China National New Curriculum Reform: Innovation, Challenges and Strategies

Abstract This paper presents systematically China national new curriculum innovation. It covers the background, the origin, the essence, the goals, the features, the evolvement, the schedule, the implementation, the alignment in primary and secondary and middle school curricula and inter-subjects, the outcomes, and the challenges and strategies of China national new curriculum reform.

Key words China, national new curriculum reform, innovation, challenges and strategies

1 Necessity to reflecting on China national new curriculum innovation
It has been seven years since China held its national new curriculum reform at the beginning of 21st century. A lot of achievements have been made while many challenges have been left open to deal with. To some degree, this is an important moment for curriculum theory if it is to move beyond not only traditional prescriptions as outlined by Morrison (2004) but also if it is to move beyond Pinar and Grumet’s (1976) interpretivist approach. Lather(2004) states that it is time for a “turn toward more concrete efforts put theory to work”. In other words, it is time to call upon educational researchers to work to understand that the way they know what they know also impacts the lives of those they study and/or teach.

Morrison (2004) in an article entitled, “The Poverty of Curriculum Theory: a Critique of Wraga and Hlebowitsh” addressed the need for new, open-ended curriculum theories that moved beyond the historically inscribed limitations outlined again and again by Wraga and Hlebowish. In respond to Morrison’s (2004) call for new curriculum theory and a larger scene of the curriculum field, especially the debates of the last decade (Morrison 2004; Graham, 1992; Short, 1991; Reynolds and Webber, 2004; Pinar 2004), dominant and liberal reform discourses in contemporary school reforms, tend to instrumentally organize change as logical and sequential, although there has been some recognition of the pragmatic qualities of social life (See, e.g., Fullan with Stiegelbauer, 1991). Although the specific focus may change, the agents of redemption are the State and educational researchers, and the agents of change are teachers as self-motivated professionals (Popkewitz and Brennan, 1998). All in all, in order to further improve the theory and practice of curriculum reform in China, the following will take a systematic review on China national new curriculum innovation.
2 Background of China national new curriculum innovation

2.1 Social and political background: related to national policies and measures

Since 1985, China economy system has been transitioning from planned economy to market economy. Political system has been initiating a progress from centralization of state power to local democracy and autonomy diversification. These economic and political system changes have prepared a proper climate for educational ice-break from traditional freezing close system to a flexible open system. The reform in education, from theory to practice, has been accelerated. Among the innovations, the first that deserves to be mentioned here is the dynamic national curriculum reform.

Under the proper economic and political climate, three thrusts to impel the implementation of new curriculum reform become stronger and stronger. Firstly, the international competition is gaining more and more impetuous. Creative talents play the key role to determine the final success in the international competition. Especially as knowledge economy is swelling up, talents of innovation have become a must for China’s national prosperity. This requires China education to reform accordingly. Secondly, the rapid popularization of information technology and internet system has a great impact on instructional tools, classroom arrangements, and delivery modes. This obviously changes the traditional educational philosophy, educational concepts, and the overall school management system as well. Thirdly, the persisting Quality Education focusing on all-round development, including physical and mental characteristics, highly demands to liberate students from their heavy learning burden generated from learning for tests.

To answer these demands, China State Council and the Third Conference of National Education issued “The Decision on the Reform and Development of Basic Education” in 1999. China Ministry of Education drafted and distributed “2003-2007 The Educational Vitalization Plan Facing the 21st Century” in 2003. Both of these two documents initiated and reinforced the reform of existing curriculum system. The national curriculum reform has expanded from its initial experiments in some districts at primary level at the beginning of this century to now (2005) which includes the whole nation at all levels of primary, secondary and middle school.

2.2 Educational background: main problems existing in education per se

2.2.1 The traditional notion of curriculum is outdated

Any theory of curriculum must be based on a theory of what knowledge is and how it is gained, i.e., epistemology. Michael (1997) The traditional spectrum of epistemological positions ranges from rationalism to empiricism and to constructivism. Rationalism holds that the human mind is capable of a direct apprehension of some empirical truths and that we in fact do have some knowledge of the real world that is in a certain way independent of experience. Empiricism holds that knowledge of the real world arises entirely out of experience. But newly prevailing constructivists insist that learner construction of concepts and principles through active experimentation is the primary way of learning. They argue that all knowledge is socially constructed; knowledge is not "out there" but is constructed in the
mind of the knower. Truth is made, not discovered. In contrast, China traditional curriculum was narrowed down to teaching materials compiled by editors according to the development of subjects, leaving students real life world and experience, especially students all-round development unattended. From the perspectives of constructivism, the new era of China needs a new curriculum based on a new curriculum perspective.

2.2.2 Educational aims lack of unitive definition
As far as educational aims are concerned, there are no clear stated definitions, such as “to cultivate laborers”, “to cultivate successors and builders”, “to cultivate fresh citizens of ideality, morality, culture, and discipline”. These vague and variable definitions of educational aims cause the confusion of teaching objectives. So the output of the education, such as “what kind of people” and “what quality of students the education should develop” are still pending for urgent clarification. Thus knowledge imparting, intelligence cultivating, emotional education, mental education, creativity training, and civics education, etc., confused teachers by loosing the orientation and handle to education.

2.2.3 The Configuration and content of traditional curriculum ignores student’s principal part and overall development.
The content and curriculum design of the compulsory subjects values spoon-feeding (duck-filling). It overlooks students’ good learning habits, practical skills in real life experience and healthy views towards life. The traditional delivery mode is teacher-centered, classroom-disciplined and textbook-oriented. It reflects little of inquiry-based, research-based, task-based, exploratory, communicative, cooperative, active-involved/engaged means of instruction.

2.2.4 Educational content bulges more and more
Traditional educational content is really like an encyclopedia based on various disciplines. On one hand, the content is gradually becoming more and more outdated and isolated so that what is learned at school is becoming far from what is really needed in reality; on the other hand, more and more new content is coming into the education requirement system with the progress of times and needs. The only result caused by this phenomenon is that students and teachers have become more and more overloaded.

2.2.5 Instruction and methodology have been distorted
Essentially, methodology is a means to deliver the curriculum. But in traditional curriculum, methodology is distorted as aims; content is distorted as carrier to realize methodology. Spoon-feeding methods still dominate all levels of education, such as “exercise sea”— doing exercises in a large number over and over again; “tests floods”—having exams one after another; various remedial classes – make-up courses for those low grades students to achieve a higher academic performance in exams, etc. The results of these efforts are more negative than positive. Students are tired of such learning and teachers tired of such teaching.

