

Report on the New Academic Structure Medium-term Review and Beyond

Continual Renewal from Strength to Strength



Curriculum Development Council

Hong Kong Examinations and Assessment Authority

**Education Bureau, The Government of the Hong Kong Special Administrative Region
of the People's Republic of China**

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Preamble

The *Report on the New Academic Structure Medium-term Review and Beyond* charts the progress of the implementation of the senior secondary curriculum and the public assessment under the New Academic Structure (NAS) in the context of the continual cycle of curriculum renewal at both primary and secondary levels.

The background of the NAS and its review, the guiding principles and review questions, a summary of the different stages of implementation, and initial achievements are outlined in Part A.

In Part B, the report draws on evaluation studies, feedback from all stakeholders and other data to share observations of the achievements of schools in delivering the senior secondary curriculum after four complete cycles, and the outcomes for student learning in their whole-person development, academic performance and progress to multiple pathways for further study or employment. It also addresses the practical concerns of schools, including the particular challenges in implementing School-based Assessment.

The final batch of recommendations under the NAS Medium-term Review to fine-tune the senior secondary curriculum and assessment have now been accepted by the Government of the Hong Kong Special Administrative Region, completing the NAS Review which commenced after the completion of secondary education by the first cohort of Secondary 4 students who embarked on the NAS in 2009. The review was a necessary part of the reform to identify and respond to emerging issues and unintended consequences on an ongoing basis, so that students could benefit at the earliest opportunity. These changes, which are widely supported by schools, are described in Part C.

In Part C, the report also looks beyond the Medium-term Review to the future direction of the natural cycle of continual curriculum renewal (also known as “*Learning to Learn 2.0*”). *Learning to Learn*, the curriculum reform that was launched in 2001, has been updated to sustain and deepen the accomplishments achieved, and to identify new focuses in the curriculum. This responds to the macro-level changes that have taken place both in Hong Kong and beyond since the curriculum reform which began more than a decade ago, and also to continued feedback from stakeholders in the education sector and wider community.

A Message from the Secretary for Education



Hong Kong's future depends on the talent and competitiveness of its people. Since the Education Commission released the *Learning for Life, Learning through Life – Reform Proposals for the Education System in Hong Kong* blueprint for the future of Hong Kong's education system 15 years ago, the Government has worked in partnership with the education sector and wider community to build a system that fully develops the talent of our young people and provide every opportunity for them to achieve their potential.

In 2015, we have looked back to evaluate the achievements so far, and also look ahead into the future. The senior secondary curriculum and Hong Kong Diploma of Secondary Education (HKDSE) are no longer new. Schools have successfully implemented the senior secondary curriculum and assessment for four complete cycles. The benefits reaped by students are evident not only in their academic achievements under the HKDSE, but also the values, attitudes and skills they have

developed through a broader and more balanced curriculum.

The senior secondary curriculum has opened up new opportunities for young people to pursue their interests, embark on lifelong learning, and achieve their particular goals. Success is no longer measured by the narrow progression of a few towards higher education and their entry into traditionally prestigious professions, which inevitably left many disappointed. Rather, it is interpreted by the multiple pathways of further learning and employment in our increasingly diverse economy.

The focus on students' lifelong learning and whole-person development underpinned the *Learning to Learn* curriculum framework released in 2001. This is now being updated and refined through continual curriculum renewal to cultivate and nurture minds that are truly innovative, creative, entrepreneurial and humanistic. Such an outlook will open up many more opportunities for success in our rapidly changing society, as students' perspectives are broadened, and their knowledge and talents further enriched.

We can gather from this report how the innovative features of the senior secondary curriculum, including Liberal Studies, Applied Learning and Other Learning Experiences, are producing results in offering new and important areas of study and experience for these mindsets to thrive, complementing the other core and elective subjects that contribute to the accomplishment of learning goals.

The development of education is a long-term commitment, and the journey is not always smooth. The review covered by this report is a constructive and meaningful one, enabling us to build on our success, quickly identify and act on the areas for improvement, and work out our education road map. A key outcome of this review process is the final batch of measures to fine-tune the senior secondary curriculum and assessment for addressing major difficulties encountered by schools.

With the completion of this review, we will proceed to the continual cycle of curriculum renewal. The Education Bureau will continue to strive hard to improve the learning outcomes for all students, while remaining keenly responsive to the experiences and feedback of students and teachers. As always, appropriate support in resources will be provided and importance will be attached to professional development activities, sharing of good practices and the achievements of schools.

This is not a top-down process. The education sector and wider community are empowered to work together to bring forth innovative initiatives and enhancements in learning and teaching that help inspire young people and their teachers, and realise the ambitions of the reform.

Today's success has been made possible through the partnership among, as well as the devotion of, teachers, tertiary institutions, employers and community organisations, and not least students and their parents. I offer my warm congratulations and deep gratitude to every one of them, as well as to the dedicated professionals who serve for the Curriculum Development Council, the Hong Kong Examinations and Assessment Authority and the Education Bureau.

Eddie Ng Hak-kim, SBS, JP
Secretary for Education

A Message from the Chairperson of the Curriculum Development Council



The system-wide reforms that culminated in the New Academic Structure (NAS) have been supported by the *Learning to Learn* curriculum framework released 14 years ago. As society changes, we must continuously reflect on the purposes of education and the curriculum that is needed to achieve them, for the benefit of individual students and society.

We have done this. *Learning to Learn 2.0*, by which we refer to the next stage of continual curriculum renewal, responds to the very different context we live in, mid-way through the second decade of the 21st century. The Medium-term Review was conducted not only to ensure that we could address the issues in curriculum and assessment that had emerged, but also to provide a future direction that would help schools sustain and deepen the accomplishments achieved and identify new focuses in the curriculum.

I am confident that the recommendations to refine the curriculum and assessment will continue to improve the quality and outcomes of learning and teaching in our schools. They will bring greater stability to senior secondary education, by easing the pressures, particularly those related to School-based Assessment, while maximising the benefits for students in their whole-person development.

The refined curriculum and assessment will facilitate the progression towards the continual renewal of the curriculum from primary to senior secondary levels, and cater to the needs of students and the development of society.

The NAS Medium-term Review adopted the student-centred approach that continuously informed our education reform. The curriculum builds on essential learning elements of all Key Learning Areas at the junior secondary level (such as Chinese history and culture, knowledge of science and technology, and biliterate and trilingual abilities) and is geared towards achieving the overall learning goals for secondary education.

Curriculum and assessment development is an interactive, dynamic process that aims to ensure that the two are up to date and effective in building a strong and diverse talent pool in society. This review is an important contribution to that process. It has involved the dedication and support of an enormous number of people across the education sector.

I extend my special thanks to the members of the Curriculum Development Council (CDC) and its committees, the CDC–HKEAA Committees on Senior Secondary Subjects, and staff in the Education Bureau responsible for curriculum development. They have all contributed generously to the successful implementation and improvement of the curriculum.

Professor Kenneth Young
Chairperson
Curriculum Development Council

A Message from the Council Chairperson of the Hong Kong Examinations and Assessment Authority



The Hong Kong Diploma of Secondary Education (HKDSE) is now well established as Hong Kong's school-leaving qualification, respected locally and recognised internationally. The achievement is massive, given the scale of the change from the previous examination system.

As the new qualification settles down, teachers and students are increasingly confident that the HKDSE is both manageable and beneficial. It serves successfully as a passport to further studies, in Hong Kong and beyond, and to the career world.

It is extremely important to listen to feedback from schools and students when considering how the assessment can be improved, while maintaining its rigorous standards. The Hong Kong Examinations and Assessment Authority (HKEAA) has followed this, working closely in this review with the Curriculum Development Council and Education Bureau

(EDB). We have been responsive to concerns about student and teacher workload, while at the same time keenly aware of the need to accredit the importance of School-based Assessment (SBA) in its contribution to student learning.

I believe that the streamlining and fine-tuning of the public examinations and SBA have achieved a fine balance, so that the full benefits of SBA can be realised. We will also enhance the qualification by recognising higher levels of achievement in Applied Learning, based on patterns of performance seen in the first four cohorts of the HKDSE.

The HKEAA will continue to listen to feedback and work with our partners in order to further improve the HKDSE and to ensure its alignment with the priorities of the curriculum that will be under continual renewal to keep our students abreast of global and local changes. The Authority will also work closely with higher education institutions and their admissions offices, employers and professional bodies around the world to promote more extensive recognition of the HKDSE and secure multiple pathways of opportunities for our young people.

I would like to extend my gratitude to all who have contributed to improving the assessment process, including members of the relevant committees, as well as teachers, the dedicated officers within our Authority and our partners in the EDB.

Rock Chen Chung-nin, BBS, JP
Chairperson
Hong Kong Examinations and Assessment Authority

Acronyms

BAFS	Business, Accounting and Financial Studies
CDC	Curriculum Development Council
CIE	Cambridge International Examinations
EDB	Education Bureau
EDBCM	Education Bureau Circular Memorandum
ERS	Ethics and Religious Studies
GCE	General Certificate of Education
GLH	Guided Learning Hours
HKAGE	Hong Kong Academy for Gifted Education
HKALE	Hong Kong Advanced Level Examination
HKCEE	Hong Kong Certificate of Education Examination
HKDSE	Hong Kong Diploma of Secondary Education
HKEAA	Hong Kong Examinations and Assessment Authority
HKFEW	Hong Kong Federation of Education Workers
HMSC	Health Management and Social Care
ICCS	International Civic and Citizenship Education Study
ICT	Information and Communication Technology
IEA	International Association for the Evaluation of Educational Achievement
IELTS	International English Language Testing System
IES	Independent Enquiry Study
IT	Information technology
ITE4	Fourth Strategy on Information Technology in Education
JUPAS	Joint University Programmes Admissions System
KLA	Key Learning Area
M1	Mathematics Extended Part Module 1
M2	Mathematics Extended Part Module 2

NAS	New Academic Structure
NCS	Non-Chinese speaking
NGO	Non-governmental organisation
OEA	Other Experiences and Achievements in Competitions/Activities
OECD	Organisation for Economic Co-operation and Development
Ofqual	Office of Qualifications and Examinations Regulation
OLE	Other Learning Experiences
PDP	Professional development programme
PEB	Public Examinations Board
PIRLS	Progress in International Reading Literacy Study
PISA	Programme for International Student Assessment
PRC	People’s Republic of China
QEF	Quality Education Fund
QF	Qualifications Framework
SBA	School-based Assessment
SEN	Special educational needs
SLP	Student Learning Profile
SRR	Standards-referenced Reporting
SSB	School sponsoring body
STEM	Science, Technology, Engineering and Mathematics
THS	Tourism and Hospitality Studies
TIMSS	Trends in International Mathematics and Science Study
TPACK	Technological pedagogical content knowledge
UCAS	Universities and Colleges Admissions Service
UECOCS	University Entrance Committee for Overseas Chinese Students
UGC	University Grants Committee
UK	United Kingdom
USA	United States of America

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Part A

BACKGROUND

Chapter 1 Continual Renewal from Strength to Strength

- 1.1 *Learning to Learn* Reform
- 1.2 Changing Global and Local Contexts
- 1.3 Challenges
- 1.4 Renewal of the School Curriculum
- 1.5 Roadmap of the Ongoing Renewal

Chapter 2 Scope and Methodology of the New Academic Structure Review

- 2.1 Building on Achievements of the First Implementation Cycle (2009–2012)
- 2.2 Guiding Principles, Scope and Multiple Stages of the New Academic Structure Review (2012–2015)
- 2.3 Feedback and Data Collection



Chapter 1

Continual Renewal from Strength to Strength

This report focuses on the outcomes of the New Academic Structure (NAS) Medium-term Review, including observations of the ongoing implementation of the NAS and progress in student achievement (*Part B*) and, after extensive evaluation and consultation, the key recommendations across different stages of the NAS Review to improve the implementation of the NAS, and the phasing-in of continual curriculum renewal in primary, junior secondary and senior secondary education (*Part C*).

The Medium-term Review was set within the context of the wider curriculum development, from *Learning to Learn*, launched 14 years ago, to the ongoing and continual renewal that responds to changes in society that have unfolded since then. The NAS and its continual review are an essential part of a holistic process of reform that began in 2000, when the Education Commission's blueprint *Learning for Life, Learning through Life – Reform Proposals for the Education System in Hong Kong* was accepted by the Government.

The rationale for the reform was widely accepted by the community: all students should be able to succeed in a knowledge-based, technological, constantly changing society and an increasingly globalised world. This required a paradigm shift, away from a focus of selecting a minority through competition for further education, to placing more emphasis on preparing students across a spectrum of abilities for a variety of pathways.

To achieve this goal, the reforms implemented gradually over more than a decade have focused on student learning and well-being. A series of measures have removed barriers to learning, expanded opportunities for lifelong learning, from kindergarten, basic and senior secondary education to the multiple pathways developed in vocational, higher and continuing education, and improved the quality of education.

The reform has spanned many domains in the education system, interlocking to enhance the quality of student learning and opening up more opportunities for all to achieve their potential. The system is now designed to cater for the full diversity of students, through school allocation reform at the primary and secondary levels, along with the development of policies such as integrated education for children with special educational needs (SEN) and provision for the gifted, and entitling all students to complete the three years of senior secondary education.

Measures to enhance the quality of student learning have involved curriculum and assessment reform, professional development of teachers and principals, promotion of school-based management and additional funding for schools, fine-tuning of the medium of instruction, strengthening of quality assurance processes at all levels of education, and investment in physical infrastructure.

The NAS for senior secondary and higher education has been a key element of the reform, based on roadmaps, namely *The New Academic Structure for Senior Secondary Education and Higher Education – Action Plan for Investing in the Future of Hong Kong* and *Action for the Future – Career-oriented Studies and the New Senior Secondary Academic Structure for Special Schools*, released by the Education and Manpower Bureau in 2005 and 2006 respectively.

After four years of planning and preparation, the NAS was implemented in 2009 with the phasing-in of the new three-year senior secondary curriculum. Curriculum changes were accompanied by the assessment reform. The Hong Kong Diploma of Secondary Education (HKDSE) Examination replaced the Hong Kong Certificate of Education Examination (HKCEE) and Hong Kong Advanced Level Examination (HKALE) from 2012, when the first cohort completed senior secondary education and embarked on new four-year bachelor degree programmes and other multiple pathways.

The curriculum reform is a major initiative across basic education and senior secondary levels, and extends well beyond to the post-secondary level. Continual review, renewal and fine-tuning are vital to ensure that our schools can keep abreast of global as well as local changes for the ultimate benefit of student learning. To account for the changing environment since 2000, the reform is now moving towards continual curriculum renewal, also known as “*Learning to Learn 2.0*”. The NAS Medium-term Review is part of this process, complementing ongoing curriculum development in primary and junior secondary schooling.

1.1 Learning to Learn Reform

As a fundamental part of the reform, *Learning to Learn – The Way Forward in Curriculum Development*, which was released by the Curriculum Development Council (CDC) in 2001, set out the blueprint for curriculum development in Hong Kong.

1.1.1 Aims of the School Curriculum

Learning to Learn established the overall aims of the school curriculum to complement the aims of education established by the Education Commission in *Learning for Life, Learning through Life*. The curriculum should “provide all students with essential lifelong learning experiences for whole-person development in the domains of ethics, intellect, physical development, social skills and aesthetics, according to individual potential, so that all students can become active, responsible and contributing members of society, the nation and the world”.

The premise of *Learning to Learn*, covering basic education since 2001 and underpinning the senior secondary curriculum, is that all students could learn and succeed. Under the *Learning to Learn* reform, the school curriculum aims to help students cultivate positive values, attitudes and commitment to lifelong learning. It involves an open and flexible curriculum framework comprising three interconnected components: Key Learning Areas (KLAs), generic skills, and values and attitudes; as well as the provision of the five essential learning experiences. It is flexible in allowing for different ways of approaching the content and the use of diverse learning strategies and styles in order to suit the needs of individual learners.

1.1.2 Principles

Through *Learning to Learn*, flexibility of practice and sustainability of change have been supported by eight guiding principles:

- The overarching principle is to help students learn how to learn.
- All students have the ability to learn and in order to do so they should be offered essential learning experiences.
- A learner-focused approach should be used to make decisions in the best interests of students. Diversified learning, teaching and assessment strategies should be used to suit the different needs of students.
- Development strategies should be built on the strengths of students, teachers, schools and the wider community of Hong Kong.
- Practices should be adopted to achieve a balance across different purposes and conflicting interests and views, for example, across the academic, social and economic goals of the curriculum and diverse learning and teaching strategies. The purpose and modes of learning, teaching and assessment should be consistent with one another.
- Schools have the flexibility to design school-based curricula to satisfy the needs of students, so long as the requirements set out in the central curriculum framework are fulfilled.
- Curriculum development should be a continual improvement process to help students learn better.
- Positive thinking, along with patience, celebration of small successes and tolerance of ambiguity, is essential to ensure the sustainability of change and improvement.

1.1.3 Seven Learning Goals

In line with the overall aims of education and the curriculum, the CDC set out Seven Learning Goals that all students should be able to achieve in the course of their school education. Students should:

- be biliterate and trilingual with adequate proficiency;
- acquire a broad knowledge base, and be able to understand contemporary issues that may impact on daily life at personal, community, national and global levels;
- be informed and responsible citizens with a sense of global and national identity;
- respect pluralism of cultures and views, and be critical, reflective and independent thinkers;
- acquire information technology (IT) and other generic skills as necessary for being lifelong learners;
- understand their own career/academic aspirations and develop positive attitudes towards work and learning; and
- lead a healthy lifestyle with active participation in aesthetic and physical activities.

1.1.4 Achievements and Progress in Curriculum Reform

Hong Kong society has always attached great importance to education. Since the implementation of the curriculum reform in 2002, it has had even higher expectations for improving the quality of education, and has become increasingly concerned about education issues. Principals and teachers are committed to promoting curriculum reform and have made substantial contributions to improving

the curriculum and strategies for learning and teaching. Parents have paid more attention to school education, which is considered essential for their children's future career success and personal well-being. To support this, the Government has invested considerable resources in education. Based on these favourable conditions, much has been achieved through the *Learning to Learn* curriculum reform, which is well acknowledged both locally and internationally.

1.1.5 International Achievements

Hong Kong has been cited by major international agencies, including the Organisation for Economic Co-operation and Development (OECD), for the strength of student performance in international comparisons, and as a successful reformer. Since the start of the reform, Hong Kong students have consistently been performing well in major international assessments, including the OECD's Programme for International Student Assessment (PISA), International Association for the Evaluation of Educational Achievement's (IEA) Trends in International Mathematics and Science Study (TIMSS) and Progress in International Reading Literacy Study (PIRLS), as well as its International Civic and Citizenship Education Study (ICCS).

While Hong Kong students have a long tradition of relatively high achievement in mathematics and science, there have been significant improvements in reading literacy¹ as an outcome of the emphasis on reading in the curriculum reform. Hong Kong's ranking in PIRLS improved from 14th in 2001 to second in 2006 and first in 2011, the latter out of 45 countries or systems. In PISA, the result improved from sixth in reading literacy in the 2000 study to second in 2012 out of 65 countries or regions in the latter. In addition to mathematics, science and reading literacy, Hong Kong students have also fared well in civic education, ranking 5th among 38 jurisdictions in terms of civic knowledge (Figure 1). The good performances of Hong Kong students, especially in mathematics and reading and less so in science, provide supporting evidence that the *Learning to Learn* reform is having positive impacts on student learning at the primary and junior secondary levels, which helps lay a good foundation in our students for senior secondary education.

► *Figure 1*

Hong Kong excels – ranking in major international assessments									
Year	PISA (15-year-olds)			TIMSS (Primary 4 and Secondary 2)				PIRLS (Primary 4)	ICCS (Secondary 2)
	Mathematics	Science	Reading	Mathematics		Science		Reading	Civic knowledge
2012	3rd	2nd	2nd	--	--	--	--	--	--
2011	--	--	--	Primary 4: 3rd	Secondary 2: 4th	Primary 4: 9th	Secondary 2: 8th	1st	--
2009	3rd	3rd	4th	--	--	--	--	--	5th
2007	--	--	--	Primary 4: 1st	Secondary 2: 4th	Primary 4: 3rd	Secondary 2: 9th	--	--
2006	3rd	2nd	3rd	--	--	--	--	2nd	--
2003	1st	3rd	10th	Primary 4: 2nd	Secondary 2: 3rd	Primary 4: 4th	Secondary 2: 4th	--	--
2001	--	--	--	--	--	--	--	14th	--
2000 ²	1st	3rd	6th	--	--	--	--	--	--

Source: OECD; IEA.

¹ This refers to reading literacy in the native language.

² The first PISA assessment was conducted in 2000. Thirty-two countries participated. The assessment was extended in 2001 to 11 additional countries and regions (including Hong Kong).

As a result of its performance, Hong Kong has been cited by the OECD and others as having one of the best education systems in achieving both high quality and equity in provision. It was classified in McKinsey & Company's international research report *How the World's Most Improved School Systems Keep Getting Better* (2010) as one of the five systems that have moved from "good" to "great", and now embarking towards "excellent". In the Pearson report, *Oceans of Innovation: the Atlantic, the Pacific, Global Leadership and the Future of Education* (2012), Hong Kong's reforms were praised for their coherence, clear priorities and careful sequencing.

International affirmation of the Hong Kong education system

In the McKinsey report *How the World's Most Improved Systems Keep Getting Better*, the Hong Kong system ranked among those considered to be the most improved systems and sustained improvers, moving from "Fair" (1983–1988) to "Good" (1989–1999) to "Great" (2000–2010), and is now embarking towards "Excellent" (2010 and beyond).

Mourshed, Chijioke & Barber (2010)

In the Pearson report *Oceans of Innovation*, Hong Kong's reform was complimented for its coherence and system thinking.

Barber, Donnelly & Rizvi (2012)

In the latest *The Learning Curve*, Hong Kong ranked fourth in the Global Index of Cognitive Skills and Educational Attainment, after South Korea, Japan and Singapore, all of which are well recognised for having clear goalposts for their education systems and strong cultures of accountability among all stakeholders.

Pearson (2014)

1.1.6 Good Progress in Schools

A key achievement of the curriculum reform is school leaders' and teaching teams' readiness to embark on their own journeys of development towards a new paradigm of learning and teaching. Schools have accumulated practical experience, which is helpful for further curriculum development. According to the data and evidence collected, the main developments in the past decade's curriculum reform and the positive influences on schools are shown in Figure 2.

► *Figure 2*

Schools' major progress in curriculum reform	
Main progress	Positive influence
Change in perception towards curriculum	<ul style="list-style-type: none"> The school curriculum is more concerned about student needs in the balanced development of knowledge, skills, values and attitudes, and is centred on student learning. Through the implementation of the <i>Four Key Tasks</i>³ and prioritised development of <i>three generic skills</i>⁴, student abilities of learning to learn have been enhanced. Schools are actively promoting learning across the curriculum and paying more attention to the interfaces between different stages in learning. The school curriculum is seen as learning experiences rather than teachers' instructions.
Fulfilling the aims of school curriculum	<ul style="list-style-type: none"> Schools generally agree with the purposes of the school curriculum and actively help students develop lifelong learning capabilities by providing a wide range of learning experiences to achieve whole-person development.

³ Moral and Civic Education, Reading to Learn, Project Learning, IT for Interactive Learning.

⁴ Critical thinking, creativity and communication skills.

► *Figure 2 continued*

Main progress	Positive influence
Fulfilling the aims of school curriculum	<ul style="list-style-type: none"> • Many schools have developed innovative school-based curricula, learning and teaching strategies and measures to support student learning. They have also actively established healthy school environments to cater for the needs of student growth.
Paradigm shift in learning and teaching	<ul style="list-style-type: none"> • Learning is no longer confined to the classroom. Students have more opportunities to study outside the school setting, for example, through study visits. • Teachers are providing opportunities for students to participate more actively in their learning. For example, they arrange more enquiry-based and peer learning activities during lessons, reflecting the paradigm shift from teacher-driven to student-focused learning and teaching.
Change in assessment culture	<ul style="list-style-type: none"> • In addition to summative assessments such as examinations and tests, teachers often use formative assessments – or assessment for learning and feedback – to improve learning and teaching.
Establishment of curriculum leadership and teaching team culture	<ul style="list-style-type: none"> • Leadership of principals and vice-principals, whole-school planning by school curriculum leaders, co-ordination of KLA and subject heads and teachers' participation are conducive to the implementation of the curriculum reform. • Collaborative lesson planning, peer observation and professional exchange activities across schools (e.g. learning circles, networks) have strengthened the collaborative culture among teachers.

1.2 Changing Global and Local Contexts

Learning to Learn has been in place for 14 years, during which time Hong Kong has undergone many changes, socially, economically, technologically and in society's outlooks on environmental, political and other concerns. These have had an inevitable impact on the requirements of the school curriculum.

Hong Kong, like many major cities around the world, has become more closely integrated, socially and economically, with the wider region for which it serves as a centre. It has also become more international as it plays a key role in the globalised economy as a financial and trading hub. Social values are increasingly diverse. Hong Kong people have become active citizens, holding diverse political views and ready to participate in politics and in shaping Hong Kong's future under the concept of "one country, two systems". A technological revolution has also taken place. Generation Z – the true digital natives born since the millennium – are said to be the most connected and well-informed generation yet. However, they have also been born into an age that is marked internationally by economic uncertainty and growing threats of climate change and terrorism, as well as local uncertainties surrounding Hong Kong's economic outlook.

In this context, the school environment is changing, too. Students' backgrounds have become more diverse. The number of non-Chinese speaking (NCS) students, cross-boundary students and those newly arrived from the Mainland has increased. Language education – Cantonese, Putonghua and English – has become more important as a result of fine-tuning the medium of instruction for secondary schools that took place in 2009, the language requirements for admissions to higher education, and the demands from employers for fluency in English and Putonghua in addition to Cantonese.

For schools, e-learning has emerged as a viable complement to teacher-led instruction. Young people's expectations have changed, resulting in new power-relationships within classrooms and schools. Students are no longer passive recipients of knowledge, but expect to be empowered as active participants in their education, which can moreover be individualised to meet their learning needs and interests. Parents also have increasing influence on schools.

1.3 Challenges

OECD research affirms that among the most important skills that young people need to achieve success in today's world are the abilities to: come up with new ideas or solutions; acquire new knowledge; be willing to question ideas; be alert to opportunities; be confident in presenting ideas; demonstrate analytical thinking; be masters of their fields; be able to co-ordinate activities; and be proficient in writing and speaking a foreign language, as well as using computers and the Internet.

Schooling needs to equip young people with the skills for innovative jobs. In this evolving context, schools face several immediate challenges. These include how to develop and sustain genuine self-directed learning. Further pedagogical change is needed, where teachers may teach less yet students can learn more. They also need to extend their capacity in catering for the full diversity of children in schools, regardless of their socio-economic and ethnic backgrounds and abilities, so that all can achieve their potential.

While the achievements over the past decade or so are reasons for celebration, these changes and challenges have brought about new demands on the economic, scientific, technological, social and political aspects of education. They will have huge impacts on shaping the direction of a school curriculum that is capable of preparing our students for not only the world of today but what the future may hold.

Within these contexts, our curriculum needs to be reinforced. For example, building on the existing strengths of our students in mathematics and science as shown in PISA, we can further enhance students' interest in science, technology and mathematics and develop in them a strong knowledge base in the relevant disciplines, as well as strengthening their ability to integrate and apply knowledge and skills, so as to nurture their creativity and innovation, collaboration and problem solving skills, which are the essential skills and qualities required in the 21st century. This will also help nurture versatile talents in the fields of science and technology and hence enhance the international competitiveness of Hong Kong.

With the increasingly widespread use of information and media technology, we must also enhance students' information literacy for them to become effective and ethical users of information and information technology. While literacy skills, i.e. reading and writing skills, have long been the focus of our school curriculum as embodied in the two language subjects, with the rapid development of IT and the social media, literacy has taken on a new meaning. New literacy practices often involve collective intelligence and the use of multimodal texts. We will thus enhance student ability to process and create such texts, as well as provide the contexts for students to apply their literacy skills to construct knowledge and facilitate their development into lifelong learners.

The above are just some examples. These skills are as much about habits of mind as about knowledge. Values education at personal, family, local, national and global levels should be reinforced as a central element of the curriculum so that students can develop positive values and attitudes, make reasonable judgements when facing challenges and conflicts, and distinguish right from wrong.

1.4 Renewal of the School Curriculum

To pursue this direction, it is now necessary to enhance the original *Learning to Learn*, to sustain and deepen the accomplishments achieved so far while embracing ongoing curriculum renewal and updating in response to contextual changes. This is not merely a top-down process but involves co-construction with the learning communities that have taken root in schools and across the education system, as well as other sectors in society.

