulation of behavioral objectives for teaching. The second excerpt is from *Basic Principles of Curriculum and Instruction* in which Tyler (1949) writes:

Since the real purpose of education is not to have the instructor perform certain activities but to bring about significant changes in the students' pattern of behavior, it becomes important to recognize that any statements of objectives of the school should be a statement of changes to take place in the students.

Many curriculum theorists based their work on the assumptions of Tylerian rationalist thinking. For example, Hilda Taba (1962) translated Tyler's basic assumptions into a simple procedure that still dominates curriculum thinking worldwide. This is a typical example of what is often called the *curriculum as product* model of curriculum theory and practice.

This way of approaching curriculum theory and practice as a product has been commonly accepted in many education systems. The reasons for the prevalence of this approach are that it is systematic, follows the ideas of industrial management and has therefore considerable organizing power. However, it has been increasingly challenged by many curriculum theorists and practitioners alike (Doll, 1993). The general concern has been related to the overall mindset of teaching and learning on which this approach is based: a closed, deterministic and linear-technical conception of teaching and learning that undermines the dynamic, unpredictable nature of human interaction and personal growth. Learning in school is more complex and organic than this model is able to describe.

Figure 3. *Technical procedure for curriculum and instruction based on the curriculum theory of Ralph Tyler based on interpretation by Taba (1962).*



Another consequence of the modernist curriculum thinking is that many still equate a curriculum with a syllabus. If the curriculum is seen as a body of knowledge-content and subjects, then education is the process by which these are transmitted or delivered to students by the most effective methods that can be devised. The curriculum as a product model is fundamentally dependent on the setting of behavioral objectives. The curriculum, therefore, is a set of documents for implementation. This has had, and will continue to have unless we change the way we think about the curriculum, significant affect on curriculum policies and especially on implementation strategies embedded in education reforms. Using the curriculum as product model as a theoretical and practical framework for education reforms has facilitated the development of different variations of that model rather than adopting alternative approaches to curriculum theory and practice. Some implications of the curriculum as a product model are content-rich, clinical and standardized curriculum.

Content-rich curriculum. Many education systems experience curricula that are overloaded with knowledge-content and specific subjects. Rather than rethinking the nature of the curriculum, new content is being moved to earlier and earlier years and grades to give more space for new information that needs to be included in the upper grades. This model has led, for example in England, to having priority on curriculum coverage before developing understanding and interest in learning (Dadds, 2001).

Clinical curriculum. Increasing the emphasis on learning the basic skills in schools has led to what Hargreaves (2001) calls ‘a clinical and conventional curriculum in which literacy, numeracy, and science are accorded supreme importance’. Rather than seeking holistic and systemic understanding of self and the world through interdisciplinary curriculum, this model assumes that the mastery of basic knowledge and skills in determined core subjects will eventually lead to applying what is learned in other knowledge domains.

Standards-based curriculum. Emergence of an outcome-based education movement in 1980s led to introduction of learning and content standards within curriculum theory and practice. These standards provide a detailed prescription of what all pupils should know and be able to do as they pass through different stages of education. Standards were introduced in education to improve the quality and increase the equity. Although using curriculum and learning standards has improved these aspects of education in many countries they have also created new problems. Standards, as they have been implemented, have consolidated the curriculum as product model rather than bringing alternative approaches to curriculum theory and practice (Sahlberg, 2004).

Closing the implementation gap

The dominant approaches of describing and managing education today are based on the productive form. Education is most often seen as a technical exercise. Goals and objectives have been set, a plan and strategy drawn up, then applied and implemented and finally the outcomes (or products) measured. Similarly, changing schools and individuals working and learning in them is often based on technical, productive forms as described earlier. Implementing new curriculum into practice is never easy. Typically, there is a gap between intended and implemented curriculum. Closing this implementation gap requires that two essential aspects of curriculum change are given appropriate importance and appreciation. These two aspects are *using change knowledge in curriculum*

implementation and selecting appropriate implementation methods to help teachers and schools to change as expected.

The history of curriculum reform and attempts to introduce new approaches in teaching are replete with good ideas that fail to get implemented or that are successful in one context but not in another one. A missing ingredient in most cases is insufficient appreciation and use of what is called *change knowledge*. Change knowledge in education means understanding insight about the process of curriculum change and the key drivers that make for successful curriculum implementation into practice. The presence of change knowledge does not guarantee implementation success, but its absence ensures failure (Sahlberg, 2006).

There are several ways of conceptualizing what drives successful curriculum change. The following seven principles are often used in the process of implementing a new curriculum (see Fullan, 2005; Hargreaves and Fink, 2005).