2.2.6 The evaluation of curriculum is distorted
In traditional curriculum evaluation, there exists serious misdirectedness. For instance,
highlighting the instrumental nature of evaluation while ignoring its practical effects, highlighting the achievement while ignoring diagnosis, highlighting the summative assessment while ignoring formative assessment, highlighting quantitative evaluation while ignoring qualitative evaluation, highlighting subject evaluation while ignoring comprehensive evaluation. Inevitably, the misdirectedness of evaluation leads to the distortion of essence of education.

2.3 The Diversity of Education Per Se

With the development of economic globalization, the technological, cultural and educational exchange and cooperation have become more and more frequent among countries. The groundwork for such exchange and cooperation is nationality, diversity and multiple values. Under this context, diversity meets the requirement of globalization, internalization and polarization. However, this polarization in the world, diversification in the economic activities, and multiplication of the human activities call for the educational diversity.

Reform of China’s Educational Structure: Decision of the CPC Central Committee (1985) (abbr. Decision, 1985) states that “it is necessary to take steps to implement the nine-year compulsory education, handing over the responsibility for the basic education to the local government.” This local-governed, hierarchical-managed basic educational principle is the key to our educational business and educational structure reform. The Decision also points out the triple classification of the educational regions in the country: developed regions, moderate developed regions and underdeveloped regions. In each of these three regions, different steps are taken to obtain the educational permeation at different timetables. In 1986, this principle was finalized in Nine-Compulsory Education Law (abbr. Law, 1986) and reiterated in the Decision on Deepening Educational Reform and Expediting the Quality Education (abbr. Decision, 1999), which again stresses that “every school-aged child is entitled to compulsory education.” “The basic educational business is supervised by the central government congress, accounted for by the local government and managed by each subordinate level of educational bureau.”

In Decision (1999), strong guidelines clearly indicates the necessity of readjusting and reforming the curriculum system, establishing a new one instead, and implementing the curricula on national, local and school levels respectively. The Decision also stresses the importance of the comprehensiveness and practicality of the curriculum in order to develop students’ ability to operate. It is imperative to improve the diversity of the teaching materials and the assessment of those materials, in order to ensure the adaptability of the curriculum to the economic development of local areas, especially the rural and depressed regions of the country.

The following trends for the diversification of the education provide a context for the new curriculum reform.

♦ Educational Democracy: The society demands for a larger scope of and a higher level of the educational equity.

♦ Educational Multiplication: The multiplication of the educational system requires the framework to be multi-layered, multi-hierarchical, multi-representative and multi-standards. In the traditional highly centralized system, this multiplication is unattainable; but in the
current situation, it is realistic.

♦ Educational socialization: If learning involves all of one’s life, in the sense of both time-span and diversity, and all of society, including its social and economic as well as its educational resources, then we must go even further than the necessary overhaul of 'educational systems' until we reach the stage of a learning society. (Faure et al, 1972) This learning society requires a radical change of the traditional educational forms and curriculum resources.

♦ The Decentralization of the educational management: The consequential outgrowth of the multiplication of the social structure is the appropriate combination between the national guidelines and the local self-management. The corresponding strategic plan for the educational development is bound to be unbalanced due to a variety of alternations for the educational forms.

♦ The Multiplication of school investors and administrators: China has basically formed a school-administrative system under which the government-run schools used to serve as the mainstay with the participation of people from all walks of life and the joint development of schools run by the state and non-governmental efforts. However, in recent years, private investment has taken on a new trend into the educational managerial system featuring management at various levels.

♦ Educational internalization: As a result of globalization, of the importance of ICT and of rapid technological change, education is crucial for growth. Educational internationalization challenges a more effective overall open system in promoting a variety of training skills and various forms of learning. Medium term documents delineating strategies (1996-2001) and the two-year program (2000-2001) of UNESCO indicate that the strategy to be adopted is to diversify the structures, to expand payment systems for services at secondary level, to renew study programs and pedagogical methods, to use new information technologies as well as to maintain ongoing efforts to eradicate inequalities between the various domains in education.

♦ Comprehension of the educational goals and knowledge: As the crucial stage of individual education, basic education plays a significant role in training talented students for higher education, vocational schools and various forms of labor resources. In order to overcome the challenges of the 21st century and to allow secondary education to play such a role effectively as regulator in the overall system of education in promoting a variety of training skills and various forms of learning, this sector should urgently be re-organized. Therefore innovation spirit and practical capability have been highly-recognized as the main educational goals. This comprehensive educational goal and knowledge system call for such innovation of not for carrying out a profession but for carving out a profession.

♦ Lifelong Learning: What a student learned at school should pave a solid foundation for the life-long development, which could benefit his/her whole life. Since 1980s, China’s market economy calls for a high demand for various talented people in all walks of life, which in turn requires a much more urgent needs to diversify the educational curriculum framework. So far multifaceted experiments and studies have been carried out in order to bring forward a more reliable measure for this trend.

3 Origin of China national new curriculum reform
In 1999, “The Decision of Furthering Educational Reform To Promote All-round Education Made By China Central Committee of the Communist Party And State Department” put forward that “In order to establish new basic educational curricular system, traditional system, structure and content of curriculum should be adjusted and changed”. In 2001, “The Decision Of Basic Educational Reform And Development Made By China State Department” insisted that “the building of new curricular system adaptive to the requirements of all-round development should be expedited.” Under the directions of the central government, China Ministry of Education initiated the 7th national basic educational curricular system reform at the cross-century from the foundation of P.R. China.

4 The essence of China national new curriculum reform

According to the document issued by Department of Basic Education, China Ministry of Education(1999), the Program Of National Basic Education Curriculum Reform(PONBECR) is one of the pivot projects listed in “Education Vitalization Act Facing 21th Century” It is an important step for China’s basic education to face the world, modernization and future. Its essence is to establish a new curriculum system for basic education to meet the requirement of 21st century, which fully reflects the essence of basic education and spirit of education for all-round development and secures students to become true masters of learning. The content of PONBECR covers: (a) general plan, (b) goals/objectives of curriculum, (c) standards of curriculum, (d) structure of curriculum, (e) compiling and management of teaching materials, (f) implementation of curriculum, (g) evaluation of curriculum, and (h) curriculum management.