Key areas for the renewal can be summarised as follows:

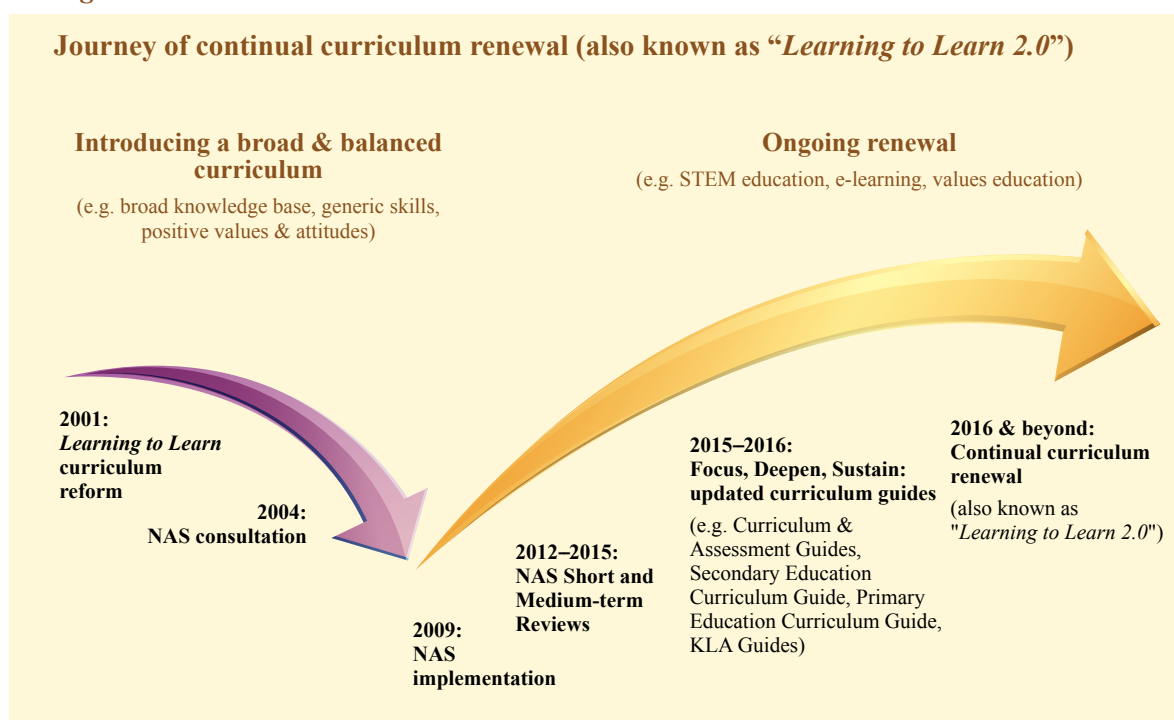
- A renewed focus on the Seven Learning Goals, with updating to keep abreast of societal changes;
- Acquisition and construction of knowledge through spiral curriculum planning, including special attention to the interfaces between key stages, and interdisciplinary learning across the curriculum;
- Science and technology to be given increasing attention, from primary level onwards;
- Greater attention given to Chinese History and History elements in primary and junior secondary levels so that young people can better understand the contexts in which they live;
- Continued focus on the generic skills for better understanding and integrative application;
- Positive values and attitudes to continue to be nurtured among students through moral and civic education across the curriculum to prepare them for future challenges. In addition to the seven priority values and attitudes promoted in *Learning to Learn* – *perseverance, respect for others, responsibility, national identity, commitment, integrity and care for others* – under the renewal, students should be encouraged to develop a positive *sense of future* for their careers, *sense of agency* through self-regulation, and *sense of learning*; and
- *Reading to Learn* to be extended to *Reading across the Curriculum*, which lays a firm foundation for the application of knowledge and skills in different KLAs in real-life contexts, encourages in-depth reflection on the content of reading, fosters critical and creative reading, and leads to the development of lifelong learning capability.

Pedagogy should be developed with more emphasis on:

- Self-directed learning, both as pedagogy and as classroom culture;
- Catering for diversity and making best use of diversity in classrooms;
- Building teachers’ repertoire in learning and teaching strategies, including effective use of e-learning; and
- Enhanced “technological pedagogical content knowledge” (TPACK) – the effective integration of technology in teaching.

Such curriculum renewal is not an “add-on” but a continual journey to work smarter and in a more focused manner in promoting *Learning to Learn* for the next five to 10 years. To be successful, it will require stronger engagement with stakeholders, especially parents and students; implementation through learning communities and networks both within and across schools; and collaboration with partners outside the education sector, including employers and non-governmental organisations (NGOs). The most competent teachers will play a key role through leading by example.

► **Figure 3**



Note. STEM: Science, Technology, Engineering and Mathematics.

1.5 Roadmap of the Ongoing Renewal

1.5.1 Primary Curriculum

As part of the continual curriculum renewal, an updated Basic Education Curriculum Guide for the primary level was launched in June 2014, supported by professional development programmes (PDPs) such as school leader workshops and thematic seminars.

The new curriculum guide builds on strengths achieved through *Learning to Learn*. It focuses on reviewing learning and teaching processes and effectiveness, deepens understanding and the positive effects of the curriculum reform, seeks to sustain the quality of student learning, and strengthens the culture of professional collaboration and sharing among schools.

Key features of continual curriculum renewal at the primary level include:

- Greater emphasis is placed on balancing the **physical and mental development of students**. The values and attitudes of *Learning to Learn 2.0* are promoted across the curriculum, while schools are encouraged to prioritise children’s healthy physical development.
- Schools are encouraged to provide a framework for developing a holistic school-based **values education** curriculum. As far as possible, the school-based priority values and attitudes should be promoted at three levels of *personal and family, community and national, and global*, in which seven values and attitudes have been identified as priorities (i.e. *perseverance, respect for others, responsibility, national identity, commitment, integrity, and care for others*).

- The curriculum should foster the development of students' **self-directed learning abilities**, for example, through Reading to Learn, Reading across the Curriculum, Project Learning and the better use of IT and e-learning resources.
- Greater support is provided for the development of **assessment literacy in schools and appropriate homework practices** that promote learning and do not overburden students.
- There is better facilitation of the interface between the various stages of learning.
- Schools are helped to maximise the potential of **IT in Education**.
- Extensive support for teachers' reflection and professional development is provided.

The updated primary education curriculum is now being implemented, laying an important foundation for both junior secondary education and the NAS.

1.5.2 Junior Secondary Curriculum

Following the completion of the Basic Education Curriculum Guide, the Secondary Education Curriculum Guide and KLA Guides will be updated, subject to consultation in late 2015 and launched in mid-2016. A co-ordinated approach across KLAs is under way to review the development of students' knowledge base in the junior secondary years. Examples will be included in relevant curriculum documents to illustrate good practices of building a strong foundation of knowledge at the junior secondary level that equips students for the senior secondary curriculum.

1.5.3 Senior Secondary Curriculum

The NAS Review is part of the continual renewal of curriculum and assessment. Based on the outcomes of the review, the Curriculum and Assessment Guides of senior secondary subjects will be updated in late 2015. Thereafter, future reviews will be conducted based on the needs of individual subjects or curriculum areas as part of the continual curriculum renewal cycle.

1.5.4 Updating of Curriculum Guides: Six-year Planning and Interface

Under the continual curriculum renewal, vertical interfaces between key stages and lateral coherence among subjects and disciplines will be enhanced to facilitate more holistic curriculum planning at both primary and secondary levels. The Basic Education Curriculum Guide (2002, 2014) and the Senior Secondary Curriculum Guide (2009), which provide curriculum recommendations for Primary 1 to Secondary 3 and Secondary 4 to 6 respectively, are being revised to become the Primary Education Curriculum Guide for Primary 1 to 6, and the Secondary Education Curriculum Guide for Secondary 1 to 6. In tandem, the KLA Curriculum Guides for Primary 1 to Secondary 3 are being updated to include the complete school education up to Secondary 6.

The updating of the curriculum guides at primary and secondary levels aims to strengthen six-year whole-school planning at both the primary and especially the secondary levels. The revised curriculum guides will be supplemented by the provision of PDPs for school leaders and teachers on six-year curriculum planning at the school, KLA and subject levels.

Chapter 2

Scope and Methodology of the New Academic Structure Review

The NAS in senior secondary education and higher education are the culmination of reforms planned and implemented over a 16-year period, from the publication of the Education Commission’s reform blueprint in 2000 to the graduation of the first cohort of students from the new four-year degree programmes and other pathways in 2016. In this period, it has been important to review the curriculum on an ongoing basis to ensure its smooth implementation, taking into account the changing context and needs of society. As explained in the previous chapter, this has taken us from *Learning to Learn* to *Learning to Learn 2.0*. The NAS and senior secondary curriculum are an integral part of the continual curriculum renewal, and this review forms a key milestone by assessing the progress so far and responding to feedback and the changing context.

2.1 Building on Achievements of the First Implementation Cycle (2009–2012)

Key achievements and fundamental changes were identified from the extensive feedback, research and data gathered and reported in the *Progress Report on the New Academic Structure Review: The New Senior Secondary Learning Journey – Moving Forward to Excel* released by the CDC, the Hong Kong Examinations and Assessment Authority (HKEAA) and the Education Bureau (EDB) in 2013.

2.1.1 Smooth Implementation of New Curriculum in Schools

Under the NAS, for the first time in Hong Kong, senior secondary education was extended to all, instead of being limited to around one-third of the cohort. In addition, multiple pathways for further study were established, with around 90% of the first cohort continuing their studies.

Senior secondary schooling has moved from an elitist orientation to offering a broad and balanced curriculum for all, enabling students to take a balanced mix of elective subjects in addition to the core subjects of Chinese Language, English Language, Mathematics and Liberal Studies. This has been complemented by a rich programme of Other Learning Experiences (OLE), and access to Applied Learning and Other Languages to meet the diverse interests and abilities of students.

The new curriculum areas of Liberal Studies, Applied Learning and OLE were well received for broadening students’ perspectives and outlook, building self-confidence, facilitating all-round development and nurturing positive values and attitudes. Student learning has been enhanced through a balance of direct teaching and enquiry-based learning, and the increased use of assessment for learning.

The implementation of the new curriculum has involved new levels of whole-school curriculum leadership and planning. Schools have developed strategies to cater for diversity and meet students' interests and needs in their timetabling, subjects offered and learning and teaching approaches.

Extensive professional development activities have supported the new curriculum and the range of pedagogy promoted. During the three years prior to the implementation of the new curriculum, from 2006/07 to 2008/09, 2,872 training events were organised to prepare teachers for teaching the new subjects starting from September 2009. These attracted more than 145,000 participants. In addition, series of workshops were held for school leaders and middle managers on curriculum planning at school and subject levels. The provision of PDPs was sustained throughout the first three-year implementation cycle from 2009/10 to 2011/12. In this period, over 1,200 courses were offered to teachers, attracting a total enrolment of over 96,000. During the different stages of the NAS Review from 2012/13 to 2014/15 (up to August 2015), about 1,000 more PDPs were offered for teachers with a total enrolment of over 66,700.

These initiatives, along with school-based activities, have resulted in the emergence of professional communities of practice to support the continued improvement of learning and teaching.

2.1.2 Smooth Implementation and Recognition of the New Public Assessment

The first cohort of Secondary 6 students sat the HKDSE Examination in 2012, moving on to multiple pathways for work or further study.

The HKDSE and its Standards-referenced Reporting (SRR) system, along with the Student Learning Profile (SLP), were successfully developed and administered to reflect students' academic and non-academic achievements.

Early recognition was achieved from local universities and post-secondary providers, the civil service and higher education systems outside Hong Kong, and students gained smooth access to multiple pathways, including further study outside Hong Kong. The HKDSE has been widely welcomed as a qualification for admissions to higher education in Australia, Canada, the Mainland, Taiwan, United Kingdom (UK), United States of America (USA) and other study destinations. In the Universities and Colleges Admissions Service (UCAS) Tariff Benchmarking Study commissioned by the HKEAA and conducted by an expert panel in the UK, the HKDSE has been highly regarded in comparison with the General Certificate of Education (GCE) Advanced Level Examination, facilitating recognition by UK universities, while the English Language subject has been benchmarked against the International English Language Testing System (IELTS).

2.1.3 Impact on Students

Most importantly, there has been extensive evidence that the senior secondary curriculum has improved students' academic attainment, as well as their achievement of the Seven Learning Goals and development of generic skills, as well as positive values and attitudes. There have been early indications that under the NAS, students have greater learning agility, stronger soft and transferable skills, and are more proactive. More observations on student achievements collected during the Medium-term Review can be found in Chapter 4 of Part B.

All in all, the NAS received the concerted support and hard work of all stakeholders, including schools, students, parents, universities, post-secondary education providers, media, professional bodies and the business sector. This required strong communication and partnerships led by the Government.

2.2 Guiding Principles, Scope and Multiple Stages of the New Academic Structure Review (2012–2015)

In the course of the implementation of the NAS, it became evident that such fundamental changes inevitably resulted in challenges and issues that needed to be addressed, especially for the school sector. In addition, the school curriculum needed to be reviewed in response to the rapid contextual changes since its first consultation in 2004, as described in section 1.2.

While it was understood that it would take a few years to ensure the smooth implementation of the NAS and see its full impact, the NAS Review was launched in 2012. A strategic approach was adopted, involving multiple stages to review, update and improve the delivery of the senior secondary curriculum and assessment in the short and medium terms and beyond.

2.2.1 Guiding Principles

The NAS Review has adopted a set of professional principles with a student-centred approach that facilitates students' lifelong learning and whole-person development. It allows for continual curriculum renewal based on the original design while having the flexibility for further development in response to macro changes locally and globally. These principles are to:

- (i) Gear all curricula towards achieving the **overall learning goals** for secondary education;
- (ii) **Keep abreast of the latest changes** in the disciplines of knowledge, economic, social, technological contexts, etc. with regular international benchmarking and recognition;
- (iii) Strike a **balance between the breadth and depth** in knowledge, skills, and positive values and attitudes in school curricula appropriate to secondary education and interface with further studies;
- (iv) **Cater for student diversity and build on strengths** (e.g. personal efforts, subject interests and teaching methods are recognised by most students as the most important factors for success in senior secondary education);
- (v) Consider **factors and concerns regarding curriculum implementation** (e.g. workload of students and teachers, support to teachers and schools);
- (vi) **Align** assessment with curriculum aims, learning objectives, curriculum design and expected learning outcomes (including positive and negative backwash effects); and
- (vii) **Engage different stakeholders and consider the feedback** collected from different sources to inform deliberations.

2.2.2 Scope: 10 Review Questions

As indicated above, the NAS Review aims to address the practical concerns of schools and respond to macro changes locally and globally. To facilitate data collection in tracking the implementation progress, the following 10 review questions under five broad areas are framed:

Learning goals

- (i) What is the impact of senior secondary education under the NAS on secondary school students with reference to the expected learning outcomes and achievement of policy intentions?

Broad and balanced student programme with diversification

- (ii) How are schools preparing and implementing senior secondary education under the NAS? Is the aim of broadening and diversification achieved?

Curriculum and public assessment

- (iii) How is School-based Assessment (SBA) delivered at systemic, school, teacher and student levels?
- (iv) How can the NAS (with reference to curriculum and assessment, and interfaces between phases of schooling) be improved in response to stakeholder feedback and other new needs?

Interface with lifelong learning in studies and employment

- (v) How are the HKDSE and SLP recognised at the system level and accepted by other stakeholders?
- (vi) How are the NAS deliverables (e.g. HKDSE, SLP) administered in the interface between schools and institutions/employers under the NAS multiple pathways?
- (vii) What are the impacts of the HKDSE and SLP on different stakeholders (e.g. the post-secondary sector, students, employers and parents)?
- (viii) What is the impact of the NAS on graduates in further studies and employment?

Implementation of the NAS: conducive conditions

- (ix) What are the ongoing and changing needs and concerns of schools?
- (x) How is the NAS delivered at systemic level? How are the support measures received by schools? How could they be adjusted to serve schools better?

2.2.3 Multiple Stages

A. Short-term Review and Fine-tuning (2012–2013)

The Short-term Review was undertaken to quickly respond to schools' practical concerns. The major one included the practical challenges of catering for the greater diversity of senior secondary students now that all could continue their schooling after Secondary 5. Schools faced some frustrations in the recommended learning hours for core and elective subjects and OLE, resulting in difficulties in timetabling and balancing curriculum and assessment requirements. Heavy workload for students and teachers, particularly in completing SBA assignments, was also identified as a key issue to address.

Recommendations on fine-tuning the curriculum and assessment were deliberated and made at the Joint CDC–HKEAA Public Examinations Board (PEB) meeting on 25 February 2013, announced in April (vide an EDB Circular Memorandum [EDBCM] No. 48/2013 and a progress report) and implemented in schools in September 2013. Details of the short-term recommendations are summarised in section 6.1 of Part C.

A comprehensive communication strategy was implemented to circulate the progress report and the details of the fine-tuning to all stakeholders. For the school sector, this included workshops, seminars, forums and meetings for school sponsoring bodies (SSBs), school principals, and frontline teachers. Extensive two-way dialogue over both the progress of the reforms and fine-tuning and streamlining measures took place.

The EDB, CDC and HKEAA also reached out to other major stakeholders, including the post-secondary and higher education sectors, teacher education institutions, NGOs, employers, parents, students, overseas partners and textbook publishers. Different platforms were used to disseminate the progress report and Short-term Review recommendations, such as meetings, briefing sessions and visits, e-platforms, e-mails and factsheets.

Subsequent survey responses and other feedback have shown that these measures on streamlining the curriculum and assessment, including SBA, have been welcomed in general, as indicated further in sections 3.2.1 and 3.2.2.

B. Medium-term Review (2013–2015)

The Medium-term Review launched in October 2013 (vide EDBCM No. 127/2013) was more holistic in scope. It aimed to answer the review questions that required a longer time to collect evidence, to consult stakeholders and to evaluate and respond to recent macro changes described in section 1.2. To accommodate different needs and circumstances among subjects and issues, Medium-term Review recommendations were made in batches so that schools and students could benefit at the earliest instance. A three-month public consultation was held from November 2014 to February 2015, followed by an extended consultation for some subjects. From these, further views were collected in order to arrive at a clearer picture for the final recommendations for the medium-term and beyond.

Observations and feedback collected on the implementation of the NAS in the Medium-term Review are reported in Part B, and recommendations at the systemic and subject levels are reported in Part C.

2.3 Feedback and Data Collection

A comprehensive evaluation and engagement plan had been put in place to collect feedback, through multiple channels, from all key stakeholders including SSBs, principals, teachers, parents, students, employers, tertiary sector, education and professional associations, NGOs, and the public. Feedback and data was drawn from:

- EDB commissioned studies, covering implementation of the senior secondary curriculum and assessment in schools; satellite studies focused on Liberal Studies, Applied Learning and OLE; ongoing research on the multiple pathways pursued by Secondary 6 graduates; and the impact of the senior secondary curriculum on further studies and employment;
- HKEAA annual surveys on the assessment frameworks, public examinations and SBA;
- Data and statistics collected through EDB internal surveys, school visits and focus group interviews;
- Public consultation, from November 2014 to February 2015;
- Surveys by local professional and education organisations; and
- International studies.

Sources that informed the review can be found in the Bibliography.

During the short and medium-term stages of the NAS Review, more than 49,000 participants were engaged in over 1,700 face-to-face events and more than 83,000 responses were received through over 110 surveys. In addition, written submissions from different stakeholders, including professional associations and legislators, were received. In parallel, relevant CDC and HKEAA committees and working groups convened more than 530 meetings, for professional discussion of the review issues. A summary of the concerns from different stakeholders collected can be found in the Annex.

All data and feedback have been analysed to inform professional discussion in CDC and HKEAA committees and working groups in proposing recommendations to update, revise, streamline and fine-tune the curriculum and assessment at whole-school and subject levels.

With the context for the NAS Medium-term Review and the methodology explained, the findings and observations are shared in the following Part of this report⁵.

⁵ In reporting feedback, figures are rounded to the nearest whole number or percentage; therefore, numbers in charts and tables may not necessarily add up to 100%.

Part B

FINDINGS AND OBSERVATIONS

Chapter 3 Implementation in Schools

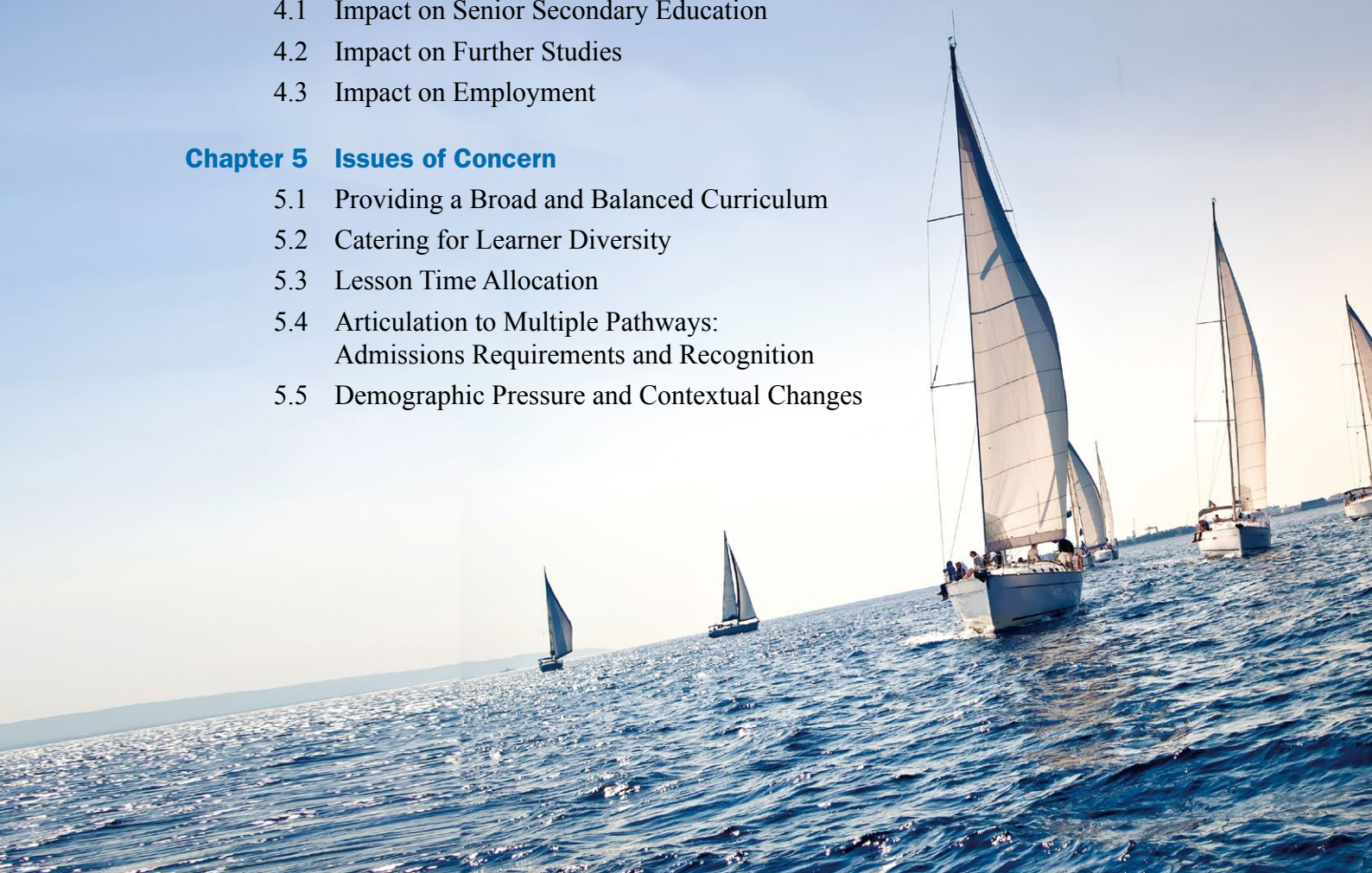
- 3.1 Curriculum Planning
- 3.2 Learning and Teaching
- 3.3 Assessment
- 3.4 Capacity Building

Chapter 4 Impact on Students

- 4.1 Impact on Senior Secondary Education
- 4.2 Impact on Further Studies
- 4.3 Impact on Employment

Chapter 5 Issues of Concern

- 5.1 Providing a Broad and Balanced Curriculum
- 5.2 Catering for Learner Diversity
- 5.3 Lesson Time Allocation
- 5.4 Articulation to Multiple Pathways:
Admissions Requirements and Recognition
- 5.5 Demographic Pressure and Contextual Changes



Chapter 3

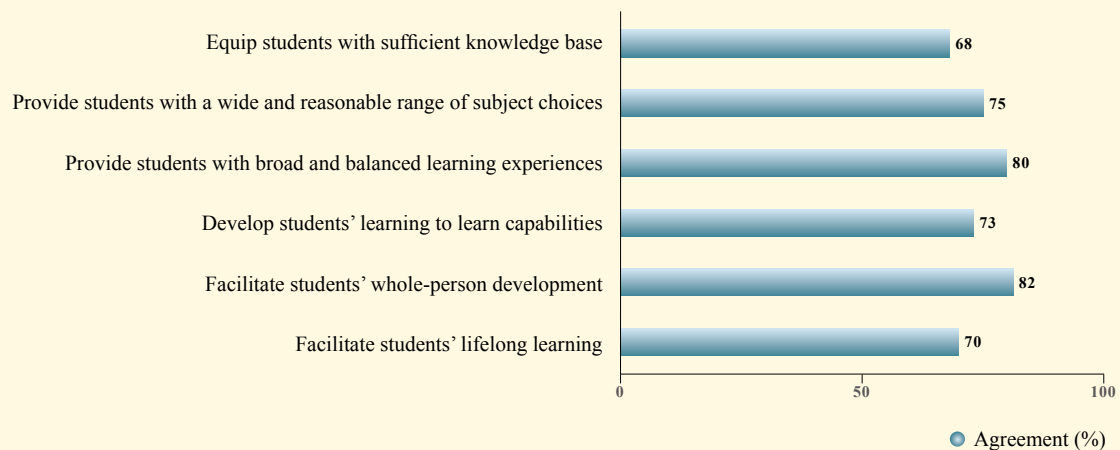
Implementation in Schools

3.1 Curriculum Planning

The senior secondary curriculum under the NAS aims to provide a broad and balanced curriculum with a reasonable choice of elective subjects to cater for different abilities and interests of all students, to facilitate their lifelong learning and whole-person development. It was encouraging that in the *School Survey on the New Academic Structure Medium-term Review and Beyond*⁶ (*School Survey on Medium-term Review*) conducted at the end of 2014, the majority of principals were confident that the student programme could achieve the aims of the senior secondary curriculum (Figure 4).

► **Figure 4**

Principals' views on whether the overall student programme can achieve the aims of the senior secondary curriculum



Source: *School Survey on Medium-term Review (2014/15)*.

Myth and reality: Has the NAS narrowed students' knowledge base?

There has been some debate as to whether the senior secondary curriculum has involved a narrowing of the curriculum due to a trend among students to opt for two elective subjects rather than three at Secondary 4. In fact, schools have successfully implemented a broad and balanced curriculum, of which the elective subjects are just one element. Compared with the old system which focused on knowledge transmission, students' perspectives under the NAS are broadened through Liberal Studies, the pursuit of OLE, and the options of Applied Learning and Other Languages, while the mix of core and elective subjects has balanced breadth of study with depth of knowledge. Students are also prepared for their futures through the upgraded life planning and career guidance delivered by schools, in accordance with the elective subjects they have taken.

⁶ Number of respondents: 472 schools offering the local senior secondary curriculum.

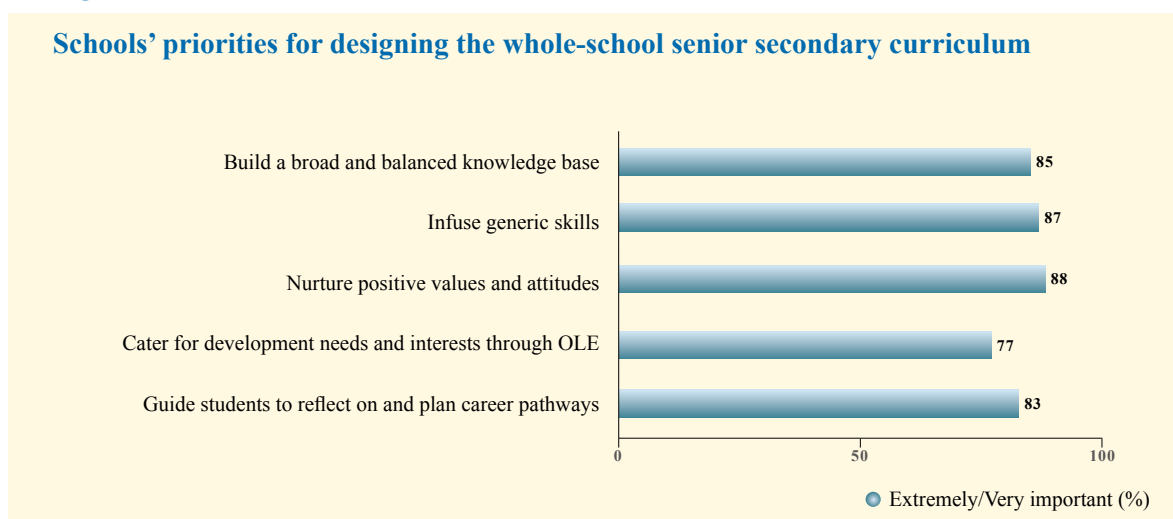
3.1.1 Whole-school Curriculum Planning

Schools, in general, adapted positively following the first complete cycle of the senior secondary curriculum under the NAS. As reflected in the *School Survey on New Senior Secondary Curriculum and Assessment*⁷ during the Short-term Review, there was wide agreement among schools (90%) to maintain the existing curriculum framework (i.e. four core subjects plus two or three elective subjects with a ceiling of four elective subjects, plus OLE). Schools extended their focus on student learning, which included offering a balanced curriculum supported by a rich variety of learning experiences and enrichment programmes.

In their curriculum planning, schools responded to the need to cater for diversity and to enhance the quality of learning and teaching, according to the implementation studies and feedback from school reviewers. With the new curriculum implemented, most schools focused on enhancing learning and teaching. This included concentrating on improving students' language abilities, equipping them with foundation knowledge and skills to prepare for the senior secondary curriculum, promoting independent learning, and catering for learner diversity.

Principals affirmed that schools have embraced the key aims of the curriculum. In their planning, almost all principals (more than 98%) regarded it as important to build a broad and balanced knowledge base among their students, develop their generic skills, nurture positive values and attitudes, cater for students' development needs through OLE, and guide students to reflect on and plan their career pathways. Among these, the nurturing of positive values and attitudes and generic skills were, marginally, regarded as the most important in their priorities (Figure 5).

► **Figure 5**



Source: *School Survey on Medium-term Review (2014/15)*.

