



# Report of the Primary Education Review and Implementation Committee

March 2009



**Report of the  
Primary Education Review  
and Implementation Committee**

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28 March 2009

Dr Ng Eng Hen  
Minister for Education

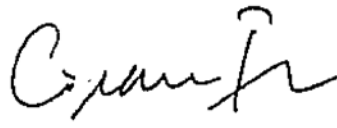
In October 2008, you appointed the Primary Education Review and Implementation (PERI) Committee to study and recommend the priorities, programmes and resources needed to bring primary education to the next level.

In its deliberations, the Committee considered the strengths and limitations of our current primary education system in preparing our young for an increasingly complex, competitive and inter-connected world. The Committee also sought the views of stakeholders in education – educators, parents, employers, and members of the public – and drew from Committee members' collective experiences and insights of education in both local and overseas contexts.

We have sought to build on our strong fundamentals, while raising the quality of teaching and learning for a well-balanced primary education. Our recommendations are in two broad areas. First, we propose to balance the acquisition of knowledge with the development of skills and values, through increased use of engaging and effective teaching methods, more holistic assessment, and a stronger emphasis on non-academic aspects within the curriculum. Second, the Committee recommends that more resources in the areas of manpower, funding and infrastructure be provided to support the proposed changes.

The Committee recognises that the success of these recommendations hinges on thoughtful implementation and sustained effort, especially in building the capacity of our schools and educators to effectively realise a more holistic primary education.

We believe that the recommendations will provide our children with a balanced and well-rounded education in their foundational years. We are grateful for the opportunity to undertake this review, and would like to express our appreciation to the many individuals and organisations who have contributed to the work of the Committee. The Committee has completed its work, and we are pleased to present our Report for your consideration.



MS GRACE FU  
(CHAIRPERSON)



DR LILY NEO



MR MICHAEL PALMER



MS YEOH CHEE YAN



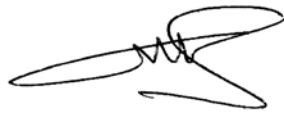
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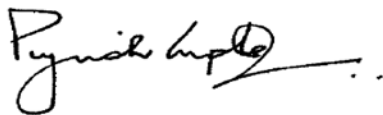
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MR WONG SIEW HOONG  
(HEAD, SECRETARIAT)



6 April 2009

Ms Grace Fu  
Senior Minister of State for National Development & Education and  
Chairperson, Primary Education Review and Implementation Committee

Dear *Grace*,

Thank you for your letter of 28 March 2009. I am pleased to inform you that the Government has accepted the recommendations of the Primary Education Review and Implementation (PERI) Committee.

We have a robust primary education system that is respected for its high standards. It provides our children with a strong foundation in their formative years. However, our education system must continue to evolve in response to changing needs. The Committee has done well to propose changes that build upon our present strengths to raise primary education to the next level.

The Committee's proposal to introduce measures that balance the acquisition of knowledge with the development of skills and values is instrumental to prepare our young to thrive in the future. Introducing new non-academic programmes (such as the Programme for Active Learning), providing more opportunities for schools to better develop soft skills and imbue correct values, as well as refining the assessment system to provide feedback on the holistic development of our children are notable steps in the right direction.

These changes will take time to implement. In particular, in the area of more appropriate forms of assessment for Pri 1 and 2 pupils, the Ministry of Education (MOE) will provide training for principals and teachers to assess pupils more holistically - using a range of methods - over the next few years. MOE will do this at a comfortable pace that allows us to monitor the effectiveness and progress of the changes, while continuing to maintain high academic standards. We will also provide parents with sufficient information about the advantages of these assessment methods.

The Committee's recommendation to invest in a quality teaching force is both essential and timely. Quality educators with the right aptitude, passion and competencies are crucial to deliver good education. MOE will continue to enhance the recruitment and training of our educators, to build a better education system that benefits future generations of Singaporeans.

MOE will also target to facilitate the transition of all government primary schools to a single-session model by 2016, as recommended by the Committee. This is an essential enabler to support the desired enhancements in educational outcomes. Even as we move to all single-session primary schools, MOE will ensure that Singaporean children will still have access to a primary school near his home, based on the same planning parameters that are currently used. In addition, we will work closely with schools, especially the more popular ones, to ensure sufficient number of Primary 1 places such that students who have no affiliation to the school can still have access for admission.

Implementing the recommendations put forward by the Committee will require sizeable resources and a sustained commitment to change mindsets, develop capacity, build infrastructure and garner the stakeholder support necessary to bring primary education to a new level. It will take some time to achieve our shared goals, and MOE will commit the necessary financial resources to introduce the proposed initiatives.

I would like to thank you and the members of the PERI Committee for doing an excellent job in seeking views from stakeholders and for formulating strategies and practical recommendations that will help enhance primary school education in Singapore. Nurturing the next generation is a mission that involves society as a whole, and MOE will need to work closely with stakeholders in implementing these changes. Together, I am confident that we can build a World Class education system that will give young Singaporeans the best future possible.

Yours *Sincerely,*



NG ENG HEN (DR)



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## **Executive Summary**



## Executive Summary

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### BACKGROUND

1. The Primary Education Review & Implementation (PERI) Committee, led by Ms Grace Fu, Senior Minister of State, Ministry of National Development and Ministry of Education, was formed in October 2008 to study ways to enhance primary education.

2. The Committee held dialogue sessions to seek views from a cross-section of stakeholders, including representatives from School Management and Advisory Committees, Principals, Vice-Principals, Heads of Department, teachers, parents, students and members of the public. In total, more than 850 people contributed their views and suggestions.

### THE WAY FORWARD - CONFIDENT CHILDREN, INDEPENDENT LEARNERS, CARING CITIZENS

3. The Committee recognises that our current primary school system is robust and of high standards, in major part due to a tightly-knit and well-organised system. Our strengths include a forward looking and centrally-designed curriculum, trained teachers whose skills continue to be upgraded, and a national examination system which helps maintain high standards. The Committee agrees that these strengths should be retained and built on.

4. Overall, the Committee received strong public support for an all-rounded primary education. The Committee also considered studies conducted by the Ministry of Education (MOE) which present a set of forward-looking educational outcomes. These outcomes aim to strike a balance between enduring knowledge and values, and the necessary 21<sup>st</sup> century skills and dispositions which will equip our children to thrive in a fast-changing, globalised world, while remaining uniquely Singaporean.

5. It is clear to the Committee that **our children should grow up to be confident persons, adept at working in teams and able to communicate their thoughts and ideas effectively. They should be self-directed learners who view education as a life-long process. They should also be innovative and enterprising individuals, able to cope with ambiguity and adapt well to change. At the same time, Singapore needs citizens who are morally upright, have a strong sense of civic responsibility and who will contribute actively to society.** These skills and dispositions should be inculcated in the formative years during primary education.

6. The PERI Committee's recommendations for primary education are outlined below. (See Box 1 for a summary of the recommendations.)