5. The goals of China national new curriculum reform

5.1 The macro-goals

The new curriculum reform firstly set up the educational goals in the new era, which are to develop students’ spirits of patriotism, socialism-loving; to help students inherit and develop the elites of Chinese cultural traditions; to help students stick to the awareness of socialist democracy and legal system; to help students abide by state’s law and social public ethics; to help students establish correct world views, life views, valuation views; to provide students with social sense of responsibility and determination to serve the people; to provide students with primary spirits of innovation, practical ability, accomplishment of science and humanity and sense of environment protection; to help students grasp basic knowledge, skills and ways for life long learning; to keep students both physical and mental health; to promote students to become fresh civilians with basic traits of ideality, morality, culture, and discipline. These overall educational aims embody the fulfillment of Deng Xiaoping’s appeal on to the basic education, which is “Education must face modernization, face the world and face the future.” Also, it is a concrete implementation of basic education tasks that is to strengthen the comprehensive power of the state by improving the quality of the whole nation.

5.2 The micro-goals
It is known that China is a big country of large population and vast area with diverse differences in economy and culture in various regions. The traditional unitive curriculum program and unitive requirement apparently can not meet the needs of students’ development in diverse areas. Therefore, this round of new curriculum reform aims at founding an appropriate flexible management mechanism of three levels to keep both unification and diversification work effective.

The three-level curriculum management model can be described like this: the state is responsible for establishing macro plan for curriculum development, deciding on categories of subject courses and their periods, issuing national standards for each course, and providing macro directions to the implementation. Local (Provincial and lower level) educational administrations, under the direction of national curriculum, lay out the project of implementation of curriculum to match the needs of local areas, for instance, localizing national curriculum, selecting teaching materials, building local instructional resource database, inspecting the process and testing the result of curriculum reform, and so on. Schools are encouraged to explore and/or select curriculum and textbooks suitable to their own characteristics or needs, what’s more, they are encouraged to build their own school-based curriculum and textbooks. To put in another way, this three-level curriculum management does not only embody the fundamental requirement of the state but also leaves time and space for local development. For instance, in new curriculum program, some rights of curriculum development and management, such as selecting textbooks, rewriting school-based textbooks, even some tests, etc, are transferred to local administrations and schools. Therefore, the local educational administrations and schools should have more opportunities and enthusiasm to join in the development and management of curriculum. This is the basic guideline for this round of new curriculum reform and this is also what the new curriculum reform wants.

To realize these aims, the new curriculum reform relocates the proportion of curriculum resources at three levels in the whole curriculum program by, for example, cutting short the part prescribed by the state. With a respect to curriculum content arrangement, a considerable flexibility leaves local administrations and schools much more space to select or add selective courses. According to the new curriculum, local and school curricula cover 10%--12% in the whole curriculum periods. This decision adapts to the lopsided development of economy and culture in China. It is helpful to motivate schools and teachers maximally.

There is every reason to believe that three-level curriculum management (national level, local level and school level) in curriculum implementation is an intelligent strategy to meet the specific needs of social, economic and cultural developments in different areas in China.

6 Features of China national new curriculum management reform

Compared with previous curriculum reform, this time of reform stresses a revolutionary change in educational concept: aiming to the favorable process of quality education by changing teacher’s instructional modes and students’ learning methods. Specifically, it has the following 5 main features.

♦ Transforming the educational function, and putting “quality education” into effect.
The new wave of curriculum reform aims to represent the three-part curriculum function of 1) knowledge and skills, 2) procedures and methods, and 3) affect and attitudes. This “trilogy” will facilitate the all-round educational development.

♦ Breaking through the “curriculum-centered” framework, and strengthening the curriculum integration so as to establish a comprehensive curriculum framework.

Basic knowledge and skills required for life-long learning are highlighted. Difficult, outdated and non-relevant contents are deleted. What is learned has a closer relationship with students’ daily life, modern society and technology.

♦ Stressing the curriculum target, providing schools and teachers with more autonomy to conduct the reform.

The new curriculum standards emphasize the target outline for different stages of education by providing suggestions for the implemental procedures. However, with respect to the content and methods leading to the target, especially the sequence to knowledge acquisition, the new curriculum has no mandatory prescription. It provides much more flexibility for alternative teaching materials, and creative teaching and learning methods. This makes the curriculum standards distinguished from traditional teaching outlines.

♦ Stressing the achievement and improvement of learning methods and techniques.

The new curriculum emphasizes educational procedure, learning experience, teaching materials, instructional methods, evaluation and assessment, diverse learning methods (initiative participation, personal practices, independent thinking, cooperative inquiry) and students’ all-round learning skills (information collecting and processing, problem-solving and analysis, knowledge acquisition, communication and cooperation).

♦ Establishing much more effective evaluation, highlighting all-round development.

The new curriculum standards aim to propose much more effective strategies and concrete evaluation instrument. The evaluation focusing on students’ learning procedure facilitates students’ all-round harmonious development.

7 Evolvement of China national new curriculum

The 2000s national curriculum is the eighth wave of curriculum innovation since the foundation of the People’s Republic of China in 1949. The whole development of the 2000s national curriculum has undergone three sequential stages: preparation, experiment and popularization. In June, 2001, China Ministry of Education issued “Program of Basic Educational Curriculum Reform” (tryout version) and curriculum standards of 18 compulsory subjects. Since then, 38 counties from 27 provinces and/or municipalities (big cities directly administrated by the jurisdiction of central government) have been designated as experimental bases for the compulsory education curriculum reform. During this experimental stage, 49 experimental textbooks covering 20 subjects (7 for primary and 13 for secondary education) were endorsed for implementation on an experimental bases. According to China Ministry of Education request, by 2003, this experimental stage lasted three years.

In 2003, standards of subjects were emended on the basis of previous experiments, feedback, surveys and studies. From 2004 to the Fall of 2005, the new curriculum began its full implementation in compulsory education and senior high school education. By the Fall of 2005, all starting grades in elementary and secondary education stage have taken the new
curriculum system. Hereby, the national regular new curriculum system adaptive to basic education requirement in 21th century has come into being.

8 Schedule of China national new curriculum reform

In 1999, China Ministry of Education organized experts to make a general plan and guideline for basic education curriculum reform. Meanwhile, new curriculum standards for Chinese, mathematics, foreign languages, and computer technique were established. In 2000, curriculum standards for the remainder of subjects in compulsory education stage were completed. And the curriculum standards for high school subjects started its drafting plan and research. The first group of experimental regions was approved and partial curriculum standards were put into experiments.

