



Chapter 1

Searching for Paradigm Shift in Subject Teaching and Teacher Education

**Yin Cheong CHENG, Kwok Tung TSUI,
King Wai CHOW, and Magdalena Mo Ching MOK**

Centre for Research and International Collaboration
The Hong Kong Institute of Education, Hong Kong

TOWARDS A NEW FUTURE

Entering the new millennium, education systems in the world function in a turbulent context, characterized by increasing uncertainties and ambiguities. The rapid globalization, long lasting impacts of information technology (IT) (Kenway, 1996), tremendous transformation towards knowledge-driven economy, and strong domestic demands for economic and social developments to cope with international competitions have challenged nearly all existing education systems and fueled the flame of reform in different parts of the world.

To meet these challenges in the new century, numerous education reform initiatives have been introduced with aims to improve the quality of schooling, enhance the effectiveness of pedagogy and curriculum, and promote lifelong learning in many countries and communities. Amid the educational changes, the proposition that “competent teaching is a new student right” has been advanced by the National Commission on Teaching and America’s Future in its *What Matters Most: Teaching for America’s Future* released in September 1996 (<http://www.tc.columbia.edu/%7Eacademic/ncrest/teachcom/home.htm>). While no one would reject this proposition, critical reviewers are prone to ask: “competent in teaching what is relevant to the future?”

To a certain extent, this question reflects the fundamental concern about the current paradigm of education: whether it is still appropriate in such rapidly changing and challenging local and global contexts in the 21st century (see, e.g., Aviram, 1996; Evans, 1994). Many of the premises of the paradigm are no

longer valid and its underlying values are becoming incompatible with the peculiar changes taking place in a new era of globalization and IT. Cheng (2001a) explains:

If we believe our world in the new millennium is moving towards a multi-dimensional globalization and becoming a global village with boundless interactions among countries and areas in various aspects, we should expect our new generations to be CMI [contextualized multiple intelligences] persons capable of meeting the challenges from and making contributions to such a fast changing and interacting global village. The development of the society should be multi-dimensional and geared towards a learning CMI society. The aims of education should be to develop students as CMI citizens who will creatively contribute to the formation of a CMI society and a CMI global village with multiple developments in technological, economic, social, political, cultural, and learning aspects. (p. 61)

With such a new future of our society and next generations, a paradigm shift in different areas of education is therefore inevitable.

PARADIGM SHIFT IN SUBJECT TEACHING

Subject education is a major part of school education (Ball & McDiarmid, 1990). The typical examples are education in subject areas such as science, mathematics, IT, social sciences, and languages. In facing the above challenges from the new millennium, the aims, curriculum, and pedagogy for subject education inevitably need fundamental review and changes. According to Cheng (2000, 2001a), the paradigm shift in designing curriculum and pedagogy for subject education involves the shifts as follows (Table 1).

Shifts in Curriculum Aim

In the traditional paradigm, the curriculum aim is to equip students with the necessary knowledge and skills to survive in a local community or meet the manpower needs of a society. In contrast, the new curriculum aim of subject curriculum design is to develop students as CMI leaders and citizens who will creatively contribute to the formation of a CMI society and a CMI global village.

Table 1: Paradigm Shift in Designing Subject Curriculum and Pedagogy

New Paradigm	Traditional Paradigm
<p><u>New Curriculum Aims</u></p> <ul style="list-style-type: none"> To develop students as CMI leaders and citizens who will creatively contribute to the formation of a CMI society and a CMI global village 	<p><u>Traditional Curriculum Aims</u></p> <ul style="list-style-type: none"> To equip students with the necessary knowledge and skills to survive in a local community or meet the manpower needs of a society
<p><u>New Curriculum Characteristics</u></p> <ul style="list-style-type: none"> CMI-Focused Curriculum Globalized, Localized, and Individualized Curriculum Structure 	<p><u>Traditional Curriculum Characteristics</u></p> <ul style="list-style-type: none"> Subject-focused Curriculum Mainly Based on the Subject Knowledge Structure
<p><u>New Pedagogy Characteristics</u></p> <ul style="list-style-type: none"> Facilitating Students' Lifelong Self-learning Multiple Sources of Learning and Teaching Globally and Locally Networked Learning and Teaching Worldwide Networked Pedagogical Environment Boundless and Unlimited Opportunities for Learning Inside and Outside Institution Pedagogy is Based on the Pentagon Theory of CMI Development 	<p><u>Traditional Pedagogy Characteristics</u></p> <ul style="list-style-type: none"> Delivering Knowledge and Skills to Students Site-bounded Sources of Learning and Teaching Separated Learning and Teaching Classroom-bounded Pedagogical Environment Fixed Period, within Institution, and Limited Opportunities for Learning Pedagogy lacks a clear linkage with CMI development and it is often driven by the delivery of subject knowledge and external standards in examinations

Shifts in Curriculum Characteristics

In the traditional paradigm, the focus of subject curriculum design is on the content and delivery of subject knowledge in certain specialization areas. The structure of a curriculum is mainly based on the structure of subject knowledge and the needs for same standard contents and same arrangements for the same cohort of students (see, e.g., Aubrey, 1994b). Therefore, the curriculum structure is often linear, step-by-step, and subject content dependent. Whether the curriculum is globalized, localized, and individualized is not the concern.