## **BALANCING KNOWLEDGE WITH SKILLS AND VALUES**

### Use Engaging Pedagogy to Teach Skills and Values

7. The Committee notes that MOE has been reviewing the curriculum regularly so that it remains relevant and future-oriented. MOE should continue to ensure a strong grasp of basic literacies in Languages, Mathematics and Science at the primary level. MOE should strengthen the training of teachers in content mastery and teaching methods to ensure that all teachers have a good grasp of effective pedagogical approaches that can be applied across subjects. Furthermore, teachers should also be competent in subject-specific strategies to develop skills and inculcate values in our pupils.

### Emphasise Non-Academic Programmes Within Curriculum

8. To achieve a more balanced curriculum, the Committee recommends that greater emphasis be placed on non-academic programmes within the curriculum. The new Programme for Active Learning (PAL) will be introduced for all Primary 1 and 2 pupils. They will participate in modular activities for two hours a week during curriculum time in two broad areas of Sports and Outdoor Education, and Performing and Visual Arts. All Primary 3 to 6 pupils should either continue with PAL and/or opt for a main Co-Curricular Activity (CCA) where they can specialise in a particular area of interest.

9. The Committee also recommends that MOE enhance the quality of instruction in Physical Education (PE), Art and Music. All schools should have qualified teachers who are optimally deployed to teach these subjects. To ensure that schools are able to put in place good PAL activities, schools should be given funds to engage trained coaches, instructors and service providers approved by MOE. Given the increased demand for instructors among primary schools, MOE should work with the relevant agencies to build up the pool of instructors in the long run. Additional funding should also be provided to schools to invest in equipment for PE, Art, Music and other PAL activities.

### More Holistic Assessment to Support Learning

10. Assessment is an important aspect of teaching and learning which should be effectively used to support the holistic development of our pupils. The Committee is of the view that the Primary School Leaving Examination (PSLE) remains important as a key stage examination, to allow pupils and parents to objectively gauge the standard of academic attainment after six years of primary education. However, apart from the PSLE, the school-based assessment system should be balanced to place greater emphasis on skills development and provide constructive feedback. This enables more meaningful learning in both academic and non-academic aspects of a pupil's development.



11. The Committee feels that at lower primary (Primary 1 and 2), when students are just beginning school, a key focus should be placed on building pupils' confidence and desire to learn. We should encourage schools to move away from an overly strong emphasis on examinations, and explore the use of bite-sized forms of assessment which place more emphasis on learning rather than on grades alone. At Primary 1 we would want much less importance placed on semestral examinations to facilitate a smooth transition from pre-school to primary school. At Primary 2, we could slowly ease pupils into taking examinations.

12. To move in this direction, we would encourage teachers to be equipped to use assessment tools such as rubrics to assess and provide pupils with richer feedback on their development in both academic and non-academic areas. MOE should train teachers to observe and provide meaningful feedback that goes beyond marks, to help students understand their misconceptions, and provide strategies to help them improve. Schools should continue to have clear guidelines from MOE on the learning outcomes for each subject.

13. We envisage that schools could provide parents with a more comprehensive progress report or "Holistic Development Profile", which captures a fuller picture of student learning throughout the school year. Given to all levels of primary school pupils, this would include both quantitative and qualitative feedback. MOE should develop a system to assess the schools' ability to develop their pupils in both academic and non-academic areas, and to provide a more holistic education. Overall, a shift in mindset about assessment is necessary to balance the learning of knowledge with the development of important life-skills, as well as to focus on the learning process instead of just academic outcomes.

## **INVESTING IN A QUALITY TEACHING FORCE**

### Provide Additional Manpower

14. The Committee recognises the opportunities presented by the economic downturn, and is in favour of MOE's decision to bring forward hiring plans for teachers. In line with the enhanced emphasis on non-academic areas within the curriculum, the Committee recommends that MOE should invest in recruiting and training more PE, Music and Art teachers to raise the quality of instruction in these areas. The Committee notes that MOE will similarly bring forward its hiring plans for Allied Educators (Teaching and Learning) [AEDs(TL)] as additional teaching support staff in primary schools.

15. To help develop the oral communication skills of primary pupils, the Committee recommends that individuals with strong oral communication skills could be engaged to support a conducive environment for learning languages in schools, even if they are not trained teachers.



### Recruit Committed, Quality Educators

16. The enhancements that we desire to make to our primary education will require committed teachers who possess a strong mastery of both content and pedagogy. While some members of the public have affirmed the need for primary teachers to hold graduate qualifications, there has also been repeated public feedback that the passion and aptitude to teach as well as the love for children remain the most important qualities for a primary school teacher.

17. The Committee agrees with these comments, and recognises that MOE has always valued these qualities in recruiting teachers. Even when stepping up recruitment of educators, MOE should continue to select carefully for these qualities through its rigorous and comprehensive selection process. The Committee is assured that only teaching applicants who demonstrate the right aptitude, passion and suitability for teaching will progress to become full-fledged teachers.

18. The Committee notes that MOE has been consistently recruiting teachers from the top 30% of each cohort. By 2015, 30% of each cohort would gain entry into our local autonomous universities, with a further 15% to 20% obtaining degrees from other universities. Thus, the Committee recognises that in order to maintain the calibre of the teaching service, MOE will need to focus its efforts to recruit new teachers from the pool of university graduates or those who qualify for an undergraduate education, by 2015.

19. The Committee proposes that eligible 'A' level and diploma holders can continue to join the teaching service by enrolling in the National Institute of Education's (NIE) degree programmes. For 'A' level or diploma holders who decide not to pursue a degree but have a passion for teaching, the Committee recommends that they join MOE as AEDs(TL), working closely with teachers in the classroom to hone their skills in teaching. This will also help aspiring educators to decide if they want to pursue a teaching career in the longer term. The Committee suggests that MOE continue to provide Allied Educators with the relevant training at NIE so that they are well-equipped for their roles. They should also have the opportunity to upgrade their qualifications and join the teaching service as full-fledged teachers if they are found suitable and perform well as Allied Educators.

20. The Committee is assured that non-graduates who have specialised skills can still join the profession as teachers in selected areas such as Art, Music and Mother Tongue Languages. Mid-career applicants who do not have a degree but have experience in a relevant field should also be welcomed as potential candidates. MOE has affirmed that non-graduates who are already in the teaching profession will continue to play an important role. They will continue to be appraised based on work performance and not their academic qualifications. As such, non-graduate teachers should not feel compelled to upgrade academically. Instead, it would be more important for

them to upgrade professionally to enhance their professional knowledge and proficiency in the classroom.

### Equip Teachers Well through Training and Professional Development

21. Professional development must be an ongoing process for all teachers. The Committee recommends that MOE strengthen pre- and in-service training for all teachers to ensure that they have not only the basic teaching skills, but also a good grasp of curriculum content as well as a sound mastery of a variety of pedagogies and assessment practices.

