Learning To Learn

The Way Forward in Curriculum Development

Consultation Document

Hong Kong Special Administrative Region of The People's Republic of China

Curriculum Development Council

November 2000

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Learning to Learn

A MESSAGE FROM THE CHAIRMAN OF THE CURRICULUM DEVELOPMENT COUNCIL (CDC)

We are in an era when knowledge is expanding at an unprecedented rate and moral values are being challenged. 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, we have to help them develop a global outlook, equip them with a repertoire of skills and the positive attitudes to respect knowledge and to learn how to learn.

In preparing the curriculum framework for ***Learning to Learn,*** which is a student-focused curriculum developed in the best interest of students, we firmly believe that all students could learn, and that they have different intelligences. We provide them with opportunities to learn. We identify key learning experiences and key learning areas, integrating the generic skills, values and attitudes that are essential to their whole person development. We help them to become more aware that there are different ways of learning. What is important is to enhance their quest for knowledge, their awareness and responsibilities in advancing the frontiers of knowledge.

As learning is such a complex process, it requires the collective will and coordinated efforts of all parties concerned to make it effective. We need the partnership with all stakeholders and sectors to maximize expertise and resources. Past experience has also told us that being prescriptive is undesirable. In order to allow for holistic and coherent planning and to provide more flexibility and choices for schools and teachers, we have developed a curriculum framework with key learning areas (knowledge/concepts), generic skills, values and attitudes as the major components. Schools are encouraged to make reference to these

frameworks and develop their own school-based teaching and learning programmes according to the needs and characteristics of their students.

It should be noted that the curriculum review is to improve the school curricula to help our young generations face the challenges of the 21st Century. There is no perfect way to achieve all curriculum intentions and goals; nor is there any point in time when all pre-existing conditions can be 'absolutely' ready before any curriculum improvement is to be made. We must bear in mind that curriculum development is an ongoing endeavour and the ultimate goal of curriculum reform is to benefit students and to raise the quality of learning.

I am now inviting your suggestions and views on this document. Your valuable support and contribution to this curriculum reform will be much treasured by the Council.

Dr CHENG Hon-kwan, GBS, JP
Chairman
Curriculum Development Council

CHAPTER ONE LOOKING BACK AND LOOKING AHEAD

Introduction

1.1 The theme "*Learning to Learn*" is chosen to represent the thrust of this document, which is the outcome of the holistic review of the school curriculum conducted by the Curriculum Development Council in January 1999. This review is done in parallel with the Education Commission's (EC) review of the education system conducted during 1998-2000. It aims at providing schools with a quality curriculum, and proposing strategies of development with a view to achieving the aims of education. By *Learning to Learn*, we mean that students not only learn what they are expected to learn well, but that they become better at learning new things in the future. We should help students to build up their capabilities to learn independently (e.g. creative and critical thinking, mastering of information technology, communication), to become self-reflective on how they learn, and to be able to use different ways of learning. They will then have the opportunities for developing diverse ways of learning in accordance with their interests, needs and abilities in order to achieve the aims of education.

1.2 The Overall Aims of Education as set out by the Education Commission are:

To enable every person to attain all-round development in the domains of ethics, intellect, physique, social skills and aesthetics according to his/her own attributes so that he/she is capable of life-long learning, critical and exploratory thinking, innovating and adapting to change; filled with self-confidence and a team spirit; willing to put forward continuing effort for the prosperity, progress, freedom and democracy of their society, and contribute to the future and well-being of the nation and the world at large.

1.3 In the EC Report (May 2000), the following are suggested as priority areas:

- enabling our students to enjoy learning,
- enhancing their effectiveness in communication;
- developing their creativity; and
- developing their sense of commitment.

1.4 The Holistic Review of the Hong Kong School Curriculum (HORSC) specifically embraces three questions:

(1) What are the experiences of curriculum development in Hong Kong?
(2) What is worth learning in the school curriculum to achieve the aims of education for the 21st century?
(3) How to facilitate effective teaching and learning?

1.5 HORSC adopts a multi-stage approach to development and consultation. The three stages and outcomes are:

- Stage 1 (January - October 1999)
  - sets out the directions of curriculum development in *A Holistic Review of the Hong Kong School Curriculum: Proposed Reforms (October 1999)* in line with the EC's consultation document *Review of Education System: Framework for Education Reform (September 1999)*
  - for consultation during October - December 1999

- Stage 2 (January - May 2000)
  - contributes further recommendations to the EC's *Review of Education System:* R*eform Proposals (May 2000)*
  - for consultation during May - July 2000

- Stage 3 / Final Stage (January – November 2000)
  - runs in parallel with Stage 2
  - prepares this document *Learning to Learn*
  - for consultation during November - mid February 2001

1.6 The review involves a wide range of participants including teachers and principals, teacher educators, local and international curriculum experts and consultants, professionals, employers, parents, students, non-government organisations etc. The channel of participation is made through the legitimate formal structure of CDC, its committees and working groups, the numerous workshops, open forums, school-based staff development talks conducted, and at the same time, gauging public opinion in the mass media and related agencies with representation of CDI officers (especially assessment agencies and teacher education institutions). The informal networks of participants, supporters, critical friends which are built up during the process are equally valuable. The review is also coordinated with other educational reforms such as those on examination and assessment, and the promotion of life-wide learning. References are made to relevant curriculum experiences, education reviews and research, both locally and internationally, and public opinion.

1.7 The review has been conducted in three stages. Each stage is done within a short time span. The first stage in 1999 has set out the main directions of curriculum development in Hong Kong, while the second and third are based on the outcomes of the previous ones. The review mainly relies on qualitative information to elicit the complexity of related issues, and makes reference to quantitative data for specific issues such as standards. The proposals made in the report are based on the needs to solve problems as well as to meet social expectations. While there is ample evidence to inform experiences of curriculum development in the past, there is less evidence to inform the nature of teaching and learning in the local contexts. It is hoped that a shortage of research evidence in teaching and learning could be compensated by improving co-ordination with different educational bodies, on-going curriculum review and improvement in teaching and learning processes through research and development, and effective dissemination of knowledge and good practice.

1.8 The purpose of this chapter is to provide the outcomes of the review which are necessary for the understanding of ideas and proposals presented in this document. The outcomes of the review are structured around the following two themes:

1. looking back: foundations, achievements, strengths and issues
2. looking ahead: challenges and opportunities, guiding principles and dynamic balance

Looking Back

Foundation, Achievements and Strengths

1.9 The school education in Hong Kong, since the 1970s, has contributed to the development of school curricula with a strong academic focus. The curricula have served to identify students with appropriate abilities for higher education which has provided the foundation for a strong middle class in Hong Kong. The characteristics, achievements and strengths of curriculum development since the 1970s are:

- The school curriculum in Hong Kong has been characterized by a collection of school subjects and examination syllabuses produced by subject committees appointed by the government. There has been more open participation since the setting up of the Curriculum Development Council in 1988 and a new structure in 1999.

- Curriculum development has been given greater attention and higher importance with the expansion of school education and the restructuring of schooling in response to fast changing demographic, social, political, economic and technological environments. Hence different curriculum models (i.e. grammar, technical, pre-vocational) have been developed to

respond to those changes. Reference could be made to the CDC Curriculum Guides (1993).

- Curriculum development has always been a continuous process of improvement. Cross-curricular guidelines (for moral, civic, sex and environmental education) were developed in addition to school subjects, in response to the more robust social and political changes. Reviews based on needs of specific areas and subjects include civic education (1996), the New Technical Curriculum (1997), the Review of China elements (1998), the mathematics curriculum (1999), and a range of subject curricula were conducted.

- There has been greater aspiration for qualitative changes accompanying the expansion of education. Curriculum innovations such as the Activity Approach (AA), remedial teaching, resource classes, the Targets and Target Related Assessment (later renamed the Target Oriented Curriculum), mastery learning and integration of subjects were introduced to schools. All these were consistent in moving towards student-centred learning, teaching/learning effectiveness (through promoting concepts such as a clear purpose of learning and teaching, strengthening teaching, learning, assessment and feedback cycle, group work, catering for student diversities). There are visible effects such as changes in classroom practices, and the emergence of school heads and teachers as curriculum leaders.

- Student activities conducted by both government and non-government organisations have also flourished since the 1980s. Through outdoor activities and community service, some of which go beyond the borders of Hong Kong, students have been given the opportunities to develop an international outlook to life.

- Teacher education, educational research and public examination reforms (e.g. Teacher Assessment Scheme, project assessment in Advanced Supplementary Liberal Studies) have further

catalyzed and augmented positive changes. The promotion of leadership by the principals and the overall development in curriculum management have also witnessed success. We now have a nucleus of keen principals and teachers who are leading curriculum change in Hong Kong.

- Many teachers and schools have taken the initiatives to improve and adapt their curricula to suit the needs of their students. Many innovations and good practices are witnessed as reported in the media and research, observed in schools and projects funded by QEF and the School-based Curriculum Development Project Scheme.

- The local teaching force has been successful in showing great concern for the personal development of students. Many teachers are very hardworking in fulfilling their teaching duties and responsibilities, and have responded to curricular changes.

- Student achievements in local and international areas have brought distinct motivation and high impact to curriculum changes and enhancement. Some well-known examples are: Sports Activities / Events, Arts Activities / Festivals, Hong Kong Olympiad in Informatics, the Millennium Entrepreneurship Programme Project, Cambridge Young Learners English Tests, the Odyssey of Mind Programme and the International Mathematical Olympiad. The increasing emphasis on civic education since the 1980s has also resulted in an enhancement of civic awareness and identity as reflected in the young adult population in Hong Kong.

- More diverse strategies to support teachers and schools have been introduced, such as the New Teachers Induction Programmes, Chinese Textbooks Incentive Award Scheme, funding support (e.g. Quality Education Fund, grants for specific areas), on-site school-based curriculum support service, Native English Teacher Scheme, School Management Initiatives, and other professional development courses.

The Issues

1.10 Like many other curriculum reforms in the world, a gap between intention and practice always exists. The barriers identified are:

- There are rising and changing expectations of society towards whole-person development and educational standards. The dominance of academic subjects and piecemeal changes, teaching/learning styles geared towards examinations, and the concomitant characteristics of curriculum development in Hong Kong are not conducive to meeting the expectations. There is also an overall lack of effective moral and civic education to enhance the understanding of our nation and the development of national identity.

- The course of curriculum development has been dominated by the many subject committees that were not well coordinated before the re-structuring of CDC in 1999. This has resulted in overlapping and outdated school subjects and syllabi, and overcrowded school curricula at all levels. It also takes too long to develop a new curriculum (4 to 6 years) to respond to the fast changing needs of society.

- Curriculum innovations were implemented in a linear manner with a schedule for all schools fixed beforehand, whereas help to schools and classroom processes to develop at their own pace were insufficient. The incentives provided to schools tended to focus on funding support (e.g. remedial teaching, subject grants) with little professional support to teachers and schools. The monitoring system tended to focus more on what the teachers had done (the quantity) rather than what and how students had learned (the quality).

- Channels of communication were not good enough to communicate change clearly to users in schools. Public involvement was limited in the curriculum development process, despite the procedures of consultation.

- There is a tendency to polarize the new (as good) and old (as bad) upon introduction of new initiatives (e.g. in the case of TOC). The insufficient building on strengths of schools and teachers' repertoire as the basis for change has been a source of resistance from teachers.

- The suggested time-tabling by the number of periods / week or cycle was inflexible for effective teaching / learning.

- Curricular change was often linked with the needs to changes in examination subjects at senior secondary level. The rigid and prescriptive subject syllabuses give little room for creative and critical thinking. The inadequate attention to the developmental needs of students at lower levels of schooling (primary and junior secondary) has resulted in a lack of continuity of curricula of the primary, junior and senior secondary levels.

- In public assessment, there is heavy reliance on written examinations, and grading is based on comparison among the group rather than on students' ability. Since it is linked to the very high stakes of university entrance, teaching to the test / examination is a common practice. Written examinations have a 'narrowing' effect on what teachers teach and what students learn. The adverse washback effect on classroom experiences has filtered donwards to primary levels.

Looking ahead -- challenges and opportunities, balanced consideration and guiding principles

Challenges and opportunities

1.11 The present situation of Hong Kong, like many other major cities in the world, is faced with global challenges of the following:

- Knowledge-based society and economy
- Rising need for moral considerations
- Fast social, environmental, cultural, political and technological changes and their impact on moral values
- Impermanent knowledge
- Globalization
- Interdependent but competitive world
- Impact of information technology
- Increasing civic participation in government

1.12 The challenges posed to curriculum development have become acute when there is a need for Hong Kong to continue to grow and excel in the 21st century as Asia's world class city. Hong Kong has been able to overcome many barriers in the past, and is able to turn crises into opportunities. The opportunities presented to us to ride over the barriers are:

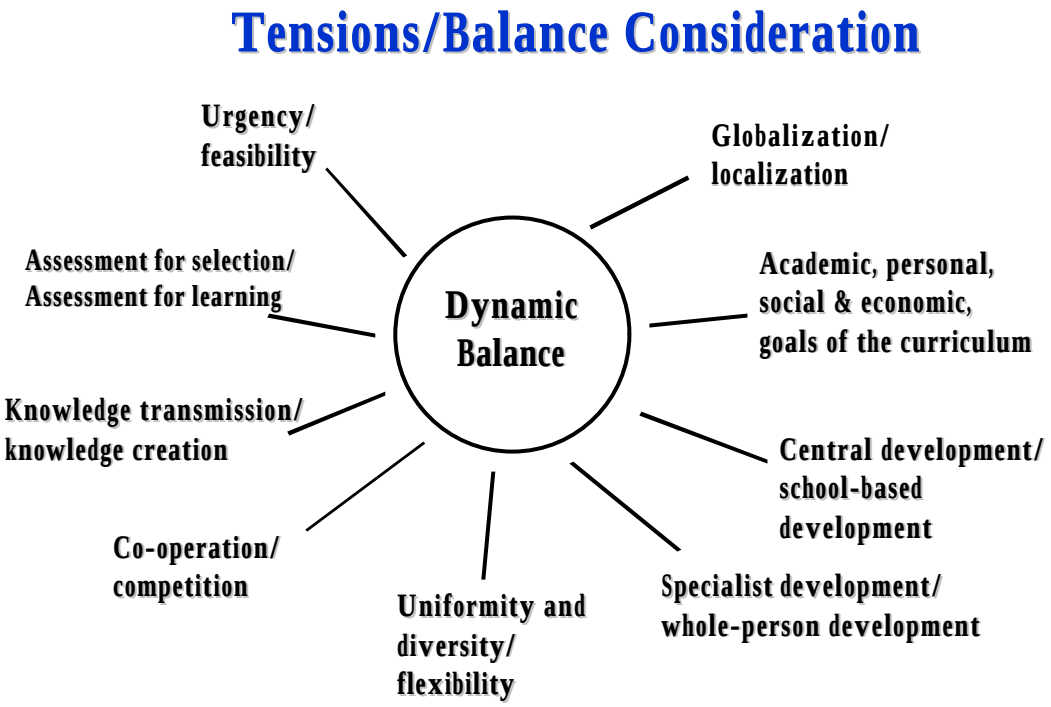
- there is a coordinated and concerted effort to reform the education system in Hong Kong, including both the curriculum and the assessment aspects, by different parties (e.g. the Education Commission, the Hong Kong Examinations Authority, Board of Education, CDC, Education Department)
- there is strong support to education by the Hong Kong Special Administrative Region government
- there is increasing awareness of the complexity of issues, and the desire to resolve tensions and balance views rather than to look for a simple and one-size-fits-all solution
- there is strong public demand to improve the school curriculum prompted by the demographic, economic, political, social and technological changes

Balanced considerations

We are aware of the different perspectives and tensions involved in the curriculum review process, and a need to have balanced

considerations. A summary of the tensions is illustrated in Fig. 1.1, and the considerations to resolve the tensions are given below.

Fig.1.1



- Globalization and localization

  While keeping abreast of global trends, we will adapt and situate things best for the local contexts. It is essential to enable students to learn and teachers to teach based on existing strengths, and in harmony with the local culture and environments.

- Academic, personal, social and economic goals of the curriculum

  The personal, social, economic goals and academic goals of education are not mutually exclusive. A student must acquire the skills and develop the attitude to learn a number of different things in order to achieve the aims of education.

- Central development and school-based development

  A centrally prescribed curriculum would not be able to enable all students to learn in ways suited to them. It requires school-based autonomy to facilitate learning at the school level, and the government to set the broad directions for schools to achieve the overall aims of education for Hong Kong. The government will maintain the responsibility to take the lead in outlining general directions and to support schools with professional service. The valuable initiatives developed by individual schools would be used to inform policy and for wider dissemination to other schools. The relationship between central policy making and school-based development will be more on a partnership basis than a top-down and bottom-up dichotomy.

- Specialist development and whole-person development

  The development of generic learning skills (such as critical thinking, information technology) and a broad and balanced curriculum is necessary for students to lay a firm foundation for whole-person development in the 9-year basic education and prepare for learning at higher levels. Therefore, early specialisation into subject streams is undesirable. Yet at senior secondary level, students should be entitled to learning opportunities of more specialist studies such as chemistry, Chinese history and economics in order to develop their potential and interests for further studies.

- Uniformity, diversity and flexibility

  While we advocate entitling students to broad learning opportunities, diversity and flexibility of practices should be allowed for students to learn in ways suitable for them, and to develop pluralist values.

- Co-operation and competition

  While co-operation among schools, teachers and students would contribute to raising teaching/learning effectiveness, competition through examination embedded in Chinese culture and other activities provide incentives for learning to work hard and to strive for excellence.

- Knowledge transmission and knowledge creation

  Both knowledge transmission and knowledge creation are complementary to learning. While the skilful knowledge transmission in Chinese classrooms has been successful in knowledge scaffolding of students, knowledge creation can be effectively built on the experience of scaffolding.

- Assessment for selection and assessment for learning

  As long as selection remains a function in the education system, there should be an equal balance in the use of assessment for selection and assessment for helping students learn at the school level in particular. The most important thing to bear in mind is no one form of assessment should take over the other.

- Urgency and feasibility

  While there is a strong sense of urgency to see visible impact on student learning in schools, we are very cautious about any measure that claims to change things overnight. The feasibility of any measure is actually dependent on many intriguing factors such as teacher readiness, competence, commitment, physical conditions in schools, evidence to inform practice, resources, and other systemic features (e.g. assessment, school place allocation). Therefore, priority and strategies should be given to helping students learn in their own ways and broaden their scope of learning in order to be able to adapt to different learning needs for the future society.

Guiding principles

1.13 In planning the curriculum for the 21st century, the following guiding principles are used as the basis for making recommendations in this document:

- Curriculum aims in line with the Aims of Education and with life-long learning as the key vision - *"Enjoy learning, enhance effective communication, develop creativity and a sense of commitment"* – should be given high priority.

- A learner-focussed approach should be used to make decisions in the best interests of students.

- We should respect the fact that all students have the ability to learn, though they might have their own different ways of learning. Therefore, they should be entitled to opportunities of essential learning experiences for whole person development, as well as opportunities for developing diverse potentials.

- In order to keep abreast with the development of a knowledge-based society, the prescriptive "teaching/ examination syllabus" should be opened up so that it is made up of learning experiences (contents, processes, social interaction, etc) to help students learn more and better. Any supportive guidance in the form of curriculum guides to schools should be open to adaptation and flexible changes.

- Both the basic education and senior secondary curricula should be broad and balanced comprising different learning experiences and all KLAs in order to lay a good foundation for their future life, employment, further studies and life-long learning. In addition, the senior secondary curriculum should be diversified providing students with a variety of options for some specialization to cater for their different aptitudes and learning needs.

- The strategies of development should be built on the strengths of students, teachers and schools in Hong Kong and the wider educational community. Long standing practices (e.g. effective whole-class teaching) have to be valued and not to be lost. Suitable reference should be made to international and research experiences, and continuous improvement is to be made in response to these when appropriate.

- Curriculum development should be a continuous improvement process to help students learn better. Education/curriculum aims should be adjusted with time and with reference to the contexts of specific schools.

- The development of the curriculum and support mechanisms to schools should involve the participation and collaboration of government, parents and all community sectors to maximize the use of resources.

