

The Leapfrog Principle and Paradigm Shifts in Education

by

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Abstract: This paper introduces the Leapfrog Principle and discusses its implications for education in the globalized, knowledge-based society. Facing the challenges in the new millennium, a paradigm shift in education is urged to support the formation of globally-competent, knowledge producing learners who will thrive in an era of accelerating change and uncertainty. Based on the theory put forth by Cheng (1999, 2000, and 2001), a new triplization paradigm is introduced and explained. This new paradigm emphasizes the development of students' contextualized multiple intelligences (including technological, economic, social, political, cultural, and learning intelligences), and the processes of triplization (including globalization, localization, and individualization) in education.

Key words: the Leapfrog Principle; paradigm shift; triplization

What the Leapfrog Principle Implies for Education

Different parts of the world are now in the process of globalization in technological, economic, social, political, cultural, and learning aspects. We are in an era when knowledge is expanding at an unprecedented rate. The emergence of the 'knowledge-based' society is changing the global economy and the status of education.

In response to these challenges, a paradigm shift in education should be urged to support the formation of globally competent, knowledge producing learners who will thrive in an era of accelerating change and uncertainty. Transformation and reforms in education systems including curriculum reforms and technological innovations should be performed to echo the paradigm shift in education.

Policy-makers and educators in each country have to think about how to reform education for preparing our younger generation to more effectively cope with the challenges in the new era. Moravec (2007) postulates that, for nations to lead in an era of accelerating change, students, teachers and states need to "leapfrog" to a new paradigm of knowledge of production.

According to Harkins and Moravec (2006), “Leapfrogging means to jump over obstacles to achieve goals. It means to get ahead of the competition or the present state of the art through innovative, time-and-cost saving means.” To lead in the globalized, knowledge-based society in an era of accelerating change, nations require a new “Leapfrog” mindset, based on rapid, proactive responses to future realities. “A Leapfrog Nation relentlessly disrupts itself to compete successfully in the global knowledge and innovation economy. A Leapfrog Nation works ahead of the competition in teaching, research, innovation, and human development” (Moravec, 2007). Leapfrogging has become a major strategy of developing countries wishing to avoid playing catch-up. A similar approach to gaining the lead rather than assuming a persistent runner-up role has been adopted in education in different parts of the world. Harkins (2007) contends that the first nations to adopt the Leapfrog Principle in education, support it with advanced technologies, and apply it in primary through higher education contexts, will become human capital development leaders among global knowledge and innovation economies. As Moravec (2007) suggests, continuing a practice of preparing students for the old economy and the old society jobs will lead to a crisis in human capital development. The Leapfrog principle requires entirely new approaches to teaching and learning. To help children and youth cope with a future that is becoming increasingly unpredictable and to create desirable alternative futures, teachers and education policy leaders need to rethink what students should learn and how students should learn to succeed in the 21st century.

Paradigm Shifts in Education

As noted in *the UNESCO World Education Report: Teachers and Teaching in a Changing World* (UNESCO, 1998), the young generation is entering a world which is changing in all spheres: scientific and technological, political, economic, social and cultural. According to Cheng (1999), humans in the social context of the new millennium will be multiple, as technological persons, economic persons, social persons, political persons, cultural persons, and learning persons in a global village of information, high technology, and multi-cultures. Both individuals and the society therefore need multiple developments in technological, economic, social, political, cultural, and learning respects. Life-long learning and the learning society are necessary to sustain the continuous multiple developments of individuals and the society in a changing new century (Drucker, 1995). To prepare our younger generation to meet the challenges of an ever advancing knowledge-based society and the dynamically changing environment, it is not enough to impart them with mere knowledge. Instead of teaching and learning huge volumes of information and factual materials, the content of education should put emphasis on developing students’ abilities to “learn how to learn” systematically, systemically, creatively, and critically. We have to help them develop a global outlook, and equip them with a repertoire of skills and positive attitudes to respect knowledge and to learn how to learn.

According to Cheng (1999, 2000), the paradigm in education should be shifted from the traditional school-bound one to a new triplization paradigm^①. The new paradigm emphasizes the development of students' contextualized multiple intelligences (CMI) (including technological, economic, social, political, cultural, and learning intelligences), and the processes of triplization (including globalization, localization, and individualization) in education.

Given that societal and global contexts are so complicated, diverse, multiple, fluid, and challenging, it is quite reasonable to expect that the new generations should have at least some of the contextualized multiple intelligences to meet diverse challenges in the new millennium. Therefore, our education should be reformed with clear relevance and concrete linkages with the development of CMI.

In order to maximize the opportunities for development of CMI for students, globalization, localization, and individualization in education are important and necessary.

Globalization refers to the transfer, adaptation, and development of values, knowledge, technology and behavioral norms across countries and societies in different parts of the world. Some examples of globalization in education are:

- web-based learning;
- E-learning
- international visit/immersion programs;
- international exchange programs;
- use of the Internet in learning and research;
- international partnerships in teaching and learning at group, class, and individual levels;
- interactions and sharing through video conferencing across countries, communities, institutions, and individuals;
- curriculum content on technological, economic, social, political, cultural, and learning globalization.

Localization refers to the transfer, adaptation, and development of related values, knowledge, technology, and behavioral norms from and to local contexts. Some examples of localization practices in education include:

- community involvement;
- public- institutional collaboration;
- institution-based management;
- inter-institutional collaboration;

^① The following discussion on the Triplization Paradigm is mainly based on the theory and materials in Cheng (1999, 2000, and 2001).

- community related curricula;
- curriculum content on technological, economic, social, political, cultural, and learning localization.

Individualization refers to the transfer, adaptation, and development of related external values, knowledge, technology, and behavioral norms to meet individual needs and characteristics. The major implication of individualization in education is to maximize the motivation, initiative, and creativity of students and teachers in schooling, teaching, and learning. Some possible measures are as follows:

- individualized educational programs;
- individualized learning targets, methods, and progress schedules;
- self initiated lifelong learning, self actualizing, and self motivation;
- self managing students and teachers;
- meeting individual special needs;
- development of contextualized multiple intelligences.

All in all, to prepare our younger generations to meet the challenges in the globalized, knowledge based, and dynamically changing society, the paradigm shift of education should be facilitated towards development of students' contextualized multiple intelligences and triplization in education. Why? Because the first nation to adopt the Leapfrog Paradigm, bolster it with advanced communications technologies, apply it in preschool through higher education contexts, will either continue to lead or will acquire newfound leadership among emerging knowledge and innovation economies (Moravec, 2006).

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