In 2001, China Ministry of Education issued “The Program of Basic Educational Curricular Reform (try-out version)” and curriculum standards of eighteen subjects(experimental versions), endorsed nearly one hundred editions of new curricular experimental textbooks under twenty subjects, issued “Experimental Blue Print of Subject Setting for Compulsory Education ” and related documents. The research achieved a break-through in curriculum planning, curriculum standards and related assessments, and compiling new teaching materials. Based on the research, China Ministry of Education launched basic educational curriculum reform in experimental districts at national level. The new curriculum began its experimental implementation in thirty-eight districts from twenty-seven provinces and/or municipalities directly under the Central Government in September the same year, with emphasis on exploring the specific operative mechanism of three-level curriculum management, and the reform of evaluation and testing system.

In Fall, 2002, new curriculum system (including operative mechanism of three-level management, evaluation system, and so on) for compulsory education moved forward into a new stage of nation-wide experiments. Each city opened a county-based experimental base at provincial level. The number of beginning grade students participating the experiments covered 10-15% of that from the whole nation. As a result, experimental bases at provincial level extended to over five hundred counties (cities or towns), which accounted for 17% of the total counties in China. In the same year, curricular standards of major subjects were completed and issued.

In Fall, 2003, subject-setting plans, curricular standards of all subjects, guideline for local and school curriculum management, evaluation and testing reform plan for primary and secondary school were re-evaluated, amended and refined based on the experience and lessons drawn from experimental bases. Newly-developed teaching materials were inspected and endorsed. A larger scale of curriculum reform was initiated. The number of beginning grade students participating the experiments covered 35% of that from the whole nation.

In Fall, 2004, the new curriculum experienced a stage of popularization in compulsory education stage. Formal subject setting plans, curriculum standards for all subjects and other related documents for compulsory education were issued by China Ministry of Education based on experience drawn from and assessment on experimental bases at both national and provincial levels. The number of beginning grade students participating in the experiments covered 65-70% of that from the whole nation.
In Fall, 2005, in general, all beginning grade students in primary and secondary schools nation wide began using new curriculum. Formal new curriculum plans, standards for all subjects and other related documents for high schools were issued by China Ministry of Education.

In Fall, 2007, it is planned that new curriculum will be implemented in all high schools nationwide. New curriculum will enter a new stage of full-scale generalization in basic education.

9 Implementation of China national new curriculum

9.1 Principles

—— National curriculum criteria should be fundamental standards that most of the students can reach. It should be within most students’ Proximal Developmental Zone.
—— Curriculum content and requirements in compulsory education should be fundamental, developmental, instrumental and beneficial to life long learning.
—— New curriculum should leave students enough time and space for their own diversified and sustained development.

9.2 Measures

—— Change the tendency from over emphasis on knowledge to stress on active learning attitude. Turn acquiring knowledge and skills into learning to learn and forming the correct value views.
—— Diversify curriculum structure and integrate isolated subjects. In the past, the curriculum standards were unitary: the curriculum structure is the same at the same time of the year for all the same level of schools in the country. With the development of the economic and educational development of the country, this unitary feature could not meet the high demands for the graduates for it seriously restrains the overall development of the students. It is time for the change. The diversity of the curriculum holds two implications. First, it means the variety of subjects. For example, there are two main types of subjects: academic subjects and activity subjects. The academic subjects contain major instrumental subjects (such as Chinese, Mathematics, and foreign language), subjects of natural science and social science and vocational subjects. In each type of subjects, there are mandatory or elective courses; long-term or short-term courses. Second, it means various proportion and weights of each subject among the different kinds of subject combination.
—— Keep the category of subjects and period proportion for each subject reasonable to ensure their harmony, comprehensiveness, and selectiveness. Cut short the number of subjects and reduce the proportion of language and literacy to 20-22% from 24%, and mathematics to 13-15% from 16% so as to save much more time for comprehensive practical activities and local courses. Ensure comprehensive practical activity course covering 6%-8% of all periods, local and school based curriculum covering 10%—12% of all periods. As a result, the proportion of science and comprehensive practical activities ascends with these changes.
—— Divide the management of curriculum into three levels: national, local and school. To
ensure that the content of the curriculum has more local characteristics, local administrations
and schools will be more active in adapting to their needs.
—— Select basic knowledge and skills necessary for lifelong learning, such as English and
information technology. The content of curriculum reflects students’ life experience and fresh
achievements of social, scientific and technological development.
—— Reduce content difficulties and delete the over-hard and over-deep content based on
Proximal Development Zone. Supplement content closely related to students’ life and society,
for example, adding health care and mental health to physical education, adding social
practice, community service, labor technology and exploring activities to comprehensive
practical activities.
—— Secure students’ principal parts in curriculum. Encourage students’ active and creative
learning instead of passive rote learning. Promote students’ independent, exploring,
discovering, cooperative, participant learning. Attach importance to the strategies of learning
rather than only the result of learning.
—— Set up the course of comprehensive practical activities based on students’ direct
experience to extend students’ learning space. Request students to find and solve problems in
such activities as doing, seeing about, experiments, exploration, design, manipulation,
imagination, reflection, tasting, and so on. Cultivate students’ creativities and practical
activities. Develop students’ social responsibility.
—— Take advantage of comprehensive curriculum to strengthen understanding of problems
by connecting isolated subjects, such as environmental problems, population problems,
resources problems, etc.. According to new curriculum program, elementary school enjoys
priority to comprehensive curriculum. Subject-oriented courses required for low grades in
elementary school are: morality and life, Chinese, mathematics, physical education, art (music,
fine arts). Subject-oriented courses required for high grades in elementary school are:
morality and life, Chinese, mathematics, foreign language, comprehensive practical activities,
physical education, art (music, fine arts). Junior high schools also open two categories of
courses: one is subject-oriented, the other is comprehensive-oriented. Subjects-oriented
courses are: thought and morality, Chinese, mathematics, foreign language, science (physics,
chemistry, biology), history and society (or history, geography), physical education, art (music,
fine arts). Senior high schools mainly open required courses.
—— Collect curricular resources both inside and outside schools. Teachers should lead their
students to explore the curriculum resources, make students act as principal parts and masters
of learning. Therefore, a chapter of how to explore curriculum resources is included in each
subject course criteria. Teachers are given concrete advice on how to use these curriculum
resources.
—— Train the administrative workers and “backbone”, or master, teachers in experimental
areas as mentor teachers who play a leading role in the implementation of new curriculum.