22. The majority of primary school teachers today are trained to teach three curriculum subjects, namely English, Mathematics and one other subject. In view of the advantages of subject specialisation and mindful of the practical considerations in teacher deployment, the Committee proposes that MOE could encourage specialisation at the upper primary levels through in-service training while continuing to provide schools with the autonomy to deploy their teachers according to their needs. The Committee is also of the view that MOE should continue to partner schools to develop new teaching and assessment methods, and continue to provide schools and teachers with rich learning resources and packages to help them build expertise.

## **ENHANCING INFRASTRUCTURE**

### Single-Session Primary Schools

23. The Committee recognises that MOE has been moving from a double-session model to a partial single-session model since 2004. Schools that have been able to move to a single-session model have shared positive feedback about providing a better environment to develop their pupils more holistically. Members of the public also warmly welcome the move towards single-session primary schools. As such, the Committee strongly recommends moving all primary schools towards the single-session model.

24. The Committee acknowledges that time will be required to make infrastructural enhancements to schools and manage the changes in school enrolment in implementing the single-session model. Taking into consideration MOE's preliminary estimates, we recommend that MOE facilitate the transition of all government schools to the single-session model by 2016, while ensuring that every child continues to have access to a primary school near his home. For government-aided schools, MOE should work closely with these schools to facilitate their transition to the single-session model at a pace comfortable to them, bearing in mind the needs and concerns of their respective communities.

25. In addition, MOE should ensure that our primary schools, especially the more popular ones, maintain a sufficient number of places such that students who have no affiliation to the school can still have access for admission to

Primary 1. To achieve this, MOE should work closely with schools and their stakeholders on the options, timeline and implementation details as the schools transit to a single-session model.

#### *Schools Have Flexibility to Adjust Start and End Times*

26. As public feedback on the start and end times for schools has been mixed, the Committee recommends that schools should continue to be given the flexibility to adjust their start and end times with careful consideration of their local conditions such as the profile of their pupils, their pupils' transportation arrangements, the local traffic conditions and the arrangements of other schools in the vicinity.

27. The Committee feels that the number of hours should be determined by educational goals. This is to ensure that quality teaching time can be maintained. To achieve educational goals, the Committee envisages that schools may adjust the school day differently to capitalise on a single-session model. However, the Committee agrees that single-session primary schools should not be pressured to become full-day schools to provide for other social needs. The Committee recommends that MOE monitor the implementation of single-session primary schools to ensure that the intended objectives are met.

#### *Implications on Transportation*

28. The Committee acknowledges that the implementation of the single-session model may have implications on transportation arrangements for pupils and local traffic conditions. Thus, MOE should work closely with the Land Transport Authority (LTA) to anticipate and address school bus transportation issues. MOE should also work closely with LTA, the Traffic Police and other agencies such as the Housing and Development Board and the local Town Councils to ensure the safety of pupils and minimise the impact on traffic conditions around schools.

#### New Generation Primary School Facilities

29. The Committee recommends that MOE should provide additional infrastructural support in line with the move towards a more holistic education. The Committee notes that MOE is presently studying how to design primary school facilities for a new generation of primary schools so that learning spaces are able to better support broad-based and effective learning.

#### Support for Social Services

30. The Committee understands that partnerships with Voluntary Welfare Organisations (VWOs) and Self Help Groups (SHGs) in the running of Student Care Centres (SCCs) in primary schools have allowed schools to provide stronger support to children, particularly those from disadvantaged families, who may not have adequate adult supervision at home. The Committee

recommends that MOE should make provision for facilities within new schools and schools being upgraded so that VWOs and SHGs (through the Ministry of Community Development, Youth and Sports) can provide student care services, especially for pupils from disadvantaged families. VWOs and SHGs should continue to be the provider of student care or other social services, and schools can supplement these with educational programmes. Pupils will benefit from closer alignment of the educational and custodial components of the student care programmes.

## **CONCLUSION**

31. We recognise that our recommendations can only come to fruition with the strong support of various stakeholders in society, especially parents. Parents are a key influence in a child's educational development, especially in the early years. Thus, in this endeavour, our schools must work closely with parents as partners. The mindsets and attitudes of the wider community at large will also have to be aligned to support the enhancements to primary education.

32. We must continue to improve our education system to benefit future generations of Singaporeans. We firmly believe that we must equip our children with the necessary skills and dispositions to flourish in an increasingly complex environment and better prepare them for life beyond the classroom. This provides a strong impetus for us to place renewed emphasis on holistic education, including character and life-skills development.

## Box 1: Summary of Recommendations

The proposed changes to primary education seek to ensure that our children are equipped not just with content knowledge, but also with the necessary skills and values to thrive in a fast-changing and globalised future. They build on the strengths of our current system, and seek to raise primary education to a new level. The key changes are set out below:

### A) Balancing Knowledge with Skills and Values

1. Use engaging pedagogy to teach skills and values:
  - a) Strengthen training of teachers in content mastery and in using a repertoire of generic and subject-specific teaching methods.
2. Emphasise non-academic programmes within curriculum:
  - a) Implement a Programme for Active Learning (PAL) for all Primary 1 and 2 pupils in Sports & Outdoor Education and Performing & Visual Arts, in tandem with the move to the single-session model.
  - b) Encourage all Primary 3 to 6 pupils to continue with PAL and/or to opt for a main Co-Curricular Activity.
  - c) Give schools autonomy, with guidelines and examples of good practices, in the implementation of PAL, which should complement existing Art, Music and Physical Education (PE) programmes.
  - d) Enhance the quality of Art, Music and PE instruction through optimal deployment of qualified teachers.
  - e) Provide schools with funds to engage trained coaches, instructors and service providers approved by MOE to conduct quality PAL activities, as well as to procure equipment for Art, Music, PE and other PAL activities.

- f) Work closely with the Singapore Sports Council, National Arts Council and other relevant agencies to build up the pool of instructors for PAL in the long run.

3. More holistic assessment to support learning:

- a) Encourage schools to move away from an overly strong emphasis on examinations in Primary 1 and 2, and explore the use of bite-sized forms of assessment to help build pupils' confidence and desire to learn.
- b) Place less importance on semestral examinations in Primary 1 so as to smoothen pupils' transition from pre-school to primary school. Primary 2 pupils could be slowly eased into taking examinations.
- c) Equip teachers to use rubrics to assess and provide pupils with richer and more holistic feedback on their development and skills acquisition in academic and non-academic areas.
- d) Encourage primary schools to provide parents with a more comprehensive "Holistic Development Profile" which captures a fuller picture of their child's progress and learning throughout the year.
- e) Continue to provide clear guidelines on the learning outcomes for each subject at the end of every level, to facilitate teachers' design of appropriate assessment tasks and ensure students' continued mastery of foundational skills.
- f) Develop a system to assess the schools' ability to develop their pupils in academic and non-academic areas and to provide a more holistic education.