- There should be corresponding changes in assessment to complement the concerted effort to change the curriculum and promote learning.

CHAPTER TWO THE AIM, GOALS AND DEVELOPMENT STRATEGIES

2.1 This chapter is intended to spell out the curriculum aim and goals, which emphasize learning to learn as defined in Chapter 1, and the development strategies to achieve them.

The Aim of the school curriculum

2.2 The school curriculum for the 21st century is defined as the learning experiences (learning elements, process, social environment) to be provided to students necessary for achieving the aims of education in Hong Kong. In order to be in line with the aims of education, the CDC has set out the overall aim of the school curriculum as follows:

The school curriculum should provide all students with essential life-long learning experiences for whole person development in the domains of ethics, intellect, physical development, social skills and aesthetics, according to individual potentials, so that all students could become active, responsible, and contributing members of society, the nation and the world.

The school curriculum should help students to learn how to learn through cultivating positive values, attitudes, and a commitment to life-long learning; develop generic skills to acquire and construct knowledge, which are essential for whole-person development to cope with challenges of the 21st century.

A quality curriculum for the 21st century should therefore set the directions for teaching/learning through a coherent and flexible framework which could be adaptable to changes and different needs of students and schools.

Goals

2.3 In view of the contexts of Hong Kong and the development strategies proposed below, we hope students would be able to:

1. recognize their roles and responsibilities as members in the family, the society, and the nation; and show concern for their well-being;
2. understand their national identity and be committed to contributing to the nation and society;
3. develop creative thinking and master independent learning skills (e.g. critical thinking, information technology, self-management);
4. engage in discussion actively and confidently in English and Chinese (including Putonghua);
5. develop a habit of reading independently;
6. possess a breadth and foundation of knowledge in the eight key learning areas; and
7. lead a healthy lifestyle, and develop an interest in and appreciation of aesthetic and physical activities.

Learning aims at each stage of schooling

2.4 The learning aims of the school curriculum from pre-primary to senior secondary levels are:

<u>Kindergarten</u>

Children would:

1. enjoy exploring things around them;
2. develop good living habits and self-care abilities;
3. have good coordination of basic motor skills;
4. be able to adapt to group life and have acquired communication skills;
5. express their creativity confidently and enjoy participating in creative activities;

6. develop an active learning attitude;
7. make good use of their literacy and early mathematical experiences in their daily life; and
8. appreciate cultural art and their environment.

Junior primary

Students would:

1. master basic skills in reading and writing and develop an interest in and a habit of reading;
2. develop good living habits, and be able to take care of themselves and get along with others;
3. have learning experiences relevant to daily lives;
4. be equipped with basic skills of utilizing IT to learn;
5. learn basic knowledge of mathematics; and
6. develop some aesthetic sensitivity.

Senior primary

Students would:

1. master basic reading and writing skills; be able to read and communicate effectively at a higher level, both orally and in writing;
2. master a basic understanding of mathematical and scientific concepts; develop the habit of exploring science with an open mind;
3. participate actively in group life; develop healthy psychological development and physical fitness;
4. develop basic learning skills and thinking abilities, and learn to look for various learning resources and obtain knowledge independently;
5. develop positive values, to learn to care about the society and identify themselves with their own nation; and
6. appreciate beauty and arts.

Junior secondary

Students would:

1. learn independently;
2. be adept at applying IT in learning;
3. develop the capability for reasoning, problem-solving and knowledge application, and creativity;
4. be bi-literate and tri-lingual (i.e. able to read and write fluent Chinese and English, and communicate orally in Cantonese, English and Putonghua);
5. experience an educational process that is all-round and life-wide;
6. master basic concepts in all key learning areas;
7. develop concern with the development in China and their relationship with other developments around the world;
8. be civic-minded;
9. be health-conscious, considerate and respectful to others; and
10. develop the interest in and ability of aesthetic appreciation.

Senior secondary

Students would:

1. establish a sound foundation of skills in preparation for life-long learning;
2. develop a good physique and civic awareness, as well as a sense of commitment to the society and their country;
3. develop a solid grounding in mathematics, languages and other learning areas in preparation for higher education;
4. develop a global vision;
5. develop an adequate understanding and foretaste of the career to be chosen and of the job market; and
6. enjoy and possess the ability of aesthetic appreciation.

An incremental and interactive approach

2.5 Both the basic education and senior secondary curricula should be broad and balanced to lay a good foundation for students' future life, employment, further studies and life-long learning. Besides, the senior secondary curriculum should be diversified providing students with a variety of options for some specialization to cater for their different aptitudes, abilities and learning needs. An incremental (based on cumulative knowledge and experiences) and interactive approach is better than a radical approach to initiate change based on the following analysis:

- On the basis of the strengths of teachers and schools as a matter of priority, it is possible to strengthen students' learning to learn abilities through infusing generic skills into the learning / teaching processes of existing curricula / subjects (please see ***Appendix 1*** for subject groups), reducing knowledge transmission, and appreciating students' ability to construct knowledge. (More suggestions on facilitating learning to learn are provided in Chapter Four of this document.)

- In the long run, the present curriculum should be broadened and improved to facilitate life-long learning through the following: an open curriculum framework to facilitate change, key learning areas as the basis of the grouping of subjects and further review, a balance between central requirements and school-based development, and emphases on learning experiences / processes, and using assessment to improve learning and teaching, and providing more opportunities for life-wide learning.

- Teachers must be adequately supported to see the benefits of helping students learn to learn through changing the learning / teaching practices and the curriculum.

- Schools and teachers in Hong Kong have varying strengths on which they could build to enhance learning to learn. They could make reference to the new curriculum guides to help them prepare

for transition to adopting the new framework in 2005 at their own pace together with the support of strategies listed in *para 2.6* as required.

- Effective moral and civic education will support the commitment of students to learning to learn. Other key tasks to help include promoting a reading culture, project learning, and using information technology.

- When the nature of learning has changed, teachers would realise a need to change in assessment practice to reflect the performance of students.

- Regular review is necessary to inform practice and make adjustment in policies.

Development strategies to support schools and teachers (2000 - 2005)

2.6 Professional support to teachers and schools is essential to all reforms. Since different needs require different strategies and no one strategy is all-powerful, multiple interactive development strategies are planned for 2000 to 2005 to support teachers and schools. The key strategies are:

1. Curriculum support materials

   A variety of curriculum support materials will be developed:

   - Curriculum guide for each Key Learning Area (KLA), revised / new subject guides, and other modes of planning (please see website ***www.cdccdi.hk.linkage.net/cdi*** for the schedule of the issue of the curriculum guides);
   - A bank of exemplary teaching / learning / assessment materials for the curriculum framework to be generated by development and research projects and contributed by

schools (dissemination through EduCity and other means as appropriate);

- Exemplary curriculum planning tools (through electronic means) for school-based development;
- A central data-base of life-wide learning provisions in Hong Kong;
- Textbooks to be made available by publishers; and
- Other relevant publications such as research and development reports and newsletters.

2. Teacher development programmes

- A variety of professional development programmes will be provided to in-service teachers and school heads based on the needs of curriculum change, the purpose of different modes, the demand from schools, and other opportunities available in Hong Kong. Teachers may choose to study those that are relevant to their needs.
- Two broad categories of professional development programmes would be provided:

  (1) Courses to enhance overall professional knowledge of teachers (e.g. catering for individual differences, motivation, critical thinking skills, curriculum and assessment, gifted education, moral and civic education, Chinese culture, media education, curriculum management and leadership)
  (2) Key Learning Area / Subject specific courses to meet the needs of the new curriculum framework.

- Some of Category (1) will be offered in 2000-2001, and all of Categories (1) and (2) will begin in 2001 and onwards.
- A web-based component will be provided as the basic structure for most courses so that they are accessible to all teachers in Hong Kong. Interactive elements will be provided as required by the different purposes of courses.
- School-based INSTEP programmes will be provided in some courses to help school-based staff development.

- Suitable recognition / accreditation of courses, such as Refresher Training Course, Principal Graduate Master Course, etc. as well as teacher participation in research and development projects, will be sought.

3. The components of curriculum and instructional leadership, and school-based curriculum development will be strengthened in training courses for principals and other courses for middle managers.

4. There will be close contacts between the CDC and teacher education institutions so that the new student cohorts would be competent to meet the new needs of schools.

5. A range of collaborative research and development projects on key curriculum changes will be conducted in partnership with schools and consultants / universities beginning in 2001. Priority will be given to the following emphases:

   - learning to learn skills and strategies across the curriculum (e.g. critical thinking, project learning),
   - new emphases in KLAs, and
   - catering for students with diverse needs (including the academically low achievers and the gifted).

   The projects will serve the following purposes: (1) to generate useful experience for the reference of other schools, evidence-based learning / teaching / assessment materials, and (2) to enable schools and teachers to be reflective practitioners, curriculum and instructional leaders, and life-long learners.

6. The CDI school-based curriculum development (primary and secondary) teams will provide on-site advice to help schools to strengthen learning to learn in the existing curricula, to promote curriculum leadership, and develop a school-based curriculum along the lines of the new curriculum framework through taking part in research and development projects or on the basis of their own plans. Schools may also use the capacity

enhancement grant, the services of Regional Education Offices (REO), Education Department, and other sources of flexible funding such as the QEF to meet different needs.

7. Schools and teachers would be networked to facilitate the sharing of experiences and dissemination of good practices through the REO, the District Teacher Network (DTN) and other means.

8. Local and international experts will be invited to advise on the above development strategies whenever appropriate.

9. The provision of life-wide learning opportunities (e.g. moral and civic education, physical and aesthetic development) would be coordinated by a committee with input from the ED, other government departments (such as the Leisure and Cultural Service Department, the Social Welfare Department, the Home Affairs Bureau), and non-governmental organisations. Priority will be given to promoting national identity, service learning, and exposure to career-related opportunities.

10. Greater autonomy and flexibility will be given to schools in funding, management and staffing, in order to create more time and space for curriculum change and improving learning and teaching.

Phases of Development

2.7 In view of other educational reforms proposed by the EC Report and references to international experiences of the need for incremental change (please see ***Appendix 2***), short-term, medium-term and long-term phases are designed at school/teacher and government levels. The phases of development and the rationale for each phase are:

Phases		Rationale
Short-term	**2000-2005**	▪ Teachers and schools could promote learning to learn through infusing generic skills into existing school subjects. ▪ With government support, ample time is to be given to schools to prepare for transition to the new curriculum framework and develop a school-based curriculum using the framework to suit the needs of students and schools.
Medium term	**2005-2010**	▪ Schools should have followed the central directions and used the curriculum guides of the open framework provided to develop a school-based curriculum most suited to the needs of students and mission of the schools. Schools should continue to raise the quality of teaching and learning.
Long term	**2010+**	▪ Vision for life-long learning to be achieved.

Changes in the short-term phase (2000 - 2005)

2.8 The principles for short-term change are building on the strengths of teachers and schools to develop incremental change, and enhancing interactive collaboration to support teachers and schools using the development strategies planned above (***Appendix 3*** shows how a school has changed its school curriculum over time.) On the one hand, schools and teachers could promote more independent learning by infusing generic skills into the learning and teaching of existing school subjects and life-wide learning activities (formal or informal curricula). The following key tasks have shown to be useful strategies for promoting learning:

- Promoting a culture of reading
- Use of information technology
- Moral and civic education
- Project learning

2.9 On the other hand, schools could adapt the existing school subjects to suit the needs of students and society (e.g. trimming of non-essential contents) according to the suggestions given in Chapter Three and separate KLA booklets. In 2001 when the curriculum framework is finalised, schools could further develop their own curriculum and learning plans for 2001-2005 (see Chapters Three and Four). Recommendations for the migration to using the new curriculum framework are given in Chapter Three. For instance, a school may start with using the new arts education framework at Primary 4 by participating in one of the 'seed' projects, and then phase in adopting recommendations of other KLAs'. Another school may wish to focus on permeating values and generic skills into existing subjects, and wait till curriculum guides for KLAs and subjects are available. More detailed recommendations on the immediate adaptation of the school curricula, and also future changes related to Key Learning Areas for the period 2000-2005 are provided in separate documents.

2.10 Schools and teachers may choose to seek support from the development strategies which are appropriate to their needs for implementing their curriculum and learning plans. Schools and teachers are most welcome to take part in 'seed' projects on key curriculum changes as sources of support and professional development. These projects are conducted with the collaboration of the government and universities or consultants to generate useful experiences and practices through research and development. The useful experiences will be disseminated continuously to benefit more schools and teachers.

2.11 It is hoped that by 2005, all schools would develop a school-based curriculum in line with the open framework which is suited to the needs of their students, the mission of the school, and society. The following table (Fig. 2.1) provides a summary of the government support and the expected changes both inside and outside the classroom according to recommendations in this document and the EC Report (Sept 2000).

Fig. 2.1 Curriculum Changes and Support to Teachers and Schools (2000 - 2005)

Changes inside and outside the classroom	Key support to teachers and schools
Change the culture of teaching and learning	
Promoting learning to learn through infusing generic skills in teaching and learning of existing school subjects, e.g. more open questions, inquiry learning	▪ Those stated in Chapter 4 of this document, relevant exemplars in KLA booklets & other sources, networking and dissemination of good practices
Put more emphasis on the Key tasks: ▪ reading (to learn) ▪ project learning ▪ information technology ▪ moral & civic education	▪ Multiple mode courses on critical & creative thinking, IT ▪ Relevant 'seed' projects
Create an environment for learning in schools, cultivate curriculum leadership, & develop curriculum & learning plans for short-term and medium-term phases	▪ Principal / middle management training ▪ On-site school-based curriculum development teams ▪ Capacity enhancement grant
Provide students with the five essential learning experiences	
Provide life-wide learning opportunities for the following: ▪ Intellectual development ▪ Moral & civic education as life experiences	▪ Central database on life-wide learning opportunities ▪ Capacity enhancement grant ▪ Partnership with other organisations

Changes inside and outside the classroom	Key support to teachers and schools
▪ Community service ▪ Physical and aesthetic development ▪ Career-related experiences (only for secondary school students)	
Understand the differences between Key learning areas & subjects, and consider a flexible time allocation	
▪ The existing subjects are grouped into 8 key learning areas. Students are offered a balance of school subjects / contents of the 8 key learning areas; reduce specialisation in basic education.	▪ Curriculum support materials (curriculum guides for KLAs and specific subjects) ▪ On-site school-based curriculum development teams
▪ School-based curriculum according to KLA documents or the new framework (See separate booklets for 8 key learning areas)	▪ 'seed' projects for each KLA and cross-KLA studies (General Studies) with inputs from schools / consultants
▪ Slight or no adjustment in time allocation to improve the breadth of the curriculum, or to be in line with the mission of the school e.g. technical schools may include Chinese History, grammar schools may have more learning elements in Technology Education KLA *(Please see **Appendix 4** for the suggested lesson time allocation)*	▪ Multi-mode professional development courses ▪ Curriculum bank of exemplary materials ▪ Networking and dissemination of good practices

Changes inside and outside the classroom	Key support to teachers and schools
▪ Incremental transition to using new curriculum framework for all KLAs ▪ A broader and more diversified curriculum at senior secondary level: adoption of new examination subjects to be introduced in different years: Integrated Humanities for non-arts students, Integrated Science and Technology for non-science students, new Liberal Studies (1 module, 1 project) as university pre- requisite (subject to university requirements) *(Please see **Appendix 1** for subject groups)*	▪ New special courses for examination syllabuses
Adopt diversified modes of assessment Reduce the number of tests, examinations, use other modes e.g. projects, observation	▪ 'seed'" projects of school-based assessment ▪ Curriculum bank of exemplary materials ▪ Professional development courses on using formative assessment ▪ The Basic Competency Assessment in Chinese, English and Mathematics recommended by the EC Report will provide schools with information on student progress, and also tools for teachers to assess students for learning

Changes inside and outside the classroom	Key support to teachers and schools
Cater for student diversities	
▪ Mixed abilities ▪ Lower achievers ▪ Gifted students	▪ 'seed' projects with inputs from schools / consultants ▪ Professional development courses
Use of homework	
Reduce mechanical repetition type of homework, set more stimulating and creative types that engage students in an active learning mode (e.g. reading, sharing of learning experiences with family members)	▪ Parent education in partnership with other organizations so that parents can have a more thorough understanding of the functions of homework in the process of learning

CHAPTER THREE WHAT IS WORTH LEARNING?

3.1 The school curriculum defines the views of society about "What is worth learning" for it to achieve the aims of education. This chapter is intended to answer the question with specific intention to prepare students for a knowledge-based society and life-long learning. The answers to the question are based on the guiding principles identified in Chapter 1, the need for short-term, medium-term and long-term development strategies in Chapter 2, and principles of learning and teaching in Chapter 4. The attached 9 separate booklets: 8 for respective key learning areas identified below and 1 for the primary General Studies curriculum also contribute to the answer to the question.

Learning experiences

3.2 Learning experiences are the milieus of learning processes, learning contents and the social environment for students to learn how to learn. Students should be entitled to five learning experiences that correspond to the 'moral, intellectual, physical, social and aesthetic' development in the aims of education. Areas of:

1. Moral and civic education (called life experiences in earlier documents) for developing personal character and interpersonal skills; the creativity to innovate; the spirit to live up to expectations and enjoy learning;
2. Intellectual development for laying a firm foundation in knowledge;
3. Community service to develop commitment and responsibility;
4. Physical and aesthetic development to lead to healthy living styles and appreciate aesthetic qualities; and
5. Career-related experiences to link studies with career aspirations and job opportunities.

3.3 The five essential learning experiences listed above are to be developed throughout all stages of schooling, except for career-related experiences which are more appropriately developed in senior secondary education.

The whole curriculum framework

3.4 In order to provide the above learning experiences to students, a curriculum framework is developed as the basic structure for defining broadly the aims and elements of learning such as knowledge/concepts, skills, values and attitudes. The whole curriculum framework is intended to serve the following purposes:

1. It aligns the aims of education with a holistic view of what students should learn in terms of values and attitudes, generic skills, and knowledge/concepts.
2. It ensures that curriculum planning is coherent (not overcrowded or overlapping), continuous across the levels of primary and secondary education so that learning experiences are connected.
3. It provides schools with a structure for setting their learning aims/targets, the development of curricula/subjects, different modes of curriculum planning, learning/teaching strategies, learning/teaching materials and assessment; and also for schools and teachers to develop school-based curricula.
4. It allows flexible changes and adaptation to suit different student needs, and respond to changing needs of society e.g. core, extension, curriculum space, optional time. (Unnecessary detailed prescriptions are to be avoided to facilitate quick updating, school-based development, and to give room for students to construct knowledge.)

Components of the curriculum framework

3.5 The curriculum framework is made up of three components, namely:

I Key learning areas (knowledge/concepts)
II Generic skills
III Values and attitudes

I Key learning areas

3.6 The first component of the curriculum framework is made up of 8 key learning areas (KLA), namely

1. Chinese Language Education
2. English Language Education
3. Mathematics Education
4. Personal, Social, Humanities Education
5. Science Education
6. Technology Education
7. Arts Education
8. Physical Education

3.7 The delineation of KLAs has taken into consideration the cultural, socio-economic, and technological contexts of Hong Kong. The delineation can be subject to change in accordance with changing needs, for example, language policy and advancement of knowledge. The eight KLAs provide the broad knowledge domains that serve the following functions:

1. They group existing subjects into 8 areas. In the short run, schools are to choose subjects from each group or to adapt them in order to provide a broad and balanced curriculum for students mentioned in Chapter 2 and ***Appendix 1***.
2. Each key learning area provides the platform for reviewing elements of learning in the existing curricula, trimming outdated and non-essential ones, making reference to other KLAs, and identifying key concepts necessary for foundation studies and knowledge building. For example, Typewriting should not be offered as a school subject.

3. The concepts in each KLA provide the structure for organizing the curriculum into different forms. These include school subjects, modules and subjects that cut across more than one KLA (e.g. General Studies in primary schools) to serve different purposes of learning. They are also the bases of intellectual development and life-long learning.

*(Please see **Appendix 5** for the gist of each KLA.)*

II Generic skills

3.8 The component of generic skills is fundamental to help students learn how to learn. They are to be developed through the learning and teaching in the contexts of different subjects or key learning areas, and are transferable to different learning situations. Nine types of generic skills (listed in ***para 3.13***) are identified as essential.