10 Alignment in primary, secondary and middle school curricula and
inter-subjects

According to Zhu Muju(2002), in Compendium Act III, it states “the need for the framework
of Nine-Year-Compulsory Educational Curriculum to provide a more coherent and integrated
structure”. There are four guidelines for this setup: (1) to reflect the basic nature of the Nine-Year-Compulsory Educational Curriculum; (2) to comply with the characteristics of the students’ emotional and physical development; (3) to align with the demands for the social, economic, scientific and technological development; and (4) to lay a solid foundation for the students’ overall quality and life-long development. Hereupon, the current reform stressed the “integrity” of the coherent nine-year-compulsory curriculum structure. In fact, this is the embodiment of the very three features of the new curriculum designing ideas: equilibrium, comprehensiveness and alternativeness. The “integrity” refers to the cross-sectional organization of the curricula for all subjects. This integrative reorganization presupposes the individual differences of each subject, and eliminates the isolation or contradiction among different subjects. Therefore, all the integrated subjects can bring forth a resultant force, which facilitates the holistic learning effect for the learners and promote their overall personality development. The “coherence” refers to the organization of all subjects based on its longitudinal sequence of development. As far as one subject is concerned, the content of each subject is deepened and expanded in the recurrent process of learning, and then consolidated and strengthened continuously. As far as all subjects are concerned, it is necessary to start with individual subjects in a well-planned order, hanging together one with another sequentially. Meanwhile, the numbers and kinds of subjects are increased from the lower grades to the higher grades, thus resulting in the accumulative learning effects accordingly and facilitating the learners’ sustainable development eventually. All of these pursuits to alignment with lower grades and inter-subjects can be demonstrated clearly in detail by the subjects setting and proportion of periods (see Table 1 and 2).

Table 1  Compulsory education subjects setting

<table>
<thead>
<tr>
<th>Grades</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>E&amp;L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E&amp;S</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I&amp;M</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H&amp;S(or H&amp;G)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Science</td>
<td>CH</td>
<td>CH</td>
<td>CH</td>
<td>CH</td>
<td>CH</td>
<td>CH</td>
<td>CH</td>
<td>CH</td>
<td>CH</td>
</tr>
<tr>
<td>S(or B, P,C)</td>
<td>MT</td>
<td>MT</td>
<td>MT</td>
<td>MT</td>
<td>MT</td>
<td>MT</td>
<td>MT</td>
<td>MT</td>
<td>MT</td>
</tr>
<tr>
<td>FL</td>
<td>FL</td>
<td>FL</td>
<td>FL</td>
<td>FL</td>
<td>FL</td>
<td>FL</td>
<td>FL</td>
<td>FL</td>
<td>FL</td>
</tr>
<tr>
<td>PE</td>
<td>PE</td>
<td>PE</td>
<td>PE</td>
<td>PE</td>
<td>PE</td>
<td>PE</td>
<td>PE</td>
<td>PE</td>
<td>PE</td>
</tr>
<tr>
<td>A(or M, or FA)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comprehensive practical activity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Local and school-based curriculum

Notes: E&L=Ethics & life, E&S=Ethics & society, I&M= Ideology & morality, H&S(or H&G)=History & society(or history & geography), S(or B, P,C)= Science(or biology, physics, chemistry), FL=Foreign language, PE=Physical Education, A(or M, or FA)=Art(or Music, or Fine art)
### Table 2: Compulsory education subjects design and periods proportion

<table>
<thead>
<tr>
<th>Grades</th>
<th>Proportion in total periods of 9 years(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>E&amp;L</td>
<td>7-9%</td>
</tr>
<tr>
<td>E&amp;L</td>
<td></td>
</tr>
<tr>
<td>E&amp;S</td>
<td></td>
</tr>
<tr>
<td>E&amp;S</td>
<td></td>
</tr>
<tr>
<td>E&amp;S</td>
<td></td>
</tr>
<tr>
<td>I&amp;M</td>
<td></td>
</tr>
<tr>
<td>I&amp;M</td>
<td></td>
</tr>
<tr>
<td>I&amp;M</td>
<td></td>
</tr>
<tr>
<td>H&amp;S</td>
<td>3-4%</td>
</tr>
<tr>
<td>H&amp;S</td>
<td></td>
</tr>
<tr>
<td>H&amp;S(or H&amp;G)</td>
<td></td>
</tr>
<tr>
<td>S(or B, P, C)</td>
<td>7-9%</td>
</tr>
<tr>
<td>S</td>
<td></td>
</tr>
<tr>
<td>S</td>
<td></td>
</tr>
<tr>
<td>S</td>
<td></td>
</tr>
<tr>
<td>S</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>20-22%</td>
</tr>
<tr>
<td>C</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>13-15%</td>
</tr>
<tr>
<td>M</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td></td>
</tr>
<tr>
<td>FL</td>
<td>6-8%</td>
</tr>
<tr>
<td>FL</td>
<td></td>
</tr>
<tr>
<td>FL</td>
<td></td>
</tr>
<tr>
<td>FL</td>
<td></td>
</tr>
<tr>
<td>FL</td>
<td></td>
</tr>
<tr>
<td>FL</td>
<td></td>
</tr>
<tr>
<td>FL</td>
<td></td>
</tr>
<tr>
<td>PE</td>
<td>10-11%</td>
</tr>
<tr>
<td>PE</td>
<td></td>
</tr>
<tr>
<td>PE</td>
<td></td>
</tr>
<tr>
<td>PE</td>
<td></td>
</tr>
<tr>
<td>PE</td>
<td></td>
</tr>
<tr>
<td>PE&amp;H</td>
<td></td>
</tr>
<tr>
<td>PE&amp;H</td>
<td></td>
</tr>
<tr>
<td>PE&amp;H</td>
<td></td>
</tr>
<tr>
<td>Art(or Music, or Fine Art)</td>
<td>9-11%</td>
</tr>
<tr>
<td>Comprehensive practical activity</td>
<td>6-8%</td>
</tr>
<tr>
<td>Local and school-based curriculum or selective curriculum</td>
<td>10-12%</td>
</tr>
<tr>
<td>Weekly total periods</td>
<td>26 26 30 30 30 30 34 34 34 274</td>
</tr>
<tr>
<td>Yearly total periods</td>
<td>910 910 1050 1050 1050 1050 1190 1190 1122 9522</td>
</tr>
</tbody>
</table>

Notes: (1) E&L = Ethics & life, E&S = Ethics & society, I&M = Ideology & morality, H&S(or H&G) = History & society(or history & geography), S(or B, P, C) = Science(or biology, physics, chemistry), FL = Foreign language, PE = Physical Education, A(or M, or FA) = Art(or Music, or Fine art).

(2) 35 schooling weeks every year.

(3) Comprehensive practical activities include: information technology education, research-based learning, community service, social practice, labor and technology education.