The great majority of schools have planning mechanisms to achieve these aims. In total, 90% of schools have set up functional groups or panels for six-year planning of a broad and balanced whole-school curriculum, with principals playing a leading role in two-thirds of these. This would lay a good foundation in building school-based sustainable and holistic improvement (especially vertical and lateral coherence, prioritising goals, effective use of lesson time and articulation to multiple pathways) to embrace and respond to changes and learning needs of students in future secondary cohorts.

⁷ Number of respondents: 482 schools offering the local senior secondary curriculum.

A. **Building vertical and lateral coherence**

Schools strengthened their planning to build greater coherence between the junior secondary and senior secondary curriculum, including the building of foundation knowledge and generic skills from Secondary 1, to prepare students for the senior secondary curriculum. The transition between the junior secondary and senior secondary levels is, in general, smooth. In the *School Survey on Medium-term Review (2014/15)*, more than 80% of panel heads⁸ agreed that planning for continuity across the six years of secondary education was effective in preparing junior secondary students to study senior secondary subjects.

Case studies in the *Secondary School Curriculum Implementation Survey 2014/15*⁹ (*Curriculum Implementation Survey 2014/15*) indicate that some schools are building vertical coherence by designing the subjects at the junior secondary level with a view to articulating with and preparing students for the same subjects at the senior secondary level, as well as by deploying the same teachers to teach the subject at both junior secondary and senior secondary levels for better coherence and continuity.

Progress – school case studies

Some schools have been successful in facilitating the interface between junior secondary and senior secondary levels, not only through whole-school planning to design Secondary 3 subjects with a view to articulating with the same subjects at senior secondary level, but also by assigning teachers to teach both junior secondary and senior secondary levels. Through this arrangement, teachers are aware of the senior secondary requirements when they design and implement a school-based curriculum for junior secondary year levels. They are also more aware of the strengths and weaknesses of junior secondary students and can adapt instructional strategies to help these students progress to the senior secondary level.

Liberal Studies builds on what students have learnt in basic education. The CDC and Curriculum Development Institute have encouraged schools to review the primary and junior secondary curricula to integrate foundation knowledge and skills that are relevant to Liberal Studies within existing KLAs, including Personal, Social and Humanities Education; Science Education; and Technology Education at the junior secondary level as well as General Studies at the primary level, through topics such as energy, food safety and Basic Law that are already included in basic education. Schools could encourage Secondary 1 to 3 students to develop cross-disciplinary perspectives and become increasingly accustomed to the process of knowledge construction in their learning. Appreciation and respect for diversity in cultures and views and the development of positive values and attitudes towards life – the aims of Liberal Studies at the senior secondary level – could already be incorporated into the learning experiences of Secondary 1 to 3 students.

Schools have also been improving lateral coherence by better co-ordination across different subjects or curriculum areas. For example, schools are, in general, deploying co-ordinators for SBA, OLE and provision for gifted education, resulting in better co-ordination of these key components of the curriculum. This helps avoid clashes in activities and over-burdening students at a particular period of time.

⁸ Except for “Economics” and “Tourism and Hospitality Studies” (THS) with 78% and 65% total agreement respectively.

⁹ Number of respondents (preliminary findings as at August 2015): 69 secondary schools (69 principals; 492 KLA co-ordinators/panel heads; 102 career masters; 101 OLE co-ordinators; 1,556 senior secondary teachers; 6,444 Secondary 4 students; and 5,853 Secondary 5 students); case studies on five schools.

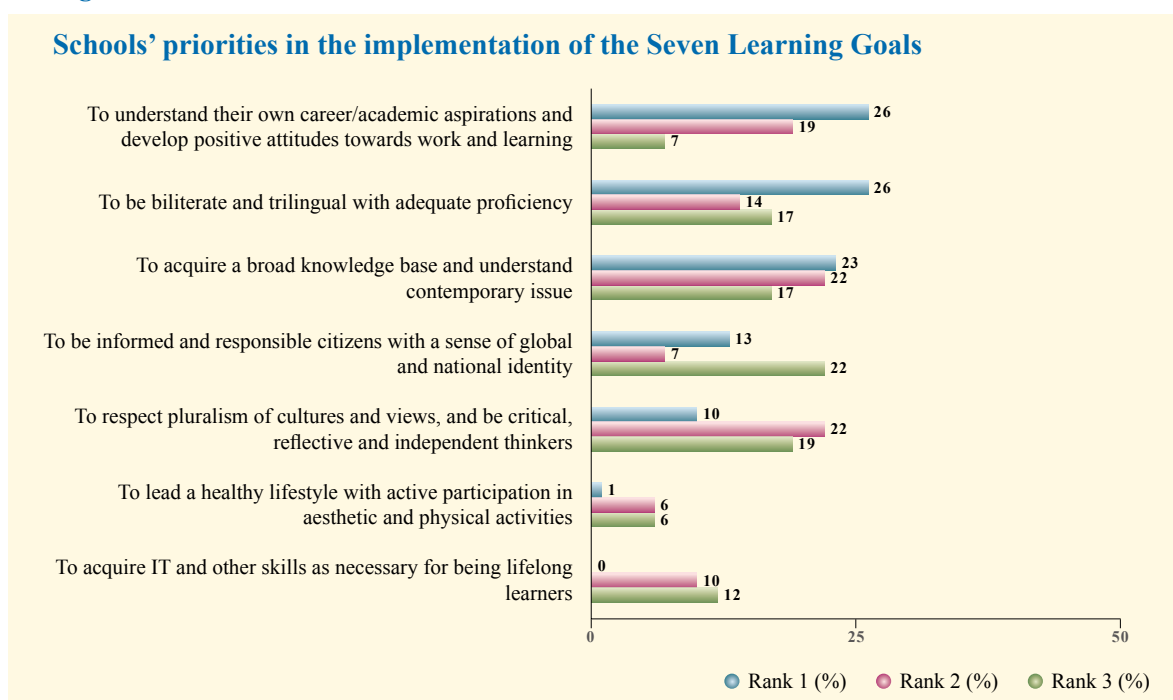
B. Prioritising learning goals

The senior secondary curriculum aims to facilitate student achievement of the Seven Learning Goals to prepare them to face the challenges of the 21st century and remain competitive in an increasingly globalised world. There is a general consensus in schools that these learning goals will remain important over the coming 10 years, suggesting that the education reforms, the NAS and the senior secondary curriculum are moving in the right direction.

In spite of the continued importance of these learning goals, the priority with which schools implement them has changed, reflecting the progress made in schools as well as the changing contexts. After the first cycle of the senior secondary curriculum under the NAS, many schools made changes in curriculum planning, teaching strategies, internal assessment policies and practices, teachers' professional development, as well as the planning and implementation of career guidance, according to the implementation surveys. This was prompted primarily by the learning and teaching experiences of the first cohort, while results in the first HKDSE, and admissions of students to local universities and post-secondary institutions were also significant factors. Career and life planning as well as language education emerged as the two lead priorities in curriculum planning (Figure 6), which may be due to the backwash effect of the emphasis on languages in the admissions requirements for tertiary education, as well as the Government's enhanced support for students' career and life planning in the Policy Address.

Some schools have made changes to the choice and number of elective subjects offered and made increasing use of networking arrangements to offer more diversified subjects. Such networking has helped address some principals' concerns that schools with a smaller student population have difficulty providing a broad and balanced curriculum. However, case studies in the *Curriculum Implementation Survey 2014/15* indicate that schools need to overcome some practical challenges in establishing networks, such as differences in timetabling, student learning ability and school culture.

► **Figure 6**



Source: *Curriculum Implementation Survey 2014/15* (Preliminary findings as at August 2015).

C. Effective use of lesson time

In the 2013 fine-tuning of the senior secondary curriculum, total lesson time across the three years was modified from 2,700 hours to 2,400±200 hours in order to give schools more flexibility in planning their lesson time to deliver the curriculum. Reports from schools indicated that the majority (over 60%) provided teaching hours within the new recommended range. The great majority of senior secondary subjects were, on average, allocated the three-year total lesson time recommended for their subject. The exceptions were Literature in English and Music, which were allocated slightly less time than recommended (about 1% short of the recommended 250 hours over three years). In spite of this, surveys and case studies indicated that some schools remained concerned that curriculum content was excessive and that there was not enough time to cover the full content. This concern has also been reflected in surveys with teachers as well as students conducted by local education and professional organisations (e.g. Hong Kong Federation of Education Workers [HKFEW], Hok Yau Club, Evangelical Lutheran Church Social Service – Hong Kong). On the other hand, there were also cases where schools utilised different strategies to enhance the effective use of lesson time.

Effective use of lesson time – a school case on cross-curricular co-ordination

School A made an effort to strengthen the co-ordination among subjects to enhance students' learning effectiveness. A cross-curricular co-ordinator was appointed to facilitate the review of various subject curricula and increase the learning effectiveness within the given lesson time through improving interfaces and avoiding duplication, as well as enhancing the linkages among subjects.

Schools have adopted different approaches in the time frame used to deliver the curriculum. There is a trend among some schools to finish teaching before the first term of Secondary 6. Some teachers indicated that this added to the pressure on learning and teaching time, with more lessons conducted outside school hours and school days. Schools made extensive use of time after school, weekends and holidays to cover the curriculum, which is an issue that needs to be addressed. This indicates scope for improvement in the planning of subject curricula and use of lesson time for more effective delivery of a school-based curriculum to meet diverse student needs and reduce the workload involved.

The time allocation to OLE was also reduced in the Short-term Review to 10%–15%. Based on self-reported figures, most schools have allocated about 15% of curriculum time to OLE, and further analysis shows that this is similar for schools with different backgrounds. OLE can be delivered flexibly, with some activities taking place outside the scheduled timetable. Some schools have integrated some OLE activities into regular learning and teaching to create more space for senior secondary subjects. Some teachers found that the reduced time requirement for OLE had helped alleviate some pressure on teachers and students, as reported in a 2014 survey by the HKFEW.

OLE was well supported by principals and teachers as it helped provide a balanced curriculum and opportunities for students to develop generic skills, positive values and attitudes, wider interests, and in planning their multiple pathways. Since the Short-term Review, the focus has gradually shifted towards the quality of OLE activities rather than the quantity.

OLE: a case study

School B implemented the OLE curriculum through timetabled lessons and programmed activities, such as class teacher periods and assemblies. For example, Moral and Civic Education, an area of OLE, was set as one of the main themes of the class teacher periods. During these periods, students were encouraged to reflect on different social issues and write reflections in their student handbooks. Aesthetic Development was implemented in assemblies, regular lessons or post-examination periods, where various structured arts learning activities such as arts appreciation related to different art forms were incorporated. By implementing OLE through timetabled lessons or school activities, more space was created for teaching senior secondary subjects.

D. Whole-school planning for multiple pathways

Under the NAS, schools have paid greater attention to preparing students for multiple pathways, as all students can complete senior secondary education and further their studies if they so wish. Schools are beginning to adopt a Whole School Approach in implementing career planning, starting at junior secondary level. This is underpinned by career education theories and career counselling models. As a result, schools have put more emphasis on guiding students in understanding their career and academic aspirations, as well as developing positive values and attitudes towards work and learning. However, they are concerned that students are less well catered for if they leave school before Secondary 6.

With schools' efforts in enhancing life planning education, students are beginning to reflect on their future pathways at lower year levels. For example, more than half of the 2014 HKDSE candidates responding to a survey conducted by the Hong Kong Federation of Youth Groups opined that it was best to start thinking about future pathways in Secondary 3 and 4.

3.1.2 Subject Offer and Choice

A. Subjects offered by schools

Schools, in general, have offered a broad and balanced curriculum and catered for diversity in the subjects they deliver, including Applied Learning and Other Languages. The broad curriculum is maintained by the continued emphasis on four core subjects, the study of two or three elective subjects, and provision of OLE.

This is affirmed in survey results on schools' subject offering and students' subject choices. Internal annual surveys conducted since the implementation of the NAS in 2009 indicated that subject-offering and subject-taking patterns were becoming more stable. The *Survey on Senior Secondary Subject Information (Subject Information Survey) (2014/15)*¹⁰ showed that the average number of elective subjects offered by schools has been stable at 11 for the past six years. In 2014/15, there were on average 36, 43 and 43 combinations within each school at Secondary 4, 5 and 6 respectively. Around two-thirds of students took elective subjects from two or more KLAs.

¹⁰ Number of respondents: 450 schools offering the local senior secondary curriculum. Main findings of the survey have been uploaded to the NAS Web Bulletin, available at <http://334.edb.hkedcity.net/EN/planning.php>.

Observations from school visits corroborated survey findings and revealed that the majority of schools provided diverse subject choices and combinations. Some schools extended their subject choices through networking arrangements with other schools in their districts. This collaboration enabled them to expand subject choices to less popular subjects and cater better for students' interests.

“ Student voice

“We appreciate the joint efforts made by schools in providing us with the network programmes, in particular those on new subjects such as Health Management and Social Care (HMSC). This has broadened our subject choices.”

Principal voice

“Network programmes are unprecedented in Hong Kong. Schools encountered many difficulties when designing and planning them. Luckily, all difficulties were solved and the network programme has been successfully run.”

”

B. Diversifying the curriculum with Applied Learning and Other Languages

Over 70% of schools offered Applied Learning in 2014/15, involving around 36 Applied Learning courses and over 4,000 students at each year level of Secondary 5 and 6. The great majority of principals considered that Applied Learning helped the curriculum cater for diversity in terms of students' aspirations, interests, and learning styles. In the *School Survey on Medium-term Review (2014/15)*, 73% of schools agreed that the six areas of studies for Applied Learning – Creative Studies; Media and Communication; Business, Management and Law; Services; Applied Science; and Engineering and Production – complemented the core and other elective subjects. Just 3% disagreed while 24% did not have an opinion.

Apart from Applied Learning, curriculum diversity has been extended by the provision of the six Other Languages, which is a targeted effort to cater for some individuals' needs and aspirations and a discretionary measure under the local contexts. These courses follow a curriculum leading to the examinations pitched at Advanced Subsidiary Level offered by Cambridge International Examinations (CIE) and administered in Hong Kong through the HKEAA. In total, 68 schools offered one or more of these languages in 2014/15.

C. Catering for student choices

Progress

Feedback from principals affirmed that almost all schools offered elective subjects based on student preferences, while 82% of Secondary 5 students agreed they were free to choose elective subjects. Principals indicated that decisions were based on a combination of student preferences and internal examination results.

While students now have greater choices over their elective subjects, it has been noted that a few schools operating a small number of classes limited the choice of elective subjects and students were allowed to study just two because of limitations in human resources. It is suggested that these schools consider providing more choices through offering more Applied Learning courses, Other Languages, or networking with other schools. The EDB will work closely with these schools to provide professional advice on whole-school curriculum planning to help them deploy their resources more flexibly to cater better for the needs of their students.

D. Students' subject-taking

Under the senior secondary curriculum, students are encouraged to explore their interests and abilities through taking elective subjects and participating in OLE. The EDB encourages students to take more elective subjects at Secondary 4 to explore their interests, and when ability permits, students at Secondary 5 and 6 are encouraged to take more elective subjects (including Applied Learning courses) to prepare themselves better for future studies and work.

As shown in the *Curriculum Implementation Survey 2014/15*, the majority of senior secondary students (over 80%) indicated that they enjoyed the freedom to select elective subjects that they were interested in, and over two-thirds were studying elective subjects related to their future studies and career goals. Over four-fifths of senior secondary students indicated that they were more motivated to study these elective subjects of their choice.

In spite of these, the *Subject Information Survey* showed that the proportion of students taking three or more elective subjects had declined. The proportion of students taking three elective subjects at Secondary 4 decreased from about half in 2009/10 to less than one-third in 2014/15. For Secondary 6, the number of students taking three elective subjects in the HKDSE Examination is stabilising at around 17%. The percentage increased to about 26% if the Mathematics Extended Part Module 1 (M1) and Module 2 (M2) were considered equivalent to an elective subject in this context.

The *Subject Information Survey* indicated that the pattern of elective subjects taken by students remained stable over the years. While some subjects continued to be more popular among students (the eight most popular subjects in 2014/15 were Biology; Economics; Chemistry; Business, Accounting and Financial Studies [BAFS]; Physics; Geography; Information and Communication Technology [ICT]; Chinese History), some subjects or elective parts attracted fewer students. In particular, it was noted that there was a considerable reduction in the number of students taking M1/M2, from 23% of candidates entering the HKDSE in 2012 to 15% in 2015. Many students who started taking M1/M2 dropped it at the end of Secondary 5 to concentrate on other subjects. Teachers have found it more difficult to encourage Secondary 4 students to take up the Extended Part. This appears to be due to a mix of workload and timetabling issues, as well as the limited recognition of M1/M2 for university entry, according to feedback from teachers. For the latter reasons, M1/M2 is required in some University Grants Committee-funded (UGC-funded) undergraduate programmes, but is not included in the general entrance requirements of UGC-funded institutions. However, these policies are undergoing changes. For example, three more local universities will consider M1/M2 an elective subject in their general entrance requirements for admissions to undergraduate programmes from 2015/16, 2016/17 and 2017/18 respectively.

Stakeholder interviews suggested there were several reasons why students were studying fewer elective subjects. The major ones included changing school policies, timetabling issues, students' and teachers' concerns about workload, less academic students finding senior secondary subjects too challenging, and the backwash effect of universities' admissions policies.

Among students admitted to higher education through the Joint University Programmes Admissions System (JUPAS) in 2014, an average of 54% had taken three elective subjects, with a range of 22%–74% across different programmes. On average, of those admitted, less than 1% took one elective subject.

In focus group interviews, students and Secondary 6 graduates appreciated the *flexibility* that the senior secondary curriculum allowed for them to choose subjects according to their interests and abilities. However, some students indicated that their choices were limited to two elective subjects because of school policy, while others suggested that their decisions were driven by admissions criteria for tertiary education rather than their interests.

Principals shared concerns that the time required to teach core subjects resulted in less time for content-based elective subjects. Despite these concerns, there was wide agreement among schools (90%) to maintain the existing curriculum framework, and the majority of principals (68%–82%) agreed that the overall student programme could achieve the curriculum aims of the senior secondary curriculum (see Figure 4 and section 3.1.1).

3.1.3 Resource Deployment for Facilitating Implementation of the NAS

A. Human resources

Resources have, in general, been well deployed, with schools feeling confident that they have sustainable human resources and funding to deliver the senior secondary curriculum. The majority of panel heads (83%) agreed that human resource plans were put in place to ensure the sustainable development of their panels, according to the *Curriculum Implementation Survey 2014/15*.

Co-ordination of the senior secondary curriculum has been improving. Schools are, in general, deploying co-ordinators for SBA, OLE and provision for gifted education, resulting in better co-ordination of these key components of the curriculum.

Some schools successfully use alumni to support SBA, and artists to support Visual Arts. Community resources (including alumni and SSB networks) are utilised to support OLE and Ethics and Religious Studies (ERS), according to the senior secondary curriculum and OLE implementation studies. In some schools, this has been extended to leadership training, mentorships and internships as part of students' career-related activities.

B. Other resources

Schools have successfully planned and made use of school facilities and learning and teaching materials to support the implementation of the senior secondary curriculum, for example, through building e-platforms, e-resources and special reference areas in their libraries. However, observations from school visit revealed that teacher-librarians needed to work more closely with subject teachers to ensure the effective use of library resources and services.

Some schools have adopted e-learning to promote self-directed learning. The Fourth Strategy on Information Technology in Education (ITE4) was launched in the 2015/16 school year to further enhance the learning and teaching effectiveness in schools with the use of IT.

Almost all schools flexibly harnessed financial resources for OLE and were able to provide sufficient financial support for students to engage in OLE activities regardless of their socio-economic background, according to the *Other Learning Experiences Research 2013/14*¹¹ (*OLE Research 2013/14*). There was general agreement that schools should focus on the quality of OLE activities rather than the quantity.

¹¹ Number of respondents: 951 students and 118 OLE co-ordinators or frontline teachers, from 23 schools. Respondents from 11 schools participated in focus group interviews.

Schools have been provided with different cash grants to support the implementation of the senior secondary curriculum. For example, all schools have been provided with the recurrent Senior Secondary Curriculum Support Grant, which they have used for hiring additional staff and purchasing curriculum resources. The start-off Liberal Studies Curriculum Support Grant has also been provided for all secondary schools to support the learning and teaching of Liberal Studies at the initial stage of implementation. In addition, schools are making good use of the Diversity Learning Grant to offer Applied Learning courses, Other Languages and Other Programmes (including gifted education programmes and network programmes) of senior secondary subjects, with around 90% of school applying for the grant.

Other organisations have also contributed funding. For example, The Hong Kong Jockey Club Charities Trust and EDB has set up The Hong Kong Jockey Club Life-wide Learning Fund to enable financially needy students to take full advantage of OLE opportunities.

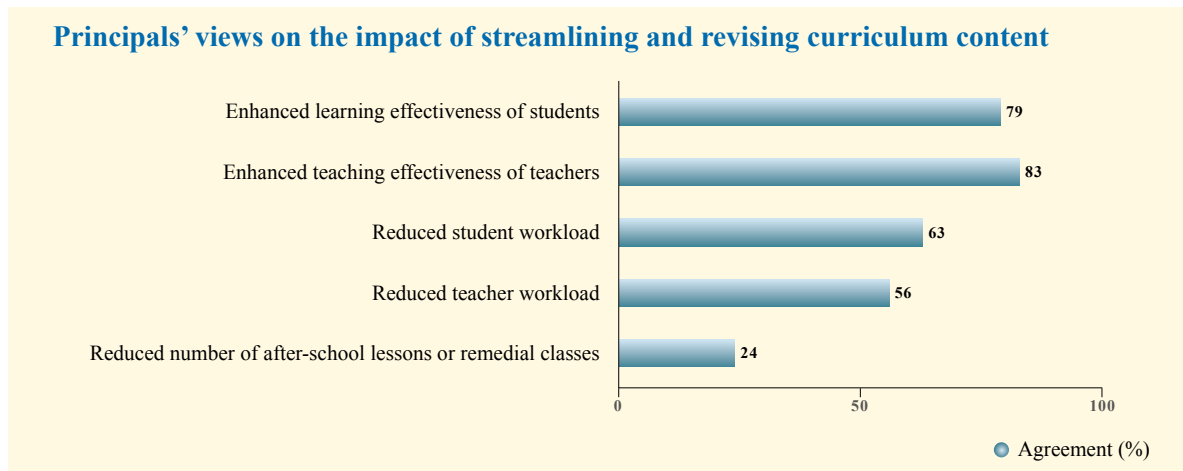
3.2 Learning and Teaching

Under the NAS, teachers have to adapt not only to the new subject curricula and new public assessment, but also the new pedagogical approaches such as the emphases on the enquiry approach to learning, assessment for learning, and co-construction of knowledge, among others. All these have implications on learning and teaching, which in turn have created challenges for teachers and students in the initial stage of implementation. In view of the concerns raised by different stakeholders, the Short-term Review was conducted in quick response to address these issues to smooth the implementation.

The fine-tuning measures introduced as part of the Short-term Review in 2012/13 and the first batch of measures in the Medium-term Review have been well received. The measures have had positive impacts on teachers, increasing their confidence in and understanding of the curriculum and assessment. They have also supported improvements in learning and teaching, and had some impacts in reducing workload.

3.2.1 Impact of Measures for Fine-tuning Curriculum

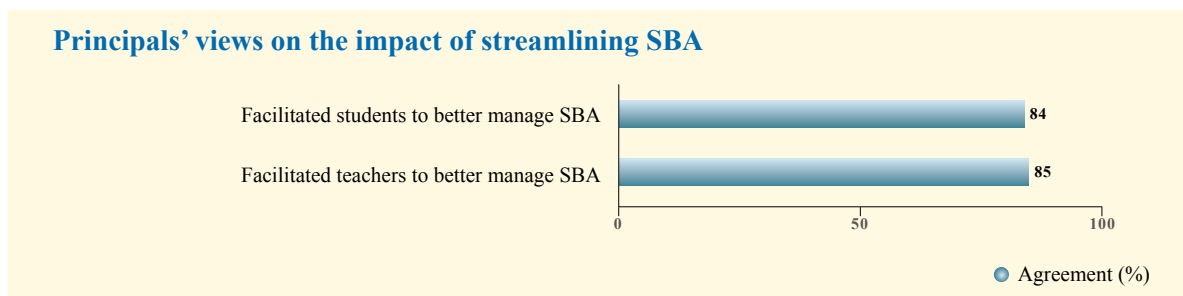
Fine-tuning measures for the curriculum have had positive impacts, according to feedback in the *School Survey on Medium-term Review (2014/15)* (Figure 7). The greatest impact was on the effectiveness of learning and teaching, for both teachers and students. Over half of the principals observed a reduction of workload for both teachers and students. Less than a quarter, though, reported that schools reduced the number of after-school tutorials or remedial classes. The clarification of curriculum breadth and depth had a positive impact on teacher confidence and their understanding of the requirements of the curriculum and assessment, but less effect on helping teachers cater for learner diversity as less than half of the principals agreed that this helped them cater better for diversity.

► **Figure 7**

Source: *School Survey on Medium-term Review (2014/15)*.

3.2.2 Impact of Measures for SBA

Fine-tuning and streamlining of SBA in February 2012 and April 2013 had a positive impact on the implementation of the curriculum. Over 80% of principals and 61%–64% of panel heads and teachers expressed this view in the *Senior Secondary Curriculum Implementation Survey 2012/13*¹² (*Curriculum Implementation Survey 2012/13*). The majority of principals indicated in the *School Survey on Medium-term Review (2014/15)* that it had facilitated both students and teachers to better manage SBA (Figure 8), and consistent findings were reported in a survey (HKFEW, 2014) where the majority of teachers agreed that the streamlining measures on SBA had helped reduce teacher and student workload.

► **Figure 8**

Source: *School Survey on Medium-term Review (2014/15)*.

The Medium-term Review indicated that learning and teaching were, in general, well managed in schools, through planning and monitoring processes and collaboration among teachers, including collaborative lesson planning and peer observation. School visit observations revealed that clear learning objectives were set and assessments were appropriate. There were many good practices to which reference can be made.

¹² Number of respondents: 100 secondary schools (91 principals; 1,029 KLA co-ordinators/panel heads; 89 career masters; 90 OLE co-ordinators; 2,550 senior secondary teachers; 5,302 Secondary 5 students; and 6,660 Secondary 4 students).

3.2.3 Catering for Diversity

Learner diversity presents challenges to teachers in adapting curriculum, teaching approaches and assessment materials for students' different learning needs and in motivating lower achievers. Schools have made various arrangements, such as flexible grouping, remedial and extension activities, varying curriculum content, pedagogy and assignments to cater for learner needs and interests. While schools have catered for diversity for well-defined student groups, such as gifted students, NCS students and those with SEN, learner diversity in the regular classroom remains one of the greatest challenges faced by teachers.

There is a need to help schools overcome these challenges through more flexibility in learning and teaching, more support measures and professional development, and further fine-tuning the curriculum and assessment. The EDB offers extensive funding, learning and teaching resources, and professional development activities to help schools better cater for the greater diversity of students studying the senior secondary curriculum. The Capacity Enhancement Grant, Diversity Learning Grant and the Quality Education Fund (QEF) are the key funding resources available and are widely used. Particular initiatives are described below.

A. Learner diversity in the regular classroom

In the *Curriculum Implementation Survey 2014/15*, learner diversity was the most frequently rated item for causing less favourable impact on the curriculum implementation, cited by 41% of principals, 40% of panel heads and 39% of senior secondary teachers. Follow-up case studies suggested that the development of a school-based curriculum tailored to the diverse learning needs of students was particularly important for managing learner diversity.

Principal voice

“More methods and strategies are required to cater for learner diversity so as to prevent students with weaker learning abilities from giving up their learning too early.”

Curriculum Implementation Surveys 2012/13 and 2014/15 showed that the majority of schools (over 85%) had adapted curriculum content and teaching plans to cater for learner diversity in daily classroom learning and teaching, and the majority (over 85%) reported that these were effective. Observations from school visits indicated that in designing learning and teaching, teachers made reference to skills required in different levels and performance goals. For example, in Mathematics, graded tasks were set, with the level of difficulty adjusted for lower achieving students. For Chinese Language, some schools provided enrichment programmes for high achievers. Good practices were observed in one school where a programme was developed for lower achieving students to practise English in authentic settings through work experience in travel agencies and hotels.

B. Students with special educational needs

The EDB has increased its support to help schools cater for diversity by adopting integrated education for students with SEN.

In addition to the provision of the Learning Support Grant for schools to employ staff, procure learning and teaching materials and purchase support services for students with SEN, schools have also benefited from the setting up of a network of 10 Special Schools cum Resource Centres and 13 Resource Schools on the Whole School Approach – the latter being ordinary schools that have successfully implemented integrated education. These schools provide school-based support to

ordinary schools. Support services may take the form of seminars, training and workshops, on-site or web-based consultancy, school-based sharing sessions and class observations, and sharing of education resources and facilities. Individual Special School cum Resource Centres also provide short-term attachment programmes for students with intellectual disability who experience severe adjustment difficulties in ordinary schools.

The EDB launched a five-year teacher professional development framework on integrated education to enhance the professional capacity of teachers in catering for students with SEN, in the 2007/08 school year. Following positive feedback from schools and other stakeholders, a new round of Basic, Advanced and Thematic Courses with adjusted training content and targets has been launched for serving teachers since the 2012/13 school year. In view of different educational needs of students enrolled in special schools, the EDB has provided a 240-hour training course for special school teachers since the 2012/13 school year. Under the principle of “One Curriculum Framework for All”, special schools for children with intellectual disability have adapted the senior secondary curriculum by offering three core subjects, including Chinese Language, Mathematics and Liberal Studies/Independent Living, and elective subjects such as ERS, HMSC, ICT, Music, Physical Education, Visual Arts and Adapted Applied Learning to meet the needs, interests and abilities of their students.