3.9 Exemplars of how generic skills are incorporated into the learning of the KLAs are available in their separate booklets. One has to note, however, that as the nature and emphasis of the KLAs are different from one another, a generic skill may be more applicable to a KLA than the other KLAs. One KLA may contribute more to certain types of generic skills than another. There is no need for each KLA to pay equal emphasis to each generic skill, e.g. numeracy in Mathematics KLA than in Science KLA.

3.10 Generic skills are by no means new, yet some skill objectives have been emphasized in many curriculum documents in the past, such as problem solving and communication in Target Oriented Curriculum, critical thinking in languages and many other subjects, and self-management skills in Social Studies and Liberal Studies. They are now re-iterated to highlight their relevance to achieving the aims of education, and new skills, such as information technology, that become important as a result of new challenges.

3.11 The term 'skills' is used instead of its more inclusive counterparts like 'literacy' or 'competencies' so that it can be

differentiated from other components of the whole curriculum framework, namely values and attitudes. We are aware that, for example, 'information literacy' refers not only to the skills to handle different sorts of information, but also the abilities, competencies, attitudes, and dispositions involved. For the purpose of clear distinction, 'information literacy' is split into 'information technology skills', 'communication skills', and 'study skills' as well as the related values and attitudes.

3.12 Being generic in nature, these skills still overlap in some cases (e.g. self-management skills contain some elements of study skills). Further overlap between these generic skills and the values and attitudes mentioned earlier is also unavoidable, as the acquisition of the former inevitably needs to go together with the development of the latter.

3.13 A simpler classification, however, is adopted for the understanding and practical usage by teachers. This classification also serves to provide a direction for the education profession through expressing the curriculum intentions of the new framework. The nine types of generic skills identified in the framework, in alphabetical order, are as follows:

1. *Collaboration skills* (e.g. listening, appreciation, and negotiation) help students to engage effectively in tasks and teamwork, and to benefit from collaborative relationships.

2. *Communication skills* help students to interact with people and express their ideas effectively.

3. *Creativity* is the ability to produce original ideas and solve problems appropriate to the contexts.

4. *Critical thinking skills* help students to draw out meaning from given data or statements, generate and evaluate arguments, and make their own judgements.

5. *Information technology skills* help students to seek, absorb, analyze, manage and present information critically and intelligently in an information age and a digitized world.

6. *Numeracy skills* help students to master basic computation in daily life, use basic mathematical concepts in practical situations, make reasonable estimates, understand and interpret graphs, charts, and data.

7. *Problem solving skills* help students to use thinking skills to resolve a difficulty and determine the best course of action.

8. *Self-management skills* (e.g. preserving emotional stability, handling of stress) help students to build up self-esteem and accomplish goals.

9. *Study skills* (e.g. collecting and processing information) help students to develop good learning habits, and the abilities and attitudes to enjoy learning.

III Values and attitudes

3.14 Values are qualities that students should develop as principles for conduct and decision (e.g. rights and responsibilities, commitment, honesty, national identity), while attitudes are personal dispositions needed to perform a task well (e.g. open-mindedness, co-operativeness). Values and attitudes affect the development of each other.

3.15 Values and attitudes are of course not new to our subject curricula, and many cross-curricular guidelines (e.g. sex, moral, civic, environmental) issued before were value-oriented. Yet, values are not as successfully developed in students as the knowledge components. In this document, the enhancement of values is given high priority and moral and civic education is the top most to be developed. A separate section is devoted to values education with specific reference to morality, civics, sex, health, family, environmental conservation, intellectual property, and other related themes (such as drug).

3.16 Values can be learned as key concepts, for instance, filial piety and honesty in school subjects such as Chinese language and General Studies, sustainability in science/ technology; hospitality in Travel and Tourism, or be applied to specific themes for relevant understanding and decision making (e.g. respect for law).

3.17 Suitable attitudes are to be cultivated whenever the learning activities help, e.g. perseverance in Physical Education, integrity in project learning. Meanwhile, teachers should also employ those attitudes as pedagogical principles to guide student learning, e.g. giving students freedom to choose a topic of interest, being open-minded and respect evidence in the development of critical thinking.

3.18 A set of core and sustainable values and attitudes are provided in ***Appendix 6*** to serve as reference for curriculum planning for KLAs, permeation into learning and teaching activities, especially those involving personal judgement and relating man to society, and life events of students at different stages of schooling.

3.19 The three components (that is, KLAs, Generic skills, and Values and Attitudes) form the bases for defining the elements of learning for students at different levels of specificity as appropriate to each level of schooling, and the needs of specific KLA/subjects.

The Key Learning Area curriculum framework

3.20 With reference to key elements of learning in each KLA, eight separate KLA frameworks, and a framework for General Studies (primary) comprising PSHE, Science, and Technology KLAs are developed in separate booklets. It must be stressed again that an open framework is necessary for schools so that it is more flexible, and adaptable to changes and different needs. Figure 3.2 on the following page shows the general features of KLA framework, and their descriptions are given below:

Figure 3.2 General features of the KLA framework

Features	Descriptions
Overall aim	The overall aim of learning of KLA
Learning targets	General expectations of students
Strands	Strands* as the basic categories for organising the curriculum (concepts / knowledge contents, processes, or values) have the following functions: ▪ organise contents (for subjects, modules, etc) for the purpose of developing skills, knowledge and understanding, and values and attitudes as a holistic process; ▪ synthesize / integrate contents across more than one subject area; and ▪ accommodate content from subject areas not included in traditional curriculum.
Learning objectives	To be used as a resource list for curriculum and lesson planning for teachers, and also as sources of 'quality criteria' for teachers to make judgement (general assessment) on student learning rather than measurement of outcomes.
Quality criteria	See learning objectives
Key stage 1 (P1-P3) Key stage 2 (P4-P6) Key stage 3 (S1-S3) Key stage 4 (S4-S5)	▪ The key stages are only simple representations of the range of levels of schooling rather than indicators of specific learning outcomes. ▪ Key stage tables in strands and generic skills are only provided where appropriate. *(Future CDC curriculum guidelines will furnish more details for contents of strands for the reference of schools, whereas schools could also develop their school-based curriculum using the strands.)

Connection of KLAs

3.21 In actual life, a lot of experiences actually transcend boundaries of knowledge domains, and are integrated within the students. For instance, in the decision to choose a food product in the supermarket, the student would use his/her knowledge of science to understand the nutrient functions and calorie intake, use numeracy skills to compare across products, consider whether the packaging is environmentally friendly and apply the home economics knowledge in using the food product healthily in a meal. It will be useful to help teachers and schools to see the interconnectedness among KLAs so that the connectedness of knowledge could be implied or made explicit in curriculum planning, and the learning and teaching of students. Each KLA booklet will also spell out the major linkages with other KLAs to raise the awareness of teachers.

General Studies (primary)

3.22 In connection with the fact of integrated learning experiences in daily life, the subject of General Studies in the primary curriculum deserves additional attention. The curriculum will be further revised in line with the new framework to include integral elements of learning of PSHE, science and technology KLAs. The booklet on General Studies provides an account for the short-term and medium-term changes to the subject.

Liberal Studies (Advanced supplementary (AS) level), Integrated Science & Technology & Integrated Humanities at School Certificate level

3.23 The AS Liberal Studies has served two good functions in the sixth form curricula. Firstly, it helps to broaden the existing sixth form curricula by providing a range of modules that could complement the subject streams (e.g. China Today; Science, Technology & Society; Environmental Studies; Hong Kong Studies; Modern World). Secondly, there is evidence in HKEA's public assessment that student projects can

promote independent learning and critical thinking. The Liberal Studies curriculum will further be modified in line with the EC recommendation to serve the two functions better through updating the choice of modules, increasing the weighting of student projects by reducing the requirements on the number of modules to be studied.

Values education

3.24 The aims of education as stated in the final EC Report have put priority on moral and civic education, and the promotion of Chinese culture in order to build up a national identity and commitment. These will also be the special emphasis for the short-term phase of curriculum development. In addition, over the last twenty years, there are many emerging value-oriented studies in the school curriculum, such as sex and health education, environmental education, computer ethics, media education and other miscellaneous themes (e.g. legal education). Schools are advised to develop further their school-based modes of values education, taking into consideration the recommended directions for each area below.

Moral & civic education

3.25 Moral and civic education is one of the 5 essential learning experiences required for whole person development, and is closely connected to the other four directly or indirectly. Historically, moral education and civic education were introduced to the school curriculum as cross-curricular studies, as separate themes in response to the changing contexts in the 1980s. In effect, moral education, in the Chinese sense, emphasizes *pinde* (品德), whereas civic education, as developed in the Hong Kong context, includes the inculcation of Chinese moral values as well. Therefore, moral and civic education could be developed more holistically in the new curriculum framework. In a similar vein, other value-oriented studies described below also have values and attitudes that overlap with moral and civic education. Therefore, we should consider moral and civic education as an umbrella for any education or curriculum that relates to values development in the local

context, and is capable of renewal in response to new needs. In the short run, the promotion of national identity and commitment to society and the nation are imperative for realizing Hong Kong as part of China as well as an international Asian city.

3.26 A life event approach for students is proposed for implementing moral and civic education (as exemplified in ***Appendix 7***) in addition to the approaches in the past. This approach has the advantage of bringing the greatest relevance to students' daily life, and needs for decision-making and judgement. Such development should be supported by development strategies in Chapter 2. Yet, not all the values and attitudes proposed in the framework could be cultivated throughout all stages of schooling using this approach. The CDC will continue to evaluate the effectiveness of different approaches to moral and civic education.

Chinese history and culture

3.27 The strengthening of the understanding of Chinese history is essential for helping young people to enhance their national identity. It is an inherent part of civic education and so a necessary component of the school curriculum. Elements of Chinese history are incorporated in the proposed essential contents for learning in the Personal, Social and Humanities Education (PSHE) key learning area for nine-year basic education. This would ensure that all schools would provide related learning experiences for their students. Specifically, at primary level, the learning of Chinese history will be strengthened in the General Studies curriculum as a strand of "national identity and Chinese culture". At secondary level, Chinese history is also a school subject at junior secondary, senior secondary (S4-5), and sixth form (S6-7) levels. However, the effectiveness of the teaching/learning of Chinese history still needs improvement, and action research will be conducted to identify useful teaching/learning strategies. Other than this, the attempt to link Chinese history to a broader global and multi-perspective outlook will be piloted through a new history curriculum, and the effectiveness will be reviewed.

3.28 Culture is a way of life, a collective personality of a group of people, representing a continued tradition of values and beliefs that form the norms of the people. It also reflects the technological development of a particular society, as the application of technology to life affects the way of life of that particular society. A comprehensive understanding and appreciation of Chinese culture is essential for the promotion of national identity and cultivation of commitment to enhance the well-being of China. A good understanding of Chinese history would surely contribute to it. The historical and geographical background for the development of Chinese culture such as in her art, music, science and technological developments, will be studied in relevant KLAs, and also in moral and civic education as essential experiences in school life. With reference to methods of learning, there is evidence showing that direct learning experiences through visits or study trips in China are powerful for students to develop their understanding. Schools are recommended to organise such visits as co-curricular activities or cross-curricular projects. The purpose of all these is to provide a learning environment in which positive attitudes and values conducive to a strong sense of national identity can be nurtured at all levels of schooling.

3.29 Future development of the curriculum framework and supportive measures will focus on bringing the contexts of China when relevant, and also promoting learning / teaching activities. A partnership with organisations involved in inter-disciplinary studies of China and working with schools is most welcome.

KLAs	*Examples of Chinese culture*
Chinese	Language, literature
English	Chinese culture in the eyes of the western media
Mathematics	Stories of Chinese mathematicians
Science Technology	Scientific and technological invention and development in China
PSHE	History, geography, economics, political systems
Arts	Art, music, etiquette
Physical education	Sports and achievements

Sex and family education

3.30 Sex education deals with the understanding of ourselves and our relationships with others. Sex values used to permeate through moral and civic education, and community service only. In actual fact, the Science KLA (involving biological facts of life), the PSHE KLA (involving human values in family life education), and the Technology Education KLA (the subject of Home Economics), which bear strong flavour of personal and social education, are also relevant to promote sex and family education. In face of changing moral values relating to sex issues, the relevant KLAs/subjects should continue to serve their purpose.

Health education

3.31 Health is defined as "a stage of complete physical, mental and social well-being and not merely the absence of disease or infirmity". Therefore, health education is an education on quality of life. Traditionally, it is placed as a cross-curricular issue to be studied in General Studies and Social Studies, Science, Arts and Music, Physical Education(PE) and Home Economics. The new PE framework has enhanced its relevance to health education by placing more emphasis on a broader understanding of its function and value. Since physical development is an essential learning experience to be developed throughout all stages of schooling, the overall incorporation of health elements would be more comprehensive, but where and how students learn would be more diversified.

Environmental education

3.32 Environmental protection is an on-going issue. Individual life-long action and global co-operation are required to protect the environment and to ensure quality living in everyday life. The key values are commitment, responsibility, sustainability and interdependence. It transcends most KLAs. Similar to other areas, it can be learned as independent programmes as well as through the different

modes of the development of values as described earlier. Additional attention should be made to updating information as the world environment is dynamically changing.

Computer ethics

3.33 In the information age, computers have become a common tool for students' study and future work life. As the use of computers involves many human decisions, the development of a positive value and attitude are as important as the mastery of skills, for instance ethics in handling personal data, privacy, respect for copyright and intellectual property, unauthorized access, netiquette. Such ethics are already incorporated into the value and attitude component. The use of the computer is essentially a skill for everyone. Therefore, students should be supported, in this respect, by teachers who should serve as role models.

Other value issues

3.34 There are many issues worth learning either as independent themes relevant to KLAs, or transcendence across KLAs, e.g. media education, legal education, consumer education. The CDC will continue to update and renew the framework in the best interests of students and society.

Life-wide learning (connecting the formal and informal curriculum)

3.35 Life-wide learning refers to the learning experiences that take place beyond the classroom. The rationale for life-wide learning is that effective learning takes place in authentic environments, e.g. responsibility is better developed through community service than inculcation. Traditionally, the school curriculum is defined by class time-tables which is called the formal curriculum. Extra-curricular activities that take place outside class lessons are called the informal curriculum, and often regarded as less essential. However, the

entitlement of students to the five essential learning experiences suggests that both the formal curriculum and informal curriculum are equally important. They should complement each other as their purpose for teaching and learning is different. Their boundaries would become blurred, as some classroom learning has to be extended outside the classroom.

3.36 The strategies needed to support schools to provide life-wide learning opportunities for students include: encouraging relevant bodies (both government departments and non-government organizations) to keep abreast of curriculum and world trends, to provide programmes with a clear purpose of learning, to maximize resources available in the community and avoid overlapping through partnership and to provide relevant teacher education linked with the programmes.

Catering for student diversities -- the gifted and the academically low achievers

3.37 With the changing allocation system of school places, more and more schools would be faced with mixed abilities in schools (the academically higher achievers and lower achievers). It is also necessary to stretch the potentials of all students in Hong Kong, irrespective of their abilities. There are some suggested principles of catering for student diversities and lower achievers in Chapter 4. The government will pilot a three-tier gifted education programme in 2000-2002 funded by QEF (please see ***Appendix 8***). At Level 1 in the programme, the potential of students in regular classrooms could be stretched through the immersion of high order thinking skills, creativity and personal-social competence in all KLA frameworks. At Level 2, pull-out enrichment programmes of a generic nature would be provided to students of higher abilities, e.g. accompanied by application of research skills to construct knowledge. At Level 3, special enhancement programmes would be provided for the exceptionally gifted who require outsourcing support.

School-based curriculum development

3.38 The concept of school-based curriculum development has been introduced to HK since the late 1980s when it was an attempt to encourage schools to adapt teaching/learning materials and activities for the CDC curriculum. Therefore, worthwhile learning was basically determined by the CDC syllabuses. In recent years, the concept has evolved further when more schools have tried to decide on contents that their students should learn, e.g. by trimming old contents and/or adding new ones, re-organising/integrating existing curricula. Learning/teaching materials are further diversified. The Quality Education Fund has supported such a direction further.

3.39 The open curriculum framework set by the CDC in this document is not meant to leave schools with 'school-based development' without further support. The CDC has set the directions for the framework. It will continue to develop curriculum guides that consist of essential 'contents' based on the framework for the reference of teachers, as well as other support stated in Chapter 2. However, the 'openness' of the framework also encourages schools to have more autonomy in choosing some contents more relevant to their students so long as they are in line with the curriculum aims, strands (contents), principles of learning/teaching, with justifiable modifications that suit their students most. At the same time, schools could make better use of the optional time recommended in this document and the other options in the KLA documents to help students learn to learn better. Therefore, the nature of 'school-based development' varies between schools, KLAs, subjects, and teachers. Moreover, the nature of school-based curriculum in a school is essentially the outcome of a balance between directions from the CDC and the autonomy of the school and teachers. The balance is subject to change with time as policy and school decisions change.

Booklets on the 8 KLAs and General Studies

3.40 More details about each KLA framework, and Primary General Studies (cross-KLAs) are provided in separate booklets. Each booklet can be read as an entity of respective KLA with application of

relevant key messages from Chapters 1-4 in this document. It would be helpful for readers to read the KLA documents in conjunction with this document for fuller understanding of the future curriculum development in Hong Kong.

CHAPTER FOUR FACILITATING LEARNING AND TEACHING

4.1 This chapter serves to provide some guiding principles for schools to open up more opportunities and space for learning and teaching in order to facilitate learning to learn for students to achieve the aims of education. It covers firstly the general principles regarding learning and teaching, and secondly, the roles of change agents in schools, namely school principals, middle managers, teachers and teacher librarians. Learning occurs when there is the ability to transfer knowledge to new contexts, and involves changes in oneself. Teaching is a human activity that aims to bring about learning to someone. These principles of learning and teaching are to be flexibly applied and operationalised by schools, teachers, parents, and all parties who have a role to play in schools as learning communities.

The principles to facilitate learning and teaching

4.2 The principles are based on research evidence and literature taken from various sources that are considered during the period of review, and also the advice of critical friends and consultants. However, it is admitted that there are still many unfilled gaps of knowledge about student learning in the local context especially when the learning environment in schools have changed a lot in recent years. This problem is not unique in Hong Kong. We would use the principles as prelude to our future effort to explore more about how students learn to inform school practices, relying on the collaborative effort of schools, government, universities, community and other private sectors, as well as parents. There are five main categories of the principles:

I the opportunities of learning and the learning environment,
II improving the curriculum,
III learning and teaching strategies,
IV assessment for learning, and
V home-school co-operation and parental support.

I Opportunities for learning and the learning environment

4.3 Opportunity to learn is a key concept that explains where and why students could learn or could not learn. Opportunities to learn in the 21st century are to be found in a milieu of environments: the school, the classroom, the community, home, the physical environment, the internet, and the workplace. Efforts should be put to expose students to learning opportunities geared towards achieving the aims of the school curriculum.

The general principles are:

1. physical qualities such as adequate space, ventilation, lighting, furnishings etc. should be catered for;

2. the environment is safe and caring, with positive feedback and encouragement and without threats, humiliation and embarrassment;

3. the environment provides a variety of learning resources and stimulates learning;

4. the environment provides room for students to pursue in both collaborative and independent learning;

5. the learning environment can be outside the school to allow for relevant, authentic and meaningful experiences to students; and

6. the learning environment that values diversity in students' dispositions as well as learning outcomes.

II Improving the curriculum

4.4 The answer to "what is worth learning/the content of learning" is an important aspect of deciding whether students would learn how to learn. The contents of learning include knowledge/concepts, skills, values and attitudes. They would change with time as the needs of students and society changes. Therefore, the curriculum, as learning experiences, should be continuously improved in order to keep abreast of changes. Each school should have a curriculum and learning plan that is carefully set. The policy is to be reviewed and adjusted according to evidence of students' changing needs. The following principles can be used for schools to set their curriculum and learning plans:

1. The goals of the curriculum should be broad enough to achieve whole person development, and to enable every student with diverse needs to learn to their full potential.