In contrast, the new paradigm focuses the design of subject curriculum on developing students' CMI and ability for lifelong learning and development.

Therefore, the design is based on characteristics of development of CMI and maximizing development opportunities for students' individualized, localized, and globalized learning. The curriculum structure is often hybrid, integrative, and interactive (see, e.g., Turner-Bisset, 1999) with the support of IT, networking, local and global exposure, and field experience and virtual reality to meet the diverse needs of students (see, e.g., Comer & Maholmes, 1999) and the society in future development.

The new curriculum content should be globalized and localized, pooling up the world-class materials and local resources for the learning and teaching processes and maximizing the global and local relevance and exposure to the future developments of individuals and the society. Whether it is totally based on the structure of subject knowledge may not be the major concern. The subject curriculum design and content are flexible and adaptable and can be individualized - in terms of learning targets, content, methods, and schedules - to meet the developmental needs of individual students, facilitate their self-learning and self-actualization, and optimize their potentials (Glatthorn, 1994).

Shift in Pedagogy Characteristics

The traditional subject teaching emphasizes delivering subject knowledge and skills to students (Aubrey, 1994a; Darling-Harmond, 1995). Inevitably, the pedagogy is mainly to ensure students' learning as a disciplinary, receiving, and socializing process (Carter, 1990) and assumes that close supervision is necessary during the learning process (Freiberg & Waxman, 1990). The opportunities for traditional subject learning are often very limited in a fixed period within a site-bounded but IT-absent environment. Also, subject teaching has no clear linkage with CMI development of students, and it is often driven by the delivery of subject knowledge and external standards in examinations.

The new pedagogy of subject education differs from the traditional one, aiming to ensure students' learning as a self-actualizing, discovering, experiencing, enjoyable, and reflecting process (see, e.g., Wang & Palincsar, 1989). There are multiple sources for student's subject learning - for example, self-learning programs and packages, interactive multi-media materials, web-based learning, outside experts, community experiential programs, etc. - inside and outside the education institutions, locally and globally (see, e.g., Gose, 1996). Student learning is locally and globally networked through, for example, the Internet, e-communications, visiting programs, local and global exchange

programs, and sharing by video-conferencing. The networked learning can provide a wide spectrum of learning experiences and maximize opportunities for students to benefit from various settings and cultures. The new pedagogy should also be based on the Pentagon Theory of CMI (Cheng, 2000, 2001a). It should encourage students' CMI interactions and facilitate intelligence transfer among learning, economic, political, social, cultural, and technological intelligences. Through development of CMI and intelligence transfer, students' creativity in one subject area or other areas can be substantially enhanced. Also, developing students' learning intelligence should be at the core part of pedagogy for subject education. Students should be facilitated to learn how to learn, think, and create particularly in the local and global contexts (see, e.g., MacGilchrist, Myers, & Reed, 1997).

CHALLENGES TO TEACHER EDUCATION AND DEVELOPMENT

The emerging paradigm shift in subject education inevitably raises numerous issues that challenge the current philosophy, design and practice of education in nearly all subject areas, ranging from the IT, science, and mathematics to social sciences and languages (see, e.g., Czerniak, Weber, Sandmann, & Ahern, 1999; Deeds, Allen, Callen, & Wood, 2000; Miller & Davison, 1999). On the one hand, educators and researchers are still concerned with the effectiveness of subject teaching to deliver the existing subject knowledge and skills and achieve the planned curriculum aims (see, e.g., Cruickshank & Metcalf, 1994). A lot of efforts and initiatives have been put to enhance teachers' competence and performance and improve their practice in the delivery of subject knowledge to students (McDiarmid, Ball, & Anderson, 1989). Many research projects and innovations are still working in this direction. Some chapters in this edited volume provide good examples to show the ongoing efforts for enhancing effectiveness of subject education and to pursue competent teaching in subject areas.

On the other hand, some educators and researchers begin to be aware of the significance and necessity of paradigm shift in subject education (see, e.g., Noddings, 1998). They are interested to explore the role and impact of IT in education generally and in subject teaching and learning in particular. Also, given the fact that knowledge and skills are going to be outdated very quickly in this new era, they reconsider and even reconceptualize the role and meaning of subject knowledge and skills in subject education (see, e.g., Aubrey, 1994a;



<http://www.springer.com/978-962-949-060-7>

Subject Teaching and Teacher Education in the New
Century

Research and Innovation

Yin Cheong Cheng; Kwok Tung Tsui; King Wai Chow; Mo
Ching Mok, M. (Eds.)

2002, XII, 544 p., Softcover

ISBN: 978-962-949-060-7