The HKEAA’s arrangements for students with SEN to take the HKDSE Examination have been well-received, with nearly two-thirds of *Candidate Survey on the HKDSE Examination (HKDSE Candidate Survey) (2014)*¹³ respondents indicating satisfaction with special centres and examination arrangements.

C. Non-Chinese speaking students

From the 2014/15 school year, the EDB enhanced education support for NCS students in learning Chinese as a second language as well as the creation of a more inclusive environment in schools. The EDB provided schools with the Chinese Language Curriculum Second Language Learning Framework to help NCS students overcome the challenges of learning Chinese as a second language and to act as a bridge to the mainstream Chinese Language classes. Complementary support measures included additional recurrent funding, enhanced school-based professional support and professional development for teachers and provision of resources for planning, learning and assessment.

Applied Learning Chinese (for NCS students) was introduced in phases from the 2014/15 school year, providing an additional channel exclusively for NCS students to obtain an alternative Chinese language qualification to enhance their further studies and employability. This is recognised as an alternative Chinese language qualification for admissions to UGC-funded institutions and most post-secondary institutions, and for appointment to the civil service. Moreover, NCS students can opt to take other Applied Learning courses taught in English, for example, Aviation Studies and Western Cuisine offered for the 2015–17 cohort.

¹³ Number of respondents: 2,280 candidates.

D. Gifted students

In catering for the needs of gifted students, an increasing number of schools provided school-based gifted education (from 62% of schools in 2010 to 83% in 2014), according to the *Survey on School-based Gifted Education Provision in Hong Kong (Gifted Education Survey) (2015)*¹⁴. In total, 76% of schools grouped gifted students according to their abilities and needs, 55% adjusted learning and teaching to cater for gifted students, and 40% strategically identified gifted students in regular classes. More than 80% offered school-based pull-out activities or nominated gifted students to attend off-site gifted education programmes or participate in national, regional or international competitions.

An increasing number of schools are making use of the Capacity Enhancement Grant and Diversity Learning Grant to fund school-based gifted education provision. They are also participating in professional development activities organised by the EDB, the Hong Kong Academy for Gifted Education (HKAGE) and tertiary institutions; and nominating students to attend off-site gifted education programmes delivered by HKAGE and other organisations. More schools have taken advantage of these support initiatives (ranging between 48%–82% for different support initiatives in 2014 as compared with 10%–71% in 2010), according to the *Gifted Education Survey*.

A key focus of professional development activities related to gifted education is to help teachers differentiate their learning and teaching strategies in regular classes to cater for the full diversity of students, including the gifted and more able students, so that all can benefit.

3.2.4 Progress in Pedagogy

A. Self-directed learning

Learner diversity needs to be catered for through adopting appropriate learning and teaching strategies, and using a variety of approaches to enhance the quality of learning and learner enquiry. The development of students' self-directed learning was one of the key objectives of the NAS, and the Independent Enquiry Study (IES) of Liberal Studies was one of the key means to facilitate self-directed learning through the adoption of an enquiry approach.

In addition to IES, the learning and teaching of other core and elective subjects should facilitate self-directed learning. It was observed in EDB school visits that teachers promoted self-directed learning while employing direct instruction. However, it was also noted that teachers could do more to adopt pedagogical practices to achieve the aims of the senior secondary curriculum.

B. e-Learning: Suitable technology to be used at the right time for the right task

e-Learning has been a key focus in recent years. In 2010/11, the EDB launched the Pilot Scheme on e-learning in schools, with 61 schools conducting 21 pioneer projects. Success factors in conducting e-learning to unleash students' potential were observed. For other schools, as observed from school visits up to 2013/14, progress was made at different paces under different school contexts. Some schools used IT as an integral part of learning and a means of transforming learning. Some used e-platforms for hosting examination question banks. A few schools aimed to use it for self-directed learning. Most schools used IT as a replacement for delivering printed materials. For example, in English Language, students were given self-access to e-reading programmes. It would be more encouraging if more opportunities could be provided to foster collaborative learning. With the launch of the ITE4 in 2015/16 and the implementation of WiFi 100 and WiFi 900 projects

¹⁴ Number of respondents: 360 secondary schools.

for strengthening schools' WiFi infrastructure, all public sector schools will acquire advanced IT facilities to support e-learning in their premises. In addition, PDPs to enhance teachers' mastery of e-learning pedagogy and school-based support provided through the Centre of Excellence Scheme were put in place in 2015/16. Adoption of e-learning for the benefit of students' whole-person development is expected to be observed in the near future.

3.2.5 Progress in Pedagogy: Liberal Studies

Important progress has been made in the implementation of Liberal Studies, with more students enjoying and seeing the benefits of the subject, though students need to be motivated further to engage in enquiry-based and self-directed learning as envisaged in *Learning to Learn* and the future continual curriculum renewal. For teachers, PDPs and networks have been continually provided to enhance their professional capacity in the learning and teaching as well as assessment of the subject.

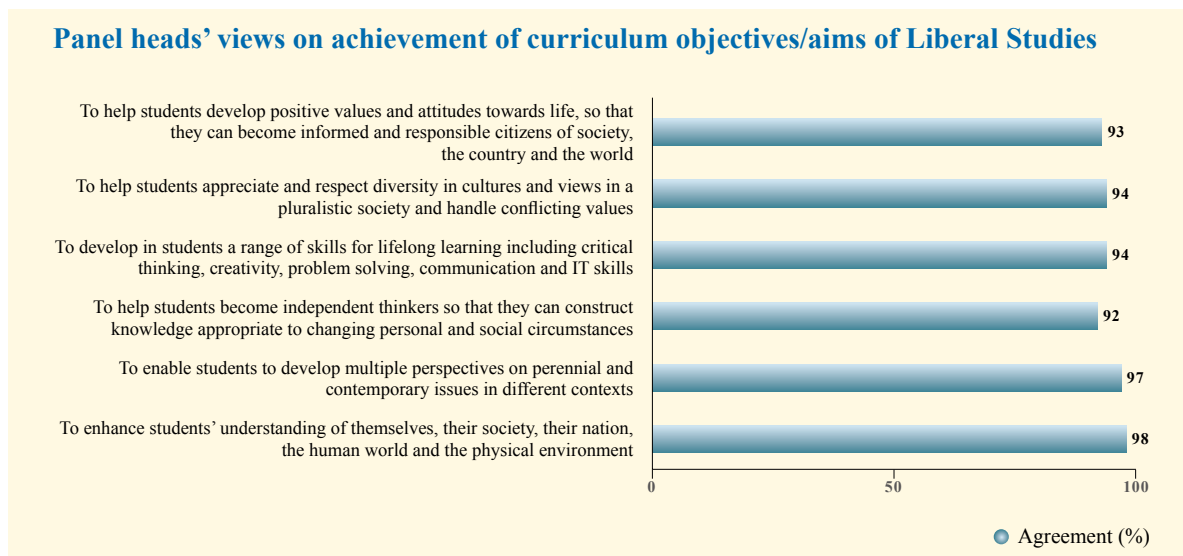
Myth and reality

Liberal Studies has been narrowly portrayed in some media as a study of current affairs and overly focused on political issues. The curriculum is in fact much broader than that. Its three Areas of Studies comprise: Self and Personal Development; Society and Culture; and Science, Technology and the Environment. The subject is a key platform for enquiry-based learning, widening students' perspectives and preparing them with key knowledge and skills to live in an increasingly complex world.

A. Curriculum aims

Schools have indicated that the curriculum aims of Liberal Studies, including the development of students' understanding of multiple perspectives, respect, and positive values and attitudes, are being realised. In the *School Survey on Medium-term Review (2014/15)*, the majority of schools were highly positive regarding student achievement of the curriculum aims of Liberal Studies upon completion of their secondary education, with over 90% agreeing that these aims were achieved (Figure 9), and 78% agreeing that the curriculum framework of three Areas of Study and six Modules should be maintained.

► Figure 9



Source: *School Survey on Medium-term Review (2014/15)*.

B. Cross-disciplinary and enquiry approach

Principals also expressed that the subject provided a key focus for teaching innovations on enquiry-based learning, which could have a positive backwash effect on other subjects. This is evident in teaching practices observed in schools. Observations from EDB school visits indicated that in most schools visited, a knowledge-based approach and direct instruction were used, followed by issue enquiry through class or group discussion. Many schools were found to provide a wide variety of cross- and co-curricular activities to enrich learning experience for Liberal Studies, such as debates, news forums, and field trips to museums, government organisations, and places beyond Hong Kong such as the Mainland.

The *New Senior Secondary Liberal Studies Curriculum Implementation Study 2013/14*¹⁵ (*LS Study 2013/14*) identified a number of good practices, such as the use of a “concentric circle” curriculum which extended from self to the globe, an interdisciplinary curriculum with progressive targets on generic skills and the re-sequencing or merging of modules and themes. Some schools successfully adopted an issue-enquiry approach, making use of a mix of individual issue-enquiry, co-operative learning strategies and oral presentations. Teachers also used feedback sessions to promote assessment for learning. The use of student tutors to help their peers in the IES was another innovative practice highlighted in the study.

In the *LS Study 2013/14*, most students were found to enjoy or show interest in the subject. Most Secondary 5 students were confident of achieving Level 2 in the public assessment, but there was less confidence about higher achievements.

“ Student voices

“Liberal Studies has the greatest impact on me. It requires us to be sensitive to things and events around us. Through studying Liberal Studies, I have become more sensitive to current issues. What is more, I have learnt to think thoroughly before accepting or opposing any views.”

“Liberal Studies has greatly widened my knowledge base. Just when everyone talks about global citizenship today, I have learnt much more about global issues through studying Liberal Studies.”

“Liberal Studies enables us to view issues from different perspectives.”

C. Challenges

While different stakeholders saw positive views of the impact of Liberal Studies on students, some students in the *LS Study 2013/14* and case studies in the *Curriculum Implementation Survey 2014/15* opined that they found the curriculum too broad and intangible, IES too demanding, the time frame too long and the workload too heavy. Their interest and level of participation varied according to the teacher, class culture, module, issue, and their academic ability, as well as whether the subject was taught in Chinese or English. The *LS Study 2013/14* suggested that when English was used, students found the subject more boring, and the workload heavier. More articulate students with strong language skills were found to benefit most from the subject.

¹⁵ Number of respondents: 21 secondary schools (22 panel heads/Liberal Studies co-ordinators; 42 Liberal Studies teachers; 84 Secondary 4 students; and 84 Secondary 5 students).

However, it is worth noting that though some current senior secondary students found Liberal Studies broad and intangible, students who graduated from school under the NAS and pursued post-secondary studies held more positive views and considered the subject useful in supporting their post-secondary studies (see further details on the impact of Liberal Studies in post-secondary studies in section 4.2.1).

Observations from EDB school visits revealed that while there were good practices, some schools were still too reliant on “textbooks”¹⁶ and reference materials supplied by publishers, and needed further support in promoting enquiry-based learning. Feedback collected in the *LS Study 2013/14* indicated that most schools used school-based resources supplemented with “textbooks” and reference materials supplied by publishers because of the workload in preparing their own and the challenge of keeping materials up to date. However, students in the study shared encouraging feedback that they were making greater use of newspapers, daily news programmes and other resources to support their learning, though concerns were raised regarding students’ level of awareness of the reliability of various sources.

The *LS Study 2013/14* indicated that schools welcomed more school-based support from the EDB and tertiary institutions to consolidate the implementation of the subject, including more professional development on the assessment criteria and the sharing of good practices among schools. Teachers found it beneficial to serve as public examination markers and were interested to do so.

Implementation of the SBA part of the Liberal Studies (i.e. IES) is explored further in section 3.3.2C, which focuses on SBA, and learning outcomes from Liberal Studies are examined in section 4.1.

3.2.6 Applied Learning

A. Good coverage to cater for diversity

Positive feedback from all stakeholders indicated that Applied Learning has been successfully implemented, with a good coverage of the six areas of studies: Creative Studies; Media and Communications; Business, Management and Law; Services; Applied Science; and Engineering and Production. Interviews with principals affirmed that Applied Learning offered curriculum diversity that matched the interests and aspirations of students; enabled them to learn theories through application and practice; and helped them develop generic skills and explore their career aspirations.

The majority of Applied Learning courses are taught on the campuses of course providers in the post-secondary sector. Learning and teaching are adjusted for the diversity of students, according to the *Study on Applied Learning (2011–13 Cohort)*¹⁷. Those with higher learning abilities were encouraged to participate in public competitions for wider exposure and recommended to apply for scholarships, while students who found learning more challenging were given individual assistance to help them develop their language skills and understanding of course content.

¹⁶ In view of the evolving and ever changing nature of issues to be studied in Liberal Studies, using conventional textbooks may not be the best option for the learning and teaching of Liberal Studies, and the submission of Liberal Studies “textbooks” for EDB review is also not accepted at the present stage.

¹⁷ Number of respondents: Survey – 1,633 students; 206 school respondents; 148 course provider respondents. Interviews with 160 students, 20 school representatives, 89 course provider representatives and 15 parents.

Most student respondents in the study held positive views on Applied Learning. They found the courses interesting and well taught and believed there were high possibilities for them to achieve good results and good articulation pathways offered by the course providers.

“ Student voices

“Applied Learning broadens my horizons and offers eye-opening experiences. The course enriches my knowledge of design and gives me opportunities to try something new and different in the field of design.”

“Applied Learning complements my learning of the senior secondary elective subjects. Some of the topics in Applied Learning Medical Laboratory Science and the senior secondary elective subject Biology are related and they can complement each other. I can consolidate the knowledge I acquired in school.”

“In Applied Learning, we learn about the concepts and theories in cosmetology and health from aesthetic and scientific perspectives. We have practical learning opportunities in a simulated beauty parlour.” To further her interest in health and beauty, this student is now pursuing undergraduate studies in food and nutritional sciences and she aspires to become a nutritionist.

”

B. Challenges

The study suggested there was room for further improvement in the range of learning and teaching activities offered to students in Applied Learning courses, including more visits, field trips and practical experiences, according to feedback from students. More than half of students opined that the time allocated to various teaching activities within the total teaching hours was appropriate. However, more than half of them considered the proportion of time spent on visits, field trips and work-related experience too low.

There were some pedagogical and logistical challenges that schools and course providers need to address. For example, some tutors need to develop new skills in teaching less motivated teenagers. Students sometimes had to travel long distances to course providers and faced time clashes with other curricular activities.

Wider recognition of Applied Learning remains an issue. Students can use Applied Learning courses in applications for further studies in degree and sub-degree programmes in post-secondary institutions, which in general value the learning experiences that students have acquired and consider these for bonus points or as additional information. However, there is less recognition for Applied Learning courses as equivalent to elective subjects for admission to degree programmes. While policies and practices vary among institutions, faculties and programmes, this remains a concern for schools, students and parents, as reported in other surveys (e.g. HKFEW).

Stakeholders have also shared concerns that the grading structure of Applied Learning does not adequately reflect higher levels of performance, with the top grade of “Attained with Distinction” comparable to Level 3 or above in Category A subjects of the HKDSE Examination. There were calls for introducing more levels in reporting the results of Applied Learning courses, as reflected in the HKFEW’s 2014 survey. This issue is addressed in the final batch of recommendations in the Medium-term Review.

3.2.7 Whole-person Development through Other Learning Experiences and Career and Life Planning Education

OLE, which aims to provide students with valuable experiences beyond the classroom and help them reflect on and make informed planning for their future studies and career goals, is one of the three components of the senior secondary curriculum. With the Government's emphasis on facilitating students' life planning as announced in the 2014 Policy Address, the EDB has provided more resources to help schools strengthen their support for students in this respect. These included, among others, increased support for OLE and career guidance, as well as the recurrent Career and Life Planning Grant for all secondary schools starting from the 2014/15 school year.

A. Other Learning Experiences

OLE has been effectively implemented with the concerted efforts of all stakeholders. According to internal data from the *OLE Research 2013/14*, all teachers (100%) and nearly all students and graduates agreed that OLE successfully nurtured students' all-round development and positive values. Almost all teachers agreed that schools were able to provide student-focused OLE, and most students (85%) agreed that they could choose OLE activities they liked. The great majority of teachers (94%) made use of various strategies to facilitate students' reflection on OLE, according to the *Curriculum Implementation Survey 2014/15*. OLE was found to be increasingly well coordinated, with emphasis on the quality rather than the quantity of activities, and accessible to all students regardless of their socio-economic background.

In focus group interviews, Secondary 5 and 6 students and Secondary 6 graduates agreed that the design of the senior secondary curriculum helped them develop a sense of their own future and the responsibility to plan their own pathways. In the *Survey on the Experience of the Senior Secondary Graduates under the New Academic Structure: Impact of New Senior Secondary Education on their First-year Experience of Further Studies in Hong Kong*¹⁸ (*Graduate Impact Study*) (2014), 72% of Secondary 6 graduates indicated that Career-related Experiences in OLE had a positive impact on their current studies, which was an increase compared with 67% in 2013 and 57% in 2012. However, in interviews, students and graduates suggested that schools could offer more guidance on pathways other than degree courses.

Meanwhile, employers indicated that they valued Career-related Experiences in OLE and suggested that the education and business communities should work in closer partnership to provide a range of experiential learning opportunities, such as job shadowing and attachments, visits and mentorship activities, to help students better understand and prepare for the world of work.

B. Student Learning Profile

The majority of Secondary 4 and 5 students indicated that teachers helped a lot in guiding them to reflect on their abilities, talents and personal qualities in the SLP. Observations from EDB school visits found that schools were making better use of the SLP to foster students' self-reflection, but there was a need to further refine its use to facilitate career and life planning. Meanwhile, the *School Survey on Medium-term Review (2014/15)* indicated that the streamlining of the Other Experiences and Achievements in Competitions/Activities (OEA) in JUPAS applications had encouraged students to increase their use of the SLP/OEA as a tool to reflect on their learning because of the reduced workload and relaxed requirements. However, students and principals also indicated that there was a need for greater recognition for both OLE and the SLP.

¹⁸ Number of respondents: In 2014, 5,369 students (52.5% degree, 47.5% sub-degree); in 2013, 5,640 (59.2% degree, 40.8% sub-degree); in 2012, 5,226 (63.2% degree, 36.8% sub-degree).

C. Career guidance/Career and life planning

Career masters and class teachers have played important roles in providing support for students in preparing them for multiple pathways. Schools have enhanced their provision of up-to-date information on the multiple pathway options, including the admissions requirements of tertiary and other institutions. Some schools invite organisations to deliver workshops, seminars and talks. They also organise visits to universities and local and international companies, and arrange mentorship programmes.

Teachers played an important role in supporting their students in career planning. According to the *Curriculum Implementation Survey 2014/15*, over 85% of senior secondary students indicated that their teachers encouraged them to think about their further studies and career pathways. However, there is a demand for more professional development for teachers in this area so that all teachers could share this responsibility more effectively.

3.2.8 Workload as an Issue

While learning and teaching under the NAS have had a positive impact on different domains as mentioned in sections 3.2.1 to 3.2.7 above, workload remains an issue. Schools face challenges in managing the breadth and depth of the senior secondary curriculum, catering for learner diversity, implementing SBA, and preparing students for the public examination. Some teachers may be required to teach more subjects and more levels under the NAS.

Students and teachers expressed concerns that excessive workload had a negative effect on student motivation, learning attitudes and psychological health, and limited the time they had for self-directed learning and other activities that promoted whole-person development. Insufficient time to cover the curriculum and manage the assessment was regarded as a continuing constraint. Pressure to complete the curriculum early – in some schools as early as the end of Secondary 5 – to make time for examination practice may also affect the workload for both students and teachers.

In focus group interviews, senior secondary students and graduates shared that they regarded the curriculum as rich and challenging. However, some felt that school life under the senior secondary curriculum was exhausting, with the workload increasing over the three years.

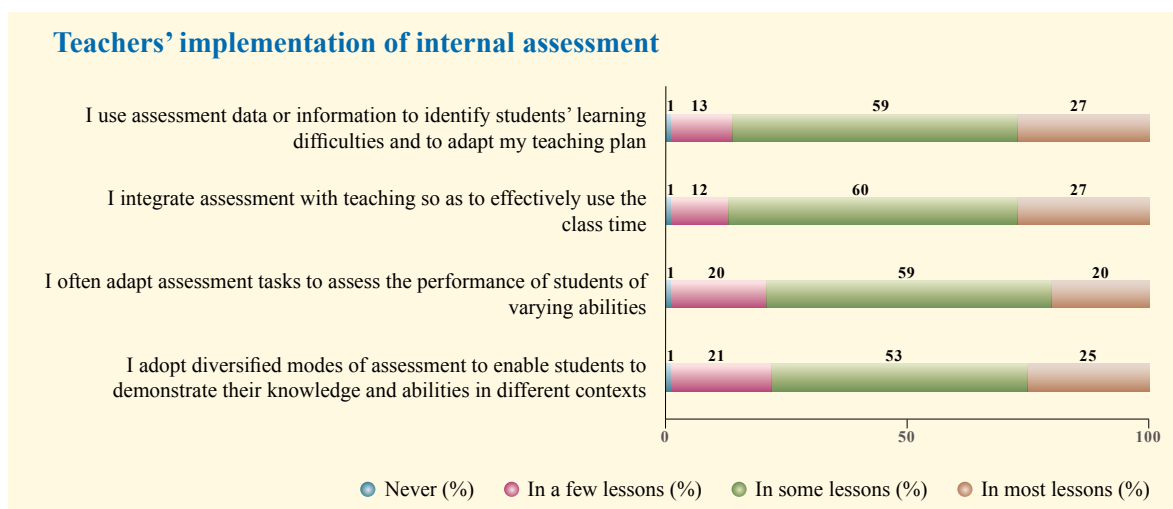
The ongoing needs of schools, including the need to address the perceived issue of excessive workload, are further addressed in Chapter 5.

3.3 Assessment

3.3.1 Internal Assessment

Curriculum Implementation Surveys 2012/13 and 2014/15 indicate that under the NAS, clear school-based assessment policies are in place, and teachers are implementing assessment for learning as well as catering for learner diversity. For example, teachers use assessment data to identify student learning difficulties, adapt their teaching plans, assess the performance of students of varying abilities and enable students to demonstrate their knowledge and abilities in different contexts (Figure 10).

► **Figure 10**



Source: *Curriculum Implementation Survey 2014/15* (Preliminary findings as at August 2015).

EDB school visits corroborated these self-reports and found that schools had clear assessment policies comprising continuous and summative assessment, as well as clear policies on assignments. While schools are making progress in implementing *assessment for learning*, they could reduce the frequency of summative assessment, make better use of level descriptors for setting assignments and use assessment data to inform learning and teaching.

Observations from school visits revealed that in Liberal Studies a wide variety of assessment tasks facilitated the development of students' skills and knowledge. These aligned with the curriculum aims and learning and teaching objectives of promoting higher-order thinking. Students worked in groups and participated in discussions, debates or presentations as part of continuous assessment. However, in some schools they were required to regurgitate vocabulary and definitions of concepts as part of the assessment tasks, which is less desirable unless accompanied with other assessment tasks that require higher-order skills such as critical thinking.

Curriculum Implementation Survey 2014/15 data indicated that principals, panel heads and senior secondary teachers were refining their approaches to assessment. These included:

- Introducing the senior secondary mode of assessment at junior secondary level;
- Adjusting content and type of assessment tools;
- Aligning internal assessment tools for better preparation for the HKDSE; and
- Diversifying the types of assessment.

However, the same survey data indicated they had not reduced the time spent on assessment to increase time for learning and teaching.

3.3.2 Public Assessment – School-based Assessment

SBA is an integral part of the curriculum, pedagogy and assessment cycle. The primary principle is to enhance the validity of the overall assessment and extend it to include a variety of learning outcomes that cannot be readily assessed through public examination. Through SBA, students are able to acquire important skills, knowledge and work habits.

A. Positive impact of School-based Assessment on learning and teaching

Some schools designed the level of SBA tasks according to student abilities, as observed in EDB school visits. By doing this, learning goals were more realistic and achievable, thus improving student motivation.

Observations from school visits also showed that English teachers appreciated the rationale of SBA and agreed that it provided more opportunities for students to speak the language, motivated them to improve their speaking skills and enhanced their confidence in speaking. Students found the tasks enjoyable, even though the workload involved was still a concern.

Students also affirmed the benefits of SBA. Secondary 6 graduates shared that the IES and Science SBA helped their further studies by preparing them for self-directed learning and laboratory work. In 2014, Secondary 6 graduate respondents indicated that SBA was helpful for their further studies, with responses varying across different subjects (48%–62%) (Figure 11).

► Figure 11

Subject	2014	2013
IES in Liberal Studies	62%	56%
SBA of English Language	56%	51%
SBA of Chinese Language	48%	43%
SBA of elective subjects	60%	44%

Source: *Graduate Impact Study (2013, 2014)*. Responses based on an 11-point Likert scale, the figures indicating the percentage of respondents with scores at mid-point or above.

Senior secondary students' views towards SBA were more ambivalent as they progressed towards Secondary 6, as seen in their responses in the *Curriculum Implementation Survey 2014/15*. For example, over half of Secondary 4 students (56%) agreed that SBA enabled them to better understand their strengths and weaknesses, compared with just under half (47%) of Secondary 5 students. In total, 55% of Secondary 4 students agreed that SBA facilitated their learning, compared with 39% of Secondary 5 students surveyed.

B. Streamlining arrangements of SBA

In spite of its good intentions and the general support by teachers on professional grounds, the workload generated from SBA has continued to be one of the major concerns raised by teachers and students since its implementation. There is also room for improvement in the collaboration across KLAS to avoid scheduling clashes and SBA impinging on other areas of the curriculum, such as OLE and Applied Learning.

In the 2012 HKDSE, SBA was implemented in 12 subjects. In both the Short-term and Medium-term Reviews, SBA was identified as one of the main challenges facing schools. The EDB, CDC and HKEAA responded to the concerns and streamlining arrangements were announced in 2012 in nine of the 12 subjects, with further streamlining announced in 2013 and 2014 for the 2014 HKDSE

and beyond. Implementation of SBA for another nine subjects was deferred from the 2016 HKDSE until 2019, and for three subjects, namely Mathematics, BAFS and Physical Education, it was decided not to implement SBA. In addition to these streamlining arrangements, a holistic review of SBA was pledged in the Medium-term Review to further address the workload issue (see section 6.3.3 for details).

As seen in section 3.2.2 above, the fine-tuning measures had a positive impact on the experiences of students and teachers, and SBA is now regarded as more manageable.

C. Independent Enquiry Study

“ Senior secondary graduate voices

“SBA in Liberal Studies (IES) helped my current studies. The process of SBA inspired me to think about how to carry out research, such as setting the topic, finding data and analysing the data. This was useful for the research project in my Marketing study.”

(Business, Accounting, Finance and Economics undergraduate student)

“SBA in science subjects gave me real experience in doing experiments, which raised my interest in studying these subjects. I learned through hands-on practice, not just theories from books. I became a more conscientious, attentive and careful person and took the initiative to raise questions.”

(Sciences and Applied Sciences undergraduate student)

”

SBA in Liberal Studies, which requires students to conduct an IES, is one of the major innovative features of the senior secondary curriculum, designed to promote students’ enquiry skills and self-directed learning. However, it has also presented a challenge for both teachers and students in organisation and workload, which was addressed in the short-term and first batch of the medium-term measures. This involved introducing the Structured Enquiry Approach to help students in conducting the IES; reducing assessment stages from three (Project Proposal, Data Collection and Product) to one and submitting only one Task (i.e. the final report) in the Product Stage for assessment. These changes were implemented at Secondary 4 in 2014/15 leading to the 2017 HKDSE.

Longitudinal studies showed that teachers were becoming more familiar with the requirements of the IES, and using various school-based arrangements to reduce the workload of both students and teachers, such as structured templates for guiding student projects. With the introduction of the fine-tuning measures for the 2013 and 2014 examinations, teachers were satisfied with their own and their school’s preparation for the IES in 2014. Opinions were, in general, more favourable in comparison with those from 2011, except for the need for additional time to implement IES, which remained unchanged in the average response, according to the HKEAA *Questionnaire Survey on the Implementation of Independent Enquiry Study for 2014 HKDSE Liberal Studies*¹⁹. Teachers also found the potential problems less severe, in particular on the general administrative work involved in IES.

Student views were more positive, except for the concern that fairness could be undermined owing to excessive help from tutors or parents. However, both students and teachers indicated that the changes have had little impact on the workload involved.

¹⁹ Number of respondents: 15 schools (1,917 students; 85 IES supervisors).

“ Student voice

“I think I learn more from doing IES than from direct teaching. Through SBA and IES, I’ve learned how to collect, analyse and summarise data to draw a conclusion. The process not only enriches my knowledge on a specific topic, but also enhances my learning capabilities and equips me for post-secondary study.”

”

As the Structured Enquiry Approach of the IES has been implemented for less than a year, it may be too early for it to have had a significant impact on the learning and teaching of the subject. However, it is observed that the workload on assessment for both teachers and students is lessened in comparison with the early implementation, while the assessment standards of the IES are still maintained.

D. Ongoing concerns about School-based Assessment

Teachers’ views on the value and implementation of SBA have, in general, remained mixed. Around half saw benefits for student learning but there were greater reservations whether SBA could enhance student confidence and motivation. In the HKEAA *School Survey on the Assessment Frameworks and Examination Papers of the HKDSE Examination (School Survey on HKDSE Examination)*, conducted after the examination, there was a slight improvement in responses on SBA between 2012 and 2014.

Respondents were most positive that teachers on their panels could effectively assess student performance in SBA, but less certain that SBA could promote student confidence and motivation to learn. Many respondents requested further reduction and streamlining of SBA, as echoed in the more recent *School Survey on Medium-term Review (2014/15)*, focus group interviews and other feedback.

Despite important progress in SBA to enhance student learning, many schools have remained concerned about the workload for students and teachers, how it may increase in the future if SBA is implemented in more subjects, and a perceived lack of lesson time to conduct it. In addition, there are some reservations about the fairness of the exercise, including advantages for students with family support, and the moderation process. This feedback has helped inform the holistic review and further fine-tuning recommendations for SBA discussed in Part C.