2. The plan should be holistic and coherent to help students build up conceptual structures, connect ideas, see things from different perspectives, and construct their own knowledge, experiences and judgement.

3. It should consider the developmental characteristics of children and arrange suitable progression and continuity.

4. There should be flexibility in the use of time, space, the environment, and resources in order to accommodate the diverse learning/teaching activities needed for different purposes of learning, and the learning needs, styles and abilities of students.

5. It should recognize the impact of interfaces in schooling on learning especially at kindergarten/primary one, and the need to help students to adapt to the transition. (***Appendix 9*** provides suggestions on how the kindergarten and Primary One interface can be bridged.) Adaptation is also required at interfaces of

Primary Six / Secondary One, Secondary Three / Secondary Four and Secondary Five / Secondary Six.

III Learning and teaching strategies

4.5 With our increasing understanding on learning, we know that learning effectiveness does not solely depend on teaching methods, especially when independent learning is much emphasized. However, teaching activities are equally important as learning and teaching are interactive processes. They involve complex and dynamic relationships between the individual learner, the teacher, and the learning context. The principles that are generally found to promote effective student learning are:

1. Motivate students through a variety of ways, such as letting them know the goals / expectations of learning, building on their successful experiences, meeting their interests, considering their emotional reactions, and care about their self-esteem. These apply especially to students with weaker performance.

2. Draw on or help students to develop a wide range of generic skills (e.g. communication, thinking and interpersonal skills, creativity) through the learning activities students engage in across the curriculum. Help students to construct knowledge, take risks, and become a knowledge builder.

3. Treat understanding as a means of developing a problem to be solved. Use explanation as a means of developing and sharing understanding. Recognize and openly discuss alternative understandings. Identify the complex ideas to be understood.

4. Use diversified learning / teaching approaches and strategies which allow every student the opportunity to learn in ways suited to them, and to prepare them for a widely varying future. Different types of learning / teaching strategies and activities have different purposes and strengths in specific contexts. It is dangerous to suggest any one activity (e.g. student-centred

group teaching) is in general better than the other (e.g. teacher-centred whole class teaching). (More recommendations on strategies appropriate to the learning and teaching in each Key Learning Area are to be provided in relevant separate documents.)

5. Vary the roles of teachers, parents, and students according to the needs of learning/teaching strategies. Teachers' role would range from a transmitter of established truths and knowledge to multiple roles such as a resource person, a facilitator, a consultant, a counsellor, and an assessor.

6. Use a diversity of learning/teaching resources (e.g. electronic, print, human) rather than to focus only on textbooks. Capitalize on opportunities (e.g. current affairs, school/classroom contextual situations) to facilitate spontaneity and change in response to different demands and situations. It widens the exposure of students and helps them to learn in a changing environment.

7. Widen the space of learning through using authentic life-wide learning opportunities outside the classroom such as the school premises, home, and the community, and organise co-curricular activities to complement classroom learning. Partner with community sectors in providing the five essential learning experiences suggested in earlier chapters.

8. Provide students with quality homework that helps students to learn to develop independence of learning at home, as an extension of learning at school. Homework should cover a variety of meaningful activities such as reading, observation, lesson preparation, and revision rather than mechanical and repetitive exercises.

9. Teachers should conceptualize and understand the rationale, underlying principles, needs of the students and the relevant context of good practices instead of directly drawing on the successful experience of others.

IV Assessment for learning

4.6 Assessment practice is an integral part of the learning / teaching cycle rather than a separate exercise to be done at the end of teaching. Assessment could facilitate learning to learn depending on the function of assessment, what it assesses, and how it is designed. Assessment for learning is underpinned by confidence that every student can improve. In the venture to widen the opportunities for learning, the general principles of assessment for learning are:

1. Formative assessment should be used to provide effective feedback (e.g. corrective, diagnostic) that motivates and improves learning, for instance, feedback which leads to students recognising their next steps and how to take them forward. The feedback could be formal or informal. Assessment practices that inhibit or narrow learning opportunities should be reduced to a minimum, such as counting the quantity rather than the quality of tests; spending time unproductively on detailed recording for administrative purposes; awarding marks / grades which lower self-esteem of some students; demoralizing some students through negative comments.

2. Students should be assessed by a diversity of assessment modes according to the purpose and process of learning, and not just academic outcomes. For instance, observation is used to assess participation in discussion, written assessment for expression of personal views, and project work for interdisciplinary thinking. It is not recommended to assess students in the format of public examinations in basic education.

3. Share with students the goals of learning and let them know and recognise the standards they are aiming for.

4. Teachers should adjust and improve teaching in light of the results of assessment.

5. Student self-assessment should be encouraged to enable them to learn from understanding their own learning. This is particularly crucial to encouraging life-long learning.

6. Students who fail to meet the minimum standard at a certain level should be given appropriate support e.g. more in-depth diagnosis of learning needs together with appropriate and differentiated instructional strategies.

7. Opportunities should be given for both teachers and students to review and reflect on assessment data together.

8. Schools could consider and establish their own school-based baseline assessment to generate relevant information for effective evaluation and review.

9. Changes in assessment have to be viewed in tandem with teachers' perception, school management, parental expectations and societal expectations.

V Home - school communication

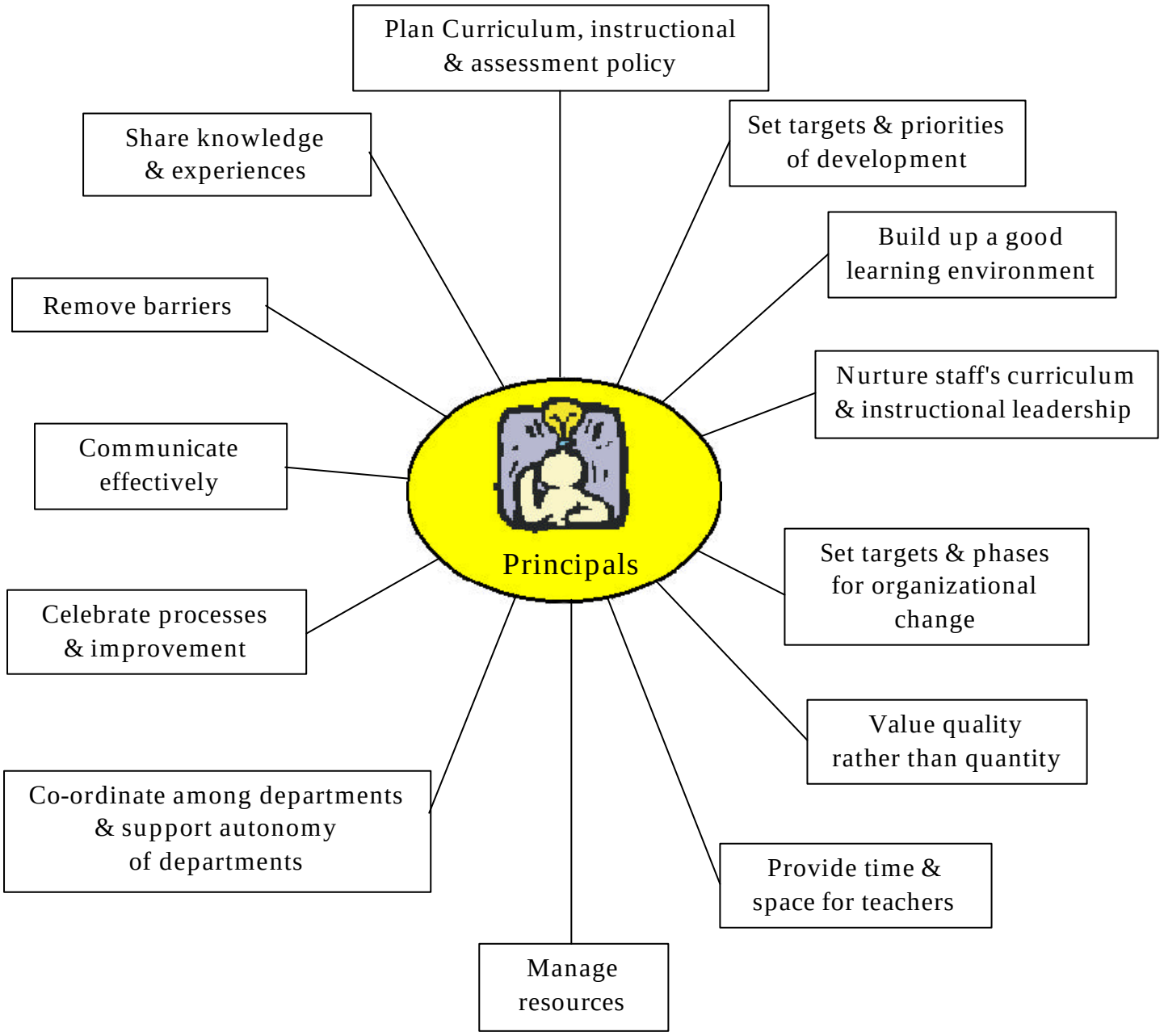
1. Solicit the right participative and encouraging attitude from parents over their child's learning.
2. Help parents understand that standardized teaching / learning processes and materials alone cannot help children to achieve high standards. Instead, diversified teaching / learning styles, strategies, contexts and resources to maximise different potential of different students is of paramount importance.
3. Help parents understand the purpose of assessment. The rank order of their children in class through aggregated scores does not necessarily reflect the actual abilities of their children. Knowing the strengths and weaknesses of their children is more essential for genuine improvement and progress.
4. Communicate with both parents and students together (e.g. a school newsletter, open door parent teacher conferences, a parent bulletin board, assignment notebooks).

5. Use different strategies to engage all families in the learning lives of their children. Children do well in schools when parents have expectations of their studies, encourage the productive use of their time, and provide learning experiences as a regular part of family life.

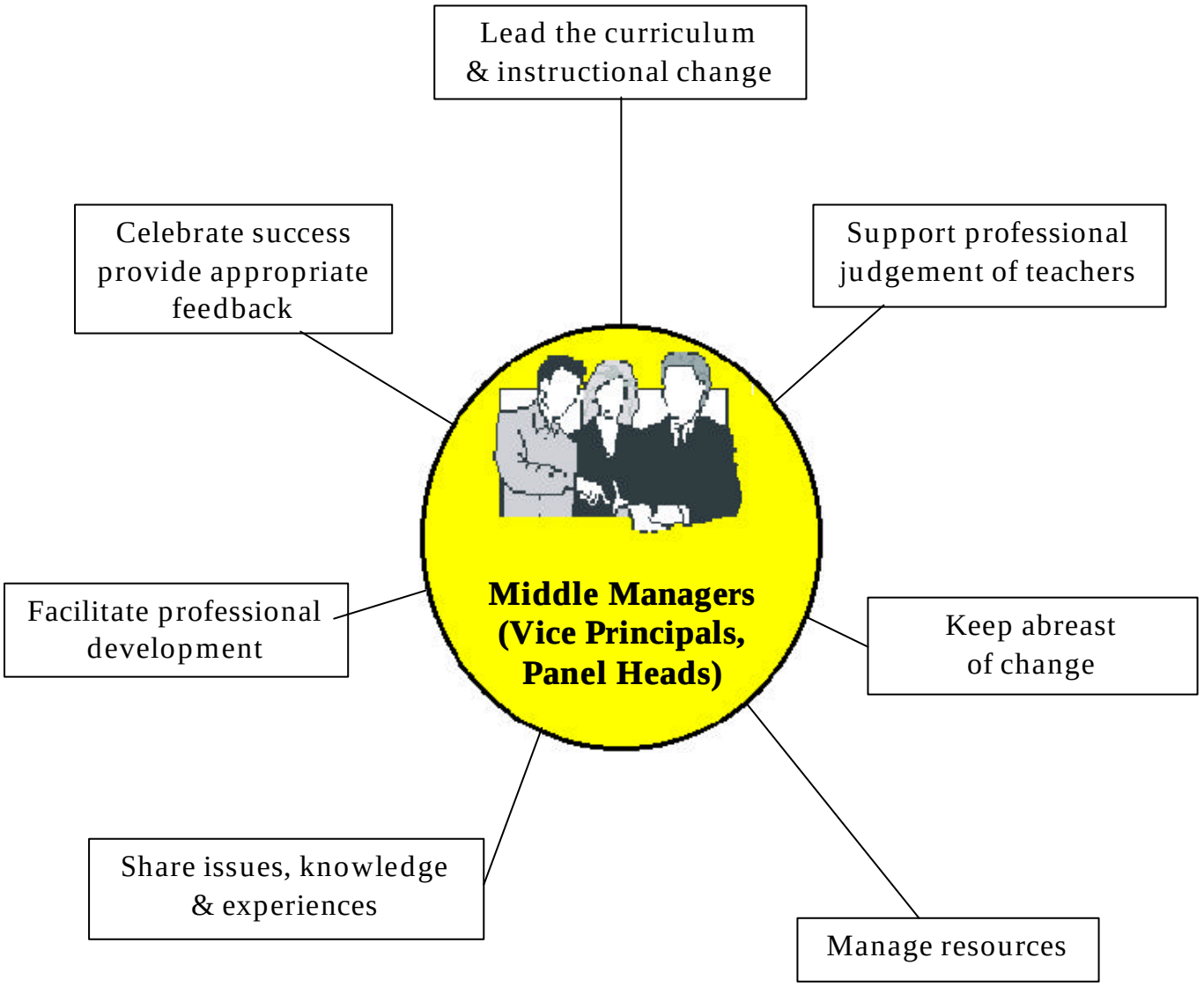
The roles of change agents in schools --- school heads, middle managers, school teachers and librarians

4.7 It is generally recognized that school heads, middle managers, teachers and librarians are change agents for helping students learn to learn. The suggested roles of school principals / head teachers, middle managers, teachers, and teacher librarians are presented in diagrammatic form on the following pages. A detailed description of the roles of each is provided in ***Appendix 10***.

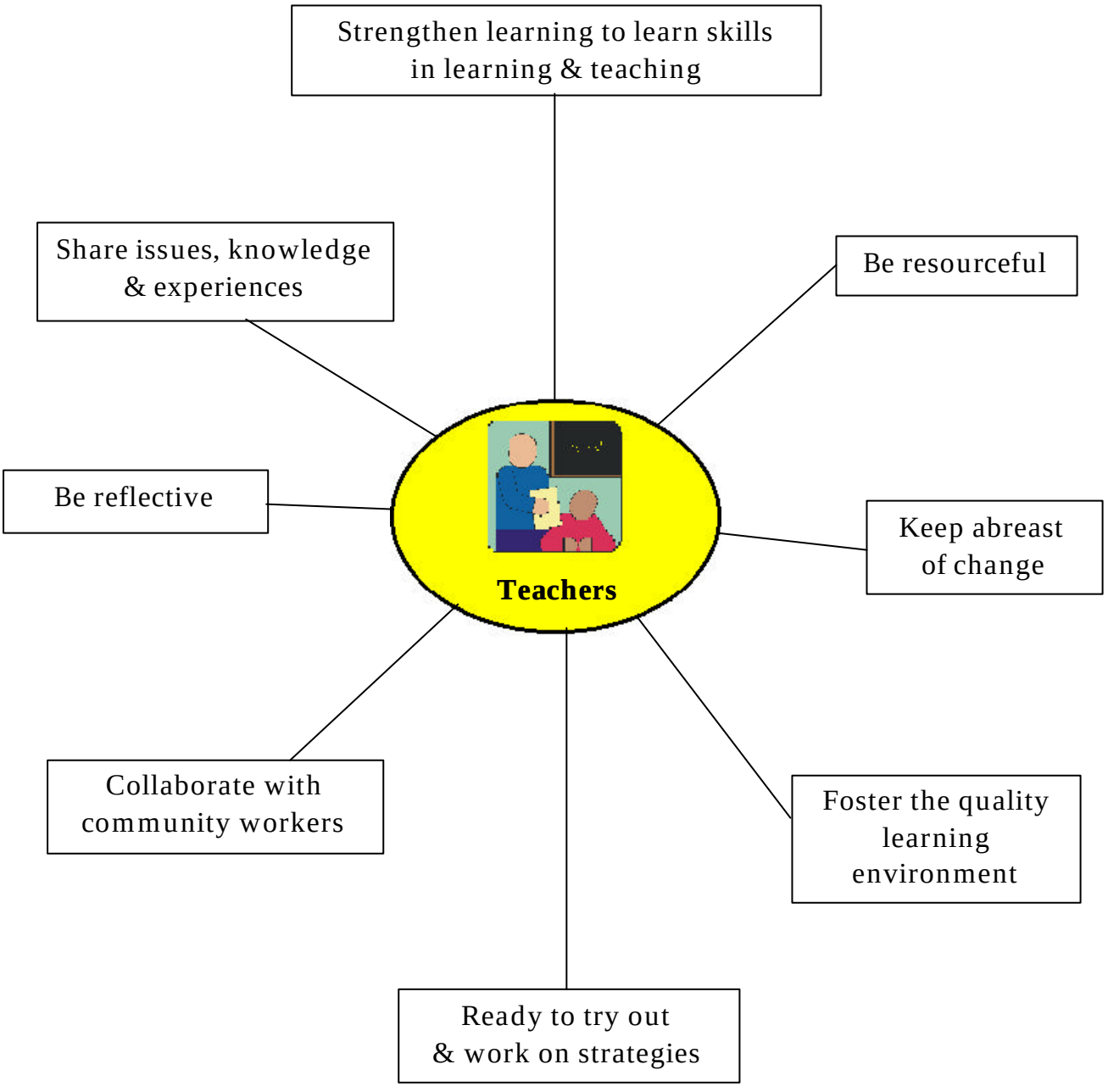
Roles of Principals to Facilitate Learning to Learn



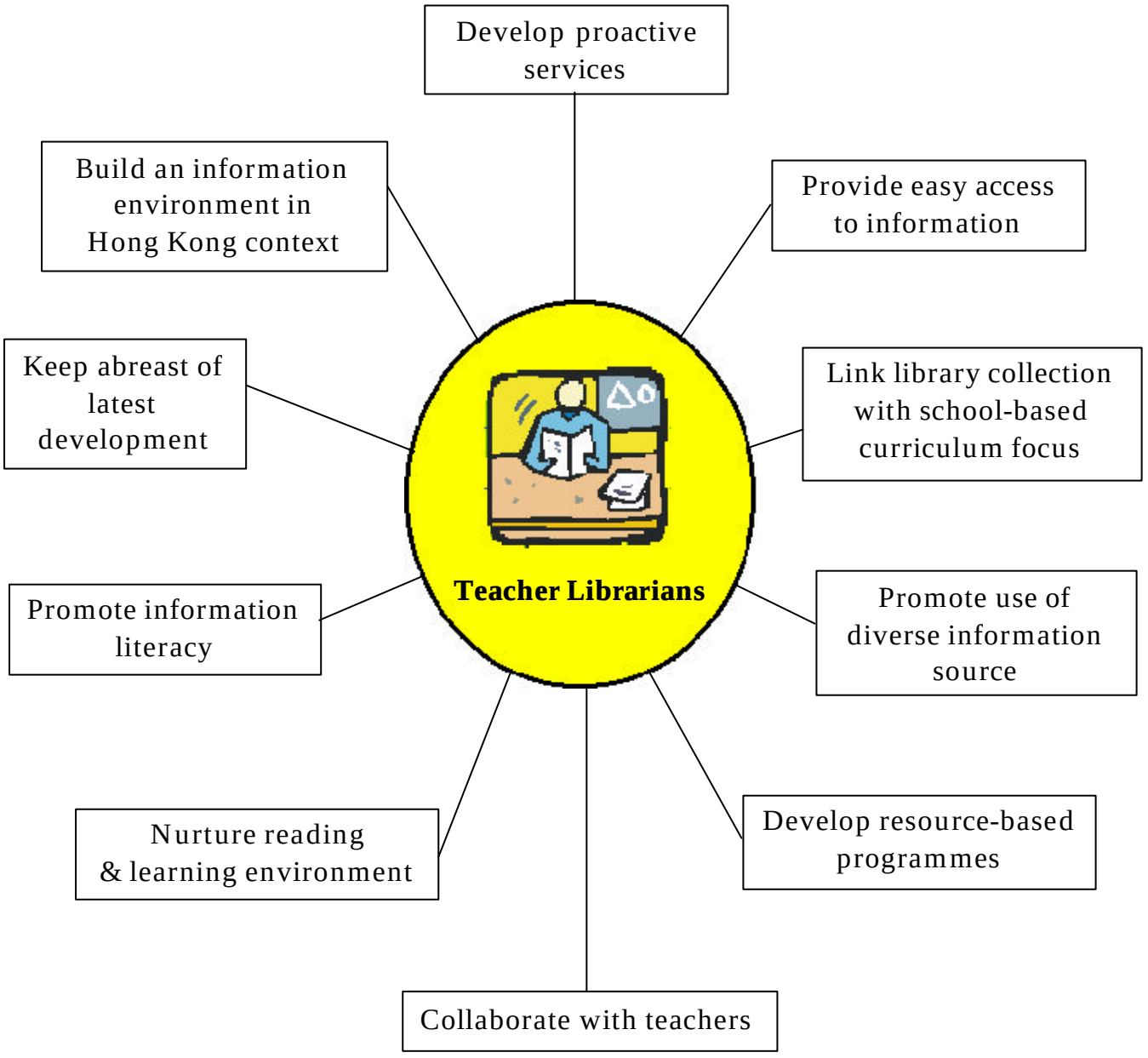
Roles of Middle Managers to Facilitate Learning to Learn



Roles of Teachers to Facilitate Learning to Learn



Roles of Teacher Librarians to Facilitate Learning to Learn



CONCLUSION

In this Document, we have defined what is learning to learn, spelled out the curriculum aim and goals and the development strategies to achieve them, identified what is worth learning and highlighted the general principles of facilitating learning and teaching. The Curriculum Development Council recommends that the messages be conveyed to all teachers and related personnel for their consideration to support student learning. More research and development on the principles of facilitating learning and teaching should be conducted to provide useful references for all teachers and schools, and to review their applicability to the learning contexts of Hong Kong to inform educational practice. More specific pedagogical principles related to key learning areas are provided in separate booklets on KLAs where appropriate.