**B) Investing in a Quality Teaching Force**

1. Provide additional manpower:

- a) In line with bringing forward the recruitment of teachers and Allied Educators, recruit and train more Art, Music and PE teachers to raise the quality of instruction in these subjects.

- b) Engage individuals with strong oral communication skills as language facilitators in schools.
2. Recruit committed, quality educators:
- a) Continue to carefully select aspiring educators with the right aptitude, passion and suitability for teaching.
  - b) Focus efforts to recruit new teachers from the pool of university graduates, or those who qualify for an undergraduate education, by 2015, to maintain the calibre of the teaching service.
  - c) Encourage eligible non-graduates to join the teaching service by enrolling in the National Institute of Education's (NIE) degree programmes, or to work closely with teachers as Allied Educators (Teaching & Learning), with future opportunities to become full-fledged teachers.
  - d) Provide current non-graduate teachers with avenues for professional development and/or academic upgrading.
3. Equip teachers well through training and professional development:
- a) Strengthen pre- and in-service training to systematically equip all teachers with the basic teaching skills, sound content mastery and a variety of teaching and assessment methods.
  - b) Encourage subject specialisation of teachers at the upper primary levels through in-service training, while continuing to provide schools with the autonomy to deploy their teachers according to their needs.
  - c) Continue to provide schools and teachers with rich learning resources and packages, and to work closely with schools to help them build expertise in new teaching and assessment methods.



**C) Enhancing Infrastructure**

## 1. Single-session primary schools:

- a) Facilitate the transition of all government schools to the single-session model by 2016.
- b) Work closely with government-aided schools to facilitate their transition to the single-session model at a pace that considers the needs and concerns of the schools and their respective communities.
- c) Ensure that every Singaporean child continues to have access to a primary school near his home.
- d) Maintain a sufficient number of places in the more popular primary schools so that pupils who have no affiliation to the school can still have access for admission to Primary 1.
- e) Give schools the flexibility to adjust their start and end times with careful consideration of their local conditions, including the profile of their pupils, their pupils' transportation arrangements, the local traffic conditions and other schools in the vicinity.
- f) Ensure that the number of school hours is primarily determined by educational goals, and not social needs.
- g) Monitor the implementation of single-session primary schools so that the intended objectives are met.
- h) Continue to work closely with the Land Transport Authority (LTA) on school bus transportation issues, and with LTA, the Traffic Police and other agencies such as the Housing & Development Board and local Town Councils to safeguard the safety of our pupils and to minimise the impact on traffic around schools.

2. New generation primary school facilities:
  - a) Provide additional infrastructural support for a more holistic education, including learning spaces for a new generation of primary schools that are better able to support broad-based and effective learning.
3. Support for social services:
  - a) Make provision for facilities within new schools and schools being upgraded for social service providers to provide student care services, especially for pupils from disadvantaged families.



## Chapter 1 Introduction



## Chapter 1

# Introduction

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### REVIEW OF PRIMARY EDUCATION

1. Since the articulation of the vision “Thinking Schools, Learning Nation” in 1997, MOE has introduced several initiatives to realise this. In recent years, we have seen a more diverse upper secondary and junior college education landscape which offers a variety of pathways and choices for students of different abilities. At the secondary level, there is now greater flexibility and choice in subjects that can be taken by students. These include new curricular offerings like Elective Modules and Applied Subjects. In 2005, in line with the “Teach Less Learn More” movement, schools were encouraged to review their pedagogies so that they improved the quality of interaction between teachers and students and engaged students more effectively. In 2006, the new Singapore-Cambridge GCE ‘A’ level curriculum was implemented. This has since undergone refinements during a mid-term review in 2008.

2. To allow our pupils to benefit from these changes in the education system, we need to ensure they are well prepared from the primary level. Primary education provides the foundation upon which a child builds future knowledge and skills. It is a critical stage that builds his confidence and shapes his attitude towards learning. It develops soft skills that are needed for him to navigate a complex world. Values sown at this early stage of schooling will eventually serve as his moral compass. As human capital is Singapore’s only resource, it is imperative that we have a strong primary education to ensure that our children continue to be well prepared to face the future with confidence. This becomes even more critical in a rapidly changing world.

3. To this end, the Primary Education Review & Implementation (PERI) Committee, led by Ms Grace Fu, Senior Minister of State, Ministry of National Development and Ministry of Education, was formed in October 2008 to study ways to enhance primary education. The composition of the Committee is given in Annex A.

### TERMS OF REFERENCE

4. The Terms of Reference of the Committee are to:
- a. Consult stakeholders on the philosophy and desired outcomes of holistic education at the primary level;
  - b. Study and recommend strategies to enhance primary education;
  - c. In the context of (b), to study in detail the following areas:

- i. The roll-out of Single-Session Primary Schools;
- ii. The move towards an all graduate teacher recruitment by 2015; and
- iii. Recommendations to rebalance the learning of content knowledge and the development of skills and values so that our young are well prepared for the future.

## REVIEW AND CONSULTATION PROCESS

5. Following its inception, the Committee held dialogue sessions to consult a cross-section of stakeholders, including School Management and Advisory Committees, Principals, Vice-Principals, Heads of Department, teachers, parents, students and members of the public. The Committee adopted a multi-channel approach, using a mix of traditional and online media, to reach out to members of the teaching profession as well as the general public.

6. The various feedback channels included small-group discussions at MOE's Work Plan Seminar, the Public Service for the 21st Century Excellence through Continuous Enterprise and Learning Convention, Focus Group Discussions, phone calls, forum letters and editorials published by the press, feedback from grassroots organisations, as well as online channels such as email, REACH's (Reaching Everyone for Active Citizenry@Home) online discussion corner, eTownHall Webchat, Facebook and MOE's internal discussion forum.

7. In total, more than 850 people contributed their views and suggestions. Approximately half of the participants were members of the public from various backgrounds, about a quarter were from MOE or our schools, and another quarter from the public service (including some teachers). A summary of the public consultation findings is given in *Annex B*.

8. Taking on board these views, the Committee developed its preliminary recommendations, which were released on 23 January 2009 to solicit further feedback. The preliminary recommendations were also debated in MOE's Committee of Supply in February 2009.

9. The PERI Committee has since completed its study, and its final recommendations are presented in this report.





**Chapter 2**  
**Confident Children,  
Independent Learners,  
Caring Citizens**





## Chapter 2

# Confident Children, Independent Learners, Caring Citizens

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## RECENT CHANGES IN PRIMARY EDUCATION

1. The Committee observes that several refinements have been made to primary education in recent years:
  - a. Offering greater customisation for ability-based education;
  - b. Developing and catering for diverse talents and specialised needs; and
  - c. Providing more resources, including manpower and infrastructure.

### Offering Greater Customisation for Ability-Based Education

2. The Committee appreciates that ability-driven education has been a key feature behind Singapore's success in education. The introduction of streaming in the late 1970s to cater to students with different abilities and learning styles brought drop-out rates down sharply and allowed many more students to stay engaged in their learning.