1. *Making sense of why a new curriculum is necessary.* This typically refers to showing how curriculum change is connected to the overall political economy and social and economic development. The moral purpose of change is the key factor in building a commitment to raising the quality and closing the gap in student achievement.
2. *Understanding the change process.* Implementing a new curriculum requires changes on many fronts. Understanding the complexity and internal dynamics of change process is conditional for the sustainable implementation of curriculum reforms. It is often difficult and frustrating to do because it requires leaders to stop and think about the aspects of reform that they would not rather do otherwise.
3. *Capacity-building.* Capacity is one of the key conditions for successful implementation of curriculum reforms. However, it is often the missing link even when there is a consensus of the need for change. Capacity-building involves policies, strategies, resources and other actions that are aiming at increasing the collective power of people.
4. *Developing cultures of learning.* Successful curriculum change involves learning during implementation. A powerful factor of change is learning from one's peers, especially those who are further along in implementing new curriculum. The principles of learning from each other include (a) developing professional learning communities at the local, school and community level, and (b) learning from other schools and teachers.
5. *Developing cultures of evaluation.* Cultures of evaluation must be embedded in the cultures of learning. Contemporary change strategies involve strategies that are labeled as 'Assessment for Learning' that incorporates (a) collecting data from student learning, (b) disaggregating data for more specific understanding, (c) preparing action plans based on the data mentioned above, and (d) communicating students' performance to parents.
6. *Developing leadership for change.* Good leadership is one of the key conditions for successful curriculum change. Leadership, to be productive and sustainable must spread throughout the school. Successful managing is not about one's own success but helping others to be successful. Education leaders, more than any others, need to understand these ingredients of successful change.
7. *Utilizing the ideas that already exist in schools.* Schools are full of good ideas about how to improve teaching and help pupils learn. Many curriculum reforms ignore this reality. Recognition of the hidden capacities of schools and teachers, the identification of these passive potentials and then facilitating the exchange of good ideas and practices that work have been the missing link in some of the education systems that are today performing well (Aho, Pitkänen & Sahlberg, 2006).

Table 1. Decision-making matrix for curriculum implementation

Intended change	Implementation methods
Awareness and basic knowledge about curriculum	In-service training of teachers, printed or audiovisual materials for teachers and new modules in teacher pre-service training programs.
Knowledge and understanding of theories and practices required in new curriculum	In-service training of teachers, printed or audiovisual materials for teachers and new modules in teacher pre-service training programs. Demonstrations of expected new classroom practices and behaviors in school.
Skills development for discrete behaviors, patterns and strategies	In-service training of teachers, printed or audiovisual materials for teachers and new modules in teacher pre-service training programs. Demonstrations of expected new classroom practices and behaviors in school. Workshops where teachers can practice new skills.
Changing beliefs about learning, children and academic content	In-service training of teachers, printed or audiovisual materials for teachers and new modules in teacher pre-service training programs. Demonstrations of expected new classroom practices and behaviors in school. Workshops where teachers can practice new skills. Extended school-based or locally managed teacher development programs.
Consistent use of new practices	In-service training of teachers, printed or audiovisual materials for teachers and new modules in teacher pre-service training programs. Demonstrations of expected new classroom practices and behaviors in school. Workshops where teachers can practice new skills. Extended school-based or locally managed teacher development programs. Supporting professional learning communities in schools.

Closing the gap between the intended and the implemented curriculum requires that curriculum designers are knowledgeable about selecting appropriate implementation methods to help teachers and schools to change. If curriculum is seen as a product, as described above, the implementation of new curriculum reduces to a technical and bureaucratic exercise. A common implementation strategy in this case is based on extensive external training of teachers through which the necessary information regarding new curriculum is transmitted to teachers. On the other hand, if curriculum reform is expected to influence how schools organize their work, how teachers teach and how students learn, more comprehensive change strategies and implementation mechanisms are required. Providing training to teachers is necessary but not sufficient for successful change that typically involves changes in people's awareness, knowledge, skills and beliefs (or attitudes). Table 1 describes the selection of implementation strategies according to intended level of change.

Conclusions

Curriculum change is a learning process for teachers and their schools. A good understanding of change and a clear conception of the curriculum are necessary conditions for improved implementation of new curriculum into practice. Furthermore, as the conception of learning is becoming more studied and considered as an important factor changing education, exploring and rethinking what learning is deserves more attention in the future curriculum development efforts. The key message of this presentation can be crystallized to three conclusions.

(1) *Understanding that success requires ‘change knowledge’, and that failure is a result of neglecting it.* Policy-makers, education leaders and teachers need to know more about the drivers of successful curriculum change in schools. Therefore, learning about educational change and its key features should become integral elements of any serious curriculum reform process. There is an interesting stock of literature, both research and reports of case studies, that is gradually changing the way we should view the change in education, especially in schools and at the level of teaching and learning.

(2) *Re-conceptualizing curriculum.* Many curriculum reforms are based on how the curriculum has traditionally been organized. As a consequence, many curricula have become overloaded, confusing and inappropriate for teachers and students. Therefore, curriculum orientation should shift from a *curriculum as product* model to a *curriculum as process* model. This would also transform the role of the curriculum from a purely technical document into a more comprehensive idea that also serves as guidelines for school improvement.

(3) *Changing the way teachers teach and students learn requires specific approaches.* In-service training of teachers is not enough. If curriculum reform aims at changing the ways students learn and teachers teach, more sophisticated implementation strategies are required. Therefore, helping teachers to create professional learning communities and schools to learn from each other are recommended approaches.

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