You are welcome to send your views to the Curriculum Development Council Secretariat by post, by fax or by e-mail on or before 15 February 2001.

Address: Curriculum Development Council Secretariat
Room 1329, Wu Chung House
213 Queen's Road East
Wan Chai
Hong Kong

Fax Number: 2573 5299 / 2575 4318

E-mail Address: cdchk@ed.gov.hk

Appendix 1

Subjects under the 8 Key Learning Areas (KLA)

Subjects under the 8 Key Learning Areas (KLA)

八個學習領域內的科目

KLA / Level	Chinese Language Education 中國語文教育	English Language Education 英國語文教育	Mathematics Education 數學教育	Science Education 科學教育	Technology Education 科技教育	Personal, Social and Humanities Education 個人、社會及人文教育	Arts Education 藝術教育	Physical Education 體育教育
P1 - 6	Chinese Language 中國語文 Putonghua 普通話	English Language 英國語文	Mathematics 數學	General Studies 常識	General Studies 常識	General Studies 常識	Art and Craft 美勞 Music 音樂	Physical Education 體育

KLA / Level	Chinese Language Education 中國語文教育	English Language Education 英國語文教育	Mathematics Education 數學教育	Science Education 科學教育	Technology Education 科技教育	Personal, Social and Humanities Education 個人、社會及人文教育	Arts Education 藝術教育	Physical Education 體育教育
S1 - 3	Chinese Language **中國語文** Putonghua **普通話**	English Language **英國語文**	Mathematics **數學**	Science **科學**	Automobile Technology / * Auto Repairs **汽車科技 /*汽車修理** Business Fundamentals / * Book-keeping, Office Practice, Typing **基本商業 /*簿記，商業實務，英文打字** Catering Services / * Accommodation & Catering Services **膳食服務 /*膳宿服務** Computer Literacy **普通電腦** Design Fundamentals **基本設計** Design & Technology / Design & Technology(Alt. Syll.) **設計與科技 / 設計與科技 (另選課程)** Desktop Publishing / * Printing **桌面出版 /*印刷** Electronics & Electricity / * Electrical Studies **電子與電學/*電工** Fashion Design / * Fashion & Clothing **時裝設計 /*時裝及成衣** Graphical Communication / *Technical Drawing **圖象傳意 /*工業繪圖** Home Economics **家政** Retail Merchandising **商品零售** Technology Fundamentals / *Metalwork **基本科技 /*金工** Textiles **紡織**	Chinese History **中國歷史** Civic Education **公民教育** Economic & Public Affairs **經濟與公共事務** Geography **地理** History **歷史** Ethical / Religious Education / Buddhist Studies **倫理 / 宗教教育 / 佛學** Social Studies **社會教育**	Art and Design **美術與設計** Music **音樂**	Physical Education **體育**

* Phasing out subjects

KLA / Level	Chinese Language Education 中國語文教育	English Language Education 英國語文教育	Mathematics Education 數學教育	Science Education 科學教育	Technology Education 科技教育	Personal, Social and Humanities Education 個人、社會及人文教育	Arts Education 藝術教育	Physical Education 體育教育
S4 - 5	Chinese Language **中國語文** Chinese Literature **申國文學** Putonghua **普通話**	English Language **英國語文** English Literature **英語文學**	Mathematics **數學** Additional Mathematics **附加數學**	Biology **生物** Chemistry **化學** Human Biology **人類生物** Physics **物理**	Accommodation & Catering Services **膳宿服務** Commerce **商業** Computer Studies **電腦** Design & Technology / Design & Technology (Alt. Syll.) **設計與科技 / 設計與科技 (另選課程)** Electronics & Electricity **電子與電學** Engineering Science **工程科學** Fashion & Clothing **時裝及成衣** Graphical Communication / *Technical Drawing **圖象傳意 /*工業繪圖** Home Economics (Food, Home & Family) **家政 (膳食、家居與家庭)** Home Economics (Dress & Design) **家政 (服裝與設計)** Information Technology **資訊科技** Principles of Accounts **會計學原理** Technological Studies / *Metalwork **科技概論 / *金工** Textiles **紡織** Word Processing & Business Communication (English) / *Typewriting **英文文書處理及商業通訊/*英文打字**	Chinese History **中國歷史** Economic & Public Affairs **經濟與公共事務** Economics **經濟** Geography **地理** Government & Public Affairs **政府與公共事務** History **歷史** Religious Studies (Christianity) / Buddhist Studies **宗教 (基督教) / 佛學** Social Studies **社會教育** Travel & Tourism **旅遊與旅遊業**	Art and Design **美術與設計** Ceramics **陶藝** General Music **普通音樂** Music **音樂**	Physical Education **體育**

* Phasing out subjects

KLA / Level	Chinese Language Education 中國語文教育	English Language Education 英國語文教育	Mathematics Education 數學教育	Science Education 科學教育	Technology Education 科技教育教育	Personal, Social and Humanities Education 個人、社會及人文教育	Arts Education 藝術教育	Physical Education 體育教育
S6 – 7	ASL Chinese Language & Culture 高級補充程度中國語文及文化 AL Chinese Literature 高級程度中國文學	AL English Literature 高級程度英語文學 ASL English Literature 高級補充程度英語文學 ASL Use of English 高級補充程度英語運用	AL Applied Mathematics 高級程度應用數學 ASL Applied Mathematics 高級補充程度應用數學 ASL Mathematics and Statistics 高級補充程度數學及統計學 AL Pure Mathematics 高級程度純粹數學	AL Biology 高級程度生物 ASL Biology 高級補充程度生物 AL Chemistry 高級程度化學 ASL Chemistry 高級補充程度化學 AL Physics 高級程度物理 ASL Physics 高級補充程度物理	AL Business Studies 高級程度企業概論 ASL Computer Applications 高級補充程度電腦應用 AL Computer Studies 高級程度電腦 ASL Design & Technology 高級補充程度設計與科技 ASL Electronics 高級補充程度電子學 AL Engineering Science 高級程度工程科學 AL Principles of Accounts 高級程度會計學原理	AL Chinese History 高級程度中國歷史 ASL Chinese History 高級補充程度中國歷史 AL Economics 高級程度經濟 ASL Economics 高級補充程度經濟 ASL Ethics & Religious Studies 高級補充程度倫理及宗教 AL Geography 高級程度地理 AL Government & Public Affairs 高級程度政府與公共事務 ASL Government & Public Affairs 高級補充程度政府與公共事務 AL History 高級程度歷史 ASL History 高級補充程度歷史 ASL Liberal Studies 高級補充程度通識教育	AL Art & Design 高級程度美術與設計 ASL Art & Design 高級補充程度美術與設計 AL Music 高級程度音樂 ASL Music 高級補充程度音樂	Physical Education 體育

Appendix 2

Phases of curriculum reform development in other place

Appendix 2

Phases of curriculum reform development in Other places

PLACES	CURRICULUM REFORM DEVELOPMENT		CHARACTERISTICS OF REFORM
Ontario	Consultation document, "Excellence in Education" published in 1996 to restructure	Comprehensive overhaul of the K-Grade 12 curriculum completed in 2000	Restructure the high school programme from 5 to 4 years
New Zealand	A total revision of the New Zealand curriculum started in 1991	All of the seven essential learning areas published and implemented in 2002	▪ Development and implementation of the New National Curriculum Statements ▪ An audit of the achievement objectives across all of the strands of the national curriculum statements ▪ Publication / Implementation of national curriculum statements by phases (Math 92 / 94 , Sci 93 / 95, Eng 94 / 96, Tech 95 / 99, Soci Stud 97 / 2000, Health &PE 99 / 01, The Arts 2000 / 02)
Shanghai	State Report in 1988 initiated reforms of primary and secondary curricula and teaching & learning resources	First phase of reforming Shanghai's primary and secondary curricula completed in 1999	▪ Development of different functional curricula : (1) Foundation Curriculum (common); (2) Developmental Curriculum (electives); (3) Exploratory Curriculum (electives) ▪ Development of integrated learning and practical activities ▪ Promotion of development projects research on teaching and learning and dissemination of good practices research findings ▪ Establishment of a new assessment mechanism consisting of assessment by the teachers and self assessment by students
Singapore	External Review Team formed in 1996 to review the school curriculum in the light of future needs	Incorporation of project work into students' assessment started in 2001	▪ Reduction of curriculum content up to 30% and highly structured teacher-centred activities by 20% ▪ Incorporation of project work into secondary & junior college curriculum ▪ Greater autonomy for schools to use textbooks / workbooks ▪ More open-ended questions in examinations and moving towards multiple modes of assessment

Appendix 2

PLACES	CURRICULUM REFORM DEVELOPMENT		CHARACTERISTICS OF REFORM
Taipei	The education reforms committee established in 1994	■ Development of the Nine-year Integrated Curriculum completed in 1998 ■ Implementation of the Nine-year Integrated Curriculum in primary and secondary schools in 2001	■ Development and implementation of the Nine-year Integrated Curriculum (7 key learning areas (KLA), 10 generic skills) ■ Introduction of key learning areas to replace individual subject teaching and emphasize on integrated learning among subjects. ■ 80% for foundation teaching periods and 20% flexible teaching period ■ Enhancement of the quality of the teaching profession ■ Assisting every student to achieve fundamental abilities ■ Effective use of education resources
United Kingdom	The White Paper : "Excellence in Schools" published in 1997	The revised national curriculum made statutory in 2000	■ Revised programmes of study less prescriptive ■ Greater flexibility for teachers to use professional judgement on appropriate teaching and learning approaches and on the aspects of a subject pupils will study in depth ■ Disapplication of the national curriculum at key stage 4 for a wider focus on work-related learning ■ No national prescribed time allocations for particular subjects, time spent on each subject is for the school to decide ■ Schools not required to teach subjects of the national curriculum discretely; how lessons are described and organised are not prescribed
Western Australia	"The Review of School Curriculum Development Procedures and Processes in Western Australia" published in 1995	■ 1999 being the first year of implementation of the Curriculum Framework ■ The Curriculum Framework fully implemented in all schools in 2004	■ Review of the need for a common curriculum direction, ■ A more even spread of curriculum support materials ■ Provision of professional development aligned with curriculum change

Appendix 3

An exemplar of the phases of curriculum change in a primary school

An exemplar of the phases of curriculum change in a primary school

Background information of the school

The school is a medium size school located in a lower middle class community with intake of large cohorts of low ability pupils and a comparatively high proportion of newly arrived children. The change process started in 1997 and underwent several phases of development, bringing a new teaching and learning culture to the school.

Phases in curriculum changes

Time frame	*Significant events and change strategies*	*Rationale for change*	*Experiences obtained / Evidence of improvements*
1997 - 1998 (Trial phase)	• Facilitate collaborative lesson planning by organizing common subject meetings 4 times a term. • Allow freedom in tailoring curriculum through deleting parts of textbook considered beyond capabilities of pupils • Introduce varieties of teaching and learning strategies and materials	• Rich teaching repertoire facilitate effective teaching • Collaborative planning important means to improve teaching	• Increasing awareness and readiness in the Principal and teachers in embarking on school-based curriculum development • More effective organization of the congested curriculum • Improvements in pupil learning in selected curriculum areas
1998 - 1999 (Induction phase)	• Joined the School-based curriculum tailoring pilot scheme in P.3 Chinese and English • Arrange systematic collaborative planning meetings under the support of curriculum development officers • Focus on tailoring the selected curriculum to meet the needs of pupils • Much effort spent on developing teaching and learning materials	• More focused and systematic collaboration among teachers fundamental to curriculum development • Teacher development essential to effecting curriculum changes	• Shift from textbook bound teaching to more interactive teaching • Improvements in teacher competence in curriculum development and pupil learning • See the need to render administrative support to create time for collaboration
1999 - 2000 (Development phase)	• Bringing in community workers to organize co-curricular activities for pupils on Friday afternoons to find time for collaborative planning among all teachers • Focus shifted from curriculum tailoring to curriculum development which was extended to	• Supportive administrative measures prerequisite to teacher collaboration for school improvement • Recognizing the importance of connectivity, the complex and	• A new teaching and learning culture begins to emerge • Some teachers emerged as curriculum leaders and feel the need to develop school-based curriculum

Time frame	*Significant events and change strategies*	*Rationale for change*	*Experiences obtained / Evidence of improvements*
	include three KLAs (Chinese, English, GS) across levels ● Cross KLA activities on "affection" are organized to provide diversified and successful learning experiences both inside and outside classrooms	dynamic process of learning for both students & teachers ● Designing school-based curriculum on values and attitudes to promote self concept & motivation	● Pupils' self concept and learning motivation enhanced and capabilities in communication, high order thinking skills, collaboration etc. improved
2000 - 2001 (Institutionalization phase)	● Curriculum development extended to whole school ● Focus on learning how to learn ● Emphasis on extensive reading, IT development, and co-curricular activities ● A new timetable structure is devised to allow for daily meetings among teachers to discuss matter related to teaching and learning ● Friday afternoons devoted to professional development activities ● Action research on effective use of learning time	● Building up capabilities to learn independently as foundations in self learning ● Believe in the role collegiality plays in facilitating sharing and reflection ● Research activities as means to collect evidence to inform decision making	● Collaborative planning and teaching established as whole school practice ● Research and development culture begin to emerge

Concluding remarks

The phased-in curriculum changes in the school contributed to a changing culture in teaching and learning. Pupil learning becomes the prime goal of curriculum development. Teacher development and a collaborative culture are enhanced through work processes. The Principal, curriculum coordinators and highly involved teachers become effective curriculum leaders. A combination of classroom-based innovation focused on teaching and learning and scheduled innovation providing time for strategic, long-term planning and reflection have promoted regenerative changes in school.

Appendix 4

Suggested lesson time allocation for Primary, Junior Secondary and Senior Secondary

Appendix 4

Suggested lesson time allocation for Primary, Secondary and Senior Secondary Schools

Primary (P1-P6)

Total Lesson Time[1] over 6 Years

Approximately 4200 hours for whole-day schools (WD) and 4000 hours for bi-sessional schools (BS), calculation is based on the following:

- Lesson Time[2] per week (WD) : 4.7 hours (per day) x 5 (days) = 23.5 hours
- Lesson Time per week (BS) : 4.1 hours (per day) x 5.5 (days) = 22.5 hours
- Number of teaching weeks per year = 30

Pupils in both whole-day and bi-sessional schools should be entitled to not less than 3400 hours of total lesson time. Bi-sessional schools will have less time for flexible use when compared with whole-day schools.

The school hours[3] of whole-day schools, e.g. from 8:00 a.m. to 4:00 p.m. are much longer than that of bi-sessional schools. The additional time is not meant for lengthening lesson time. Other than total lesson time, whole-day schools should spare more time within the school hours to plan a variety of activities and programmes conducive to whole-person development and life-wide learning. Pupils should be provided with more opportunities for self-learning, collaborative learning, developing social skills and aesthetics, etc.

Lesson Time for Flexible Use

Approximately 10% - 19% (about 420 hours to 800 hours) for whole-day primary schools and 10% - 15% (about 400 hours to 600 hours) for bi-sessional schools

Schools can use the time for activities that meet their individual needs and contexts, e.g. activities / learning programmes for remedial or enrichment / enhancement purposes, cross-curricular activities, fieldwork, promoting reading, etc.

Note: 1. Total lesson time: Time for class teaching for the whole year
2. Lesson time: Time allocated to various subjects or key learning areas in the school time- table
3. School hours: Time that students stay in school to learn each day

Appendix 4

Key Learning Areas	Subjects	Suggested Percentage of Lesson Time Allocation*
Chinese Language Education	Chinese Language Putonghua	25% - 30%
English Language Education	English Language	17% - 22%
Mathematics Education	Mathematics	12% - 15%
Science Education	General Studies	12% - 15%
Technology Education		
Personal, Social and Humanities Education		
Arts Education	Art & Craft Music	10% - 15%
Physical Education	Physical Education	5% - 8%

* refers to whole-day primary schools

Note: 1. Total lesson time: Time for class teaching for the whole year
2. Lesson time: Time allocated to various subjects or key learning areas in the school time- table
3. School hours: Time that students stay in school to learn each day

Appendix 4

Junior Secondary (S1-S3)

To provide students with a broad and balanced curriculum and the essential learning experiences using the new curriculum framework, adjustments may be required in some schools progressively in the next few years.

Total Lesson Time over 3 Years

About 2700 hours

Calculation of Lesson time is based on the following:

- Lesson time per week = 6 hours (per day) x 5 (days) = 30 hours
- No. of teaching weeks per year = 30

Lesson Time for Flexible Use

5% - 15% time for flexible use of the schools is about 135 hours to 405 hours over 3 years.

Schools can use the time for learning activities and programmes that meet their individual needs and contexts. These activities and programmes could be for remedial or enhancement purposes in the form of additional study within the key learning areas or from school-developed programmes, or activities such as activity weeks, China visits, outward bound experiences, leadership training camps, etc.

Key Learning Areas	Suggested Percentage Lesson Time Allocation
Chinese Language Education	17% - 22%
English Language Education	17% - 20%
Mathematics Education	12% - 15%
Science Education	8% - 15% The time allocation of 8% to 10% is intended for schools whose curriculum has a technology education orientation. This curriculum should connect students' learning experiences in science and technology education.

Note: 1. Total lesson time: Time for class teaching for the whole year
2. Lesson time: Time allocated to various subjects or key learning areas in the school time- table
3. School hours: Time that students stay in school to learn each day

Appendix 4

Key Learning Areas	Suggested Percentage Lesson Time Allocation
Technology Education	8% - 15% (25% - 35%)* * The time allocation of 25% to 35% is intended for schools chosen to have a curriculum with strong orientation in technology education. These schools generally have the background that technology subjects would be better vehicles for their students to develop generic skills. In these schools, the lesson time, in terms of percentages, allocated to other key learning areas will be lower than schools across the territory.
Personal, Social and Humanities Education	10% - 20% The time allocation of 10% to 15% is intended for schools whose curriculum has a technology education orientation, such that the essential contents for personal, social and humanities learning, including Chinese history and culture, can be accommodated.
Arts Education	8% - 10%
Physical Education	5% - 8%

Note: 1. Total lesson time: Time for class teaching for the whole year
2. Lesson time: Time allocated to various subjects or key learning areas in the school time- table
3. School hours: Time that students stay in school to learn each day

Senior Secondary Level (S4-S5)

The recommended subject combinations for S4 & S5 as stated in the Education Commission's *Reform Proposals for the Education System in Hong Kong (Pg 102)* are as follows:

Chinese + English + Mathematics + A + B + other subjects from the 8 key learning areas

'*A*' *represents taking at least one subject in the key learning area of 'Personal, Social and Humanities education'. If a student only chooses one subject from this learning area, the school should advise him/her to take 'Integrated Humanities'.*

'*B*' *represents taking at least one subject in the key learning areas of 'Science education' or 'Technology education'. If a student chooses altogether only one subject from these two learning areas, the school should advise him/her to take 'Integrated Science and Technology'.*

Over the 2 years (from S4 to S5), the total contact time is approximately 1600 hours. (Contact time is calculated based on the following:

Average contact time per week = 30 hours
Average number of weeks for S4 = 30 weeks & S5 = 24 weeks)

At present, the 1600 hours are generally spent on the 7 – 10 examinable subjects the school offers to the students (which may include Physical Education and/or Arts Education) plus Assembly/Form period(s) and non-examinable Physical Education and/or Art lessons.