In addition to subjects design and appropriate proportion of subject periods, new curriculum strengthens alignment through management structure. It urges all schools and school systems to establish or strengthen management structures that will ensure accountability for a greater degree of alignment between the curriculum, pedagogy and assessment practices of upper primary and lower secondary schooling.

### 11 Outcomes of China national new curriculum innovation

New curriculum reform has made much progress in the past five years. It has achieved a series of conceptual innovations and gained a breakthrough in practice. General Secretary of the Fourth National Curriculum Academic Seminar (2004) argues that its main outcomes can be demonstrated as the follows:

11.1 Conceptual innovations

Concept or perspective is a theoretical scaffold for the implementation of new curriculum. Up to now, the following innovations have come to a common awareness.
An innovative view on a school. A school is a learning organization, where students are cultured, rather than a company or a bureaucracy. A school should play a principal part in the curriculum reform, building its unique curriculum through collecting and developing all kinds of curricular resources both in inside and outside of the school.

An innovative view on curriculum. Curriculum is not only text-based materials, but more important, an involvement experience. The same curriculum has different meanings to individuals according to personal experience and understandings. So curriculum involves in any individual’s growth, to some extend, curriculum is an individual life-process, a dynamic formative “system of ecology”.

An innovative view on teaching materials. Teaching material is a medi-um as a bridge to connect the known and unknown. It should be “yeast” to activate what should be taught or learned instead of designating students’ learning content. Helpful materials to students’ all-round development, no matter natural or social/humanistic, are all good teaching materials.

An innovative view on instruction. The essence of instruction should be no longer the spoon-feeding but a heuristic teaching. It is not only conveying knowledge and skill to students but also leading students to participate in exploration and experiencing life journey. It is a real life activity. The form of instruction is no longer “teacher-talk, student-listen” model, rather, it is a dynamic interactive activity, an engaged cooperation between teachers and students. Instruction should focus on students’ all-round development instead of “teaching and learning for tests”.

An innovative view on teachers. A teacher’s role has diversified as a director, a constructivist, a cooperator, an activator, a participant, a designer, and a leader beyond a traditional knowledge conveyer.

An innovative view on students. Students are masters of their learning rather than machines to receive input for tests. Students play principal parts in education. They should be treated with respect. They share equal rights in personality with each other and with teachers.

11.2 Practical innovations

Based on innovations in concepts, new curriculum has gained an innovative break-though in practice. The major changes can be displayed as the follows:

Three –level curriculum management has been established. Establish Earlier in 1996, for the first time China Ministry of Education put forward the three-level management (national, local and school level) for general high school curriculum in “General Full-time High School Curriculum Plan” (trial) and confirmed the management right for each level.

National level (China Ministry of Education): Guiding basic education reform macroscopically. Deciding the setting and proportion of subjects according to the essence and task of basic education. Organizing experts to make, amend, examine and approve, and issue curriculum plan and standards. Organizing experts to make, amend, examine and approve, and issue guideline for compiling, development and management of teaching materials. Organizing experts to make, amend, examine and approve, and issue system of curriculum evaluation. Planning, organizing experts to compile, examine and approve teaching materials. Publicizing regularly to society and schools the list of approved teaching materials for
primary and secondary schools. Working up with open appraisal system for teaching materials and system for school-option on teaching materials under the direction of educational superintended institutes, etc..

Local level (Provincial educational administrations or educational department authorized by Provincial educational administrations): Constituting provincial curriculum implementation stage-plan and planning the development of local curriculum according to the requirements of national curriculum schema and local practical situation. Making guideline for schools to implement local curriculum. Educational administrations at city and county level supervise and assess the implementation of curriculum, organize experts to give directions to schools on how to make specific plans for curriculum implementation, guarantee implementations of national and local curriculum in schools, guide schools specifically on how to develop curriculum.

School level (none-preschool): Making specific arrangement on required and selective subjects according to practical situation based on the regulations of national and provincial curriculum schema. Setting reasonable selective and activity subjects for its own school. Participating in the design of blueprint for community curriculum specific implementation. Developing school-based curriculum and getting the approval of upper educational superintended administration. Establishing school-level curriculum appraisal mechanism to guarantee the consistence with national and local curriculum in curricular aims. Reporting problems timely met with in curriculum implementation.

In new curriculum reform across the century, the three-level management of curriculum took no changes except more automatic rights were given to local administrations and schools.

♦ The unitary central state power requirement has become more and more flexible. The system of over centered curriculum management has been changed into central, local and school levels. Curriculum system of three levels and paralleling management system have been established nationwide except in some lag rural areas. Local and school curricula lead instruction to a real life of students. Thus local governments, schools teachers and students are becoming more and more active in the reform of curriculum. A series of unique alternative textbooks under the National Curriculum Standards has been endorsed by Text Book Inspection Department, China Ministry of Education. A large number of schools have built their own school-based curriculum under local curriculum.

♦ The traditional unitary structure of curriculum system has been changed into two parallel categories: one is required subject courses like Chinese, maths, English, physics, history, etc, which maintains every subject’s characteristics and laws per se. The other is comprehensive practical activity course plus selective subjects, which stresses the integration of various subjects to solve problems and supplements requirement subjects.

♦ Teacher staff training has completed its first round and the second round has been initiated. Every year each teacher is required to attend mandatory training at least 48 hours. The concepts of new curriculum have been warmly welcome by almost all educational leaders and teachers at all levels in basic education. Their understanding of new curriculum theory and concepts has become deeper and deeper through learning and practice. Positive and active attitude towards the new curriculum reform has replaced previous negative and passive attitude. Teachers have stepped out from previous shade of doubt and on the right track of
new curriculum reform. Teachers’ overall quality has been improved much more than ever before.

♦ Teacher-centered instruction has turned into student-centered instruction. Students’ principal parts have been exerted to a maximum degree. Students have become the true master of their learning. Thus classroom instruction and learning are full of interactive and cooperative involvement. Never have so much interest and enthusiasm of students been seen before. Students’ creativity and wide range of knowledge, especially active motivation have been enhanced. Student-center instruction conveys many advantages of cooperative learning, research-based learning, engagement and involvement. Classroom instruction is no longer boring. And students’ comprehensive quality has been improved. The practice has demonstrated that such a parallel structure of curriculum is good for students’ all-round development. All-round development education is gaining a big harvest.

♦ The system of evaluation is becoming diversified to match students’ individualities. Formative assessment, comprehensive evaluation and practical observation have been underlined. Score terminating one’s fate is becoming less and less pervasive. The tension of “Teaching for test, learning for test” has been kept within limits effectively. In order to meet the needs for the students from different levels -- nation, local areas and school -- three-layered curriculum design and management system has been blueprinted in the curriculum reform framework. The basic model of such management allocates the different roles of each managerial level.