3. In 2004, the EM1 and EM2 streams were merged, and EM3 students were integrated with other students for non-academic subjects and activities in many schools. From the 2008 Primary 5 cohort, MOE introduced subject-based banding. This allowed pupils with uneven strengths to offer a mix of Standard and Foundation subjects (depending on their aptitude in each subject) rather than taking all Foundation subjects in the EM3 stream. As an illustration, a student who is weak in English and Mathematics can choose to take these two subjects at the Foundation level while taking other subjects that he performs better in, such as Mother Tongue Language and Science, at the Standard level.

### Developing and Catering for Diverse Talents and Specialised Needs

4. The Committee understands that primary schools play a key role in developing diverse talents among our young students. The Programme for School-based Excellence was launched in 2005 to support primary schools with strong niches as part of efforts to develop talent. It has helped pupils to gain admission to secondary schools via the Direct Schools Admission (DSA) scheme, which recognises achievements in areas beyond what is assessed by the Primary School Leaving Examination (PSLE). In 2009, pupils from 155 (or 90%) of our primary schools successfully gained a place in over 60 secondary schools that participated in DSA, based on their talents in different fields.

5. At the same time, there is recognition that certain segments of pupils have specialised needs. The Learning Support Programme was implemented in all primary schools by 1998 and enhanced in 2007 to help lower primary pupils who enter the education system with weak literacy skills. Similarly, Learning Support for Mathematics was implemented in all primary schools in 2007 as an early intervention effort to provide additional support to Primary 1 students who do not have foundational numeracy skills and knowledge.

6. We are heartened to see that MOE has invested more resources to cater to children with special needs, whether in mainstream schools or Special Education (SPED) schools. The mainstream schools cater to students with mild to moderate learning needs. Since 2005, MOE has deployed about 100 Allied Educators (Learning and Behavioural Support) [AED(LBS)] – formerly known as Special Needs Officers – to about 80 mainstream primary schools to support students with special needs. MOE will continue to recruit and train more AED(LBS), to ensure that there will be at least one in each primary school. Since 2005, MOE has also required all beginning teachers to be equipped with basic knowledge on supporting pupils with special needs at the National Institute of Education (NIE). 10% of teaching staff in each primary school and 20% of staff in each secondary school will be further trained in a certificate level course on special needs by 2010. This training will enable teachers to better support students with learning disabilities such as dyslexia, mild autism and Attention Deficit Hyperactivity Disorder.

7. Children with greater learning needs are given specialised support in SPED schools. The Committee notes that one of MOE's priorities is to ensure that training opportunities are available for SPED teachers. Untrained teachers who join SPED schools undergo pre-service training in NIE leading to the Diploma in Special Education. NIE also provides more customised courses for the SPED school principals and teachers. By co-locating several SPED schools with mainstream schools, and piloting satellite partnerships between some mainstream schools and SPED schools, there are more opportunities for planned and purposeful integration activities such as common classroom learning or joint Co-Curricular Activities, to foster interaction between SPED and mainstream pupils.

#### Providing More Resources to Support Delivery

8. We note that MOE has carefully invested in infrastructure and manpower to provide better primary education.

9. In 2003, MOE announced the move from double-session to partial single-session primary schools (operating with Primary 3 to 6 levels in the morning and Primary 1 to 2 levels in the afternoon) over ten years. Some schools which were ready went further to become single-session primary schools. To further support a broad-based education, in 2006, MOE announced that it would progressively provide all schools with an indoor sports hall in phases over a period of seven years.

10. MOE has also been steadily increasing manpower to bolster the school team. Since 2004, MOE has been working towards providing schools with additional teachers (about 1,000 for primary schools) by 2010 so that teachers have more time and capacity to prepare, customise, and reflect on their lessons to better meet the learning needs of students. To further supplement the teaching capacity in schools, the Adjunct Teacher Programme was introduced in 2004 to encourage schools to hire trained teachers who had retired or left the service. This provision was raised from 10 to 12 Adjunct Teachers per school in 2008. To enable our teachers to better manage the counselling and special education needs of their students, MOE also started recruiting Full-Time School Counsellors and Special Needs Officers [now known as AED (Counselling) and AED (Learning & Behavioural Support) respectively] in 2005. In 2006, MOE reduced class sizes at Primary 1 and 2 from 40 to 30, to target where the additional teachers could contribute most towards the learning of students. The Committee agrees that MOE should continue to recruit more teachers bearing in mind that the quality of the teaching service should not be compromised.

### **BUILDING ON OUR STRENGTHS IN PRIMARY EDUCATION**

11. The constant improvements and careful adjustments to our education system, augmented with the provision of additional resources, reflect our national endeavour and commitment to invest in education. The Committee recognises that our current primary school system is robust and of high standards due in major part to a tightly-knit and centrally-organised system. We have reached a high national standard of attainment. In 1980, only 58% of a Primary 1 cohort completed secondary school. But today, about 93%<sup>1</sup> of each Primary 1 cohort goes on to post-secondary education. Indeed, Singapore is internationally recognised as having achieved high standards<sup>2</sup> in language proficiency, numeracy and science. These standards have been attained through an emphasis on the acquisition of core literacies and skills through the effective use of curriculum, pedagogy and assessment.

12. Public feedback showed support for our strong national curriculum which has provided a firm foundation for a sound education through its emphasis on knowledge acquisition, development of thinking and process skills and inculcation of values. We also have a national examination system to help maintain high standards. The PSLE remains important as a benchmarking examination that allows students and parents to objectively gauge the standard of academic attainment after six years of primary education.

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<sup>1</sup> Based on 2007 data.

<sup>2</sup> This can be seen by Singapore's strong showing at international benchmark studies such as Trends in International Mathematics and Science Study (TIMSS) and Progress in International Reading Literacy Study (PIRLS).

13. Most importantly, we have a competent force of trained teachers whose skills continue to be upgraded regularly. Through major MOE initiatives such as “Strategies for Effective Engagement and Development” of pupils in primary schools, and the “Teach Less Learn More” (TLLM) movement, there has been a groundswell of teacher ownership in developing new ideas for teaching and learning. This has set the stage for greater innovation in school-based curriculum. The Committee agrees that these strengths should be retained and built on.

## **SKILLS AND ATTITUDES NEEDED TO NAVIGATE A DYNAMIC FUTURE**

14. In its deliberations, the Committee considered studies previously conducted by MOE. There was close alignment between MOE's findings and the Committee's views on the major driving forces for the future and the key skills and attitudes necessary to navigate the 21<sup>st</sup> century.