It is understandable that schools put a lot of emphasis on the examinable subjects. Flexibility is given to schools to allocate the lesson time according to the needs of the students and the characteristics of the school. At the same time, schools must bear in mind the aims of education and to provide all the essential learning experiences: ***intellectual development, moral and civic education, community service, physical and aesthetic development and career-related experiences*** to their students. Schools can include in their curricula those activities or learning programmes, which may carry out beyond the classroom, in order to offer all-round and balanced learning opportunities to their students to help their whole person development.

Note: 1. Total lesson time: Time for class teaching for the whole year
2. Lesson time: Time allocated to various subjects or key learning areas in the school time- table
3. School hours: Time that students stay in school to learn each day

Appendix 5

Gists from the 8 Key Learning Areas

Appendix 5

Chinese Language Education

Rationale for Development

- Language plays a *fundamental* role in learning. It enhances students' learning. A good mastery of language is important for their future careers and life-long learning.
- For the majority of Hong Kong students, Chinese is their *native language.* The learning of Chinese Language builds on the basis of the students' language experiences acquired in daily life.
- Chinese Language Education contributes to the development of students' proficiency in the written language, and the attainment of competence and fluency in spoken Putonghua and Cantonese.
- The Study of *Literature* is an integral part of language learning. It helps students develop an appreciation for the beauty of language and makes language learning interesting. The study of literature moulds the students' temperament, helps shape their personality and eventually contributes to their whole-person development.
- Language provides a vehicle for communication, thinking, and the development of culture. Chinese Language Education aims to promote the students' Chinese Language proficiency, and at the same time, to encourage the development of their intellect, morals, values and understanding of Chinese culture.
- To enhance the students' language competence, we must cultivate their higher-order-thinking skills and quality of thinking, enable them to develop independent analytical and problem-solving skills, and stimulate their imagination and encourage creativity.

Development of the Curriculum

Directions: balanced development of reading, writing, listening and speaking and intellectual skills; exposure to a wider range of reading, learning and cultural materials; cultivation of aesthetic judgement and appreciation; promotion of moral and values education.

Stages:

- **Short-term** (2000-2005): Through revision of the existing curricula to enrich the students' balanced and integrated learning experience of Chinese Language, to increase Chinese Literature elements, to emphasize moral and values education, to encourage the learning of Chinese culture, and to develop critical thinking abilities and the abilities to make independent judgement.
- **Medium-term** (2005-2010): At the Basic Education stage, to revise or integrate all curricula. At the Senior Secondary Education stage,

in harmony with developments in the education system review, develop diversified and specialized elective modules. As alternative modes of curriculum planning, to keep subjects like Putonghua and Chinese Literature so that schools can have more choices.

- **Long-term** (after 2010): To incorporate Putonghua learning elements into the Chinese Language Education Curriculum and in the long run, to adopt Putonghua as the medium of instruction for Chinese subjects. However, there are complexities in the theoretical and practical aspects in this move. We can further explore and plan this issue only after the disclosure of findings of relevant studies by tertiary institutions and the government.

Curriculum Framework and School-based Curriculum

- **Learning Target:** To set Overall Aims and Learning Targets at different stages of education as directions for development or revision of relevant curricula.
- **Learning Content:** Dimensions include Reading, Writing, Listening, Speaking, Literature, Chinese Culture, Morals and Values, Thinking and Language Self-learning. These dimensions are multiple facets of learning and they are interdependent. The learning of Chinese Language should be focused on and activated by the four macro-skills of reading, writing, listening and speaking. Through language learning, the nine Generic Skills, Core Values and Attitudes are developed.
- **School-based Curriculum Development:** The Curriculum Framework suggests rationale and directions for curriculum design, provides an open and flexible structure for school-based curriculum development. In the framework, different curriculum modes such as subjects, programmes and learning modules are accommodated. Teachers can build on the curriculum framework to develop more coherent school-based curricula to suit their students' needs.

Effective Teaching and Learning

Effective Chinese Language teaching should be student-centred and skill-based. It should be stimulating, be able to cater for learner differences, make effective use of textbooks, and above all, ensure pleasurable and effective learning. Chinese Language Education should be able to connect various learning experiences across other Key Learning Areas, life-wide learning.

Appendix 5

English Language Education

Introduction

The consultation document on the Key Learning Area (KLA) of English Language Education is written in support of ***Learning to Learn,*** the Holistic Review of the School Curriculum consultation document, prepared by Curriculum Development Council (CDC) (Nov 2000).

The major purposes of the Key Learning Area of English Language Education document are, inter alia, to:

- inform teachers of the rationale for the proposed curriculum developments, the aims of the English Language Education curriculum (comprising the subjects of English Language and English Literature), areas of study, the essential learning elements and how teachers can facilitate effective language learning; and
- promote the development of the essential skills and attitudes conducive to learning how to learn.

Rationale for Development

The English Language Education consultation document encourages teachers to build on the existing good practices in English language teaching in Hong Kong. It also proposes developments that seek to help them meet the challenges arising from the lack of a language-rich environment and the need to increase learner motivation. The proposed developments are:

- provision of greater opportunities for learners to use English (i.e. the language skills, vocabulary and the grammar items and structures they have learnt) for purposeful communication both inside and outside the classroom;
- use of learner-centred instruction to facilitate purposeful use of English and to promote learner independence;
- greater use of literary / imaginative texts to develop learners' creativity; and
- promotion of language development strategies and positive attitudes conducive to effective, independent and lifelong learning.

Phases of Development

A schedule for English Language Education curriculum development is proposed for schools' and teachers' consideration. It outlines focuses for curriculum development in the short (2000-2005), medium (2005-2010) and long (2010+) term phases. In general, the proposed schedule focuses upon four main areas:

- increasing motivation in learning;
- enhancing teaching, learning and assessment;
- fostering independent and lifelong learning; and

- developing school-based English Language Education curricula in line with the framework.

The English Language Education Curriculum Framework

Overall Aims

They are:

- to provide learners of a second language with further opportunities for extending knowledge and experience of the cultures of other people, as well as opportunities for personal and intellectual development, further studies, pleasure and work in the English medium; and
- to prepare learners for the changing socio-economic demands resulting from advancement in information technology.

Learning Targets and Objectives

The English Language Education curriculum consists of two closely-related subjects: English Language and English Literature. The main function of the learning targets of English Language and English Literature is to set the main direction for the teaching and learning of these two subjects. The learning objectives are the essential focuses of learning.

Strands/Dimensions

In the English Language Education KLA, three interrelated **strands** – Interpersonal, Knowledge and Experience – have been employed as content organizers to reflect its major scope of learning.

Generic Skills

Generic skills are fundamental in helping students learn how to learn. Of the nine generic skills that have been identified as common to all KLAs, the English Language Education KLA provides greater opportunities for the development of creativity and the skills of collaboration, communication, critical thinking, problem-solving and study.

Values and Attitudes

Values are qualities that learners should develop as principles for conduct and decision (e.g. honesty and perseverance, interdependence and tolerance). Attitudes are personal dispositions needed to perform a task well (e.g. responsibility, open-mindedness and co-operativeness).

Like the generic skills, these personal and social values and attitudes are broadly recognized and valued by all KLAs. They can be developed through learning activities which promote the learning objectives of the English Language Education KLA such as language development strategies, literary competence development strategies and attitudes related to language and literature learning.

Modes of Curriculum Planning

To help schools develop a school-based curriculum which emphasizes the active role of learners in the learning process, some possible modes of curriculum planning are suggested for their consideration:

- developing modules of learning;
- integrating classroom learning and independent learning;
- flexible time-tabling;
- integrating the formal and informal curricula;
- cross-curricular planning; and
- flexible grouping.

Teaching, Learning and Assessment

In designing language activities and tasks to facilitate teaching, learning and assessment, teachers are encouraged to consider and apply the following:

- learner-centred instruction;
- target-oriented English learning;
- the five fundamental intertwining ways of learning and using knowledge (i.e. communicating, conceptualising, inquiring, problem solving, reasoning);
- task-based learning;
- integrative and creative language use;
- learner independence;
- information technology;
- language-rich environment and life-wide learning; and
- different modes of formative assessment, the use of criterion-referenced principles, timely feedback and support; and peer and self-feedback.

School-based Curriculum Development in English Language Education

When planning and developing their own English Language curriculum, schools and teachers are encouraged to

- aim for a balanced and comprehensive coverage of the learning targets and objectives within and across year levels;
- plan and devise appropriate and purposeful language learning materials and activities;
- make greater use of formative assessment to inform teaching and learning;
- make flexible use of class time to facilitate the task-based approach and life-wide learning;
- work closely together as a team to plan the English Language curriculum, and to collaborate with teachers of other KLAs on cross-curricular projects;
- set and work on clear and manageable curriculum goals or focuses over a specific period for the whole school or a particular year level; and work out a progressive curriculum based on these goals and focuses; and

- collect and reflect on evidence of effective teaching and learning experiences to inform curriculum development.

Life-wide Learning

To help create a language-rich environment and to support life-wide learning, teachers are encouraged to:

- interact with learners in English both within and outside class;
- provide opportunities for learners to interact with one another in English;
- provide greater exposure to authentic use of English;
- encourage learners to seek and create opportunities to learn and use English in natural and realistic settings;
- maximize the use of the space and resources in school; and
- promote learning through formal and informal curricular activities such as essay competitions, drama activities, verse speaking, visits and community services.

Connections with Other Key Learning Areas

English Language Education helps learners develop not only language skills, but also world knowledge, and a broad range of generic skills, values and attitudes that will enable them to better meet the specialized demands of the other KLAs.

Conclusion

Schools and teachers are encouraged to engage in the continuous process of developing and renewing their own school-based English Language Education curriculum, taking into account the short-term, medium-term, and long-term curriculum development focuses proposed in the framework.

Appendix 5

Mathematics Education

Rationale for Development

- The high technology has changed the world of mathematics education. Students should gain experience and build foundation skills, develop capabilities to learn how to learn, think logically and creatively.
- The existing school mathematics curriculum is generally content-oriented, rather packed and difficult.
- Overlapping of contents of some mathematics subjects has brought difficulties to teachers teaching the subjects concerned.
- Teaching at the senior primary, senior secondary and sixth form levels is examination-driven.

Phases of Development

- Short term: The revised secondary mathematics curriculum will be implemented at S.1 in September 2001 while the primary one at P.1 in September 2002.
- Medium term: The curriculum of Additional Mathematics would be revised to reduce the effect of overlapping.
- Long term: Pending the review of the new senior secondary structure, the sixth form mathematics curriculum would be re-structured.

The Framework

- *Overall Aims of Mathematics Education*
  - To develop students' knowledge, skills and concepts of mathematics.
  - To enhance their confidence and interest in mathematics.
  - To develop their thinking abilities and positive attitudes towards learning mathematics and build related generic skills throughout their life time.

- *Learning Dimensions/Strands in Mathematics Education* - 5 learning dimensions / strands at the primary level and 3 at the secondary level.

Primary	**Secondary**
– ***Number***	– ***Number & Algebra***
– ***Algebra***	– ***Measures, Shape & Space***
– ***Measures***	– ***Data Handling***
– ***Shape & Space***	
– Data Handling	

(The use of dimensions is not extended to the sixth form mathematics curriculum.)

- *Generic Skills*, Values *and Attitudes*
  - Daily-life applications, high order thinking skills, generic skills, positive values and attitudes towards mathematics learning are emphasized.

- *Modes of* Curriculum *Planning*
  - Flexible curriculum (enrichment activities / topics provided at the primary level; foundation part, non-foundation part and enrichment activities / topics at the secondary level)
  - Curriculum space is created by reserving spare periods.

Teaching, Learning and Assessment

- The main focus of the revised primary and secondary mathematics curricula is on how mathematics is learnt.
- The acquisition of generic skills and the fostering of positive attitude towards mathematics learning are strongly advocated and should be allied with the learning of mathematical content.
- Teaching strategies should be progressively changed through different levels of schooling to cope with students' development.
- Diversified teaching / learning activities including projects are encouraged.
- The mathematics curriculum could be duly adjusted across different levels of learning to cater for the different abilities of students.
- Mathematics-related activities play an important role in mathematics learning as well-chosen and organized mathematics-related activities help to promote students' interest in learning the subject.
- Diversified assessments are necessary for providing a comprehensive profile of student performance.
- Minimal competence, which is the pre-requisite to the learning of mathematics at the next advanced stage, is helpful to teachers for reporting student performance in terms of the basic knowledge, concepts and skills acquired.

Opportunities for Life-Wide Learning

- Apart from the formal mathematics education in schools, there are also opportunities for students to acquire learning experience in mathematics outside schools. Typical examples include Mathematics Trails, HKMO, Statistical Project Competition for Secondary School Students and IMO.

Connection with Other KLAs

- Mathematics is the foundation and supporting knowledge to many other disciplines. Other KLAs enrich students with examples of the applications of mathematics in real life situations.

Appendix 5

Science Education

Rationale for Development and Phases of Development

Emphasizing scientific thinking

- There has been much emphasis on the content knowledge of the science subjects while high order thinking skills are neglected.
- To enable students to learn independently in science, due emphasis should be placed on enhancing students' scientific thinking and strengthening their science process skills.

Nurturing interest in science

- In some primary schools, teaching of science is very much textbook-bound. This restricts the use of investigative and exploratory learning activities to develop students' interest in science.
- Teachers should conduct interesting and hands-on scientific investigation activities inside and outside classrooms to nurture students' curiosity and develop their inquiring mind.

Developing students to become active learners in science

- At junior secondary level, many students are not able to synthesize knowledge and to learn how to apply science knowledge and skills to deal with daily-life problems.
- Students have to take an active role to connect their learning experiences in other key learning areas so that they can complete meaningful learning tasks.
- Based on the revised Science (Secondary 1-3) curriculum, schools may design their school-based curriculum based on the core topics and spare curriculum time for a wide range of learning activities.
- In particular, the use of problem-solving projects in science and technology at junior secondary level is recommended. This will help improve students' understanding and mastery of the processes of science and skills in solving problems. All these will contribute towards the development of active learners in science.
- Students should be engaged actively in designing and conducting experiments to explore science concepts and develop science investigation skills.
- Students should also be exposed to new development of science and develop an interest in the development of science and technology.
- Teachers should also be trained to use the feedback information generated from assessment activities for improvement purposes.

Appendix 5

Helping students to make informed judgements based on scientific evidence

- At the senior secondary level, early specialization in subjects turns some students away from science. These students may find themselves incompetent in handling science and technology issues in their daily life.
- Students have to acquire the fundamental science knowledge and process skills in making informed judgements based on scientific evidence.
- It is the responsibility of science education to promote the public understanding of science and to develop students into independent learners in science.
- For students not taking Biology, Chemistry and Physics, a new course, Integrated Science and Technology will be introduced for empowering them to cope with a dynamically changing environment and to make informed judgements in a technological society. The new course will include modules of multi-discipline Science and Technology topics such as environmental science and health science.

Catering for students with strong interest and talent in science

- The existing curriculum structure can only offer limited choices of science courses at the senior secondary level.
- Students with high ability or strong interest in science need more challenging learning programmes. These programmes should stretch the students' science capabilities and offer opportunities for students to develop their potential to the full.
- A variety of learning activities in the form of science competitions, experimental projects, independent study projects and issue-based learning projects are essential to develop students' capabilities in science and technology. These activities may be conducted in the form of school-based programmes or in collaboration with tertiary institutions, professional bodies or the commercial sector.

Aims of the Science Curriculum

The overarching aim for science education in Hong Kong is to provide learning experiences for students to engage in processes for scientific understanding and the application of science, and to recognize the impact of scientific and technological developments. These experiences will lay the foundation for students to communicate and make informed judgements based on scientific evidence, to further develop in the field of science and technology, and to become life-long learners in science and technology.

Strands in the Science Curriculum

Essential learning experiences for achieving the aims of science education are organized into six strands:

- **Scientific Investigation** – to develop science process skills and understanding of the nature of science;

- **Life and Living** – to develop understanding of scientific concepts and principles related to the living world;
- **The Material World** – to develop understanding of scientific concepts and principles related to the material world;
- **Energy and Change** – to develop understanding of scientific concepts and principles related to the physical processes;
- **The Earth and Beyond** – to develop understanding of scientific concepts and principles related to the Earth, the Space and the Universe;
- **Science, Technology and Society** – to develop understanding of how science and technology affects the society.

Organization of the Science Curriculum in Schools

Proposed science courses for primary and secondary schools are as follows:

Senior Secondary	**Integrated Science & Technology** **Science-related course modules** Health Science, Environmental Science, Telecommunication	**Specialized Science Courses** **Biology / Chemistry Physics** **Human Biology**
Junior Secondary	**Science** • revised syllabus with enhanced features of scientific investigation implemented in 9/2000	
Primary	**General Studies** • organization of science learning activities to enhance science and technology in the existing curriculum • development of new curriculum framework with enhanced science and technology elements	

School-based Curriculum Development

Schools can develop their own curriculum and learning plans in line with the new science curriculum framework to suit the needs of students and society. The revised Secondary1-3 Science curriculum (implemented in September 2000) is organized into core and extension parts to allow for flexibility in the organization of school-based science curriculum. The level of attainment for each topic within the extension will vary from school to school and within a school from class to class. Teachers can design a school-based curriculum adapted from the core and extension parts of the revised curriculum to suit the needs, interests and abilities of their students.

In adopting a school-based curriculum, there will be more room for a variety of activities to promote learning in science. For example, teachers may:

- arrange visits to the Science Museum for introducing specific science topics in the General Studies curriculum so as to arouse students' interest in science and enhance science learning through life-wide learning;

- conduct fun science projects for junior secondary students so as to involve students actively in learning activities for solving science and technology problems; and
- encourage students to take part in science competitions to stretch their capabilities in science.

Furthermore, teachers may:

- re-design the school-based General Studies curriculum with the assistance of curriculum consultants to enhance science and technology elements through learning activities in resource-based learning centres, such as laboratories in secondary schools or institutes;
- inspire students' enquiring mind in scientific investigation which requires students to make hypotheses, design and carry out experiments, collect and analyze data, make judgements and report results and conclusion; and
- act as mentors and advisors in science projects for senior secondary students to develop students' scientific investigative skills and their communication, collaboration, IT and critical thinking skills.

How to Prepare Teachers for the Changes?

- Finalization of the science curriculum framework that serves as a reference for teachers to design a school-based curriculum
- Conducting research and development projects to identify good practices and produce resource materials for teaching and learning
- Dissemination of good practices and resource materials through sharing among teacher networks, Internet and series of teacher development programmes
- CDC to build up a resource repository on the Internet to support teachers in adapting to the proposed changes in the curriculum reform

Appendix 5

Technology Education

Background

- *innovation and technology* are sources of economic growth and *sustainable development* is a basic principle for making Hong Kong an ideal home and a world-class city
- ***Technology***, in the present context, is defined as the purposeful application of knowledge, skills and experience in using resources to create products or systems to meet human needs.
- ***Technology Education*** is characterized by learning activities, which provide students with authentic experiences in various technological areas.