The National Ministry of Education lays out the macro guidelines for curriculum development: stipulating the variety and hours of the subjects, establishing the national curriculum standards, and supervising the curriculum implementation.

The Provincial or Non-state Ministry of Education lays out the plan to implement the curriculum in accordance with the national guidelines, develops or selects its individual curriculum which meets the needs of individual characteristics.

Each school is required to carry out the curriculum laid out by both the national and local governments, develop school-based curriculum which could best reflects the needs of the students and teachers of its own.

In order to realize this three-layered curriculum design and management plan, the new curriculum reform reallocates the weight of curriculum plan for each level, shrinking the compulsory composition on the national level, reflecting leeway to some degree for the content and schedule arrangement of each subject, leaving much space for local governments and schools to make flexible choices and changes. In this way, the needs of schools, students and communities could be best met, and structure of the curriculum could be more practical and easy to carry out. All in all, this three-layered curriculum design and management plan stresses the roles of each participant. Each level of participant plays an indispensable role to train the talented individual for the modern society.

♦ Technology and techniques have been widely used in the instruction. New curriculum needs teachers and students to collect and share curriculum resources on websites or through internet. Never before have teachers shown so much enthusiasm to information technology and multimedia. More and more teachers have become accustomed to making multimedia courseware. The teaching age of “one mouth, one piece of chalk and one blackboard” has gone for ever.
Work or skill education has been further perfected. Uniquely, the idea of work or skill education aims at helping students obtain positive working experience and good skill accomplishment. It advocates learning through operation and hands-on activities. In National Basic Educational Curriculum, it belongs to the comprehensive field-study activities along with information technology, research study, community service and field work. It is required starting from the 3rd calendar year at primary schools. This idea is congruent with the idea of quality education which stresses on the creativity and practical ability, the two key essences of talents for the contemporary development of society.

In the current curriculum, the original feature of the “work/skill” class has undergone changes. Its name has changed into “work and skill” class, which shows both connection and discrepancy in between. It is the integration of the traditional Chinese ethic of “physical work” and the modern needs for technological training.

The “work-related skill” education represented in the new curriculum has the following 6 features Li Jianping (2001):

1. Comprehensive “Work-related skill” Education Curriculum Design

Prior to new curriculum, “work-related skill” education, mainly as labour and technical education, was an independent subject. In the new curriculum design, “work-related skill” education is listed as a formally designated learning area in the comprehensive practical activities, because “work-related skill” education needs all kinds of subject knowledge and many other abilities. This is a big change in the format of curriculum.

2. Content framework reconstruction. The new curriculum chooses labor, domestic economy, technology and career preparation as its main content.

3. Flexible Target System. New curriculum proposes two levels for the content and targets of Work-related skill education: basis and extension. Basic content is general requirement for reaching the minimum goals of work-related skill education, and extensive content is selective in advanced areas to reach a higher level of goals.

4. Larger learning space for “Work-related Skill” education. Simple technological design, reading of technical product specifications, and comments on simple technical works are formally introduced into the new curriculum as learning content of work-related skill education. Agrotechnical content is extended from traditional crops planting and animals breeding to seed improvement, technology experiment, product storage and process, market exploration and sale.

5. Establishment of assessment system to improve students’ development. New curriculum takes combination of formative and summative assessment to promote students’ development. In secondary schools, Certificate of Eligibility for labor and technology is underway.

6. Orientation of the functions of family, school and society in work-related skill education. New curriculum makes a clear boundary for the functions of family, school and society, which has its own function in educational content selection, resources development and use, facilities management and experimental bases building.

12 Challenges and strategies to China national new curriculum reform

12.1 Shortcomings/difficulties or lessons
Through five years of curriculum reform, typical problems or challenges focus on the following aspects.

12.1.1 Misunderstanding the perspectives of new curriculum: from one extreme end to the other.
- Use education and teaching method of new curriculum to deny/oppose traditional reasonable/effective education and teaching method. As a result, many traditional effective/excellent teachers feel embarrassed. Many time-tested effective methods are no longer appreciated.
- Use the assessments (various formative-based alternative measurements) proposed by new curriculum to deny/oppose traditional close-tests. In fact, close-test is still an efficient measurement for checking up the mastery of descriptive knowledge. The old evaluation system is no longer meeting the needs of new curriculum because of its weakness: over emphasizing the selective function while ignoring promoting students developmental function, over emphasizing knowledge and skills in textbooks while ignoring comprehensive practical ability and attitude to learning; over emphasizing quantitative paper tests while ignoring qualitative observation; over stressing the result while ignoring the process of problem solving, etc.. All of these traditional evaluation weaknesses leave many teachers and students, especially teachers and students preparing for National Entrance Examinations a big gap to fill. In 2004, complaints from some experimental regions, such as Nanjing, Jiangsu Province, emerged. So it is easy to see that the old evaluation system has become a choke point for the new curriculum to develop further. The reform of evaluation system has become the first thing in the future curriculum reform.
- Use student’s principal part to deny/oppose teacher’s leading/dominant part. In fact, student-centered instruction dose not mean give control, or “free rein”, to students, especially for the students who are accustomed to obedient culture.

12.1.2 Contradictions in the operation of new curriculum
- Contradiction between teaching materials and test requirements. The content of new teaching materials are so broad that it can not reach the depth of tests.
- Contradiction between limited teaching resource and unlimited teaching requirements. New curriculum encourage teachers to develop school-based curriculum, encourage students to participate the development of school-based curriculum, but many teachers and students lack of effective facilities, methods to collect resources and adequate time to develop new lesson plans and materials.
- Contradiction between high quality requirement of teachers and the current status of teachers. Open teaching material and open instruction need teachers to be of wide knowledge base and high creativity to meet students’ unexpected requirements.
- Contradiction between teachers’ existing instruction load and continuing learning of new curriculum. Generally, one teacher is in charge of over 60, even over 100 students’ academic instruction and corrective help or remediation. They have already been submerged by the instruction routine, now they have to learn, digest and apply the new curriculum, which seems as an extra burden for them.
- Contradiction between strict instructional management system and flexibility of
instructional design, especially out-door activities or games. Many out-door activities or
games proposed by new curriculum are not operative in reality under the existing instructional
management system, for instance, a teacher is not allowed to bring students out of the school
for just one lesson or two.