3.3.3 Public Assessment – Hong Kong Diploma of Secondary Education Examination

From its first implementation, the HKDSE has become well established and accepted as Hong Kong’s school-leaving qualification that successfully leads the great majority of students to multiple pathways of post-secondary and higher education, and to employment.

Teachers have shown increasing satisfaction with the HKDSE Examination as an assessment, including the SRR system, assessment coverage for Category A and B subjects, administration of the examination, and support provided by the HKEAA, according to feedback in the *School Survey on HKDSE Examination (2014)*.

Observations from EDB school visits revealed that teachers in some subjects, such as English Language, welcomed the graded approach in the HKDSE Examination as being effective in catering for learner diversity. Students could set realistic goals, attempting sections based on their performance in internal assessments. However, many teachers shared feedback that there should be greater flexibility in the number of Elective Modules in English Language offered in schools to

allow time for deeper learning and to meet the needs of students of a wide ability range. This issue was addressed in the Medium-term Review.

Teachers indicated that they prepared their students well for the HKDSE Examination, for example, by explaining the requirements and assessment criteria, arranging learning and teaching activities to prepare for it, sharing experiences of the HKDSE Examinations and holding mock HKDSE Examinations to give students more first-hand experience. While mock examinations have value, schools should not stop teaching the curriculum too early in the Secondary 6 year, and should avoid excessive tests and examinations in order to maintain a healthy balance between learning, teaching and assessment.

As for students, the *Curriculum Implementation Survey 2014/15* showed that less than half of the Secondary 5 students felt confident in taking the public examination, and more than half of the respondents in the *HKDSE Candidate Survey (2014)* indicated that their results did not reflect their performance in the examination.

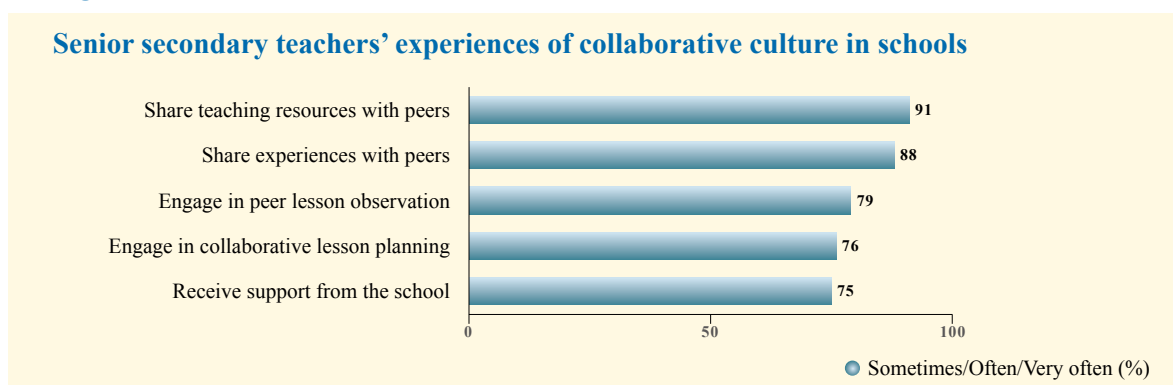
3.4 Capacity Building

3.4.1 Schools as Professional Learning Organisations

Schools have made great efforts to develop as professional learning organisations to facilitate the necessary professional development of their staff to support the implementation of the senior secondary curriculum and continual curriculum renewal.

Strong collaborative cultures have emerged in many schools. For example, teachers shared teaching experiences and resources with each other, engaged in collaborative lesson planning and peer lesson observation to review teaching progress, evaluated students' class performance and explored various teaching strategies to improve learning and teaching effectiveness, according to the feedback from the *Curriculum Implementation Survey 2014/15* (Figure 12). Teachers are keen to participate in HKDSE Examination marking for professional development and better understanding of the assessment criteria and processes. Mentoring systems are also well established in some schools.

► *Figure 12*



Source: *Curriculum Implementation Survey 2014/15* (Preliminary findings as at August 2015).

Observations from EDB school visits revealed such good practices and saw scope for further development based on these experiences. For example, there is scope for more collaborative lesson planning both within and across subjects. Peer observation could be used more effectively to enhance teaching practice. Meanwhile, it was also observed that teachers' participation in training courses

and further studies relevant to the senior secondary curriculum could be improved in some schools. In addition, some schools needed to strengthen their appraisal systems and make better use of school evaluation findings to inform the planning of professional development activities.

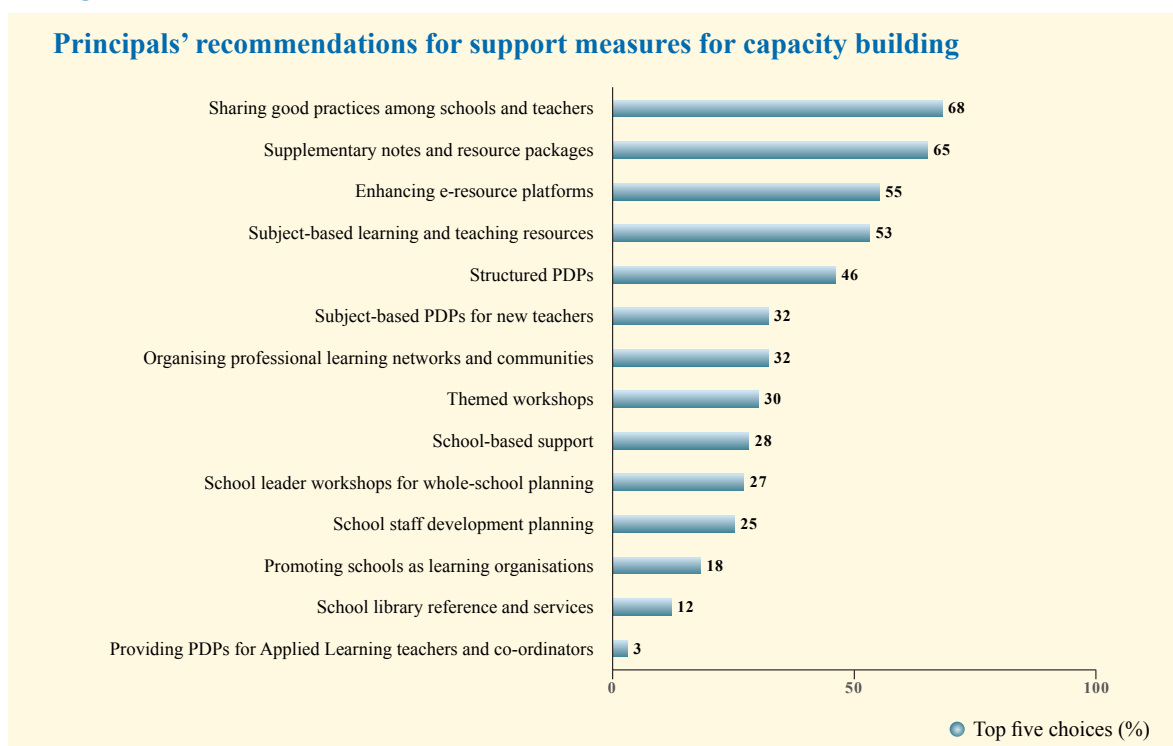
In general, within schools measures are in place to facilitate teachers' development and the sustainable development of subject panels, according to principals and panel heads. However, staff turnover was cited as an issue for some schools and some subjects such as Liberal Studies. Schools were making good use of extensive external and school-based professional development opportunities. In total, 66% of schools received school-based professional support services in 2014/15, which was an increase from 61% in 2013/14. The School Support Partners (Seconded Teacher) Scheme was most popular (supporting about 100 schools), followed by Language Learning Support (supporting 93 schools), and School-based Curriculum Development (supporting 82 schools). The good practice of one school that used funding from the Refined English Enhancement Scheme to support Language across the Curriculum through professional development for subject teachers was observed in EDB school visits.

Supportive measures from the EDB and HKEAA have been well received by teachers. Observations from EDB school visits found that teachers were keen to attend PDPs for enrichment and to keep abreast of the latest developments in public examination related to their subjects, which will continue to be provided and enhanced in the EDB's continual support for capacity building.

3.4.2 Future Professional Development Needs

Priorities for further professional development were identified in the review. Principals regarded the sharing of good practices among schools and teachers to be their lead priority, followed by the need for more supplementary notes and resource packages (Figure 13). There was also a demand for development activities related to enhancing teachers' skills in adopting more interactive teaching approaches, questioning techniques to support enquiry learning, catering for diversity, the better use of e-learning and career guidance training for class teachers.

► **Figure 13**



Source: *School Survey on Medium-term Review (2014/15)*. Respondents were asked to indicate their top five choices.

Chapter 4

Impact on Students

As observed, after four complete cycles of implementing the senior secondary curriculum and assessment, students, in general, have performed well in both public examinations and the achievement of broader learning goals, generic skills and whole-person development, equipping them for lifelong learning, fulfilling lives, employment and to contribute to society.

Stakeholders have shared the feedback that students are, in general, able to handle the senior secondary curriculum and assessment and have adapted well to the “learner-centred” NAS.

4.1 Impact on Senior Secondary Education

Overall, feedback suggested that the senior secondary curriculum has been effective in developing and strengthening students’ learning skills and fostering their whole-person development. Such an impact is evident from schools and students themselves and is illustrated in the sections below.

4.1.1 Seven Learning Goals

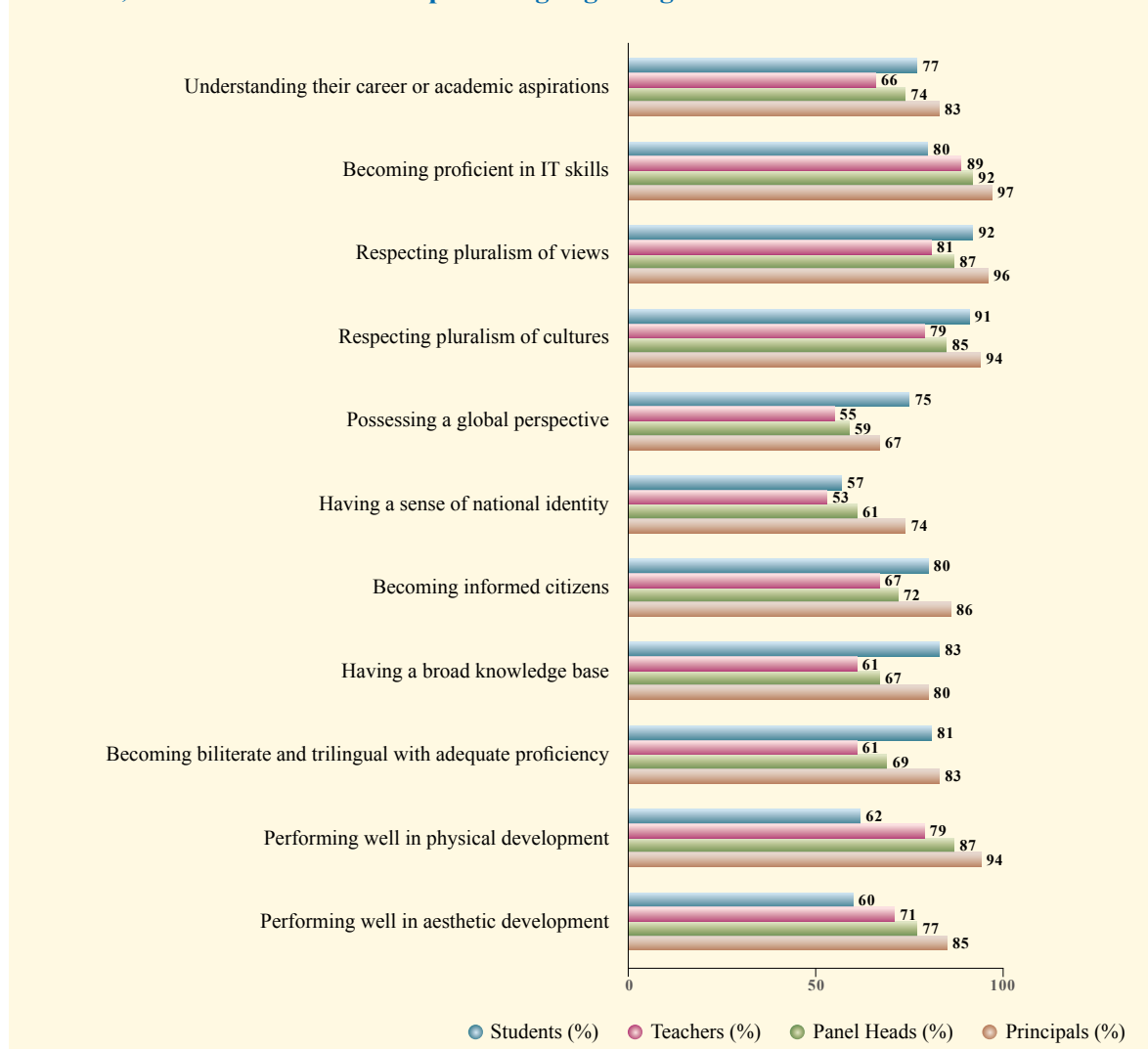
Student achievement of the Seven Learning Goals was the major intended outcome of senior secondary education under the NAS. The *Curriculum Implementation Survey 2014/15* revealed that the majority of principals agreed that senior secondary students performed well in their achievement of the Seven Learning Goals (ranging between 67% to 97% for the different learning goals). They were particularly positive that students were demonstrating respect for pluralism of views and culture, and proficiency in IT skills. They were less positive about students’ global perspective and sense of national identity (Figure 14).

In focus group interviews, Secondary 5 and 6 students, as well as Secondary 6 graduates who had continued their studies, reflected that the senior secondary curriculum had enabled them to acquire a broad knowledge base, equipped them to cope with future challenges and facilitated their further development. Their critical and reflective thinking had been cultivated and they had been helped to become independent learners by acquiring IT and other skills for enquiry learning.

They agreed that they had acquired adequate language proficiency for further studies, locally or outside Hong Kong. Their presentation skills were well developed. Some agreed that their confidence in using languages in the world of work had been enhanced, although some thought there was room for improvement in both Putonghua and English for their further studies.

► **Figure 14**

Student performance in achieving the Seven Learning Goals: views of principals, panel heads, teachers and students – percentage agreeing



Source: Curriculum Implementation Survey 2014/15 (Preliminary findings as at August 2015).

From OLE, they felt that their sense of citizenship had been strengthened through better understanding of their local and national culture. They had also been enriched in their experiences from aesthetic and physical activities through OLE and able to explore their career and academic aspirations through the structured curriculum.

“ Student voices

“I think the training in speaking skills in Chinese Language and English Language lessons helped develop our critical and independent thinking skills.”

(Learning goal: be a critical, reflective and independent thinker)

“Organising activities for the Student Union has helped me develop reflective thinking. After each activity, we reflect on the learning gained from organising the event so that we can make improvements next time. In addition, we have new ideas for the events, which helped hone our independent thinking.”

(Learning goal: be a critical, reflective and independent thinker)

“Under the NAS, I have started to think about my future pathway and to work towards my goals.”

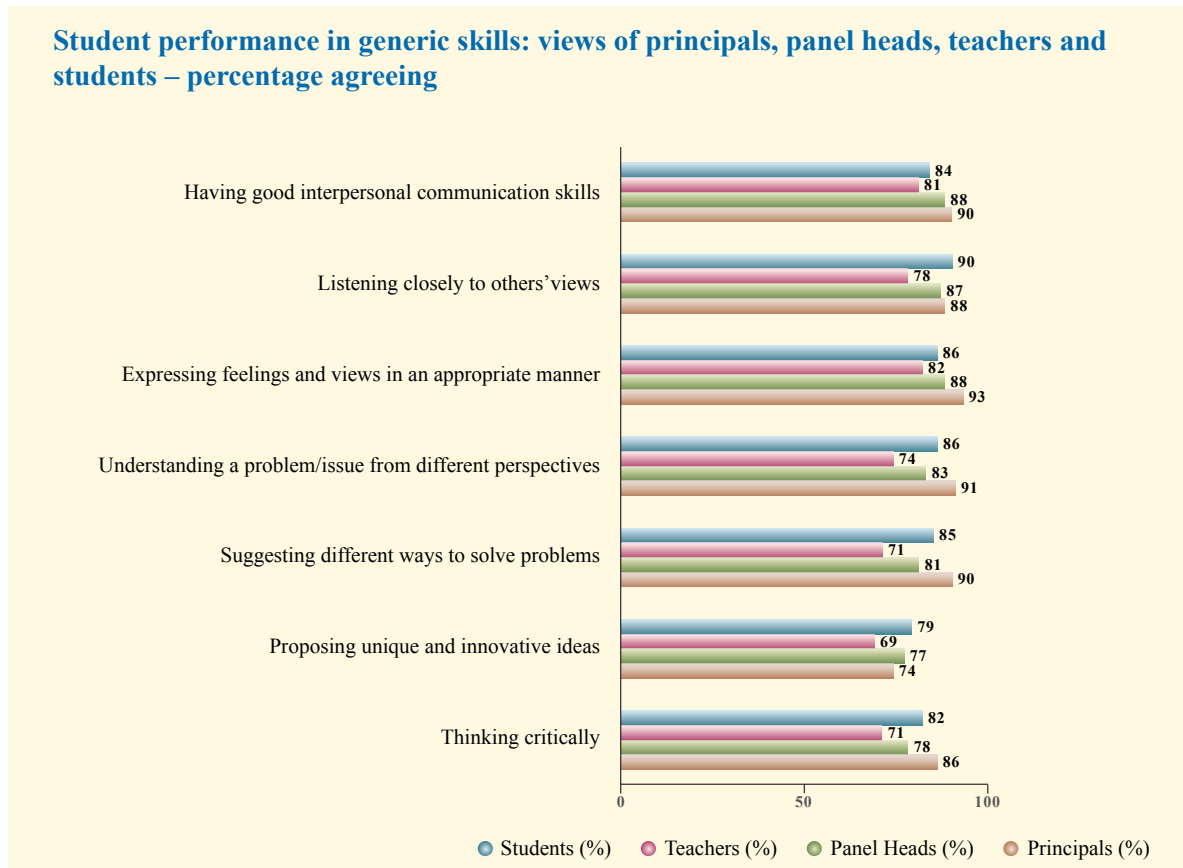
(Learning goal: to understand own career/academic aspirations)



4.1.2 Generic Skills

Principals, senior secondary teachers and students were positive about the generic skills students had developed (Figure 15).

► *Figure 15*



Source: *Curriculum Implementation Survey 2014/15* (Preliminary findings as at August 2015).

Liberal Studies has been one of the important means within the NAS to develop students' generic skills, such as critical thinking and independent learning and the broadening of their perspectives and knowledge. It has better prepared students for responsible citizenship by helping them to become aware of socio-political issues in local, national and international contexts. This has been supported by teachers' views in the *LS Study 2013/14* and other surveys, as seen in section 3.2.5.

“ Teacher voices

“Liberal Studies, as a core and interdisciplinary subject, prepares students for the multiple roles they are to take in society and in life.”

“The skills that are developed in Liberal Studies could be transferred to learning other subjects and contexts.”

”

Students interviewed in the *LS Study 2013/14* reported many positive learning outcomes from Liberal Studies, including broadening of their horizons; enhanced sensitivity to happenings around them; the habit of reading newspapers or watching news every day; higher social-political awareness and commitment to being a responsible citizen; and better thinking skills, readiness to listen to different voices, and abilities to apply concepts and present ideas.

“ Student voices

“Liberal Studies helps us to explore issues from multiple perspectives. It enhances our understanding of ourselves, society, the nation and the environment.”

“We learn to appreciate and respect diversity in views through the study of Liberal Studies.” ”

An independent study on student performance in thinking skills, through analysing candidates’ scripts of the HKDSE Liberal Studies Examination, demonstrated that students performed well in the development of critical thinking skills and abilities to consider issues from multiple perspectives, and there were strong correlations between these skills and their HKDSE Examination results in the subject.

4.1.3 Values and Attitudes

The seven priority values of *perseverance, respect for others, responsibility, national identity, commitment, integrity, and care for others* are emphasised in the secondary school curriculum. Students have, in general, developed such positive values and attitudes. They performed very well in developing good relationships with peers and teachers and had good characters (e.g. responsibility, integrity, care for others), according to the *Curriculum Implementation Survey 2014/15*.

In focus group interviews, students elaborated on how some subjects had helped them develop positive values and attitudes, such as respect for others, and care for our society.

“ Student voices

“Through the teaching of speaking skills in Chinese Language lessons, we are taught not to directly point out the flaws in other people’s arguments but to re-state our stance. This is not easy but is crucial for our future, because we have to learn to consider issues from multiple perspectives and to respect other people’s views and stance.”

“In Liberal Studies, we are taught that we should consider pros and cons when answering questions. The most important thing is to justify our views based on evidence.”

“The NAS is more practical than the old system. For example, we have learnt more about current affairs through Liberal Studies and developed greater care for our society.” ”

OLE has also had a significant impact on students’ all-round development and generic skills. The *Curriculum Implementation Survey 2014/15* indicated that it helped them develop positive attitudes towards school, get involved in the community and plan for their future studies and careers. It cultivated their creativity, healthy lifestyles and respect for plural values. Along with Liberal Studies, it helped them become active, informed and responsible citizens.

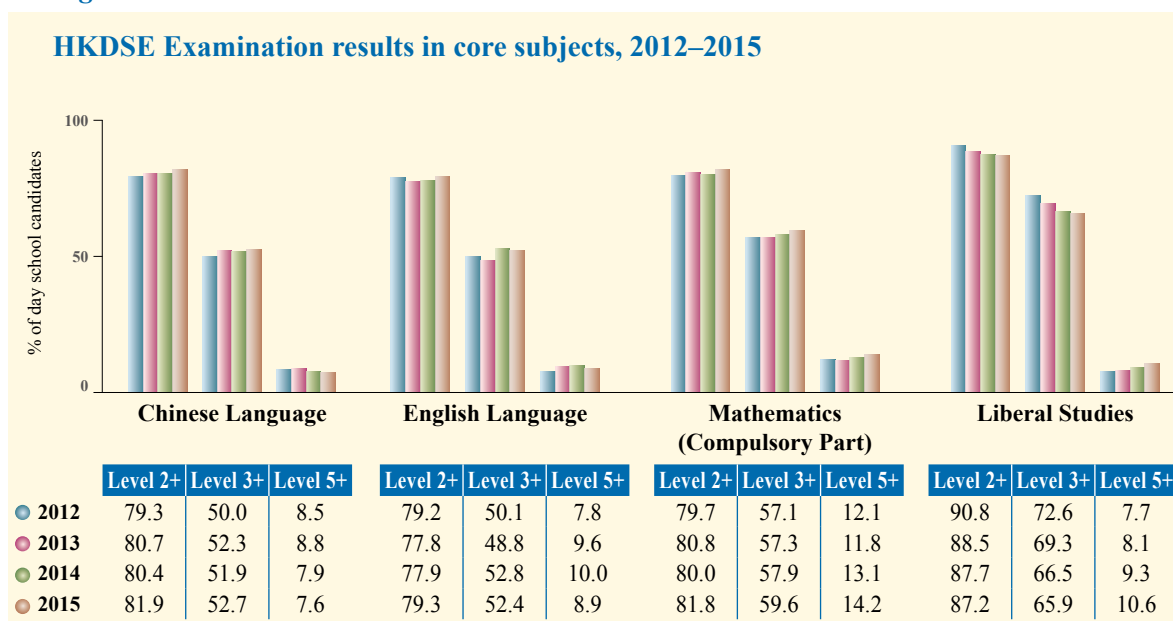
4.1.4 Student Achievement in the HKDSE Examination

A. Results in the Hong Kong Diploma of Secondary Education

Category A subjects

Under the SRR system, HKDSE Examination results have, in general, been relatively consistent, with improved results in some subjects. In core subjects, there was slight improvement in Chinese Language among candidates achieving Level 3 or above in 2015 and a slight decline in performance in Liberal Studies at Level 2 or above and Level 3 or above since 2012 (Figure 16). For both Liberal Studies and Mathematics (Compulsory Part), just over 1% more candidates achieved at least Level 5 in 2015 compared with 2014.

► *Figure 16*



Source: HKEAA.

Under the SRR system, some improvement in results could be expected in the first few years of the new examination as teachers and students gained greater understanding and familiarity with the assessment, and as students took fewer elective subjects to concentrate on their stronger subjects.

Category B subjects (*Applied Learning*)

For Category B subjects, the great majority of candidates achieved “Attained” or above in the Applied Learning course(s) they took, and their performance has been stable across the four cohorts. The percentage achieving “Attained with Distinction” was relatively more variable, ranging between one-fifth and one-quarter of day school candidates (Figure 17).

► *Figure 17*

Trends in student performance in Category B subjects

Examination year	Day school candidates: Number of subjects assessed	Attained with Distinction	Attained or above	Unattained
2012	4,746	24.4%	90.7%	9.3%
2013	4,419	21.8%	90.4%	9.6%
2014	4,192	23.4%	90.7%	9.3%
2015	3,785	21.3%	91.0%	9.0%

Source: HKEAA.

Category C subjects (Other Languages)

The number of candidates taking Other Languages remained low, but the proportion of day school candidates²⁰ achieving grade “a” increased by more than one-third, from 27% in 2012, to 41% in 2014 and 38% in 2015.

B. Articulation to post-secondary studies

In the 2015 HKDSE Examination, more than two-thirds of Secondary 6 graduates attained qualifications necessary for sub-degree studies and civil service appointments, while over 40% of day school candidates met the general entrance requirements for university admissions in Hong Kong.

With the first administration of the HKDSE Examination in 2012 there was a considerable increase in the number of secondary school graduates qualifying for university – 26,515 HKDSE day school candidates in 2012 compared with 18,302 from the HKALE in that year. The proportion of HKDSE candidates meeting the minimum requirement has subsequently increased further, from 38% of day school candidates who sat the HKDSE Examination in 2012 to 40% in 2015 (Figure 18). In the first four years of the HKDSE, the proportion of candidates achieving the necessary minimum grades for sub-degree programmes and relevant civil service appointment has remained stable at 68%–70%.

► Figure 18

Number and percentage of day school HKDSE candidates achieving minimum entry requirements for university, sub-degree programmes and relevant civil service appointments

Candidate		2012	2013	2014	2015
Total number of day school candidates (Number sat)	Total	70,109	69,557	65,102	60,969
Day school candidates satisfying the general entrance requirements for local four-year undergraduate programmes*	Total	26,515 (37.8%)	27,080 (38.9%)	26,332 (40.4%)	24,587 (40.3%)
	Male	10,463 (30.1%)	11,133 (32.0%)	10,717 (32.8%)	9,892 (32.5%)
	Female	16,052 (45.3%)	15,947 (45.8%)	15,615 (48.2%)	14,695 (48.2%)
Total number of day school candidates who sat at least 5 subjects	Total	69,001	68,410	63,771	59,736
Day school candidates eligible for sub-degree programmes/relevant civil service appointments**	Total	47,853 (69.4%)	47,158 (68.9%)	43,550 (68.3%)	41,544 (69.5%)
	Male	21,413 (62.9%)	21,451 (63.0%)	19,728 (61.9%)	18,630 (62.7%)
	Female	26,440 (75.6%)	25,707 (74.8%)	23,822 (74.6%)	22,914 (76.3%)

Source: HKEAA.

* Level 3 or above in Chinese Language and English Language, and Level 2 or above in Mathematics (Compulsory Part) and Liberal Studies.

** Five subjects with Level 2 or above in Category A subjects/“Attained” or above in Category B subjects, including Chinese Language and English Language.

²⁰ The figures refer to the subject entries, and not the actual number, of day school candidates.

Extending opportunities – positive impact of Applied Learning

Around 80% of students who completed Applied Learning courses in 2013 continued their studies, according to the *Study on Applied Learning (2011–13 Cohort) First Destination Survey*²¹. They went on to study degree, sub-degree and vocational courses in a wide range of study areas, with Services; Business, Management and Law; and Creative Studies being the most popular. The majority believed that Applied Learning had helped provide them with clear future directions. In total, 60% acknowledged the positive impact of the Applied Learning curriculum on their choice of studies and 85% would recommend the courses to other students.

4.1.5 International Comparison

Hong Kong's 15-year-olds, the majority studying in Secondary 4, performed well in international comparisons, coming second in reading (see footnote 1) and science literacies and third in mathematics in the OECD's PISA 2012 Study, out of 65 participating countries or regions. Hong Kong was positioned with Shanghai and Singapore as one of the top three systems in average results (Figure 19).

► *Figure 19*

Performance of 15-year-old students in PISA 2012 – top five countries or regions					
Mathematical literacy		Scientific literacy		Reading literacy	
Country/region	Mean score	Country/region	Mean score	Country/region	Mean score
Shanghai–China	613	Shanghai–China	580	Shanghai–China	570
Singapore	573	Hong Kong–China	555	Hong Kong–China	545
Hong Kong–China	561	Singapore	551	Singapore	542
Chinese Taipei	560	Japan	547	Japan	538
Korea	554	Finland	545	Korea	536
<i>OECD average</i>	<i>494</i>	<i>OECD average</i>	<i>501</i>	<i>OECD average</i>	<i>496</i>

Source: OECD.

Most encouragingly, Hong Kong was among the systems with the highest number of students achieving the highest levels in the study (Levels 5 and 6) and those with the lowest at Levels 1 and 2. Disparities between high and low achievers in all three domains were quite small, as were disparities according to socio-economic status. As a result, Hong Kong is viewed internationally as being among the best systems in achieving high quality education, and relative equality in outcomes.