Rationale for Development

- Presently, there are too many TE subjects in the secondary curriculum and they lack a common focus and lateral coherence among themselves. In primary curriculum, TE elements are scattered in General Studies.
- The New Technical Curriculum (NTC) proposed in 1997 to impart to students generic, fundamental and transferable skills in the application of modern technologies and to replace out-dated subjects paves the way for the development of a TE curriculum framework
- A TE curriculum framework is proposed to
  - entitle all students to learning opportunity in TE so as to prepare them for a life-long and life-wide education to meet the challenge of emerging technologies
  - provide a flexible framework to accommodate emerging new TE learning elements and to phase out obsolete ones; and
  - ensure a greater coherence among TE subjects in accordance with learning experiences of students, aims of education, and technological capabilities, understanding and awareness.

Phases of Development

- Development in short-term:
  - learning of existing TE subjects should be enhanced by refocusing from skill/content-based teaching to teaching and learning for a balanced development on technological capability, understanding and awareness with more emphasis on creativity, problem solving, and socio-humanistic aspects of TE via visits, competitions, etc.
  - school-based curriculum development in TE through organizing teaching and learning of TE topics in the form of technological learning activities, conducting integration of learning across TE subjects or across subjects in different key learning areas, and adapting choices of subjects and/or combination of learning elements
  - regularly update the contents of the syllabuses, coordinate the organization of inter-school projects, visits and other programmes for

promoting interest and encouraging innovation, work in partnership with schools to try out new ideas and to identify good practices, and provide teachers with development programmes to enable them to carry out desirable changes

- Development in medium-term:
  - schools would be encouraged to diversify and specialize at the senior secondary level and maintain a broad and balanced TE curriculum in junior forms
  - ED will keep constant review on the TE framework and disseminate good practices

Curriculum framework

- Aim: develop *technological literacy* in students for them to deal with the challenges of the future, through the cultivation of *technological capability*, *technological understanding* and *technological awareness*
- Strands: stress on importance of learning a balanced TE curriculum, include *Processes, Knowledge Contexts* and *Impacts*
- Generic Skills, Values and Attitudes: TE will contribute towards the development of generic skills, values and attitudes in students
- Focusing of Curriculum Planning:
  - at primary level: arouse students' interest in technologies through General Studies
  - at junior secondary school level: let students know and become familiar with technologies
  - at the senior secondary school level: let students explore their orientation for specialization; introduce a new subject Integrated Science & Technology for non-science student
- Teaching, Learning and Assessment
  - Organize student learning through authentic learning activities to be referred as technology learning activities (TLA)
  - In formulating TLAs, teachers could take into account parameters such as anticipated learning targets, the strands of TE and the selected knowledge contexts, the relevant situations, lateral coherence with other KLAs, teachers' specialties, etc.
  - TLAs develop students' capability through their experience of manipulating equipment and resources, students' ability to construct knowledge relevant to problems concerned and appraise the impact, and students' creativity
  - It is essential for teachers, possibly with students, to decide on the criteria of attainment; and for both parties to understand how to use the results of the assessment to improve teaching and learning.
- School-based Curriculum Development
  - For schools offering a range of TE subjects, it is suggested that they should minimize overlap by integration and modularization.

  - For schools offering limited number of TE subjects, there should be enhancement to ensure students' entitlement in TE.
- Life-wide Learning: enhance learning through
  - learning outside school premises
  - project learning and contribution of community resources to student learning
- Connection with Other Key Learning Areas: TLAs provide students with authentic learning experiences that are inter-disciplinary in nature and we envision that TE KLA will require supports from other KLAs and will contribute to other KLAs.

Conclusion

- It is necessary to provide TE to prepare all our children to cope with future challenges.

Appendix 5

Personal, Social and Humanities Education

Background and Rationale for Development

- The Personal, Social and Humanities Education (PSHE) Key Learning Area contributes to students' development of moral and social values through enquiry and decision-making processes in different relationship contexts between the individual and society.
- The rationale for development in PSHE includes: to enhance students' personal, social and civic values, to strengthen learning to learn, to bridge the gaps at interfaces between different stages of learning, and to broaden students' knowledge base at secondary level.

Short-term Phase of Development

- Teachers could start right away by giving more emphasis to elements of personal and social education in their curriculum and promoting learning to learn.
- In the next five years more subject curricula will be revised in line with the new PSHE framework and more diversified modes of planning will be developed. Schools would further adapt their school-based curriculum and improve their modes of teaching, learning and assessment.

The Curriculum Framework

- The learner-focused PSHE curriculum is organized round enquiry learning of issues related to the individual, the human society and the environment at local, national and global levels. Six strands ('Personal and Social Development', 'Time, Continuity and Change', 'Culture and Heritage', 'Place and Environment', 'Resources and Economic Activities', and 'Social Systems and Citizenship') are used to link and integrate related knowledge content. They provide a basis for schools to develop a broad and balanced PSHE curriculum.
- Generic skills and values and attitudes are to be developed through effective linkage of teaching, learning and assessment in the enquiry process.

School-based Curriculum Development

- Based on a situational analysis, schools should decide on an appropriate mode of planning for organizing their school-based curriculum. Examples of these modes include retaining individual subjects, introducing integrated or modular curriculum, or having a combination of these modes.

Essential Contents for Learning

- To ensure that students under different modes of planning could have basic and balanced learning experiences in PSHE, essential contents for learning for the six strands, including the history and culture of China, are proposed.

Appendix 5

Teaching, Learning and Assessment

- The PSHE framework provides a reference for teachers to design learning tasks and activities for enquiry learning. Project learning is an effective strategy to promote this type of learning, and formative assessment should become an integral part of the teaching-learning process.

Life-wide Learning and Connections with other KLAs

- Life-wide learning opportunities should be increased to link PSHE learning with real life needs and situations. The linkages of PSHE with other KLAs can also be strengthened to allow students to enquire into issues of common concern.

Appendix 5

General Studies

Rationale for development

The curriculum for General Studies (GS) covers elements of learning in the KLAs of Personal, Social and Humanities Education (PSHE), Science Education (SE) and Technology Education (TE) at primary level. It is designed in the belief that students' learning experiences are connected and not compartmentalized, such that they can develop holistic view of themselves as individuals in the community, their place in the natural world, and the interaction of human beings with the environment.

Modes of curriculum planning

To enhance smooth interface with pre-primary education, the GS curriculum for Primary one and two will emphasize personal and social education. The curriculum for Primary three to six will consist of themes which help to build connections among the KLAs. Elements of learning from other KLAs, such as the languages and arts education, may also be integrated with those of GS, where appropriate.

Organization of curriculum content

Strands are used to organise the curriculum content. There are six strands in the GS curriculum, which are derived from the elements of learning in the KLAs of PSHE, SE and TE. They are:

- Health
- Environment
- Community
- National Identity and the Chinese Culture
- Global Understanding and the Information Era
- Science and Technology in Everyday Life

The development of generic skills, personal and social values and attitudes is intrinsic in the GS curriculum.

Teaching, Learning and assessment

Students are expected to gain diversified learning experiences through active participation in project learning, investigation, service learning and hands-on activities on science and technological issues. Inquiry-based learning is recommended to enhance students' abilities in learning how to learn. Community resources such as museums, country parks, libraries, public and private organisations are to be fully utilized to promote life-wide learning. Formative assessment of students' performance is to be used to diagnose students' needs and build a profile of their progress.

Appendix 5

Phases of Development

With various support measures from the government, schools can build on their strengths to create more opportunities and space for learning and teaching in order to facilitate learning to learn.

Short-term (2000-2005)

At School Level

- adapting the existing curriculum by reorganizing and trimming the content in line with the curriculum framework
- strengthening moral and civic education and developing students' commitment in learning to learn
- strengthening independent learning by adopting teaching and learning strategies such as project learning and investigation
- providing opportunities for students to use information technology in the learning process
- strengthening life-wide learning by more extensive use of community resources
- providing creative, investigative and hands-on learning experiences
- developing learning resources beyond textbooks, e.g. web-based materials which focus on inquiry and problem solving

At ED Level

- providing on-site support to schools to strengthen students' capabilities of learning to learn
- supporting schools in piloting the new modes of curriculum planning so as to generate useful experiences for teachers to:
  - enhance personal and social education at P1-2
  - improve the interface with pre-primary curriculum
  - enhance moral and civic education
  - strengthen science and technology elements
  - develop school-based curriculum with different focuses
- further improving the curriculum framework to align with new societal needs and to enhance affective learning
- providing in-service teacher education programmes related to the new GS curriculum
- conducting research and development projects in collaboration with schools, tertiary institutes and other relevant stakeholders

Medium-term (2005-2010)

By 2005, all schools are expected to develop the GS curriculum in line with the new curriculum framework. Schools and ED will continue to collaborate in:

- establishing a school culture of renewing school-based curriculum in line with the new curriculum framework to meet the needs and interests of students as well as societal changes
- developing student profiles through authentic performance-based assessment

Long-term (2010+)

The long-term goal of General Studies is to help students become lifelong learners who can embrace new challenges of the future. Schools and teachers will continue to work on the areas of development listed in the short-term and medium-term phases. They will build inter-school networks to share good practices and resources. They will also conduct research and development to improve the learning and teaching of General Studies.

Appendix 5

Arts Education

1. Rationale for Development

- ✧ In this modern world, education is considered not only as knowledge transmission, but also as an important step towards helping students learn how to learn;
- ✧ We strongly believe that all students can learn, and opportunities should be provided for them to learn the knowhow;
- ✧ The paradigm of teaching and learning has been shifted from a teacher-centred to a student-centred approach;
- ✧ The role of the teacher is more of a coach and facilitator, who encourages students to learn how to learn, actively engage them, poses questions and gives direction in the process of teaching and learning. The teacher should facilitate students to generate their knowledge and apply the skills in real and authentic contexts;
- ✧ Life-long learning and learning to learn attitudes should be developed among teachers in order to provide a model for students' learning in the arts; and
- ✧ Teachers in the arts are not necessarily excellent artists or performers. However, they should at least be lovers and practitioners of the arts for students to catch their enthusiasm, and to treasure the arts learning experience.

2. The Strands

The four learning targets, viz., **Developing Creativity and Imagination, Developing Skills and Processes, Cultivating Critical Responses and Understanding Arts in Context**, are the core of the proposed arts curriculum. There might be different routes to achieve these major learning targets. At present, students are expected to achieve them through at least two of the art forms: music and visual arts. In addition, to allow space for more school-based development, schools have the option to provide a diversified arts curriculum with additional art forms (in addition to music and visual arts) in achieving these major targets. For instance, if resources allow, the learning of media arts, dance or drama, etc. could be provided as options in learning the arts.

In order to devise a continuous and progressive arts curriculum suitable for the interest and ability of the students, teachers should clearly understand the learning objectives which eventually lead to the four learning targets of arts education. It should be noted that each arts activity devised for the learning objective(s) contributes to all these four targets, though the coverage or depth may vary.

3. Development of Generic Skills through Arts Education

- ✧ Generic skills are defined as creativity, critical thinking skills, collaboration skills, communication skills, Information Technology (IT) skills, numeracy skills, problem solving skills, self-management and study skills. Arts Education has a major contribution to these generic skills at each key stage; and
- ✧ To provide the learning experience of the vision of life-long learning.

4. Development of Values and Attitudes in Arts Education

Learning in arts education enables students to:

- ✧ identify with their cultural values and attitudes as well as understand their origins and histories;
- ✧ develop an understanding of how people express their personal beliefs, ideas, values, attitudes and feelings about the world;
- ✧ reflect upon and value their lives, communities, societies and cultures in relation to the arts;
- ✧ understand and value the relationship of the arts to the political and economic environment of a society and how political and economic considerations influence arts practice; and
- ✧ understand how the arts transmit and reflect social and cultural values.

5. School-based Curriculum Development

- ✧ The promotion of arts education in schools depends, to a large extent, on the support of school administration, with the joint efforts of the principal, subject panel and other subject teachers. An arts education policy should be formulated explicitly for the development of a school-based curriculum.

6. Life-wide Learning

To ensure life-wide learning experience, it should be noted that learning in the arts can happen at any time and anywhere in any subject. As the Education Commission proposes: "Learning must transcend the constraints of academic subjects and examinations. Students should be able to take part in a comprehensive range of learning activities both inside and outside the classroom."[1] Community resources should be fully utilized and suitably geared to arts education in schools.

[1] Education Commission, September 2000. *Learning for Life, Learning through Life - Reform Proposals for the Education System in Hong Kong*. Hong Kong: HKSAR, p. 37.

7. Connection with Other Key Learning Areas (KLA)

While learning through the arts, students understand a broader historical, technological, cultural and social context of the arts. Successfully relating the arts with the elements of other key learning areas (KLAs) helps students to have better understanding and deeper insight in other curriculum areas.

Appendix 5

Physical Education

Background and Rationale for Development

The present syllabi suggest a wide range of activities to schools, from the learning of fundamental movement skills to the acquisition of specific skills.

On top of the strength of present curriculum on physical and sport activities, other learning elements of generic skills, values and attitudes are to be re-instated. To maximize the students' life-wide learning opportunities, the existing good practices on sharing community resources would be further elaborated. This may help to alleviate the problem of limited PE lesson time and rigid time-table. This approach of encouraging active lifestyle may help to tackle the emerging problems on obesity and cardiovascular fitness and other health issues among students.

Phases of Development

Short-term Development 2000-2005

- Reorganize the current syllabi into four key learning stages and develop a coherent and comprehensive PE program that combines formal and informal learning time of PE.
- Initiate curriculum research and study programs for the development of school-based examples and good practices.
- Develop references and exemplar materials for assessment in PE.
- PE teachers are expected to develop a school-based PE curriculum, which is in line with the revised framework, select appropriate tools for assessment, and strengthen links with community services and life-wide learning opportunities.

Medium-term Changes 2005-2010

- Proposed a more comprehensive and balanced curriculum to match with the new structure of senior forms.
- Develop appropriate models for the development of life-wide and life-long experiences in physical and sport activities.
- PE teachers are expected to develop a practical and suitable model to facilitate the delivery of PE in schools and demonstrate multiple roles of teaching, coaching, facilitating and coordination.

Long-term Changes 2010-up

- Strengthen the role of PE in school curriculum.
- Establish appropriate school-based strategies to promote the culture of active and healthy lifestyle for students.
- PE teachers are expected to be a role model of life-long learner in terms of skills, attitude, and knowledge.

Appendix 5

Overall Aim

PE aims to help students develop an active lifestyle and acquire good health, physical fitness and body coordination. It further helps to promote the qualities of desirable moral behaviors, co-operation in communal life, the ability in making decisions, and the appreciation of aesthetic movements.

Learning Targets

On top of the movement proficiency and acquisition of sports and physical skills, the revised curriculum framework focuses on the development of essential generic skills for life-long and life-wide learning and positive values and attitudes in PE.

Strands

- Motor and Sport Skills
- Health and Fitness
- Sports-Related Values and Attitudes
- Knowledge and Practice of Safety
- Knowledge of Movement
- Aesthetic Sensitivity

Modes of Curriculum Planning

The learning of PE could be delivered as formal lessons as it is in the existing curriculum. They could be also organized in a wider context in various forms and outside school wall such as short units, sports visits, sports courses etc. Below are the learning focuses of the four key stages:

KS1	Activities are organized in the form of "Fundamental Movement".
KS2	Activities are grouped into different physical and sports types. Modified games are designed for PE lessons.
KS3	Activities aim to develop basic competency in physical and sports skills and encourage to explore the sport world with variety of learning experiences.
KS4	Diversifications of activities are introduced.

Teaching, Learning and Assessment

- Learner Focus – provide learner-focused program, which fits students' physical and mental readiness.
- Career Link – provide career-related experiences to senior form students.
- Health Issue – encourage students to take active part in physical and sport activities and become healthy.
- Assessment – use both formative and summative assessment, highlight feedback to students to facilitate learning.

Appendix 5

School-based Curriculum Development

- Schools formulate their own school-based curriculum that aims to enhance students' active participation and learning in physical and sport activities.
- Influential factors for curriculum planning are school history, physical environment, facilities, students' needs, parental aspiration, community resources etc.
- School provide program to maximize potentials for students with special educational needs students, such as the gifted and the low achievers.

Life-wide Learning

Schools maximize students' life-wide learning opportunities by means of better coordination of human, finance and community resources.

Connection with other Key Learning Areas

To nurture a whole curriculum approach for life-long learning, PE teachers can integrate learning elements of other KLAs to enrich teaching and learning. Project works, exhibitions, and outdoor activities (e.g. orienteering) are exemplars of integrated learning.

Appendix 6

Values and attitudes as generic elements in the school curriculum

Appendix 6

Values and attitudes as generic elements in the school curriculum

1. The Education Commission's Reform Proposals Consultative Document of September 2000 stipulates that the aims of school education are 'to motivate students to construct basic knowledge and develop their basic abilities and attitudes to prepare them for the building of a learning and civilized society'. To this end, the development of values and attitudes should unquestionably be an essential element in the school curriculum. These values and their associated attitudes permeate the curricula of the eight Key Learning Areas (KLA) and are reflected in the learning targets as well as curriculum objectives at different educational levels.

Core Values, Sustaining Values and Attitudes

2. **Values** may be defined as those qualities that an individual or society considers important as principles for conduct and that are intrinsically worthwhile. Values are fundamental to the formation of **attitudes**, which in turn affect the acquisition and application of the values. They may be broadly categorized as **core** and **sustaining values**. An elaboration of these terms is provided below:

> "Values constitute the foundation of one's attitudes and beliefs, which subsequently influence one's behaviour and way of life …. Values can vary across societies, as different social and economic conditions in different geographical locations may lead to different value emphases. However, across societies, we can also identify certain values that are commonly or universally emphasized. The emergence of these universal values illustrates the common concerns of human societies, the basic qualities for human existence, the common elements in human civilization, and also the common characteristics of human nature … … we call these universal values **core values**." And sustaining values are "other values that are also important at an instrumental level, being regarded as important or helpful for **sustaining the core values**." (extracted from the *Guidelines on Civic Education in Schools* (1996), pp. 13-14)

3. The following set of core and sustaining values and attitudes are proposed for incorporation in the school curriculum:

A Proposed Set of Values and Attitudes for Incorporation in the School Curriculum

Core Values: Personal	Sustaining Values: Personal	Core Values: Social	Sustaining Values: Social	Attitudes
- sanctity of life - truth - aesthetics - honesty - human dignity - rationality - creativity - courage - liberty - affectivity - individuality	- self-esteem - self-reflection - self-discipline - self-cultivation - principled morality - self-determination - openness - independence - enterprise - integrity - simplicity - sensitivity - modesty - perseverance	- equality - kindness - benevolence - love - freedom - common good - mutuality - justice - trust - interdependence - sustainability - betterment of human kind	- plurality - due process of law - democracy - freedom and liberty - common will - patriotism - tolerance - equal opportunities - culture and civilization heritage - human rights and responsibilities - rationality - sense of belonging - solidarity	- optimistic - participatory - critical - creative - appreciative - empathetic - caring and concern - positive - confident - cooperative - responsible - adaptable to changes - open-minded - with a respect for · self · life · quality and excellence · evidence · fair play · rule of law · different ways of life, beliefs and opinions · the environment - with a desire to learn - diligent - committed to core and sustaining values

It is believed that the development of the above values and attitudes, together with the strengthening of students' self-management and interpersonal skills, should enable them to make wise decisions on emerging issues in society and cope with stress and negative influences from various sources. Different KLAs have, in their contexts, included a range of learning objectives contributing to the development of these values and attitudes at different key stages of learning. These learning objectives, however, are by no means implying that values and attitudinal development should progress in the order of key stages. They are proposed to facilitate the planning of relevant learning experiences in or across the KLAs.

Appendix 7

Life event approach
to
values education curriculum

Appendix 7

Life event approach to values education curriculum

During primary and secondary schooling, students encounter various types of life events at different stages of their personal and social development. These life events, which may be quite different for different individuals, provide appropriate junctures at which the teaching of values and attitudes can be linked up with their personal and social experiences to develop into a values education programme. This life event approach to values education will have the benefit of generating students' ownership and motivating them to understand their personal experiences and reflect upon the values and attitudes embedded in their life experiences.