### Driving Forces

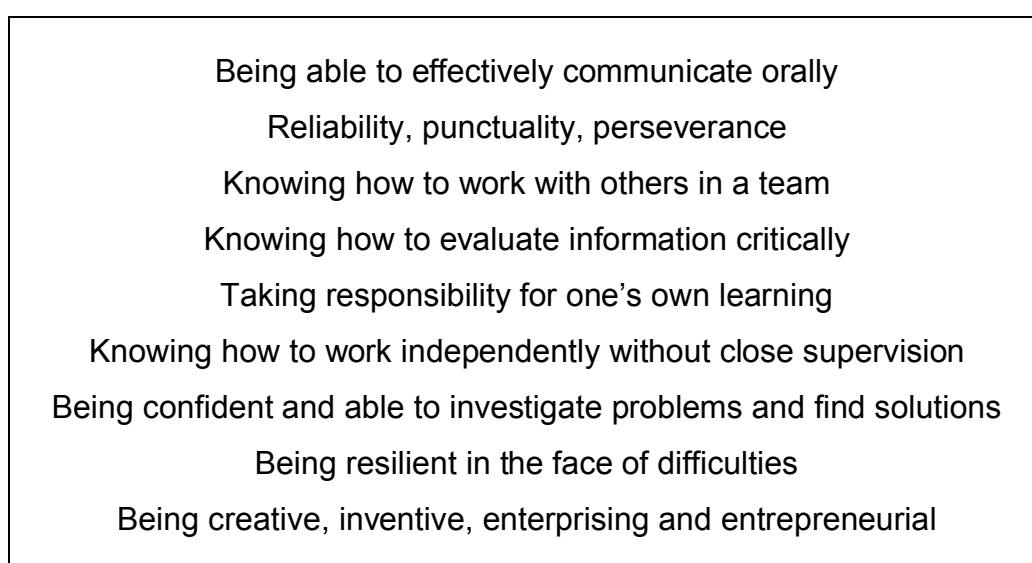
15. The following outlines the driving forces and their impact on education:
- a. Globalisation. Globalisation presents new opportunities as well as greater competition. Students will need to increase their awareness and knowledge of world issues, as well as develop the skills and abilities to learn continuously and manage complexity and change in an increasingly connected world. There is a need to nurture in students civic and social responsibility, a sense of service to community and nation, and an understanding of Singapore.
  - b. Changing demographics of Singapore. Many students will grow up as adults who work in multi-cultural settings within and beyond Singapore. They will need language skills, as well as civic and multi-cultural literacies to develop a strong sense of national identity and community. In addition, with a younger teaching profile, teacher training and professional development have to be enhanced to facilitate the transfer of tacit wisdom and good practices in the teaching profession.
  - c. Mega trends and issues. Singapore is affected by global trends and issues which are ever-changing. Our students must develop new skills and mindsets in order to be flexible, adaptable and resilient as they cope with ambiguity and change.
  - d. Technological advancement. The use of technology provides greater connectivity and easier access to information, and we should better harness technology to broaden students' learning experiences. While students' fluency with technology and the Internet will enable them to readily access information and people, values education is important so that our students are discerning and have a strong moral compass.

## 21<sup>st</sup> Century Skills

16. MOE reviewed well-known models and studies<sup>3</sup> of 21<sup>st</sup> century skills that were done in other countries, including OECD's Project DeSeCo<sup>4</sup> (Definition and Selection of Competencies). A common thread in a literature scan across education systems was the emphasis on equipping our young with skills, dispositions and mindsets to prepare them for the future.

17. In addition, MOE referred to studies on the needs of employers. The following are skills and attitudes (*Figure 2-1*) valued by employers:

**Figure 2-1: Skills and Attitudes Valued by Employers<sup>5</sup>**



18. The skills and mindsets required of citizens and workers of the future were distilled into a set of desired educational outcomes that describe a student as “a Confident Person, a Self-Directed Learner, a Concerned Citizen and an Active Contributor”. To work towards these desired outcomes, competence in thinking, communication, collaboration, problem-solving and management skills, as well as civic, information, media, technological and multi-cultural literacies would have to be developed in students.

<sup>3</sup> The reviews took reference from other well-known models of 21<sup>st</sup> century skills, including Partnership for 21<sup>st</sup> Century Skills and enGauge 21<sup>st</sup> Century skills.

<sup>4</sup> OECD's Project DeSeCo identified a set of competencies – the result of an extensive review of research and agreed upon by groups of scholars from different expert areas and stakeholders – needed for a well-functioning society. The competencies include the abilities to function in socially heterogeneous groups (e.g. relate well to others, cooperate), to act autonomously (e.g. defend and assert one's rights, interests, responsibilities and needs) and to use tools interactively.

<sup>5</sup> MOE referred to *2020 Vision: Report of the Teaching and Learning in 2020 Review Group*, Department for Education and Skills, UK.

## THE WAY FORWARD – CONFIDENT CHILDREN, INDEPENDENT LEARNERS, CARING CITIZENS

19. It is clear to the Committee that as the world becomes increasingly complex, competitive and interconnected, there is a need to ensure that our children are equipped not just with content knowledge, but also with the necessary skills and dispositions to thrive in a fast-changing and globalised future. **Our children should grow up to be confident persons, adept at working in teams and able to communicate their thoughts and ideas effectively. They should be self-directed learners who view education as a life-long process. They should also be innovative and enterprising individuals, able to cope with ambiguity and adapt well to change. At the same time, Singapore needs citizens who are morally upright, have a strong sense of civic responsibility and who will contribute actively to society.** These skills and dispositions should be inculcated in the formative years of primary education.

20. The Committee received strong public support for an all-rounded primary education. Members of the public agreed that confidence, a sense of curiosity and appropriate dispositions for cooperation with people from different backgrounds were important traits to develop and would be more effectively nurtured from the primary level. In particular, children should be encouraged to express themselves well, and articulate their thoughts and ideas. For instilling values, the Committee recognised that families played a primary role. Nevertheless, schools have a dominant influence on character development and an important role to play in the reinforcement of the right values.

21. Overall, these views from different stakeholders point to a greater need to balance the acquisition of knowledge with the development of skills, values and important non-academic traits.





**Chapter 3**  
**Balancing Knowledge with**  
**Skills and Values**



## Chapter 3

# Balancing Knowledge with Skills and Values

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### KEY THRUSTS

1. The strong acquisition of content knowledge is important and primary education should continue to ensure this. However, we need **a stronger focus on skills and values** to ensure that our children are equipped not just with content knowledge, but also with the necessary skills and dispositions to thrive in a fast-changing future. For instance, feedback from teachers, parents and employers indicated that more could be done to develop interpersonal, collaborative and communication skills. We can do more to help our pupils to speak well and to articulate their thoughts with confidence. Character development, the inculcation of values and National Education could also be further strengthened.
2. We must continue to promote a forward-looking curriculum and diverse range of teaching methods to enhance students' learning experiences and engage them in learning. This will fire their innate curiosity and set them on the right path for life-long learning. **Learning should be engaging and enjoyable**. For instance, we could actively promote teaching pedagogies that help students find deeper meaning in their learning. To meet the different needs of groups of students with varying abilities and learning styles, we should also equip teachers with the skills to undertake differentiated instruction.
3. There is a need to **emphasise the process of learning** and move away from a preoccupation with how well children have performed in tests and examinations. The tendency to focus on examinations, especially at the lower levels of primary education, affects teaching practices and student learning. Instead, the focus of school-based assessment should be on the process of learning. For instance, there could be more widespread use of different assessment modes together with the provision of regular and richer qualitative feedback on our children's progress throughout the school year. Focusing on the learning process could also help the child to be more motivated in his learning, and more confident throughout his learning journey.
4. Taking on board feedback and suggestions from members of the public and educators, the Committee thus recommends that primary education be refined in the following ways:
  - a. Greater use of engaging pedagogies in delivering the curriculum and teaching skills and values. Through the ongoing curriculum reviews, there is already a shift within the subjects towards skills delivery - a greater focus on skills for independent learning, working with people, and communication. This should continue, supported by the concerted use of more engaging and effective teaching methods by