Progress

The PISA 2012 Study was the first to test students in the NAS²². As such, it provided an important opportunity to examine how Hong Kong's relative performance compared with the old academic system, as well as other systems, and whether standards had been affected. The results suggested that under a more broad and balanced curriculum, the high levels of student achievement that Hong Kong is renowned for are being maintained. In addition, the results reflected improvements in students' intrinsic motivation to learn, and significant improvement in achievement in reading literacy.

²¹ Number of respondents: 3,385 Secondary 6 graduates.

²² The Hong Kong PISA 2012 assessed 15-year-olds in Hong Kong from both junior secondary (Secondary 1 to 3 students: 33%) and senior secondary (Secondary 4 and 5 students: 67%) levels.

4.1.6 Secondary 6 Graduates' Progress to Multiple Pathways

“ Student voices

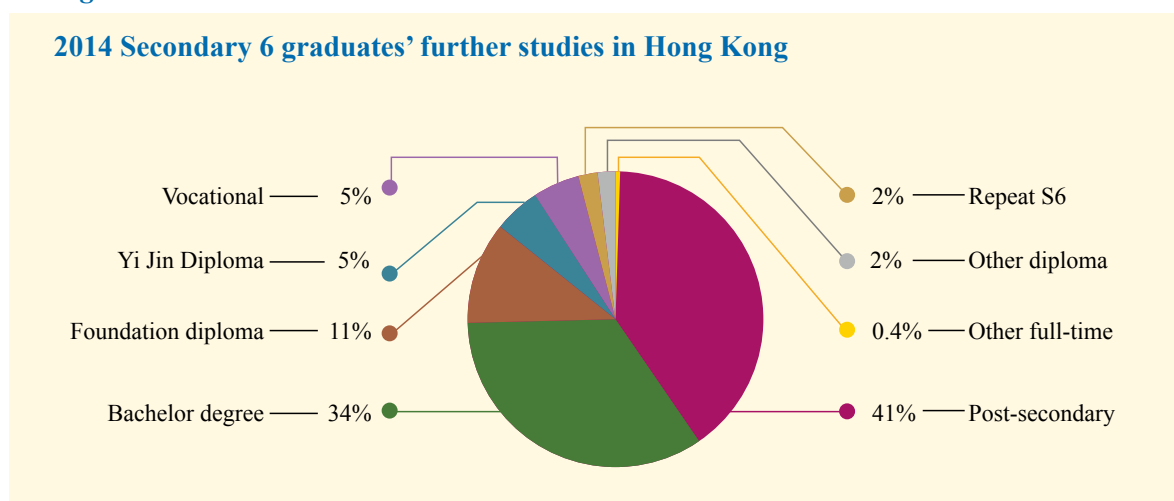
“There are multiple pathways for us to pursue our aspirations. I can take the foundation diploma first and then further my studies in the future.”

“Everyone has the opportunity to pursue a degree under the NAS. I finished my higher diploma last year and am now studying a degree programme. Since I have already studied some of the content in the higher diploma course, my study in the degree course will be shortened.”

The senior secondary curriculum and assessment have successfully prepared students for lifelong learning, locally and outside Hong Kong, with 86% of the 2014 Secondary 6 graduates surveyed continuing their studies, slightly higher than the 85% in 2013 and slightly lower than the 88% in 2012, according to the *Secondary 6 Students' Pathway Survey*²³. One-third of the respondents (33% or 20,678) went on to bachelor degree programmes inside or outside of Hong Kong, compared with 31% in 2013.

Of the 2014 graduates who pursued further studies in Hong Kong, 34% of respondents (16,014) enrolled in bachelor degree programmes (Figure 20).

► Figure 20



Source: *Secondary 6 Students' Pathway Survey (2014)*.

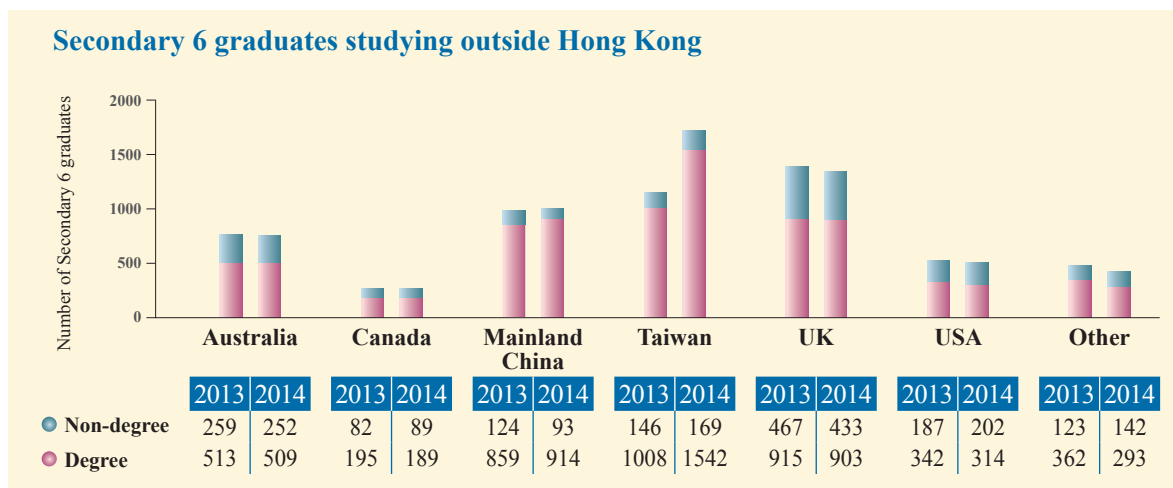
4.1.7 Passport to Study Outside Hong Kong

The HKDSE is now recognised and its holders are welcomed for further study in all major study destinations. Currently more than 220 tertiary institutions from Australia, Canada, UK, USA, as well as other countries in East Asia and Europe, have acknowledged their acceptance of the HKDSE as a credential for further education and their admissions requirements are shown on the HKEAA website. The SLP is considered in admissions among many of these institutions.

²³ Total number of Secondary 6 graduate respondents: 62,338 in 2014; 65,392 in 2013; 59,871 in 2012. Number of Secondary 6 graduates who were pursuing further study in Hong Kong: 47,445 in 2014; 49,986 in 2013; 48,331 in 2012.

The number of Mainland higher education institutions that exempt HKDSE holders from taking the Joint Entrance Examination for Universities in the People's Republic of China (PRC) increased to 84 in 2016/17. The University Entrance Committee for Overseas Chinese Students (UECOCS) of Taiwan also accepts HKDSE holders' applications for admissions to Taiwan universities through UECOCS directly. In 2014, Taiwan overtook the UK as the leading destination (Figure 21).

► **Figure 21**



Source: *Secondary 6 Students' Pathway Survey (2013, 2014)*.

4.2 Impact on Further Studies

4.2.1 Knowledge, Skills and Attitudes of Secondary School Graduates

Secondary 6 graduates gained important knowledge, skills and attitudes through the senior secondary curriculum that had positive impacts on their further studies and personal development, according to perceptions of the graduates themselves as well as feedback from tertiary institutions and employers.

A. Views from senior secondary graduates

From the graduates' survey, over two-thirds of the respondents gave positive feedback on how the senior secondary subjects had helped them lay a foundation for their post-secondary studies. Among the core subjects, English Language was perceived as having the greatest impact on their further studies while there were increasingly positive responses for all core subjects in 2014 over 2013, and notably for Liberal Studies (Figure 22).

► **Figure 22**

Secondary 6 graduates' perceptions of positive impact of core subjects on their further studies

Core subject	2014	2013
English Language	89%	88%
Mathematics	73%	72%
Liberal Studies	76%	70%
Chinese Language	69%	67%

Source: *Graduate Impact Study (2013, 2014)*. Responses based on an 11-point Likert scale, the figures indicating the percentage of respondents with scores at mid-point or above.

Most respondents agreed that Liberal Studies enhanced thinking skills that were essential to their current studies, with more students sharing positive feedback in 2014 than in 2013, an encouraging indicator of progress in the quality of learning and teaching in Liberal Studies (Figure 23).

► **Figure 23**



Source: *Graduate Impact Study (2013, 2014)*.

The impact of the senior secondary curriculum on current studies of the second and third cohort of Secondary 6 graduates compared similarly to that of the first cohort, and was generally positive in responses on the capabilities, skills and attitudes acquired from core and elective subjects and OLE, and on the usefulness of the curriculum, according to the *Graduate Impact Study*.

In focus group interviews, graduates affirmed that they had acquired a broad and concrete knowledge base from core and elective subjects that facilitated their further studies. The skills necessary for lifelong learning were enhanced through the senior secondary curriculum. They reported having developed their writing, presentation, public speaking, interpersonal, leadership, cooperative learning and analytical thinking skills. However, some students commented that excessive drilling for the HKDSE Examination had hindered the development of their self-directed learning, which they found to be crucial for post-secondary study.

B. Views from the post-secondary sector

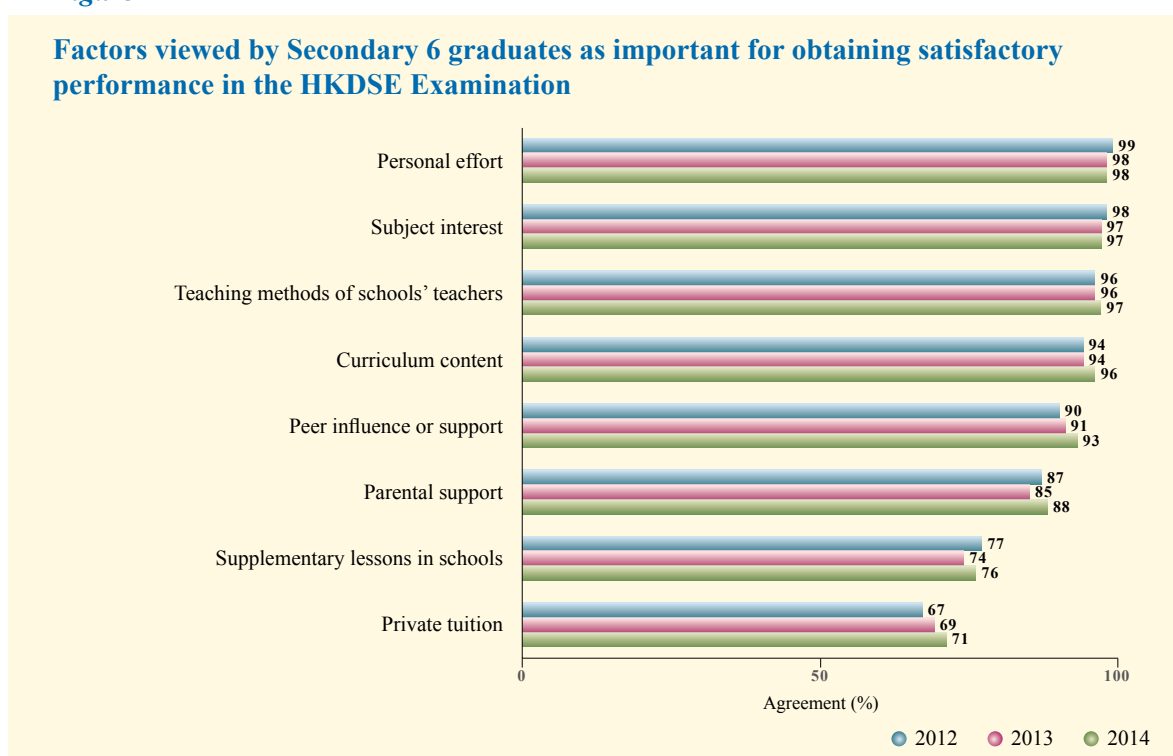
Sharing sessions with academics and registrars from tertiary institutions including UGC-funded institutions and self-financing institutions indicated that graduates from the senior secondary curriculum had, in general, performed well in their transition to higher education. Their communication skills were better, including their readiness to speak up and express their opinions. They were more proactive in their learning and were well prepared to work in groups and in project learning activities. Attendees believed that Liberal Studies had contributed to their improved general knowledge and civic awareness, and had prepared them well for lifelong learning and for furthering their studies in areas such as the social sciences.

However, representatives from individual institutions, especially those from the fields of science and engineering, noted some limitations in students' knowledge base, such as their core competencies in mathematics and breadth of knowledge in science, and that some students had less positive learning attitudes. Individual attendees also saw scope for improvement in students' global perspective, self-learning abilities and ability to discuss sensitive and controversial issues.

4.2.2 Factors Important for Students' Success

Data gathered since 2012 from Secondary 6 graduates now enrolled in university or post-secondary courses have been consistent in generalising the factors regarded as important for their success. Nearly all respondents (98%–99%) across the three cohorts of 2012 to 2014 acknowledged personal effort as an important factor for obtaining satisfactory performance in the HKDSE Examination (Figure 24). This was closely followed by subject interest (97%–98%), teaching methods of school teachers (96%–97%), curriculum content (94%–96%), and peer influence or support (90%–93%). Supplementary lessons offered by schools were regarded as relatively less important (74%–77%), and private tuition was the least important among the factors (67%–71%).

► **Figure 24**



Source: *Graduate Impact Study (2012, 2013, 2014)*.

4.3 Impact on Employment

4.3.1 Employers' Views of School Graduates

A small percentage of graduates in each HKDSE cohort (about 8%) have entered the workforce rather than continue their studies. These graduates have met or exceeded employers' requirements for key skills for the workplace, according to the exploratory *Survey on Opinions of Employers: New Senior Secondary Graduates (2014)*²⁴ (*Employer Survey 2014*). Their general performance, interview skills and preparation for interview were perceived as comparable to graduates under the old system. Employers were positive, with very encouraging levels of satisfaction with NAS senior secondary graduates' in terms of language proficiency, numeracy, generic skills, and attitudes, with over 90% of the employers agreeing that the graduates met or exceeded requirements in 18 out of 20 aspects. There were some concerns, however, over the Secondary 6 graduates' problem solving skills and perseverance (Figure 25).

²⁴ Number of respondents: 173 employers.

As about 90% of Secondary 6 graduates continued their studies in the first three cohorts, only a minority of employers had recruited or interviewed senior secondary graduates from the NAS. Those already in the workforce did not represent the full cohort of HKDSE students. In 2016, the first university graduates under the NAS will enter employment and employers will be able to give feedback on the graduates who have completed both senior secondary and tertiary education under the NAS.

► **Figure 25**

Employers' views on the skills and attitudes of Secondary 6 graduate employees	
Employees' skill or attitude observed in the workplace	Met or exceeded requirements (% agreement) (2014)
Language proficiency	
Chinese language proficiency	99%
English language proficiency	97%
Putonghua proficiency	92%
Numeracy	
Preparation of data	98%
Comprehension of data	98%
Generic skills	
Ability to use IT at work	98%
Self-learning ability	98%
Analytical mind and judgement	97%
Teamwork	97%
Ability to establish an effective network	96%
Time management	94%
Creativity	94%
Problem solving ability	62%
Attitudes	
Self-confidence	98%
Work ethic	97%
Knowledge of current affairs	97%
Initiative and drive	97%
Commitment	95%
Politeness	94%
Perseverance	59%

Source: *Employer Survey 2014*.

Employers from a range of industries, such as hotel and catering, retail, construction, transport, logistics, finance and leisure, also gave feedback in focus group interviews. They shared that Secondary 6 graduates were in many aspects well prepared for employment compared with graduates from the old academic structure. Employers noted the strengths of the NAS Secondary 6 graduates in teamwork, ability to establish an effective social network, Putonghua proficiency, preparation and comprehension of data, and abilities to think creatively and analytically. Some spoke positively about the graduates' commitment, initiative and drive, ability to use IT at work, self-confidence, self-learning abilities and their knowledge of local and international current affairs. Secondary 6 graduates under the NAS were said to be more proactive, inquisitive and outgoing, as well as more adaptable to the fast-changing environment.

Around four in 10 (44%) of graduate respondents who had taken an Applied Learning course and were currently in employment reported that their occupation was related to the Applied Learning course they had completed. Around one-third (33%) experienced a positive impact of the curriculum on their choice of industry or occupation. A considerable proportion (45%) appreciated the acquisition of basic knowledge on the industry from the curriculum.

Applied Learning graduates find rewarding pathways in work and study

Student A completed the Applied Learning course “Automotive Technology” and developed his interest in the automotive industry. After graduation, he joined an automotive technician programme, which runs over 4.5 years with on-the-job training, to prepare for a career in the industry. Student B who completed the Applied Learning course “Film and Video Studies” went on to work as an Assistant Director at a local television company. Two years later she decided to pursue a degree course at a university in Taiwan, majoring in Film Studies.

4.3.2 Employers’ Views of the NAS and the Senior Secondary Curriculum

Generally, employers supported the direction of the NAS and the senior secondary curriculum. They considered the core and elective subjects had, to different extents, laid a good foundation for graduates’ career development.

In focus group interviews, employers acknowledged the importance of Mathematics as a core subject and also indicated their support for OLE, which helped to prepare students for future employment. One employer reflected that more training, such as Outward Bound activities, could be incorporated in OLE to help enhance students’ communication skills and problem solving abilities. Employers also acknowledged that while the SLP was relatively new to them, it could be an effective tool to gain better understanding of the applicants’ achievements and participation in activities for whole-person development, which could facilitate the selection of suitable employees.

The international business community also welcomed the direction of the NAS, according to interviews with representatives from chambers of commerce. This sector seeks employees with strong language skills, inter-cultural competencies, abilities to anticipate and solve problems, confidence in making decisions, as well as relevant vocational skills. Knowledge, skills and attitudes developed through Liberal Studies and Applied Learning were seen as a good balance to traditional learning outcomes.

Chapter 5

Issues of Concern

The previous sections have affirmed the progress made by schools in response to the curriculum and assessment reform. However, both schools and students continue to face challenges, and these need to be addressed to ensure the smooth implementation of the NAS, the senior secondary curriculum and the HKDSE.

As seen in this report, concerns have been raised over a number of challenges presented by the breadth and depth of the curriculum; the need to cater for the greater diversity of students in senior secondary schools; the implementation of SBA; and teacher and student workload. All these may be inter-related to compound the challenges experienced in many schools.

There are also concerns about the adequacy of pathways for senior secondary students, including vocational education options for the less academic who leave before Secondary 6; the competition for publicly-funded university places among the more able students after successfully sitting the HKDSE Examination; and the impact of wider changes in society. The concerns from different stakeholders collected through various channels have been categorised by themes and are summarised in the Annex.

While it was encouraging that in the *School Survey on Medium-term Review (2014/15)*, the majority of principals were confident that the aims of the student programme could be achieved, a minority indicated they could not (see Figure 4 in section 3.1). This suggests that the implementation of the senior secondary curriculum and assessment is a continuing journey. More needs to be done to ensure that all schools have confidence in its outcomes, for the benefit of all students.

These views may reflect continued systemic challenges facing the NAS, the senior secondary curriculum and individual schools and the general contexts of the system, such as schools with large numbers of less academically able students or declining enrolment, as well as a cultural legacy or contemporary pressures that prioritise success in examination ahead of students' wider development.

5.1 Providing a Broad and Balanced Curriculum

A key aim of the senior secondary curriculum is to ensure that all students can benefit from a broad and balanced curriculum. Annual surveys conducted by the EDB indicated that schools in general offer 10 to 12 elective subjects for students at Secondary 4, Secondary 5 and Secondary 6. However, some stakeholders were of the opinion that the curriculum was too broad and demanding for some students, while others expressed that the current curriculum framework marginalised humanities subjects and thus did not provide broad and balanced learning experiences for students (HKFEW, 2015; Savantas, 2015).

The senior secondary curriculum intends to provide opportunities for students to take more elective subjects in Secondary 4 to explore their interests before specialising in Secondary 5 and 6. However, as seen in section 3.1.2D, students have taken fewer elective subjects, perhaps to better manage their workload.

Some principals thought that it was difficult to offer a comprehensive range of subjects in schools with smaller numbers of students and teachers. Schools are still encouraged to offer more elective subjects and some have successfully done so through joining networking programmes with neighbouring schools as well as providing Applied Learning options delivered on the campuses by course providers.

Stakeholders have also expressed concerns about the decline in the number of students taking the Mathematics Extended Part, or giving up M1/M2 in Secondary 6, with reasons cited including workload and timetabling issues, as well as limitations regarding the recognition of M1/M2 by universities, as explained in section 3.1.2D. However, in focus group meetings conducted during the Medium-term Review, teachers showed confidence that the recent changes in the general entrance requirements of UGC-funded institutions could attract more students to take and complete M1/M2. In addition, many teachers suggested that seminars and forums should be organised for principals to share good practices on how to resolve the timetabling issues arising from offering M1/M2 in their schools.

With additional non-academic exposure offered in OLE, students are seen to enjoy a broad and balanced programme in the senior secondary years with the acquisition of appropriate knowledge, skills and the positive development of values and attitudes required in the 21st century. For the fourth cohort of students who recently completed their senior secondary education under the NAS, the average time committed to OLE as reported by schools was 421 hours over the three senior secondary years. In this light, the provision of OLE is serving a role to ensure a broad and balanced curriculum.

5.2 Catering for Learner Diversity

Catering for the greater diversity of students in senior secondary classrooms was one of the major challenges reported by schools, as seen in section 3.2.3. It was the most frequently rated factor causing negative impact on the curriculum.

There was concern about delivering a curriculum that was both broad and in-depth to students who may be less academic and motivated. For example, in the *Curriculum Implementation Survey 2012/13*, some panel heads commented that students of lower abilities were discouraged by the time they reached the second term of Secondary 5. Some stakeholders reflected that learner diversity resulted in many problems, including lowering the effectiveness of teaching and increasing the need for supplementary lessons.

A number of initiatives have been implemented to address the issue of learner diversity, including to cater for students with SEN and NCS students, as well as gifted students. These involve adaptations of the curriculum, special examination arrangements, and professional development activities for teachers. Details on support measures for NCS students, students with SEN and gifted students are included in section 3.2.3. The issue of learner diversity has been addressed in the Medium-term Review, which has explored measures that will help schools better meet the learning needs of all students. These, along with the ongoing initiatives, are described in Chapter 6 of Part C.

In addition to the challenges in catering for the diverse needs of the groups of students mentioned above, there were views that the university admissions requirements under the NAS are language-laden and this might create a learner diversity issue. Developing students' biliteracy and trilingualism to adequate proficiency is a key learning goal in Hong Kong education and the expectation of society, including parents and employers. It has been observed, however, that female students, in general, do better in language subjects than males, and the gap between females and males in meeting the general entrance requirements for UGC-funded institutions may be due in part to the better performance of females in Chinese and English Languages, as indicated in Figure 26, even though males are performing better at Level 5 or above in Mathematics and some science subjects. These differences indicate that schools may need to pay more attention to strategies that help boys perform better in the language subjects, and girls in Mathematics.

► **Figure 26**

Day school candidates' performance in the HKDSE Examination (core subjects) by gender, 2012–2015

Category A subject	Gender	Level 5+				Level 3+				Level 2+			
		2012	2013	2014	2015	2012	2013	2014	2015	2012	2013	2014	2015
Chinese Language	Male	5.7%	5.8%	5.3%	5.0%	40.7%	44.0%	43.1%	43.3%	72.6%	75.2%	74.3%	75.6%
	Female	11.3%	11.9%	10.6%	10.2%	59.0%	60.6%	60.7%	62.0%	85.9%	86.3%	86.6%	88.2%
English Language	Male	5.6%	6.9%	7.3%	6.4%	43.1%	42.7%	45.8%	45.8%	73.4%	72.3%	72.2%	73.5%
	Female	9.9%	12.3%	12.7%	11.3%	56.9%	54.9%	59.7%	59.0%	84.9%	83.2%	83.7%	85.1%
Mathematics (Compulsory Part)	Male	15.1%	14.4%	15.8%	16.4%	59.1%	58.1%	58.7%	59.1%	79.9%	80.5%	80.3%	81.2%
	Female	9.3%	9.3%	10.4%	12.0%	55.2%	56.6%	57.0%	60.1%	79.4%	81.1%	79.7%	82.4%
Liberal Studies	Male	4.7%	5.5%	6.5%	6.9%	64.3%	62.7%	59.1%	57.0%	87.2%	85.2%	83.8%	82.4%
	Female	10.7%	10.6%	12.1%	14.4%	80.7%	76.0%	74.0%	74.7%	94.4%	91.9%	91.7%	92.1%

Source: HKEAA.

Apart from the 20 senior secondary elective subjects and the wide range of Applied Learning courses, targeted effort has been made to cater for the needs and aspirations of individual students by including Other Languages (French, German, Hindi, Japanese, Spanish and Urdu) as options in the senior secondary curriculum.

5.3 Lesson Time Allocation

As seen in section 3.1.1C, teachers have indicated that there is insufficient time to cover the whole curriculum, resulting in the need to teach outside the school day. Staff resources have been deployed extensively to deliver parts of the curriculum, such as Mathematics Extended Part, remedial and enhancement classes, OLE and the Physical Education practicum, after school and during weekends and holidays. This adds to the workload of teachers and students.

Such practice may in part be due to how schools are allocating time, with some aiming to complete the curriculum by the end of Secondary 5, or before Christmas in Secondary 6, so that more time can be devoted to examination practice for the HKDSE. Some spend too much class time repeating SBA activities. Schools adopting these practices should review their lesson time allocation to make room for more effective learning and teaching, for example, through reducing unnecessary tests and examinations, allocating reasonable teaching time over the three senior secondary years including the second term of Secondary 6.

The EDB and HKEAA have offered various support measures to promote a better balance in lesson time, including clarification of the breadth and depth of the curriculum; the provision of supplementary notes, exemplars, samples and other reference materials; the setting up of learning networks and circles among teachers and schools; and PDPs. Good practices in curriculum planning, learning and teaching, and assessment strategies have been collected and shared with schools and teachers.

5.4 Articulation to Multiple Pathways: Admissions Requirements and Recognition

Admissions requirements of post-secondary institutions have been a concern for some schools. Principals indicated that the limited recognition for OLE, SLP, Applied Learning and the Extended Part of Mathematics in post-secondary admissions had resulted in low acceptance of these curriculum areas among students and parents.

The grading structure of Applied Learning, which limits the top performance as comparable to Level 3 or above, continued to be a concern. These issues are addressed in the review.

Due to the continued perception that university entry is a key indicator for measuring students' success, competition for the quota of 15,000 publicly funded first-year first-degree places has been seen as a force that increased pressure on schools and secondary students to focus on drilling for the examination. It takes time for society to value the other pathways for students to achieve their learning and career goals, including the value and importance of vocational education.

One in five principals shared the concern that there were insufficient pathways to adequately meet students' needs, particularly for lower achieving students who did not complete Secondary 6, or those who did less well in the public assessment. Some called for strengthened pathways for vocational training and apprenticeships for those leaving school before Secondary 6 and as early as the end of Secondary 3.

5.5 Demographic Pressure and Contextual Changes

The implementation of the NAS has also been affected by wider demographic changes. Schools face challenges in the planning of elective subjects due to the declining secondary school student population, changing student preferences and the turnover of staff, according to feedback in the *Curriculum Implementation Survey 2012/13*.

Part C

RECOMMENDATIONS AND THE WAY FORWARD

Chapter 6 Key Recommendations over Multiple Stages

- 6.1 Short-term Review
- 6.2 Medium-term Review: First Batch of Recommendations
- 6.3 Medium-term Review: Last Batch of Recommendations

Chapter 7 The Way Forward

- 7.1 Future Direction for the New Academic Structure in Senior Secondary Education
- 7.2 Continual Curriculum Renewal in Broader Contexts
- 7.3 Conclusion

Chapter 6

Key Recommendations over Multiple Stages

A number of issues were addressed in the review at both the system and individual subject levels. At system level, these included deliberations over the three-year total lesson time for the whole-school curriculum, OLE and subjects; whole-school curriculum framework; grading and reporting of the results of the HKDSE; holistic review of SBA; the greater diversity of students in senior secondary education; the workload of students and teachers; and pathways available for students completing the senior secondary curriculum and for those leaving early. At subject level, the issues included the breadth and depth of subject curricula; fine-tuning of curricular contents; streamlining of SBA requirements; and fine-tuning of public examination arrangements.

The key purpose of the review was to address concerns from different stakeholders and smooth out issues that emerged in the initial stages of implementation, such as workload and increased learner diversity, while maintaining the underlying principles of the curriculum, summative and formative assessments, as well as international recognition necessary to keep abreast of international standards and help students who wished to study overseas.

Other related emerging issues and some potential unintended consequences of the reform were deliberated upon and investigated in implementation studies. These included exploring whether a broad and balanced curriculum in senior secondary education has been achieved as intended, or whether there has been some unexpected narrowing of the knowledge base when students study fewer elective subjects. Some curriculum design and assessment principles were investigated, for example, whether values were being appropriately considered in public assessment.

The success of the reform depends on schools' professional capacity to deliver the curriculum. This was evaluated in a number of studies to inform future support measures that could benefit schools and teachers. These included their capacity to cater for diversity, including low achievers, the more academically able, students from different ethnic backgrounds, and those with SEN. Associated with this was the learning and teaching strategies that schools adopted and whether these were aligned with the principles upheld in the continual curriculum renewal.

The learning outcomes for students completing the senior secondary curriculum, including academic and non-academic achievements and their progression to multiple pathways of further study or employment, were of interest to all stakeholders and further investigated in the review.

6.1 Short-term Review

While this report focuses on the Medium-term Review, it should be interpreted in the context of the NAS Review which is a holistic attempt to improve implementation over multiple stages. Hence, although the recommendations made in the Short-term Review were already announced in the *Progress Report on the New Academic Structure Review: The New Senior Secondary Learning Journey – Moving Forward to Excel* released in April 2013, a summary is presented below (section 6.1) as context for the first (section 6.2) and last (section 6.3) batches of recommendations made in the Medium-term Review.

As introduced in section 2.2.3A, key concerns identified in the Short-term Review included the practical challenges faced by schools in the first implementation cycle, such as the insufficient lesson time for subjects and OLE, the breadth and depth of subject curricula, and student and teacher workload.