♦ Contradiction between all-round development proposed by new curriculum and the
currently imperative entrance examination for colleges. In a considerable period of time in the
future, entrance examination for college is still regarded as a major springboard for the
younger generation development. But the entrance examination for college just check up
some specific knowledge and ability rather than all-round quality So new curriculum still can
not bypass the final entrance examination for college. Some districts, such as Nanjing, has
met with such attack.

12.1.3 Practical distortions of new curriculum

♦ Distortion of heuristic approach into “question-answer” (teacher asks questions and students
answer them) instruction model. To embody the interactivity between teacher and students,
some teachers simply take the form of “question-answer”, even sometimes, the question is
self-evident. This kind of superficial inter-activity deviates from heuristic.

♦ Distortion of students-centered instruction into giving control to students. To dismiss
teacher-centered instruction, some teachers give up leading parts/dominant parts in instruction,
some even take student-centered requirement as their excuse of escaping from hard work on
instruction.

♦ Distorting activities in the classroom into aimless behaviors, even a mess of unstructured
actions. Without structure, reflection and experience, students gain little in such actions, thus
resulting in waste of time.

♦ Distortion of cooperative learning into groups dominated by individual students or the
teacher. Some teachers can not catch the essence of cooperative learning. They just pay
attention to the form of cooperative learning, but do not know when and how to divide
students into groups, what to do by groups. So often, some out-going students dominate the
group. Members of the group can not share the real equal communication. Even, sometimes
this kind of communication becomes a waste of time by chatting. Otherwise, teachers
dominate the group and students can not really learn much from this style of communication.

♦ Distorting the essence of exploring or research-based learning into a general method.
Exploring or research-based learning is proposed by new curriculum, but it does not mean it
suits all kinds of learning, such as descriptive knowledge. Deductive instruction sometimes is
a highly efficient way for descriptive knowledge instruction. So the generalization of
exploring or research-based learning blindly can make class instruction lack of structure and
results in formalism sometimes.

♦ Distorting the request for value, emotion, attitude education into label education. Some
teachers do not know how to integrate value, emotion and attitude education with subject
content. So they have to design some schemas for value, emotion and attitude education that
are not connected to what they are teaching.

12.2 Lessons

19
In developing areas, curriculum reform should be based on its conditions and follow its special laws.

- New curriculum needs a body of teachers of high quality and solid material basis.
- New curriculum must be undertaken based on consequences of research and experts’ direction.
- New curriculum should pay attention to integration with elite of traditional education, avoiding going from one extreme end to the other and, thus, completely denying the values and methods of traditional approaches.
- New curriculum should be adaptive to the local social environment and school conditions.
- New curriculum should realize inter-school resources share. Advanced schools should transfer their experience to neighboring schools.
- New curriculum reform is a process to with caution rather than a rushing into a massive movement. With respect to students, it can not experience failure.
- New curriculum reform needs strict leadership and supervision. Local educational administrations should make scientific decisions according concrete situation.
- New curriculum needs democratic management. Only if all teachers participate in the reform actively can the reform succeed in the end.
- New curriculum reform needs strengthening supervision and helpful feedback, so that it can be adjusted to the right track in a timely manner.

12.3 Strategies

- Emphasize teacher training. Teacher quality plays a key role in the success of the new curriculum. Training should cover two divisions: one is general knowledge of new curriculum, instilling their mind with perspectives of new curriculum; the other is methodology, leading teachers to integrate advanced methods proposed by new curriculum with elites of traditional methods. School-based teacher training should play the main part. China Ministry of Education took powerful measures to improve principals’ and teachers’ understanding of new curriculum through in-service training. Three levels of in-service principals and teachers training have been undertaken since the beginning of the new curriculum reform.
- Establish and perfect the inspective and guarantee system of quality matching with new curriculum. Regarding the system of education and teaching management, it should include the comprehensive assessment system of teaching quality, publicizing system of instruction information, system of subject competition, system of research management, system of teaching consequence inspection and assessment, system of management on writing test items, system on management on textbooks choosing and system of teaching quality appraisal. The future evaluation system reform should promote formative assessment, give prominence to the function of development, protect students self-esteem and self-confidence, embody respect and cherish, care about individual situations and need, highlight the process of development and changes, emphasize comprehensive ability---not only care about students performance but also discover and develop students’ various potentials, combine paper tests with activity tests, advocate comprehensive assessment on students’ progress and changes in emotion, attitude, value views, creative consciousness, practical ability, stress diversification
of evaluation items, take alternative measurements such as open qualitative evaluation, observation, discussion, research-based learning, situational test, growth portfolio, etc. All of these measurements can provide more alternative ways to end up with the traditional phenomena of “One Test Paper Speaks”.

♦ Take measures to protect from unexpectedness from one end to the other in the future
—— Avoid losing control of the class. Both independent learning and cooperative learning take more time than traditional ways. So what and when is best for student-centered instruction, what and when for teacher-centered needs teachers to cope with well.
—— Avoid another kind of load to students. One of the new curriculum’s original good intentions is to reduce students load, but a new custom of discovery learning is a new challenge to students accustomed to traditional spoon-feeding methodologies. So teach students on how to learn creatively is a preliminary step for increasing efficiency.
—— Avoid logical gaps in knowledge as contained in the traditional text books. It has been found that in the new curriculum, some knowledge lacks elements of its unique logical chain. So teachers have to supplement some necessary knowledge with scaffolding.
—— Avoid applying small-size class teaching model to large-size class. No child left behind is not suitable for most large-size classes in China. Otherwise the class teaching will become two-end polarized.
—— Avoid cheating or injustice in the qualitative evaluation. If only a few people take hold of most of students fate in entering higher education through qualitative evaluation, who knows how much or how little justice and equality there will be in such subjective-oriented evaluation?
—— Avoid copying American curriculum reform in the 1960’s period of the 20th century. The instruction of discovery learning, research-based learning, student-centered instruction were advocated then but with the result that the basic knowledge and skills did slide down 10 years later, which shed doubt on America’s curriculum reform consequence. But China can now be cautious based on such historical lessons.

♦ Take full advantage of modern information technology to build educational resources network. Provide access to share resources for schools and teachers.

References


Acknowledgement  The authors are grateful to UNESCO financial assistance to this study. The authors also extend their gratitude to: (1) Professor Zhou Nanzhao, the ex-coordinator of Asia-Pacific Educational Innovation Studies, who helped much with the application of this project and offered some kind suggestion, (2) Professor Zhu Xiaoman, the president of China National Institute for Educational Research, who has provided a kind consideration and human resource support to this project, (3) Dr. John M Keller, Professor at College of Education, Florida State University, USA, who did a very careful proofreading and polished the text.