all teachers. Teachers should leverage on “teachable moments” throughout the school day to inculcate universal values in our children such as integrity, humility, respect for others, compassion and the responsibility to contribute back to society.

b. Provide adequate space and time during the school day to focus on non-academic aspects of the curriculum, so that our pupils develop as well-rounded individuals with strength and depth of character. This will also give our students more opportunities to pursue areas which they have special strengths in and passion for.

c. Shift assessment practices away from an over-emphasis on assessment of learning as an end-outcome, especially at the lower primary levels, and shape mindsets to view assessment as an integral part of ongoing processes to support learning.

### USE ENGAGING PEDAGOGY TO TEACH SKILLS AND VALUES

5. The Committee notes that MOE has been reviewing the curriculum regularly<sup>6</sup> so that it remains relevant and future-oriented. MOE should continue to ensure a strong grasp of basic literacies in Languages, Mathematics and Science at the primary level.

6. The new syllabuses that MOE will be implementing over the next few years will place greater emphasis on skills delivery. In the languages, more attention will be given to developing pupils’ ability to communicate orally. In Mother Tongue Languages, teaching approaches have been carefully customised to meet the learning needs of pupils with different abilities. In Mathematics and Science, pupils’ learning experiences will be enhanced through more investigative and authentic approaches. And the revised Social Studies syllabus to be implemented in 2012 to 2014 will provide pupils with a more participatory experience in learning to be good citizens. There will be a stronger emphasis on developing students as active citizens who contribute to society. Pupils will develop their own views on local and world issues, while learning to respect other people’s perspectives.

7. These shifts must be complemented by an **explicit and focused approach to increase the repertoire of teaching methods in the classroom**. The Committee received many suggestions on the use of more effective ways of teaching through engaging pedagogies. MOE should **strengthen the training of teachers in content mastery and teaching methods** to ensure that all teachers have a good grasp of **effective pedagogical approaches that can be applied across subjects**. Examples

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<sup>6</sup> For instance, the reviews for English Language and the various Mother Tongue Languages were completed in 2004 to 2005. The new English Language syllabus will be implemented in 2010 while the new syllabuses for the various Mother Tongue Languages have been implemented since 2007. For Mathematics, the new syllabus was implemented in 2007 while the new syllabus for Science was implemented in 2008.

of generic pedagogies that apply across all subjects include learning by inquiry, learning by doing, as well as learning in and of the real world. (Details are in *Annex C*.) The use of a range of engaging pedagogies is necessary to not only meet different student needs, but also to create different learning experiences to develop greater self-awareness in the students and foster deeper understanding of what is being learnt.

8. Teachers should also be competent in **subject-specific strategies** to develop skills and inculcate values in our pupils. Some examples from the current syllabuses are given for illustration:

a. For the Mother Tongue Languages, there has been a greater focus on developing pupils' **confidence and fluency in oral communication** e.g. through songs, verse/choral reading, read-aloud and recitation. Famous stories and poems such as "Kong Rong Gives Up the Pear" (孔融让梨) in Chinese lessons, the story of "Mat Jenin – the Daydreamer" in Malay lessons, and the legendary story from Sangam literature "Loving Brother Kumanan" continue to be selected to help imbue **moral values**. Differentiated instruction is also used to cater to learners of different learning needs. Teachers are trained and supported in using engaging strategies to make learning more meaningful for the pupils.

b. For English Language, the STELLAR (Strategies for English Language Learning and Reading) programme, which has been implemented in phases since 2006<sup>7</sup>, aims to systematically strengthen **language skills** as well as encourage **a love for reading** by using distinctive research-based and age-appropriate teaching methods which are focused on the learner. Through the Shared Book Approach, oral presentations as well as speech and drama, STELLAR provides a greater focus on developing primary pupils' **oracy (listening and speaking skills)** so that they are able to communicate more effectively.

c. For Mathematics, more activity-based lessons<sup>8</sup> such as group-based work are encouraged. These activities help **increase the level of engagement and confidence** of pupils through their personal involvement in the activities and **collaboration** with their peers. Alternative assessment practices have been adopted e.g. journal writing, peer observation, practical and investigative tasks, to provide more holistic feedback to pupils, teachers and parents on the pupil's progress in developing **mathematical skills and attitudes**.

d. For Science, the new 2008 primary curriculum nurtures pupils as **inquirers** and **fuels their spirit of curiosity** through scientific

<sup>7</sup> By 2009, all primary schools will be in the STELLAR programme.

<sup>8</sup> Examples of activity-based lessons include hands-on activities and mathematical investigations of the world around them, so that students begin their learning of new mathematical concepts through concrete experiences.



investigation, hypothesis testing and creative problem solving<sup>9</sup>. These activities provide opportunities for pupils to develop **greater awareness of ethical issues** such as showing care for animals and being responsible for the quality of the environment. With a prudent 20% reduction in content, teachers have greater flexibility to pace the curriculum meaningfully and use more engaging teaching approaches to help students learn.

9. Teachers who are better trained in specific subjects can be more effective in their delivery of the curriculum. MOE should **train and deploy teachers so that they specialise in teaching certain subjects at the upper primary level, where possible** (see Chapter 4, para 17). This will enable upper primary teachers to develop stronger content mastery and a better grasp of effective teaching methods in their subjects of specialisation. They can design more engaging lessons for better learning and development of skills and values, while ensuring that learning of knowledge takes place.

### **EMPHASISE NON-ACADEMIC PROGRAMMES WITHIN CURRICULUM**

10. Many life-skills and values are developed through subjects such as Physical Education (PE), Art and Music. Schools also provide a wide range of non-academic activities and programmes to cater to pupils' varied interests. Examples of non-academic activities include the annual school sports day, inter-school competitions in sports and games, and participation in Singapore Youth Festivals and exhibitions. These experiences can develop a range of skills, build leadership and character, as well as provide opportunities for pupils to develop confidence and bonds of friendship. Collectively, these activities enhance the different domains of learning - moral, physical, aesthetic, social and emotional, at the primary level, and are effective platforms to develop life-skills and values.