As a result of the Short-term Review, recommendations on curriculum and assessment were announced and implemented in schools. These included introducing greater flexibility in implementing the curriculum at whole-school level, including flexibility in adopting a range of recommended lesson time. After extensive consultation with schools during the Short-term Review, the three-year total lesson time was reduced from 2,700 hours to 2,400±200 hours^{25, 26}, with 10%–15% of this time allocated for OLE. The issue of breadth and depth of the curriculum content for some subjects was addressed. SBA was reviewed, with plans announced to streamline, defer or not implement SBA for some subjects. The HKEAA also refined the assessment design for some subjects. In addition, targeted support was provided for schools and teachers to implement the fine-tuning recommendations. These recommendations are summarised in Figure 27.

(Full details were announced to schools in the EDBCM No. 48/2013, available at <http://applications.edb.gov.hk/circular/upload/EDBCM/EDBCM13048E.pdf>)

²⁵ After extensive consultation with schools during the Short-term Review, the three-year total lesson time was reduced from 2,700 hours to 2,400±200 hours, which also included the reduced time allocation for OLE from 15%–35% to 10%–15% to be conducted within or outside of the regular timetable. These changes have provided schools with greater flexibility in lesson time allocation that allows for more effective use of lesson time to suit individual school contexts to maximise student learning. In addition, the HKEAA has put back the commencing date for the HKDSE Examination since the second administration, which has also increased the available time for learning and teaching in schools. With a planning parameter of the three-year lesson time at 2,500 hours, language subjects were recommended a flexible range from 313 hours to 375 hours while non-language subjects were recommended 250 hours of direct teaching time, to be supplemented by other structured learning time including directed assignments, supervised SBA, and other learning and teaching activities to cater for students' learning needs.

²⁶ With regard to international benchmarking, the definition of Guided Learning Hours (GLH) used for the new UCAS Tariff is as follows: “*The number of hours of teacher-supervised or directed study time required to teach a qualification or unit of a qualification*” (*Ofqual*). For example, an A Level has GLH of 360 and this includes both direct taught time and homework. Using 2,500 hours as a planning parameter for a three-year senior secondary curriculum, and assuming that 85% of the total curriculum time is allocated to six subjects, including 15% to each language subject, the average GLH for the four non-language subjects would be about 340 hours each. GLH includes timetabled lesson hours allocated to direct teaching or instruction, together with other structured learning time for a wide range of purposes in catering for learner needs and diversity, such as directed assignments, supervised SBA, and supported individual extended learning and practice.

► **Figure 27**

Overview of Short-term Review recommendations to fine-tune the senior secondary curriculum and assessment				
Concerns	Curriculum	Public examination	SBA	Support measures and others
Clarity of breadth and depth	<ul style="list-style-type: none"> Update and revise curriculum content 	<ul style="list-style-type: none"> Integrate examination papers Improve assessment design 		<ul style="list-style-type: none"> Provide supplementary notes Provide PDPs
Workload	<ul style="list-style-type: none"> Streamline curriculum content in some subjects Reduce number of elective modules taken by students in some subjects Flexible total lesson hours – from 2,700 hours to 2,400±200 hours Flexible allocation of 10%–15% of total curriculum time for OLE, emphasising quality rather than quantity 	<ul style="list-style-type: none"> Streamline examination papers 	<ul style="list-style-type: none"> Cancel SBA in three subjects Defer SBA for nine subjects Streamline SBA components in core and elective subjects 	<ul style="list-style-type: none"> Provide PDPs Provide exemplars Enhance school-based support service, networking and sharing
Catering for learner diversity	<ul style="list-style-type: none"> Provide more choices for diversity Review provision of Applied Learning courses to provide diversified choices 	<ul style="list-style-type: none"> Provide more options in examination papers Adjust examination time 		<ul style="list-style-type: none"> Provide exemplars Provide PDPs Enhance school-based support service, networking and sharing Priority theme in QEF

Source: *Progress Report on the New Academic Structure Review: The New Senior Secondary Learning Journey – Moving Forward to Excel* (2013).

6.2 Medium-term Review: First Batch of Recommendations

The Medium-term Review was conducted in stages so as to benefit students at the earliest possible instance. Based on the feedback collected from studies and surveys, relevant CDC and HKEAA committees made recommendations for updating and fine-tuning the curriculum and assessment for four subjects. These recommendations were submitted for deliberation and endorsement at the Joint CDC–PEB meeting in April 2014.

The first batch of Medium-term Review recommendations was implemented in schools in 2014/15, leading to the 2015 HKDSE Examination at the earliest. These recommendations, which concern Chinese Language, Chinese Literature, Liberal Studies, and BAFS, are summarised in Figure 28 (Full details were announced to schools in the EDBCM No. 63/2014, available at <http://applications.edb.gov.hk/circular/upload/EDBCM/EDBCM14063E.pdf>). As an outcome of the first batch of recommendations, an advisory committee was formed to consider in detail the ultimate way forward for the development of business-related learning in the Technology Education KLA at the senior secondary level, and to make recommendations for consultation by the end of 2016. Extensive support measures were also put in place to help schools implement the fine-tuned curriculum in the Short-term Review and address other challenges they faced in relation to the implementation of the senior secondary curriculum.

► **Figure 28**

Overview of first batch of recommendations in the Medium-term Review				
Subject	Curriculum	Public examination	SBA	Support measures and others
Chinese Language	Introduction of 12 classical set texts from Secondary 4 in 2015/16	Corresponding change to Paper 1 of public examination, from 2018		
Chinese Literature	Change two set texts from Secondary 4 in 2015/16		Further review streamlining of SBA and timeline for implementation	
Liberal Studies			Adopt a Structured Enquiry Approach for IES, reduce the number of assessment Stages and Tasks to one	Guidelines for Structured Enquiry Approach for IES
BAFS	<ul style="list-style-type: none"> • Monitor and review the trimmed curriculum leading to the first HKDSE Examination in 2016 • Start groundwork for developing separate subject(s) • The ultimate way forward will be subject to thorough discussion and consultation by the end of 2016 	Adopt and review separate grading and reporting of subject results for candidates taking different elective modules with effect from the 2015 HKDSE Examination		
Subjects in general				New learning networks and circles among schools; improved learning and teaching resources; and PDPs

As seen in sections 3.2.1 and 3.2.2 of Part B, the first batch of recommendations in the Medium-term Review, along with those in the Short-term Review have, in general, been well-received by schools. Principals from the majority of schools (79%–85%) indicated that the recommendations enhanced learning and teaching effectiveness and enabled students and teachers to better manage SBA. More than half agreed that the recommendations reduced the workload for students and teachers, and increased students' confidence in taking the HKDSE Examination.

6.3 Medium-term Review: Last Batch of Recommendations

Following the public consultation in the Medium-term Review launched in November 2014, and consideration by the EDB, CDC and HKEAA, the final batch of recommendations to enhance the senior secondary curriculum and assessment of 17 subjects (including the holistic review of SBA), Applied Learning, and other systemic issues were discussed in the relevant CDC and HKEAA committees and working groups.

The final recommendations were deliberated and endorsed at the Joint CDC–PEB meetings in April and June 2015 for implementation in schools (Details were announced to schools in the EDBCM No. 106/2015, available at <http://applications.edb.gov.hk/circular/upload/EDBCM/EDBCM15106E.pdf>).

As this batch of recommendations concluded the Medium-term Review, more details are given in the following sections.

6.3.1 Learning Goals

Schools shared very high levels of agreement (over 90%) that the Seven Learning Goals of the senior secondary curriculum should continue to be given priority in the coming decade. However, there were suggestions that details of the learning goals should be updated in response to changes in society and the wider world.

With reference to these findings, the Seven Learning Goals for secondary education will be maintained in general to articulate with the goals at the basic education level. They will be updated and enriched to embrace contextual changes. For example, through future curriculum renewal cycles, curriculum areas such as information literacy and values education will be strengthened. In tandem with the curriculum renewal, relevant curriculum guides will be updated by the end of 2015 to mid-2016, including the Secondary Education Curriculum Guide, all KLA Curriculum Guides, and the Curriculum and Assessment Guides of senior secondary subjects.

6.3.2 Broad and Balanced Student Programme with Diversification

Due consideration has been given to the various suggestions raised by different stakeholders on changing the whole-school curriculum framework (i.e. four core subjects plus two or three and a maximum of four elective subjects and OLE). Quite a few of these suggestions involved the role of Liberal Studies as a core subject and its content and grading (see Annex for more details). Consideration was given to balancing different factors, including the aims of education set out in 2000, the interest of students, uncertainties arising from teachers' need to adapt to further changes, the desired stability for smooth implementation, human resources re-allocation in schools, the strengths of Hong Kong in terms of talents, and international benchmarking. Weighing the balance of factors, it is recommended that the whole-school curriculum framework be maintained subject to ongoing monitoring and data collection, including analysis of future patterns of subject choices.

To enjoy broad and balanced learning experiences, students are encouraged to consider their abilities, interests and aptitudes as appropriate: (a) to study three elective subjects to develop and stretch their potential where ability permits; (b) to participate more in Applied Learning courses as elective subjects for those with an interest in vocational education; (c) to enhance their participation in OLE (including Applied Learning taster programmes); and (d) to take three elective subjects at Secondary 4 to explore their interests and abilities before focusing on a possibly smaller number at Secondary 5 and 6.

In addition, support to teachers and schools will be enhanced through PDPs and on-site support on strategies for schools to cater for diversity. The provision of career guidance and life planning for students as well as communication with the post-secondary sector to explore the diversification and clearer specification of admissions requirements will also be strengthened.

6.3.3 Curriculum and Public Assessment

A. Overall student programme

- (i) The introduction of a “half subject” in Combined Science is not recommended, as this would upset school administrative arrangements and pose problems in timetabling and defeat the original purpose of Combined Science. In addition, the recognition of “half subjects” by tertiary institutions is uncertain.
- (ii) It is recommended that the senior secondary subject structure (including the Mathematics curriculum framework and content of the Compulsory and Extended Parts) be maintained. However, the Mathematics curriculum (Primary 1 to Secondary 6) will be reviewed holistically, with the possibility of a revised senior secondary Mathematics curriculum framework (including whether M1/M2 will be converted into an elective subject) ready for consultation and aiming for a decision by July 2017. Support for schools to tackle the timetabling issue will be provided through sharing good practices, and students and parents will be informed of the updated entrance requirements of UGC-funded institutions in relation to Mathematics and the importance of M1/M2 for admissions to some university programmes.
- (iii) It is considered premature to consider abolition of Level 5** of Category A subjects. It is recommended that the grading of Category A subjects be unchanged, subject to analysis of more results data and further review.
- (iv) To better recognise the performance of students in Applied Learning, it is recommended and subsequently endorsed by the CDC and PEB in April 2015 that the reporting of student performance in Category B subjects be refined to include a level of performance which is comparable to Level 4 or above of HKDSE Examination Category A subjects, with effect from Secondary 5 in 2016/17 (2018 HKDSE).
- (v) Workload related to SBA has often been highlighted as a challenge for teachers under the NAS. In view of this, measures were implemented in the Short-term Review to address this issue, such as not implementing SBA in three subjects and streamlining SBA in 19 subjects. School survey results indicated that these measures have been effective in helping students and teachers better manage SBA across subjects. Building on these positive changes, a holistic review of SBA was conducted in the Medium-term Review (last batch) to further address the workload issue. Without compromising on the alignment of assessment with subject curricula and SBA, there was careful and thorough consideration of the overlapping of skills assessed in the SBA of different subjects and alternative assessments. It is recommended and subsequently endorsed by the CDC and PEB in April 2015 that SBA be replaced in seven subjects, and further streamlined in three subjects. The SBA which had been deferred in four subjects would be implemented at Secondary 4 in 2016/17 (2019 HKDSE).

B. Subjects

In an effort to provide early information for schools and facilitate their preparation for the 2015/16 school year, the following Medium-term Review recommendations (last batch) have already been announced.

These include:

- **SBA:** SBA in seven subjects to be replaced with other forms of assessment in the public examination as appropriate (i.e. Chinese History; Economics; ERS; Geography; History; Music; THS); SBA will be further streamlined in three subjects (i.e. Chinese Literature; HMSC; ICT).
- **Public examination:** Examination arrangements in 11 subjects to be fine-tuned (i.e. Chinese History; Chinese Literature; Economics; ERS; Geography; Music; Physical Education; Visual Arts; HMSC; History; and THS).
- **Curriculum:** Updates or curriculum review to take place for 10 subjects²⁷ (i.e. English Language; Mathematics; Liberal Studies; Chinese History; History; THS; Economics; Geography; ICT; and Music).

C. Holistic review of SBA

The holistic review of SBA is one of the key areas in the Medium-term Review. The aim of the review is to balance the benefits of SBA to student learning with the workload concerns of both students and teachers. This has involved the careful evaluation of the essential skills that are best assessed through SBA, the alternatives available, and the need to avoid the unnecessary duplication of assessment tasks both within and across subjects.

Feedback from schools reflected a general view that the generic skills assessed in the SBA for some subjects, such as the identification of issues or areas of study, and analysis and presentation of data and findings, overlapped with those in the IES of Liberal Studies and the SBA for the core language subjects. SBA was regarded as most appropriate for developing and assessing laboratory-based skills in science and practical subjects, and promoting the authentic use of language for language and literature subjects. For example, for English Language, teachers in focus group interviews agreed that the SBA component provided more opportunities for students to interact with their peers and develop their speaking skills.

For some subjects, such as Geography, it was felt that the absence of SBA would not adversely impact on the learning outcomes as opportunities for fieldwork were already incorporated into the curriculum and the skills developed could be assessed through the compulsory questions in the public examination.

The last batch of recommendations on SBA were widely supported by schools. The majority agreed with proposals to replace SBA in seven subjects, with agreements ranging between 64% to 96% for the different subjects. In total, 78% agreed with proposals for the 12 subjects currently implementing SBA, and 52% agreed with the proposals for SBA to be implemented in the 2019 HKDSE for four of the nine subjects for which SBA is not yet implemented.

As a result of the recommendations on SBA made in the different stages of the NAS Review, SBA will not be implemented in 10 subjects. For the 14 subjects with SBA, requirements and procedures for mark submission have been streamlined for implementation in the 2019 HKDSE the latest.

²⁷ In addition to the 10 subjects with curriculum updating or review, a mechanism for replacing set texts is to be introduced for Literature in English.

D. Applied Learning

Aside from the refinement of reporting of student performance to include a level comparable to Level 4 or above of Category A subjects, Applied Learning courses will continue to be reviewed regularly. For the 2015–17 cohort, 40 Applied Learning courses are offered, including Applied Learning Chinese (for NCS students).

A more flexible mode of implementation of Applied Learning, involving its early commencement in Secondary 4, is being piloted for the 2014–16 and 2015–17 cohorts. Efforts are also being made to link some Applied Learning courses to the Qualifications Framework (QF) to enhance their recognition for further studies and employment. In the 2015–17 cohort, 12 courses are registered in the Qualifications Register as certificate programmes at QF Level 3.

E. Other Languages

Hong Kong's language education policy aims to enable students to become biliterate in Chinese and English and trilingual in Cantonese, Putonghua and spoken English. However, it also recognises the importance of making other languages available for maintaining curriculum diversity and meeting students' particular interests by offering Other Languages, which include French, German, Hindi, Japanese, Spanish and Urdu, through Advanced Subsidiary Level Examinations administered by CIE.

This policy will continue to be adopted following the Medium-term Review and the current arrangements were deemed appropriate, despite some suggestions that local curricula and examinations should be developed. In the *School Survey on Medium-term Review (2014/15)*, 67% of schools that offer the languages agreed that the subjects should remain unchanged.

From 2014/15, in preparation for the 2017 HKDSE onwards, Secondary 4 students have been advised to take the November series of examinations held by CIE, instead of the June series, so that their results can be considered in the JUPAS in July. This will enhance the value of the subjects for progression to further studies.

PDPs will be organised to share good practices in the learning and teaching of these languages.

6.3.4 Interface with Lifelong Learning in Studies and Employment

One of the core principles of the NAS is that multiple pathways should be available so that students with different abilities, aspirations and interests can pursue lifelong learning to fulfil their potential.

- (i) It is recommended that the EDB should continue to promote the message that entering university degree programmes is not the only path to success, but that students should pursue their own interests and make life planning under the multiple entry and exit pathways of the NAS. In this regard, the EDB will enhance support for better career guidance and life planning for students.

- (ii) Regarding the interface with local post-secondary education, it is recommended that clearer specification of requirements be explored to yield a positive backwash effect on student learning at the secondary level, such as encouraging able students to take more elective subjects. In this regard, the EDB will work with:
- the post-secondary and tertiary sector in diversification and clearer specification of admissions requirements on top of the general entrance requirements (for example, consideration of the “best five” or “best six” subjects, and recognition of M1/M2 and Applied Learning);
 - the school sector to make good use of existing “exit and re-entry” mechanisms in senior secondary education;
 - parents and employers to promote the acceptance of Applied Learning and vocational related studies.
- It is also recommended that the EDB introduce holistic measures for developing student competence in both English and Chinese in the next cycle of curriculum renewal by enhancing literacy and through other support measures, as well as working in partnership with other advisory bodies and different stakeholders.
- (iii) Regarding international recognition, there have been isolated cases where some subjects were not recognised for admissions to particular programmes. It is recommended that international benchmarking studies be conducted on the curriculum and assessment in a timely manner to ensure international recognition.

Progress

UGC-funded institutions have been diversifying their admissions requirements. For example, close to one-third of UGC-funded degree programmes now consider the “best five” or “best six” subjects on top of the general entrance requirements. And by 2018, six and possibly seven institutions will require at least two elective subjects for admissions (from two institutions in 2012). In addition, four and possibly five institutions will recognise M1/M2 as equivalent to an elective subject.

6.3.5 Implementation of the New Academic Structure: Conducive Conditions

Six-year whole-school curriculum planning

- (i) To prepare junior secondary students for the senior secondary curriculum, it is recommended that the EDB provide more professional support, such as PDPs and learning networks for schools on six-year whole-school curriculum planning to ensure a smooth interface between the junior secondary and senior secondary curricula.

Catering for learner diversity

- (ii) Recommendations on catering for learner diversity in general are included in the overall direction and measures proposed above.
- (iii) It is recommended that the learning needs of NCS students and students with SEN be better catered for, for example, by developing the second language learning framework and offering Applied Learning Chinese (for NCS students) to help NCS students learn the Chinese language and integrate into the community, as well as enhancing teachers’ knowledge of available resources for teaching students with SEN in the classroom, in tandem with special arrangements in the public examination.

Teacher workload

- (iv) Different recommendations on curriculum and assessment as well as support measures have been implemented under the NAS Review to address the workload issue. The most recent data on student-teacher ratios and group sizes of senior secondary core and elective subjects indicate favourable conditions for further reducing teacher workload. The overall recommendations on curriculum, assessment and other related issues have struck a careful balance between workload and the need to maintain high standards for international recognition, preparing students well for further studies and employment, and enhancing the competitiveness of Hong Kong as an international city. It is recommended that the EDB and HKEAA continue to provide support in curriculum and assessment for teachers, including learning and teaching resources, PDPs and learning communities that help reduce workload through collaborative effort. In the meantime, the EDB will continue to liaise closely with the school sector and collect feedback and evidence about the implementation of the curriculum and assessment in schools.

Chapter 7

The Way Forward

7.1 Future Direction for the New Academic Structure in Senior Secondary Education

After the last batch of Medium-term Review recommendations were announced in June 2015, future curriculum reviews will follow the natural curriculum development cycle, at whole-school and subject levels as well as curriculum areas, and renewed from time to time as necessary. While the NAS has now been implemented for four full cycles, these are still early days for a structure that is so fundamentally different from the old system. Time is needed to further observe the successes, emerging issues and any unintended consequences. The EDB, CDC and HKEAA will continue to observe the implementation of the senior secondary curriculum under the NAS, and collect data and feedback from all key stakeholders to inform future continual curriculum renewal at both whole-school and subject levels over time.

7.1.1 Curriculum and Assessment

As seen in Part B of this report, good progress has been observed in the implementation of the NAS, while some issues are being, and will continue to be, addressed. These include, for example:

Whole-school curriculum and assessment

- Whole-school curriculum framework (i.e. four core subjects, two or three elective subjects, and OLE, and whether the knowledge base needs enlarging).
- Grading system of the HKDSE, including the grading of Category A subjects as well as arrangements for the examination of Category C Other Languages.
- Quality assurance mechanisms for the HKDSE and international benchmarking.
- Backwash effect of post-secondary admissions requirements on the school curriculum.

Subjects

- *BAFS*: The ultimate way forward will be subject to thorough discussion and consultation by the end of 2016. As recommended in the Medium-term Review, an Advisory Committee has been established, which is currently overseeing the review of the trimmed BAFS curriculum and assessment, as well as gathering views and giving careful consideration as to whether new business-related subject(s) will be proposed.
- *Mathematics*: As recommended in the Medium-term Review, a holistic review of the Mathematics curriculum from Primary 1 to Secondary 6 will begin in late 2015, to ensure that students' core competencies meet their needs in further studies and employment. This will include consideration of the future of the senior secondary Mathematics Extended Part and whether there is a need for a separate elective for further Mathematics, and the implications of such a change for the curriculum as a whole.

- *Liberal Studies*: The curriculum will continue to be reviewed to ensure the relevance of the curriculum content and to sustain its impact as a core subject that helps develop a broad knowledge base and important generic skills, perspectives and attitudes. This may include the extent to which it should focus on topics related to current political and social issues. It is hoped that as enquiry-based learning is enhanced in schools, students will be helped in developing mature perspectives, taking into account different viewpoints and information on contentious but important issues concerning our society, nation, and the wider world. Curriculum resources and booklets will continue to be developed and updated regularly, especially for supporting new Liberal Studies teachers.
- *Visual Arts*: The curriculum will continue to be reviewed. The provision of a frame of perspectives for understanding art to help teachers further balance the breadth and depth of the curriculum will be considered.
- *Science subjects*: Science subjects will continue to be monitored. The curriculum framework may be reviewed in the future to ensure that single, combined and integrated science options can meet the needs of learners and society and that the subject contents are up to date, appropriately supported by complementary knowledge and skills from other subjects such as Mathematics, and to make the best use of IT and e-learning resources.
- *All subjects* will undergo ongoing reviews to ensure that subject contents reflect developments in the respective fields and the changing needs of society, while being responsive to continued challenges faced by students and schools.

Other implementation issues related to curriculum and assessment

- *Catering for learner diversity* will continue to be one of the major issues to be addressed through different means, such as curriculum tailoring and better learning and teaching strategies, more flexible planning of lesson time, provision of more resources and professional development support for teachers, more support for NCS students and students with SEN, and deeper engagement with the community, academic and business organisations.
- *Enhancing assessment for learning* will be another key focus so that assessment can enhance student learning rather than detract from it through excessive drilling for examinations. This should include better planning of internal assessments and examinations, the provision of timely feedback on student learning, and the use of SBA. Now that the major concerns about implementing SBA have been addressed, it can be more manageable for students and teachers, and the impact on the learning process should become more evident.

These ongoing enhancements will be supported by PDPs with emphasis on developing and sharing learning, teaching and assessment practices including the promotion of e-learning, the provision of up-to-date resources and other support measures.

7.1.2 Life Planning Education and Career Guidance for Multiple Pathways

In addition to strengthening the senior secondary curriculum and assessment, focus is also put on further building multiple pathways. This will involve the continued transformation of schools into learning communities through the professional development of principals and teachers, supported by the EDB, CDC and HKEAA; enhanced support for life planning education and career guidance; and increasingly strong partnerships with universities, business and community organisations, students and parents.

The Chief Executive's 2014 Policy Address highlighted the need to provide greater support for young people in life planning, both within and outside of secondary schooling. From the 2014/15 school year, schools have been provided with an additional recurrent grant equivalent to the salary of a graduate teacher to enhance life planning education. Employers and community organisations have also been engaged to collaborate more closely to improve the services available for young people as they plan their further studies and careers. The continual development of career guidance should aim to meet the needs of all students, including those leaving the system early to pursue vocational study or employment.

Progress

The Hong Kong Jockey Club has responded to the Government's call for community involvement in enhancing career and life planning. It is funding the Career and Life Adventure Planning Programme for Youth project, working in cross-sectoral partnership with The Chinese University of Hong Kong, Hong Kong Baptist University, Hong Kong Association of Careers Masters and Guidance Masters, The Hong Kong Council of Social Service, other NGOs and parent groups.

This HK\$500 million project aims to build an effective and holistic career and life planning intervention model for youths aged 15 to 21, including those within and outside of secondary schooling. From the 2015/16 school year, the project will involve schools, parents, community and business partners in offering activities and cutting-edge resources for young people, as well as upgrading the professional skills of teachers and career counsellors.

This is an example of the many initiatives by NGOs and tertiary institutions to help realise the goals of the senior secondary curriculum and NAS to enable all young people, regardless of background, to achieve their potential in learning and life.

In the area of further studies, the EDB and HKEAA will continue to work with different partners to improve the articulation of senior secondary education to higher education, and the recognition of the HKDSE qualification both locally and globally.

Progress

Locally

- An increasing number of tertiary institutions will consider students' results in the "best five" or "best six" subjects upon fulfilment of the general entrance requirements for admissions, and recognise M1/M2 as equivalent to an elective subject; and give greater recognition to Applied Learning and SLP.
- The participation of private universities in the provision of local post-secondary education has increased. The number of places in self-financing degree programmes has grown from 7,000 in the 2014/15 school year to 9,060 in the 2015/16 school year.

Globally

- The Hong Kong Scholarship for Excellence Scheme was launched in November 2014 to support outstanding local students to pursue studies in world renowned universities outside Hong Kong. The Scheme will benefit three cohorts of students, with up to 100 students per cohort, starting from the 2015/16 school year and subject to a review of the effectiveness of the Scheme.
- The Ministry of Education of the PRC launched the Scheme for Admission of Hong Kong Students to Mainland Higher Education Institutions in 2012/13. The number of participating institutions will increase to 84 in 2016/17.
- The Mainland University Study Subsidy Scheme has been introduced since 2014/15 to support needy students enrolled through the above-mentioned Admission Scheme.

7.2 Continual Curriculum Renewal in Broader Contexts

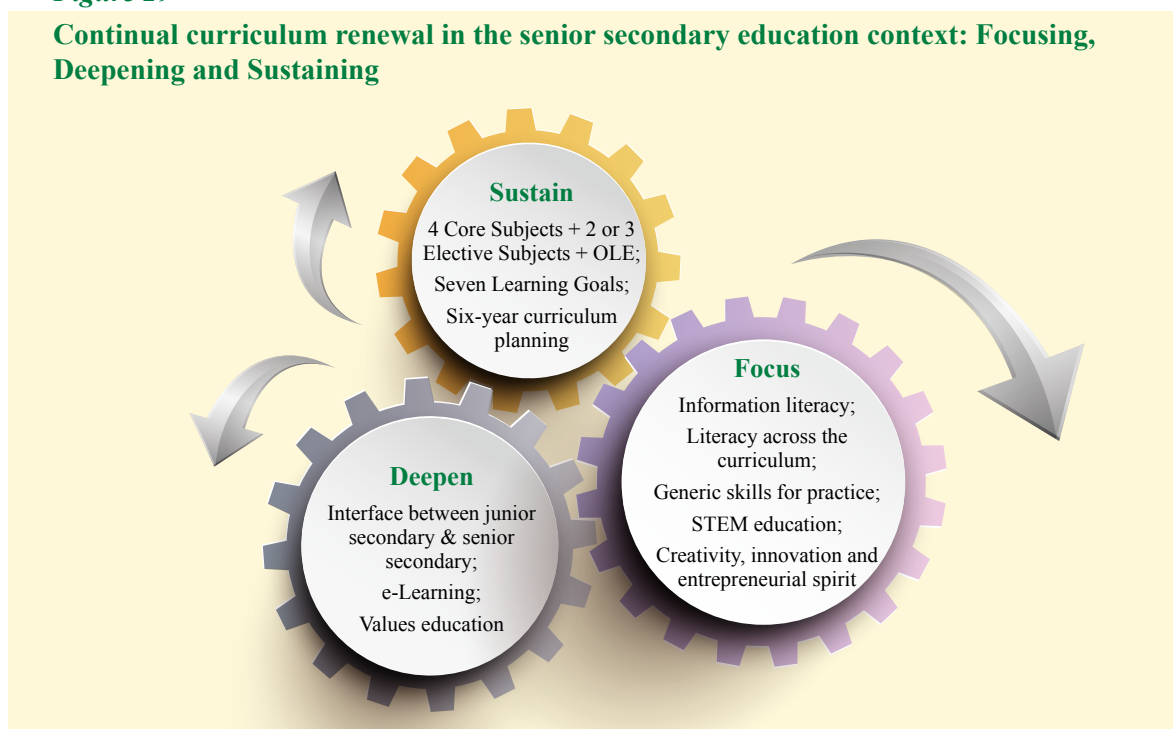
Continual renewal should not be confined to the senior secondary curriculum. Given the current and future advances in science and technology and the growing importance of knowledge in daily life and the workplace, it is crucial that education at all levels should enable all students to develop their talents to the full and realise their creative potential. Students must be resilient enough to take responsibility for their own lives and the achievement of their personal goals.

Not only should education respond to changes in the nature of work, it must also continuously nurture what it is to be human – our knowledge, aptitudes and creativity, as well as the critical faculty and the ability to act.

As noted in Chapter 1, *the ongoing renewal of the school curriculum* is the enhanced version of the *Learning to Learn* curriculum reform that started more than a decade ago. While much has been achieved in *Learning to Learn*, there are gaps to address, as seen in this report, and the overarching curriculum must be refreshed to keep up with the times (see Figure 29). The EDB, CDC and HKEAA will continue to work in close collaboration with all stakeholders in this new phase to respond to changing local, national and global contexts.