Taking into account Hong Kong's local context, the following are some suggested life events at different stages of schooling to help students develop positive values and attitudes from their personal and social experiences. The organization of the suggested life events is developed from students' perspective. The life events are not meant to be encountered by every student but they are included with a futuristic orientation with a view to developing among students positive values and attitudes to face the challenges that may emerge during their course of personal and social development. The proposed values and attitudes as well as the life events are by no means exhaustive in content and can be arranged in different sequence or spiral up at next key stage to develop a deeper understanding of the values and attitudes. They can be modified and refined according to the school context. Teachers can add on and adapt as appropriate the list of life events and values and attitudes according to the needs of their students as well as situations of the schools when designing a school-based values education programme. Reference can also be made to relevant personality theories when determining the life events to be included in the programme. A survey on major life events commonly encountered by students in their daily life can be conducted in school to enhance the relevance of the programme.

Level	Life Event	Suggested values and attitudes to be developed
KS1 & 2	• Adapting to new life in primary school	• Respect for rules and regulations, Self-discipline, Willing to adapt to changes, Be positive, Openness
	• Meeting new friends	• Openness, Initiative, Caring, Sharing, Respect for others, Being considerate, Sincerity

Appendix 7

Level	Life Event	Suggested values and attitudes to be developed
	• Participating in the election of class association	• Honesty, Truth, Trust, Democracy, Fair play, Participatory
	• Handling problems in peer relationships	• Harmony, Friendship, Cooperation, Peace, Reciprocity, Assertiveness, Rationality, Tolerance, Respect for others, Forgiveness, Compromise
	• Encountering problems in studies	• Perseverance, Industry, Self-acceptance, Initiative to ask questions, Honesty, Willing to learn, Confidence, Self-reflection
	• Receiving the first report card	• Diligence, Self-reflection, Be positive, Honesty, Be responsible, Endurance, Perseverance, Self-acceptance, Self-esteem
	• Receiving prizes / punishment	• Modesty, Self-reflection, Self-improvement, Self-esteem, Self-discipline, Integrity, Responsibility, Honesty, Competency
	• Taking lunch in school	• Cleanliness, Tidiness, Orderliness, Politeness, Table manner, Simplicity, Healthy lifestyle, Thankfulness, Independence, Self-discipline, Conserving the environment

Appendix 7

Level	Life Event	Suggested values and attitudes to be developed
	• Serving others in class / school / community	• Sense of responsibility, Caring, Independence, Sense of belonging and commitment, Service, Participatory, Contribution
	• Changes in Puberty	• Appreciation of growth, Self-acceptance, Self-esteem, Independence, Individuality
	• Selecting extra-curricular reading materials (avoid reading unhealthy materials e.g. pornography, violent comic books)	• Self-cultivation, Self-discipline, Be critical
	• Worshipping idols	• Individuality, Rationality, Self-esteem, Independence, Respect for others
	• Having pocket money	• Self-discipline, Be responsible, Simplicity, Independence, Honesty, Economy use of money
	• Handling undesirable peer pressures (e.g. drug taking, smoking, law-breaking activities)	• Self-determination, Independence, Rationality, Assertiveness, Courage
	• Going on a school outdoor trip / picnic	• Self-discipline, Safety, Healthy lifestyle, Simplicity, Conserving the environment, Appreciation of the nature, Cooperation, Sharing of responsibility
	• Developing green habits	• Frugality, Simplicity, Saving resources, Conserving the environment, Thankfulness

Appendix 7

Level	Life Event	Suggested values and attitudes to be developed
	• Hurting oneself / suicide	• Sanctity of life, Be responsible, Be positive, Self-esteem
	• Handling sex harassment	• Assertiveness, Self-esteem, Confidence, Courage
	• Surfing the web	• Truth, Honesty, Integrity, Be responsible, Self-discipline
	• Graduation from primary school	• Acknowledgement of self achievement, Thankfulness, Readiness for future challenge
KS3 & 4	• Adaptation to secondary school life	• Willing to adapt to changes, Self-discipline, Confidence, Independence
	• Making choices among different co-curricular activities	• Participatory, Self-cultivation, Individuality, Self-determination
	• Running election for student union / house	• Readiness to assume leadership, Democracy, Fair play, Honesty, Service, Participatory, Cooperation, Responsibility, Conserving the environment
	• Holding responsible post in Student Association / House / Club	• Commitment, Readiness to assume leadership, Participatory, Service, Rights and responsibility, Be responsible, Cooperation
	• Leading a 'green life'	• Sustainability, Conserving the environment, Commitment, Betterment of human kind and the environment

Appendix 7

Level	Life Event	Suggested values and attitudes to be developed
	• Dating experience and resisting temptation of casual sex relationships	• Friendship, Affection, Love, Sharing, Respect for others, Courtesy, Rationality, Be responsible, Assertiveness
	• Living with media	• Be critical, Rationality, Self-cultivation, Self-discipline
	• Home alone	• Self-discipline, Independence, Safety, Be responsible, Sharing of responsibilities
	• Subject choice	• Appreciation and acceptance of one's strengths and weaknesses, Individuality, Self-determination, Rationality
	• Organizing a school activity	• Conserving the environment, Responsibility, Readiness to assume leadership, Cooperation
	• Coping with changes in peer relationships	• Individuality, Self-determination, Friendship, Assertiveness, Respect
	• Requesting for autonomy from parents	• Respect, Filial piety, Love, Affection, Autonomy, Harmony, Compromise, Rights and responsibility, Independence, Interdependence
	• First blood donation experience	• Sanctity of life, Sacrifice, Kindness, Service, Commitment, Concern for others

Appendix 7

Level	Life Event	Suggested values and attitudes to be developed
	• Visit to the mainland	• Love and concern for the motherland, Commitment, Sense of identity and pride of being Chinese, Appreciation of Chinese culture and landscape
	• Having a part time job	• Punctuality, Safety, Self-discipline, Cooperation, Be responsible, Prudence
	• Being in love / lovelorn	• Love, Affection, Rationality, Self-esteem, Respect, Be responsible, Commitment
	• Facing death / serious illness	• Sanctity of life, Concern for other, Health, Be positive
	• Preparation for public examination	• Diligence, Self-discipline, Confidence, Caring for Self, Be positive
	• Making choice between further study or work	• Self-acceptance, Rationality, Individuality, Be responsible, Self-determination

Appendix 8

Putting gifted education into perspective and our tasks ahead

Appendix 8

Putting gifted education into perspective and our tasks ahead

1. Gifted education should be an integral part of Quality Education, which the Education Department (ED) is striving towards.

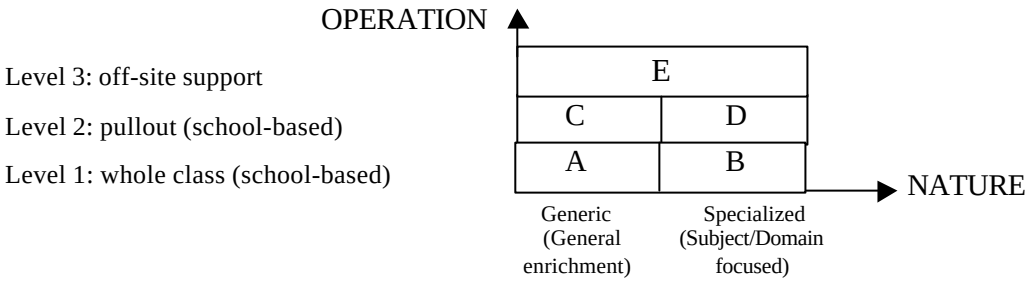
Mission of ED: To ensure that the educational needs of ALL students are met so that their potential, no matter where they lie in the ability spectrum, can be maximally developed.

Quality Education for ALL Students

Less Able Students ⟷ **Gifted Students**

2. Our task is to put the long neglected educational needs of gifted students into its rightful place and to devise mechanism to maximise their development.

3. The proposed approach presented in the main Paper is diagrammatically represented below:



Level One

A: immersion of the core elements advocated in gifted education i.e. high order thinking skills, creativity and personal-social competence in the curriculum for ALL students in regular classrooms

B: differentiated teaching through appropriate grouping of students to meet the different needs of the groups with enrichment and extension of curriculum across ALL subjects in regular classrooms

Level Two

C: pullout programmes of generic nature conducted outside the regular classroom to allow systematic training of a homogeneous group of students

D: pullout programme of specific nature (e.g. maths, art, etc.) conducted outside the regular classroom to allow systematic training of students with outstanding performance in specific areas

Level Three

E: individualised educational arrangement for the exceptionally gifted who requires resource support outside the regular school (e.g. Counselling, mentorship, early entry to advanced class, etc.)

4. Target students of groups A-D (i.e. school-based programmes) will not bear the label "gifted". Target group E is a highly selected group of exceptionally gifted students.

5. Breakdown of tasks ahead:

Mode / Level	**Student Coverage**	**Identification**	**Teacher Training**	**Curriculum / Special Provision Development**
Level 1 **A**	- For all students (100% student-coverage)	- Not required	-Initial / In-service / Refresher courses on 3 core elements to all teachers, other professional training courses to be delivered by teacher training institutions (TTIs) or ED	-curriculum enhancement by immersing the 3 core elements (high order thinking skills, creativity, and personal / social competence) advocated in gifted education into all Key Learning Areas
Level 1 **B**	- Top 10% students of a school - In any class that the school intends to use differentiated teaching	- Using school results, test papers / examination papers, Target Oriented Assessment (TOA), Hong Kong Attainment Tests (HKAT), etc. - Teachers / parent observation checklist	-Briefing and experience sharing sessions for school-heads / teachers (coordinators) on strategies and issues related to differentiated teaching	- curriculum guideline on extension and enrichment to allow differentiated teaching within various Key Leaning Areas
Level 2 **C & D**	- Students with superior intelligence, or with excellent performance in specific areas like creativity, leadership, etc., or students academically achieving at the top 2-4% in a school	- Multiple criteria - By teachers using multiple criteria based on guidelines and instruments to be suggested and developed by ED - Using school results, TOA, HKAT, other testing instruments to be developed - Teacher / parent observation checklist - Internal and external awards for outstanding performance - Student products - Off-ceiling testing	-Training of gifted education coordinators from schools interested to run school-based gifted development programme on topics such as: identification, teaching strategies, programme design and evaluation, specialised topics in a subject, etc. by TTIs or ED	- Guidelines / framework for systematic training of slightly specific nature - Curriculum exemplars from previous school-based and centre-based programmes - Vetting of proposals for programme funds - School consultation on planning of school-based gifted development programme
Level 3 **E**	- Top 0.1% (around 1,000 cases) of the student population (across all levels: from P1 to S7) of Hong Kong	Alternatives to be considered: - Mechanism to identify the exceptionally gifted to be devised by a panel consisting of subject specialists, educational psychologists and other experts in gifted education and related fields	-Training of class teachers / guidance teachers / gifted education coordinators on identification, design / delivery of Individualized Educational Programmes (IEP) and meeting special educational and social / emotional	- Specially designed localised curriculum - Consideration for acceleration, class skipping, etc. - Gifted development programme of more generic or specific nature to develop all round competency as leaders to be - Design of mechanism for early entry to

Appendix 8

Mode Level	**Student Coverage**	**Identification**	**Teacher Training**	**Curriculum / Special Provision Development**
		- Nominated by teachers according to criteria set up by ED (e.g. specific traits / achievement / skills) and selected by a panel of specialists. Using criteria such as aptitude tests, intelligence tests, social-emotional assessment, creativity and other checklists for assessment / quality of exceptional ability (e.g. leadership), etc.	needs of exceptionally gifted students	university in consultation with panel of specialist and university admission office - Mentorship - Scholarship - Attachment to University, business corporations - Individualised support / counselling and guidance / IEP.

Appendix 9

Possible measures to ensure a smooth interface between early childhood education and primary education

Appendix 9

Possible measures to ensure a smooth interface between early childhood education and primary education

What primary schools could do :

- Organise introductory programme for primary-one parents

- Arrange sharing sessions for parents – take place one month after the commencement of the school year so that parents can exchange views

- Practise a "buddy system" – select more mature pupils of the senior forms to help ease the 'culture shock' of their your primary-one pupils

- Arrange school activities with parental involvement – apart from making the best use of parents' specialities and interests, it may help parents better understand the learning experiences acquired by their children and thus provide necessary and appropriate guidance to them

- Assign teachers who are well-experienced in taking care of young children to primary-one classes

- Foster more communication with early childhood teachers through familiarisation visits

- Issue printed school timetables for primary-one pupils to attach it to their school handbook

- Demonstrate frequently on writing Chinese characters properly in terms of stroke sequences and pencil gripping

- Give time for pupils to develop the skill of dictation

- Work in close collaboration with other professionals, e.g. social workers, health workers, etc. to provide parents with a full range of supporting services

What we shall do :

- Produce a leaflet or teacher resource TV programme in order to enrich teachers' knowledge of the learning experiences of pre-school children

- Organise seminars and workshops for teachers of both sectors to exchange information on the learning experiences of children, the teaching approaches and contents

Appendix 10

Suggested roles of change agents to facilitate learning to learn

Appendix 10

Suggested roles of change agents to facilitate learning to learn

The suggested roles of school principals are to:

1. direct the planning of a school curriculum, instructional and assessment policy based on the strengths of the school and teachers;
2. begin from where the school is, set priorities of development, and steer the transition to adopting the new curriculum framework in phases and by levels;
3. facilitate the building up of a good learning environment;
4. nurture curriculum and instructional leadership in schools at middle management, and facilitate the breaking of departmental and subject boundaries (e.g. encouraging collaboration of teachers for integrated learning, sharing problems of different departments and subjects);
5. set targets and phases for organisational change as required in order to meet new needs (e.g. re-tool teachers, tap unused potential of staff, maximize use of teacher expertise, nurture leadership in key learning areas, life-wide learning;
6. value quality of learning and teaching rather than quantity;
7. provide time and space for teachers for collaboration among staff (e.g. fixed time for sharing experiences and preparing lessons) to lead development and try out new ideas;
8. manage resources (time, human, finance) to focus on the learning of the students by reducing non-professional duties for teachers, cohering fragmented projects to avoid overloading and ineffectiveness;
9. co-ordinate among departments and support autonomy of departments to improve existing curriculum (e.g. trim and update existing curricula as required) and learning & teaching strategies;
10. celebrate processes and improvement, and give positive feedback to individual teachers and students;
11. communicate effectively with staff and parents especially on changes;
12. beware of school matters that may contradict learning to learn, and be ready to improve it; and
13. share knowledge and experiences with other schools and related organisations

Appendix 10

The suggested roles of middle managers (e.g. deputy principals, department heads) are to:

1. lead the curriculum and instructional change in schools in accordance with directions of the school, and in respective departments;
2. support the autonomy and professional judgement of teachers in curriculum improvement and learning;
3. keep abreast of the latest development and change;
4. manage the provision and deployment of resources;
5. share issues, knowledge and experiences with other departments of the schools, and with members of respective departments;
6. facilitate professional development in multiple modes e.g. workshops, demonstration, leading try-outs, promoting peer observation etc.; and
7. celebrate success and provide appropriate feedback to teachers for further improvement.

The suggested roles of teachers are to:

1. strengthen the development of learning to learn skills through learning and teaching strategies and existing curricula;
2. acquire the information of and get familiar with the resources available for reference for the curriculum change;
3. keep abreast of the latest development and change;
4. foster the quality learning environment as mentioned above to facilitate students' learning;
5. be ready to try out and work on strategies that have impact on learning in collaboration with fellow teachers or external supporting agents;
6. collaborate with community workers to enhance life wide learning experiences of students outside the classroom;
7. be reflective in daily practices; and
8. share issues, knowledge and experience with other teachers.

The suggested roles of teacher librarians are to:

1. develop a range of proactive library services;
2. provide easy access to information in a variety of formats and technologies;

3. develop the library collection according to the school-based curriculum focus;
4. promote the use of diverse information source as an integrated element in collaborative teaching and learning;
5. develop a variety of resource-based programmes in enhancing the independent learning skills, and problem-solving abilities among the students;
6. collaborate with teachers to plan, support the process of and assess students' learning;
7. support the development of strategies in nurturing diversified reading interest and regular reading habit among students;
8. facilitate the development of information literacy within the school community;
9. keep abreast of the latest development in curriculum and technological advancement; and
10. cooperate with other teachers, teacher librarians, information specialists and parents to build an information environment in Hong Kong context for the nourishment of a knowledge-based society.

Glossary

This glossary is aimed at facilitating readers to understand the meanings of some special terms used in the Report.

Curriculum Framework	A supportive structure to facilitate schools plan and develop their own curricula. The major components are: essential learning experiences, generic skills, values & attitudes and key learning areas. The framework sets out what students should know, value and be able to do at the various stages of schooling. It gives schools and teachers flexibility and ownership to plan and develop alternative curriculum modes to meet their varied needs.
Exemplar(s)	Examples of approaches / modes of curriculum planning and teaching / learning activities around the curriculum framework, e.g. to illustrate how to strengthen learning to learn within an existing subject or key learning area.
Key Learning Area (KLA)	Organization of school curriculum that aims at serving a broad, balanced and coherent curriculum for all students in the essential learning experiences. The formulation of each key learning area is based on the nature of each experiences / concepts and types of intelligences required. The categorisation of KLAs may vary between places depending on contextual factors. The studies in each KLA could have different orientations such as academic, social and practical depending on the main purpose of teaching and learning, and also can be organized into subjects, modules, units or other modes.
Key Stages (KS)	The 4 stages of schooling from primary to secondary: Key Stage 1 (junior primary P1-P3), Key Stage 2 (senior primary P4-P6), Key Stage 3 (junior secondary S1-S3) and Key Stage 4 (senior secondary S4-S5)
Learning Environment	Learning environment denotes learning at home, in the school and community.
Learning Objectives	What students should know, value and be able to do in each strand of a KLA at the various stages of schooling. They are to be used as resource list for curriculum and lesson planning for teachers and as sources of "quality criteria" for teachers to make judgement (general assessment) on student learning rather than measurement of outcomes.

Learning Targets	Learning targets of a KLA set out the aims and directions for the general expectations of students in the learning of the KLA
Life-wide Learning	Learning in different environments: in the classroom / school, home, community and work place. The learning experiences gained in these different environments complement each other.
Modes of Curriculum Planning	Various approaches adopted by schools to plan and develop their own curriculum around the curriculum framework to meet their varied needs and contexts. For example: (i) a subject / integrated studies / unit / module organised around key concepts, skills, values & attitudes in the curriculum framework; (ii) integration of learning elements within a subject / KLA or across subject(s) / KLAs using key concepts, skills, values & attitudes etc. in the curriculum framework; (iii) co-curricular activities, community services and work-related experiences etc. which complement learning / teaching in classroom; (iii) core elements of the KLA / subject in the curriculum framework
Project learning	Students' learning through the detailed study of a particular topic or issue etc. within a subject / KLA, or across subjects / KLAs or beyond any boundary. It enables students to connect knowledge, skills, values & attitudes, to construct knowledge through a variety of learning experiences.
Quality Criteria	Criteria derived from the learning objectives of a KLA for teachers to make judgement (general assessment) on student learning rather than measurement of outcomes.
"Seed" Project	Project to be tried out in pioneering school(s) for research & development purpose with a view to developing exemplary curriculum practices for reference by schools.
Strand	Arrangements of major learning elements / components within each key learning area. A strand, for example, could be skill-, value-, concept-, content-, discipline-, subject- or process-based. Strands should be regarded as a curriculum planning and organizing tool and not a structure for teaching.

List of Abbreviations

AA	Activity Approach
AL	Advanced Level
AS	Advanced Supplementary
CDC	Curriculum Development Council
CDI	Curriculum Development Institute
DTN	District Teacher Network
EC	Education Committee
ED	Education Department
HKEA	Hong Kong Examinations Authority
INSTEP	In-service Teacher Education Programme
IT	Information Technology
KLA	Key Learning Area(s)
KS1	Key Stage One
KS2	Key Stage Two
KS3	Key Stage Three
KS4	Key Stage Four
P1	Primary One
P4	Primary Four
PE	Physical Education
PSHE	Personal, Social and Humanities Education
QEF	Quality Education Fund
REO	Regional Education Office(s)
S1	Secondary One
S4	Secondary Four
TE	Technology Education
TOC	Target Oriented Curriculum