► Figure 29

Continual curriculum renewal in the senior secondary education context: Focusing, Deepening and Sustaining



This ongoing renewal embraces the plurality, diversity, and tolerance of our society, an international city rooted in Chinese traditions and its ties with the West, by celebrating and catering for diversity. It recognises the need to build links between knowledge and skills on the one hand, and values and attitudes on the other, in order to create synergy in learning. Foundation knowledge at the primary and junior secondary levels is regarded as critical to the achievements at the senior secondary level. The ongoing renewal thus aims to achieve greater vertical continuity across key stages and lateral coherence across disciplines, supported by enquiry-based learning and assessment “of”, “for” and “as” learning. It includes the fostering of students’ self-directed learning abilities and habits and active promotion of e-learning. New learning elements will be appropriately introduced to enhance literacy across the curriculum and information literacy; Science, Technology, Engineering

and Mathematics (STEM) education; creativity, innovation and entrepreneurial spirit; and values education (including Basic Law education), among others.

Continual curriculum renewal at all levels is imperative as we look beyond Hong Kong's borders and see that several of our neighbours have recently reviewed or are in the process of implementing changes to improve their curricula. Reforms in Japan, the Mainland, Singapore and Taiwan are four examples. In order to enable our students to maintain their competitiveness in the 21st century, we must not slacken our own endeavour.

It is only through such endeavour that we will unleash the potential of all of our children regardless of abilities and aptitudes, nurture a pool of versatile talents equipped with the capability of learning to learn in order to meet the development needs of our community in the 21st century, and enable young people to lead fulfilling lives.

7.3 Conclusion

This report concludes the NAS Medium-term Review. It has charted not only the challenges but the important progress and successes due to the dedication and hard work of all stakeholders, including principals, teachers, students, parents, and supporters in the post-secondary education sector and the wider community.

In implementing such a major reform as the NAS, thousands have contributed to the discussion and decision-making. This is an essential part of the curriculum and assessment renewal with close partnership between the EDB, CDC, and HKEAA. As shown in this report, stakeholders' voices have been heard and heeded. Some concerns were addressed in different stages of the NAS Review. Others will be considered as part of the future ongoing curriculum renewal.

The education reform that started in 2000 covered the whole education system, of which the NAS and its review is just a part. Our review focuses on the senior secondary curriculum and assessment. There are other issues beyond the scope of this review, such as the change in student population, subvention for schools, school places allocation, and other education policies and initiatives, which will be addressed on other platforms as appropriate.

The EDB, CDC and HKEAA are extremely grateful for all feedback that stakeholders generously shared during the NAS Review. This has been vital for informing the ongoing curriculum review. Building on our present success, we will continue to improve our curriculum, assessment, and indeed the education system, to build a better future in which all our children can maximise their potentials and lead meaningful and fulfilling lives.

*As heaven revolves to keep its splendour,
a person of worth should constantly strive for self-perfection.*

天行健，君子以自強不息。

EDB, CDC and HKEAA
November, 2015

Annex

Summary of Major Concerns on Curriculum, Assessment and Other Issues Collected in the New Academic Structure Review

Concerns	Way Forward (section number)
Whole-school Curriculum	
<i>Learning goals</i>	
<ul style="list-style-type: none"> • There were suggestions that the learning goals should be updated to reflect changes in society, locally and globally (e.g. IT skills). 	6.3.1
<ul style="list-style-type: none"> • There were suggestions for greater emphasis on moral education, Chinese culture, and multiple identities (e.g. local, national, and global). 	7.2
<ul style="list-style-type: none"> • Some shared feedback that schools and students were too examination-oriented at the expense of whole-person development. 	7.1.1, 7.2
<i>Subject choice</i>	
<ul style="list-style-type: none"> • There were concerns on schools' limitations in offering a greater range of elective subjects to cater for student needs due to contextual issues such as low student enrolment, drop in student population, and human resources. 	3.1.2A, 3.1.2C, 3.2.3
<ul style="list-style-type: none"> • There were concerns that some schools placed limitations on students' choices of elective subjects through practices such as allocating students into Science and Arts streams; allowing only students with outstanding results to study three elective subjects; and adopting a "gaming" attitude to study only two elective subjects for university admissions. 	3.1.2A, 6.3.2, 6.3.4
<ul style="list-style-type: none"> • There were concerns on the declining number of students taking three elective subjects which might reduce the knowledge base. 	3.1, 3.2.5, 6.3.2
<ul style="list-style-type: none"> • Some students voiced the need for more guidance and flexibility on their subject choices. 	3.2.7, 7.1.2
<i>Lesson time</i>	
<ul style="list-style-type: none"> • There were some concerns that schools and students spent too much time on core subjects, especially the two language subjects, at the expense of elective subjects and OLE. 	5.3
<ul style="list-style-type: none"> • Some teachers and students indicated that frequent assessment and drilling for examinations contributed to insufficient lesson time and extended periods of teaching outside school hours, which limits the quality of learning and created excessive workload. 	3.1.1C, 3.3.1, 7.1.1
<ul style="list-style-type: none"> • Some students indicated that tutorials organised by their schools are ineffective as these failed to cater for learner diversity and affected self-directed learning. 	3.1.1C, 7.2
<ul style="list-style-type: none"> • Some teacher-librarians raised concern that the heavy workload on students had reduced students' reading time. 	7.2
<i>Whole-school curriculum framework and planning</i>	
<ul style="list-style-type: none"> • Some stakeholders raised concerns that the curriculum framework of four core subjects, two or three elective subjects and OLE was not sufficiently broad and balanced. Alternative models were proposed. 	3.1.2B, 3.2.6, 6.1, 6.3.2, 6.3.3A, 6.3.4, 6.3.5, 7.1.1
<ul style="list-style-type: none"> • There were some concerns that the curriculum was too broad and challenging and demotivated some students causing them to drop out before Secondary 6. 	6.1, 6.2, 6.3.2, 6.3.3A, 6.3.4
<ul style="list-style-type: none"> • Some were concerned that the gap between junior secondary and senior secondary subjects was too large. The interface should be enhanced. 	6.3.5

Concerns	Way Forward (section number)
<ul style="list-style-type: none"> Some stakeholders viewed that the curriculum should be continually updated to keep up with the fast-changing demands of society as well as fill some gaps in student learning (e.g. resilience, problem solving abilities, time management, sense of responsibility, moral and civic education, and subject knowledge in specific areas such as STEM education; Language across the Curriculum). Some individuals suggested a KLA for business subjects. There was concern that changes in the whole-school curriculum framework may have a negative impact on the international recognition of Hong Kong's senior secondary education. 	1.4, 1.5, 7.1.1, 7.2 7.1.1 7.1.1
<i>Liberal Studies as a core subject</i>	
<ul style="list-style-type: none"> There were suggestions to change the current status of Liberal Studies as a core and examinable subject (e.g. turning Liberal Studies into an elective subject; dividing it into compulsory and elective parts; changing the grading structure of the subject) to release space for students to study more elective subjects. There were concerns that major changes to Liberal Studies could weaken students' critical thinking and other skills, narrow students' knowledge base, affect the enrolment in some subjects and hence the number of teaching posts in schools. There was also the suggestion that revision of the whole-school curriculum framework should not be restricted to Liberal Studies and should be treated as a forward-looking issue considered in a broader context with more data. 	6.3.2, 7.1.1 6.3.2, 7.1.1 7.1.1
<i>Mathematics as a core subject</i>	
<ul style="list-style-type: none"> While there was general agreement that Mathematics should be a core subject, some stakeholders proposed that the Extended Part (M1/M2) should become an elective subject. However, other stakeholders worried that M1/M2 as an elective subject may become more demanding and fewer students would be competent to take this elective subject. Some felt that elimination of Mathematics as a core subject would weaken their foundation for post-secondary studies, while others felt that the subject lowers their chance for admission to higher education institutions. 	6.3.3A 6.3.2
Public Assessment	
<ul style="list-style-type: none"> While the majority of schools were satisfied with the current grading structure for HKDSE Category A subjects, there were some suggestions that 5** should be abolished as this had aggravated the backwash effect of the HKDSE Examination on student learning. However, tertiary institutions supported the use of Level 5** for admissions purposes. Some stakeholders were concerned about the fairness and clarity of the marking, moderation and grading mechanisms for some subjects. Some teachers raised concerns about the low percentage of students achieving Level 4 or above in some subjects. There were concerns that the HKDSE favours female students as females in general are considered to be more proficient in language than males. 	6.3.3A, 7.1.1 7.1.1 7.1.1 7.1.1
<i>Public examination</i>	
<ul style="list-style-type: none"> There were some suggestions to adopt graded approaches in some subjects in addition to English Language. 	7.1.1
<i>School-based Assessment</i>	
<ul style="list-style-type: none"> Implementing SBA remained a key challenge and resulted in heavy workload for students and teachers, and lack of time for other areas of the senior secondary curriculum. There were requests for streamlining or not implementing SBA in subjects where skills and knowledge could be assessed in public examinations, and to avoid overlaps in assessment within and between subjects. 	6.1, 6.2, 6.3.3C

Concerns	Way Forward (section number)
<ul style="list-style-type: none"> Some teachers called for the removal of IES to reduce student and teacher workload. However, Liberal Studies teachers generally preferred to remove SBA of other subjects to make space for IES which they saw as more beneficial for student learning. 	6.2
<ul style="list-style-type: none"> Some stakeholders suggested that SBA of some subjects did not significantly contribute to enhancing student learning. 	6.3.3C
<ul style="list-style-type: none"> There were suggestions for further streamlining SBA arrangements such as improving the mark submission process, further deferring of implementation and separate reporting of SBA marks. 	6.1, 6.2, 6.3.3, 7.1.1
Individual subjects/curriculum areas	
<i>Common issues across different subjects</i>	
<ul style="list-style-type: none"> There were concerns on the breadth and depth of most subject curricula, and there were requests for clarification. 	6.1
<ul style="list-style-type: none"> While there were voices for not implementing SBA in some subjects, some stakeholders were concerned that this might affect the international recognition of those subjects. 	6.1, 6.3.3C, 7.1.1
<ul style="list-style-type: none"> Increased learner diversity in the classroom was often voiced as a concern in many subjects. Different suggestions were offered to address learner diversity, such as trimming curriculum contents and introducing half subjects. 	3.2.3, 6.1, 6.2, 6.3.3A, 6.3.3B, 7.1.1
<ul style="list-style-type: none"> The interface between junior secondary and senior secondary levels was a particular concern for some subjects. 	3.1.1A, 7.2
<ul style="list-style-type: none"> NCS students' learning in some subjects is a concern. 	3.2.3, 6.3.3D, 7.1.1
<ul style="list-style-type: none"> There were implementation challenges and concerns on the design of some subjects where the components or modules are from rather distinct disciplines. 	6.3.3A, 7.1.1
<ul style="list-style-type: none"> There were concerns on the drop in student enrolment in some subjects which was seen to affect the survival of those subjects. 	6.3.3A, 6.3.4
<ul style="list-style-type: none"> There was some concern on the balanced representation of different sectors in the CDC–HKEAA Committee of some subjects. 	7.1.1
<i>Chinese Language</i>	
<ul style="list-style-type: none"> There were suggestions on fine-tuning the curriculum (e.g. reduce the number of elective modules, introduce classical set texts, introduce more set texts of different genres). 	6.1, 6.2
<ul style="list-style-type: none"> There were concerns on some aspects of the public examination (e.g. number of papers, level of difficulty, question types that limit demonstration of creativity, validity and reliability). 	6.1, 7.1.1
<ul style="list-style-type: none"> There were suggestions on fine-tuning SBA arrangements (e.g. streamline requirements, adjust weighting). 	6.1
<ul style="list-style-type: none"> Some stakeholders suggested that the curriculum is too skill-based and should be reviewed. 	6.2
<i>English Language</i>	
<ul style="list-style-type: none"> There were suggestions on fine-tuning SBA arrangements (e.g. reduce the number of SBA tasks, streamline the online mark submission system). 	6.1
<ul style="list-style-type: none"> There were concerns about the lack of lesson time to teach the Elective Part due to students' diverse needs. 	6.3.3B
<ul style="list-style-type: none"> Some academics from tertiary institutions expressed that their undergraduate students had difficulty understanding long academic texts and were rather weak in writing. 	6.3

Concerns	Way Forward (section number)
Mathematics	
<ul style="list-style-type: none"> • There were concerns that the curriculum of both the Compulsory Part and the Extended Part (i.e. M1/M2) were too broad. 	6.1
<ul style="list-style-type: none"> • There were suggestions to turn M1/M2 into an elective subject, but others were concerned about the international recognition of the Mathematics Compulsory Part if M1/M2 were taken out, and worried that the elective would become more demanding and fewer students would be competent to take this subject. 	6.3.3A, 7.1.1
<ul style="list-style-type: none"> • There were concerns on M1/M2 (e.g. drop in number of students taking M1/M2, recognition of M1/M2 in university admissions, insufficient lesson time for teaching M1/M2 in schools). 	6.3.3A, 6.3.4, 7.1.1
<ul style="list-style-type: none"> • The views of university academics towards the performance of students under the NAS were diverse. Some appreciated the attitude of students under the NAS in learning mathematics in their universities and found that students who had only studied the Compulsory Part performed better in their foundation courses compared with those who studied Mathematics up to Secondary 5 in the HKCEE, and those who studied M1 performed better in statistics courses than those taking Mathematics and Statistics (AS-level). Some found that the students were more confident in doing mathematics and had a better understanding of mathematics. However, some academics viewed that the computational skills of students were not as good as those of students taking Pure Mathematics (A-level) before the implementation of NAS. 	7.1.1
Liberal Studies	
<ul style="list-style-type: none"> • There were concerns on the alignment between curriculum and assessment of the subject (e.g. balanced coverage of each module especially political issues). 	6.3.3B, 7.1.1
<ul style="list-style-type: none"> • There were suggestions for fine-tuning the curriculum (e.g. further trimming, re-organising the curriculum framework), but others raised concerns that changes would upset the stability of the subject and might not be desirable. 	6.1, 7.1.1
<ul style="list-style-type: none"> • There were suggestions for fine-tuning public examination arrangements (e.g. question types, examination time, length of papers, quality of paper setting). 	6.3.3B, 7.1.1
<ul style="list-style-type: none"> • There were suggestions that IES be simplified, and its workload and weighting reduced. 	6.1, 6.2
<ul style="list-style-type: none"> • Some raised concern that more cases of plagiarism may arise due to the use of second hand information in the IES. 	7.1.1
<ul style="list-style-type: none"> • Some stakeholders were concerned whether teachers were able to maintain an objective stance in learning, teaching and assessment. 	3.2.5, 7.1.1
Biology	
<ul style="list-style-type: none"> • There were suggestions on fine-tuning SBA arrangements (e.g. reducing weighting and requirements). 	6.1
<ul style="list-style-type: none"> • There were requests for fine-tuning of public examination papers. 	7.1.1
Business, Accounting and Financial Studies	
<ul style="list-style-type: none"> • There were suggestions on fine-tuning the public examination (e.g. reducing examination time and coverage, and separate the reporting of the results in Accounting and Business Management modules). 	6.1, 6.2
<ul style="list-style-type: none"> • Some teachers were concerned about the breadth of the curriculum. Though a number of principals and teachers suggested that BAFS should be divided into two subjects, there were concerns from the tertiary sector as well as some principals and teachers that students would benefit more from a broader curriculum instead of early specialisation in business learning at senior secondary level. 	6.1, 6.2, 7.1.1

Concerns	Way Forward (section number)
<p><i>Chemistry</i></p> <ul style="list-style-type: none"> • There were suggestions on fine-tuning the curriculum. • There were requests for fine-tuning public examination arrangements. • There were some individual requests for further streamlining SBA. • There were suggestions to promote the use of e-pedagogies in this subject. 	<p>7.1.1 7.1.1 7.1.1 7.2</p>
<p><i>Chinese History</i></p> <ul style="list-style-type: none"> • There were suggestions for fine-tuning public examination arrangements. • Some stakeholders suggested that Chinese History be made a core senior secondary subject. • There were views that the Chinese History and History curricula could complement each other; and that the Chinese History curriculum be reviewed in the long term. 	<p>6.1 6.3.2, 7.1.1 7.1.1, 7.2</p>
<p><i>Chinese Literature</i></p> <ul style="list-style-type: none"> • There were suggestions for fine-tuning the curriculum (e.g. trim the number of elective modules). • There were requests for fine-tuning public examination papers (e.g. examination time, number of choices and questions to be answered). 	<p>6.1 6.1</p>
<p><i>Design and Applied Technology</i></p> <ul style="list-style-type: none"> • There were suggestions on fine-tuning SBA arrangements (e.g. provide SBA project list, simplify the mark submission procedure). • There were suggestions on fine-tuning the curriculum. • There were requests for fine-tuning the public examination papers. 	<p>6.1 7.1.1 7.1.1</p>
<p><i>Economics</i></p> <ul style="list-style-type: none"> • There were requests for fine-tuning public examination arrangements. • There was a suggestion on fine-tuning the curriculum (e.g. divide the curriculum into “Foundation” and “Extended” parts to cover the basic and advanced topics). 	<p>6.1, 6.3.3B 7.1.1</p>
<p><i>Ethics and Religious Studies</i></p> <ul style="list-style-type: none"> • There were suggestions for fine-tuning public examination arrangements (e.g. include experiential learning related questions, in-depth application of religious teaching/reflection). 	<p>6.3.3B</p>
<p><i>Geography</i></p> <ul style="list-style-type: none"> • There were suggestions for fine-tuning public examination arrangements. 	<p>6.1, 6.3.3B</p>
<p><i>Health Management and Social Care</i></p> <ul style="list-style-type: none"> • There were requests for fine-tuning public examination arrangements. • There were requests for fine-tuning SBA arrangements (e.g. streamline SBA tasks). • There were requests for fine-tuning curriculum contents, and further clarification of the breadth and depth of the curriculum. 	<p>6.1 6.1, 6.3.3B 7.1.1</p>
<p><i>History</i></p> <ul style="list-style-type: none"> • There were requests for fine-tuning public examination arrangements. 	<p>6.1</p>
<p><i>Information and Communication Technology</i></p> <ul style="list-style-type: none"> • There were requests for clarifying the requirements on the format of the SBA task. • There were suggestions for further fine-tuning curriculum contents. 	<p>6.1 7.1.1</p>

Concerns	Way Forward (section number)
<p><i>Integrated Science</i></p> <ul style="list-style-type: none"> • There was a need for further refinement of learning and teaching resources and professional development support. • Strengthening students' skills at junior secondary level in conducting practical work is essential for SBA. 	<p>6.1, 6.3</p> <p>7.2</p>
<p><i>Literature in English</i></p> <ul style="list-style-type: none"> • There were suggestions for fine-tuning public examination arrangements (e.g. adjusting examination time). • There were concerns on the choice of set texts. • There were requests for regular replacement and early announcement of the set texts to facilitate curriculum planning. 	<p>6.1</p> <p>6.1, 6.3.3B</p> <p>6.3.3B</p>
<p><i>Music</i></p> <ul style="list-style-type: none"> • There were suggestions on fine-tuning the curriculum (e.g. updates on the contents of a few Modules). • There were requests to fine-tune public examination arrangements. • There were divided views on whether SBA should be implemented. 	<p>6.1, 6.3.3B, 7.1.1</p> <p>6.1, 7.1.1</p> <p>6.3.3C</p>
<p><i>Physical Education</i></p> <ul style="list-style-type: none"> • There were requests for fine-tuning public examination arrangements (e.g. better articulation with inter-school athletic competitions, increase weighting for the practical examination to reflect the theory-practice nature of Physical Education, and the separate reporting of performance in theoretical and practical aspects). 	<p>6.3.3B, 7.1.1</p>
<p><i>Physics</i></p> <ul style="list-style-type: none"> • There were requests for fine-tuning public examination arrangements. • There were views on fine-tuning SBA arrangements (e.g. reducing weighting). • The mathematics foundation of some students was weak and teachers had to spend extra time to teach mathematical subjects. • Some topics in the curriculum may be updated/fine-tuned in the long run to keep up with the latest developments in the subject. 	<p>6.1</p> <p>7.1.1</p> <p>7.1.1, 7.2</p> <p>7.1.1, 7.2</p>
<p><i>Technology and Living</i></p> <ul style="list-style-type: none"> • Concern was raised on the alignment between curriculum and public assessment (e.g. curriculum coverage in the HKDSE Examination). • There were requests for fine-tuning public examination arrangements (e.g. adjusting examination time). 	<p>7.1.1</p> <p>7.1.1</p>
<p><i>Tourism and Hospitality Studies</i></p> <ul style="list-style-type: none"> • In the long term, there were suggestions on revising the curriculum content. • Some raised concerns on public examination arrangements (e.g. examination time, question types). 	<p>6.1, 7.1.1</p> <p>6.3.3B</p>
<p><i>Visual Arts</i></p> <ul style="list-style-type: none"> • There were suggestions on fine-tuning SBA arrangements (e.g. streamlining SBA tasks and administrative work, reducing SBA requirements and weighting). • There were concerns and suggestions on some public examination arrangements (e.g. high requirement in the assessment of art appreciation and criticism, linkage between art appreciation and art making, question types such as the use of guided questions in assessing art appreciation and criticism, and oral examinations). 	<p>6.1, 7.1.1</p> <p>6.3.3B, 7.1.1</p>

Concerns	Way Forward (section number)
<ul style="list-style-type: none"> • There were diverse views on whether contents should be specified for the curriculum and assessment. • Some art education professionals were concerned that learning and teaching were too focused on public assessment, resulting in uniformity of themes in building portfolios. 	6.3.3B, 7.1.1 7.1.2
<p><i>Applied Learning</i></p> <ul style="list-style-type: none"> • There were suggestions to benchmark the Applied Learning courses with other qualifications (e.g. link to the QF). • There were requests for more flexibility in the implementation of Applied Learning courses (e.g. early commencement at Secondary 4, taster programmes). • There is a need for greater recognition of Applied Learning, which could be achieved partly through finer grading in the HKDSE. • There is a need to continually conduct course review and research studies to collect feedback on course design, administrative arrangements, and to refine and update Applied Learning courses. • There were requests to review the funding and “safety net” for Applied Learning. 	6.1, 6.3.3D, 7.1.1 6.1, 6.3.3D, 7.1.1 6.3.3A, 6.3.4 6.3.3D, 7.1.1 7.1.1
<p><i>Other Languages</i></p> <ul style="list-style-type: none"> • There was concern on the timing of the release of results by CIE, as results of the June series of Other Languages examinations cannot be included in JUPAS scores from the 2017 HKDSE onwards. • A few teachers expressed support for developing local curricula and examinations to address examination scheduling issues in Other Languages. • A few teachers suggested that additional languages be offered (e.g. Korean, Nepalese) to cater for local interests and students’ backgrounds. 	6.3.3E, 7.1.1 7.1.1 6.3.3E, 7.1.1
<p><i>Other Learning Experiences</i></p> <ul style="list-style-type: none"> • Some stakeholders voiced the need to promote more structured planning and directed, purposeful OLE. • There was a suggestion that the time requirement for OLE be lifted. • There were some concerns that schools and students did not give sufficient time nor priority to OLE because of a lack of time and the importance of the HKDSE Examination. • There were suggestions that more career-related experiences should be added to the curriculum in order to better prepare students for work. 	3.2.7 6.1 6.3.2 6.3.2
<p><i>Life planning education and career guidance</i></p> <ul style="list-style-type: none"> • Some students voiced the need for increased provision of individual guidance and counselling by their teachers on their future planning. • Some teachers voiced the need for further professional development on career education. 	7.1.2 7.1.2
Multiple Pathways	
<p><i>Recognition</i></p> <ul style="list-style-type: none"> • There were concerns on the local recognition of M1/M2, some less popular senior secondary subjects, and Applied Learning courses. • There was some concern that the SLP was not sufficiently recognised by post-secondary institutions and employers. • There was concern that overseas institutions did not recognise some subjects in the HKDSE. 	6.3.4, 7.1.2 4.1.7, 4.3.2, 7.1.2 4.1.7, 7.1.2

Concerns	Way Forward (section number)
<p>Articulation</p> <ul style="list-style-type: none"> • There were views that the general entrance requirements for tertiary education should be reviewed because they favoured students with higher language abilities over other subjects; that the minimum requirements for sub-degree study should be lowered; and the number of university places should be increased to reduce examination pressure on students and schools. • There were requests for better information sharing related to further studies (e.g. more information and greater clarity on local admissions requirements; more integrated IT systems for applications such as WebSAMS, iPASS, E-APP; more information related to further studies in the Mainland and Taiwan). • Some voiced the need for more pathways for lower achievers (e.g. those leaving school before Secondary 6, or those who cannot satisfy the entrance requirements for sub-degree programmes) and NCS students. • There were some requests that more financial support be provided for students to study in the Mainland. • There was a view that some schools could be developed into vocational or professional schools to cater better for learner diversity and multiple pathways. 	<p>6.3.4, 7.1.2</p> <p>4.1.7, 6.3.4, 7.1.2</p> <p>3.2.3C, 6.3.4, 6.3.5</p> <p>7.1.2</p> <p>7.3</p>
<p>Students with special educational needs</p> <ul style="list-style-type: none"> • Some parents voiced the need to enhance support and special arrangements for students with SEN in the public examination. • There was a request for better assessment tools for dyslexia for senior secondary students, for more accurate identification. • There was concern about the study and career pathways for students of special schools after Secondary 6. 	<p>6.3.5</p> <p>7.1.1</p> <p>7.1.1, 7.1.2</p>
Workload	
<p>Scope of the curriculum</p> <ul style="list-style-type: none"> • Many teachers voiced that the senior secondary curriculum was too broad, and they had to conduct after school lessons to complete the teaching of its content. 	<p>6.1, 6.2, 6.3.3B</p>
<p>School-based Assessment</p> <ul style="list-style-type: none"> • Workload from SBA was a great concern to both teachers and students. Some teachers have to supervise a large number of students on SBA assignments, and some students have to do SBA assignments for a number of subjects at the same time. 	<p>6.1, 6.2, 6.3.3C</p>
<p>Catering for learner diversity</p> <ul style="list-style-type: none"> • Catering for increased learner diversity in the classroom remains a major concern and source of teacher workload. 	<p>3.1.3A, 3.1.3B, 6.3.5, 7.1.1</p>
<p>Non-teaching duties</p> <ul style="list-style-type: none"> • Some teachers expressed that they had to take up extensive non-teaching duties that added greatly to their workload. 	<p>3.1.3B</p>
<p>Life planning education and career guidance</p> <ul style="list-style-type: none"> • Some teachers indicated that with the EDB initiative to enhance life planning education, more time was spent on OLE activities, life planning education and career guidance, which increased their workload. • Some teachers voiced the need for more professional development training on life planning and career guidance. 	<p>3.1.3A, 3.1.3B, 7.1.2</p> <p>7.1.2</p>

Concerns	Way Forward (section number)
Resources and Support	
<i>Learning and teaching resources, professional development</i>	
<ul style="list-style-type: none"> • There were requests for more e-platforms for sharing experiences and learning and teaching resources. 	3.2.4B
<ul style="list-style-type: none"> • Principals and teachers voiced the need for more support services; teacher professional development; learning, teaching and assessment resources; and sharing of good practices. 	6.1, 6.2, 6.3.2, 6.3.5, 7.1.1
<i>Human resources</i>	
<ul style="list-style-type: none"> • Many principals and teachers indicated that there was a need for more funding and resources for schools to employ more teachers to reduce workload and release space for teachers to attend PDPs. 	3.1.3B, 6.3.5
<ul style="list-style-type: none"> • There were views that more resources should be provided to schools to hire Other Language teachers. 	3.1.3B
<i>Financial resources</i>	
<ul style="list-style-type: none"> • There were requests for more financial resources to support the implementation of the NAS, including subjects and OLE. 	3.1.3B
Community Engagement	
<ul style="list-style-type: none"> • There were suggestions for more engagement with students and parents to better inform the implementation of the NAS and manage expectations. 	6.3.4
<ul style="list-style-type: none"> • There is a need to strengthen partnership of schools with businesses and community organisations to better prepare students for the world of work. 	7.1.1
<ul style="list-style-type: none"> • For some subjects with practical components, there is a need to enhance communication with and enlist support from key stakeholders to facilitate field learning (e.g. NGOs, hotels, employers). 	7.1.1
Others	
<ul style="list-style-type: none"> • There was concern on the objectivity of the NAS Review as it was conducted by the EDB. 	2.3
<ul style="list-style-type: none"> • There were views that the review should cover a broader scope than the senior secondary curriculum and assessment, and should involve a more holistic review and planning of the education system and policies (e.g. review on banding system, teacher-to-class ratio, implementing small class teaching, freezing the medium of instruction and approved class size arrangements). 	7.3

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The observations cited in this report were drawn from the quantitative and qualitative data collected by the EDB and HKEAA, EDB-commissioned studies, and focus group and individual interviews. In drafting this report, reference has also been made to surveys by education and professional organisations, media reports, as well as research and reports by other local and international agencies. Major sources are listed as follows:

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- Survey on the Experience of the Senior Secondary Graduates under the New Academic Structure: Impact of New Senior Secondary Education on their First-year Experience of Further Studies in Hong Kong (2012, 2013, 2014)

Education Bureau Conducted/Commissioned Subject-level and Curriculum Area Studies:

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- Gifted Education Baseline Study (2012)
- New Senior Secondary Liberal Studies Curriculum Implementation Study 2013/14
- Other Learning Experiences Research 2013/14
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- Study on Applied Learning (2011–13 Cohort)
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- Survey on senior secondary students on the New Academic Structure (2015)

Hong Kong Association of the Heads of Secondary Schools:

- Open Letter to the Education Commission (2015)

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- Survey on the promotion of life planning services in secondary schools (2014)
- Survey on the stress level of HKDSE candidates (2014)
- Survey on the stress level of HKDSE candidates (2015)

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- Proposal for reviewing the senior secondary curriculum framework (2015)

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