11. Co-Curricular Activities (CCAs), in particular, play a key role in developing pupils' character in addition to Civics and Moral Education, Pastoral Care and Career Guidance, Community Involvement Programme and Service Learning initiatives. These programmes and activities shape our children as team-players who are kind, concerned about others and who treat others with respect. CCAs help pupils build emotional strength and perseverance in the face of challenges, as well as develop optimism, adaptability and resourcefulness. They can also teach pupils to act more responsibly – to evaluate options, identify consequences and make responsible choices anchored in sound moral principles.

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<sup>9</sup> An example of promoting more engaging pedagogies in primary Science is MOE's collaboration with Biological Sciences Curriculum Studies, a non-profit organisation based in the US, to develop inquiry-based packages for all topics in the 2008 primary Science curriculum. It also includes the training of teachers in the use of pedagogies like Concept Cartoons and Puppets to stimulate scientific thinking, understanding of scientific concepts and reasoning skills.

12. The Committee received strong public support for implementing more of such non-academic programmes within curriculum time. Both the formal and informal curriculum could be better aligned to develop the desired skills and values in our pupils. It is essential to prioritise sufficient time and allocate enough resources to achieve holistic education. Thus, the Committee recommends that **to realise a more balanced curriculum, greater emphasis be placed on non-academic programmes within the curriculum.** However, the number of curriculum hours for the academic subjects will remain the same, so that the rigour of academic subjects is not compromised. Exposing students to a broad range of non-academic activities from a young age will also facilitate well-rounded development. It will provide additional opportunities to children from less fortunate backgrounds, who may not otherwise have the opportunity to discover their talents.

13. The **new Programme for Active Learning (PAL)** will be introduced for **all Primary 1 and 2 pupils as schools move toward a single-session model.** They will participate in modular activities in two broad areas of Sports and Outdoor Education, and Performing and Visual Arts. If they discover that they have a flair or interest in a specific area, they could choose to focus on a particular CCA at the upper primary level. **All Primary 3 to 6 pupils should either continue with PAL and/or opt for a main CCA where they can specialise in an area of interest.** (See Figure 3-1.)

Figure 3-1

Programme for Active Learning (PAL)	
Primary 1 and 2	Primary 3 to 6
Two to three modules in Sports and Outdoor Education, and Performing and Visual Arts per year  Eight to ten weeks for each module; two hours of curriculum time per week	Continue with PAL  AND/OR  Opt for main CCA (approximately two to four hours outside of curriculum time per week)

14. In allowing schools the autonomy to implement these non-academic programmes, the Committee is of the view that MOE should provide guidelines or examples of good practices, to ensure that the additional time is used meaningfully and achieves the intended outcomes. These modular activities should also build on the existing Art, Music and PE programmes in the formal school curriculum. Schools should have the flexibility to select modules which they consider appropriate for the development of their pupils.



15. The Committee recommends that MOE **enhance the quality of instruction in PE, Art and Music**. As PE, Art and Music are performance-based subjects which require teachers with the relevant expertise, MOE needs to ensure that all schools have qualified teachers who are optimally deployed to teach these subjects.

16. We recognise that MOE is looking into building two new Outdoor Education Centres for primary school pupils, as well as exploring proposals to build centralised facilities to further develop our students in the arts, music and sports. These initiatives to provide centralised facilities are in line with the Committee's recommendations towards providing a more holistic and balanced education for primary school pupils.

17. To ensure that schools are able to put in place good PAL activities, **schools should be given funds to engage trained coaches, instructors and service providers approved by MOE**. Given the increased demand for instructors among primary schools, MOE should work with the relevant agencies such as the Singapore Sports Council and the National Arts Council to build up the pool of instructors in the long run. There should be sufficient time for this to take place as PAL will only be implemented as schools progressively transit to a single-session model. Additional funding should also be provided to schools to invest in equipment for Art, Music and PE lessons in the formal school curriculum and the modular activities in PAL e.g. purchasing a wider range of musical instruments, arts and sports equipment.

### **MORE HOLISTIC ASSESSMENT TO SUPPORT LEARNING**

18. Assessment is an important aspect of teaching and learning which should be effectively used to support the holistic development of our pupils. The Committee heard from many members of the public, who felt the need to shift towards a less exam-oriented culture where academic results are not the only measure of a child's success. While assessment remains important, a preoccupation with examinations can hinder the overall development of the student and make learning dreary and less engaging.

19. However, there has been a range of views on the use of assessment. While some members of the public have highlighted that examinations could be too stressful for primary school pupils, especially in lower primary, others felt that students needed to be prepared from young to sit for examinations.

20. The Committee's view is that assessment provides stakeholders such as teachers, parents and pupils with meaningful information about how well pupils have progressed by highlighting their strengths and areas for improvement. Appropriate support can then be given to pupils in developing self-awareness and in learning how to learn. At the national level, assessment outcomes allow informed decisions to be made, e.g. placement of pupils into schools and tracking of pupils' academic outcomes at the school level.

21. The Committee believes that the PSLE remains important as a key stage examination, to allow pupils and parents to objectively gauge their standard of academic attainment after six years of primary education. For this reason, MOE needs to ensure that the national assessment framework continues to maintain high standards and ensure the acquisition of strong foundational knowledge.

22. However, apart from the PSLE at the end of primary school, the **school-based assessment system should be balanced to place greater emphasis on skills development and to provide constructive feedback** which enables more meaningful learning in support of **both academic and non-academic aspects of a pupil's development**. This is in line with enhancing schools' assessment practices to support the balancing of content knowledge with the development of important life-skills as well as building learning in the physical, aesthetic, social and moral domains.

23. Going forward, assessment should be fit for purpose. There should be more widespread use of assessment to provide qualitative feedback to students on their learning and development of skills in both academic and non-academic areas, and to suggest how they can make improvements. The purpose of assessment would be to help students progress along a developmental journey of improvement. It shifts the focus of assessment away from an end-outcome where students and parents may concentrate too much on assessment of learning in the form of examinations as a final indicator of achievement.

24. The Committee feels that **at lower primary (Primary 1 and 2)**, when students are just beginning school, a key focus should be placed on building pupils' confidence and desire to learn. In these early years, we should **encourage schools to move away from an overly strong emphasis on examinations, and explore the use of bite-sized forms of assessment which place more emphasis on learning rather than on grades alone**.

25. **Thus, at Primary 1 there should be much less importance placed on semestral examinations to facilitate a smooth transition from pre-school to primary school. At Primary 2, we could slowly ease pupils into taking examinations.** We note that a number of schools have already dispensed with the mid-year semestral examination in Primary 1 as they have other effective forms of school-based assessment in place, while a few schools have replaced the semestral examinations altogether at Primary 1. The Committee also encourages schools to continue to be mindful to space out these school-based assessments appropriately so that their young pupils are not overwhelmed.

26. We believe that using a wider range of assessment modes is useful in providing richer feedback on the learning of pupils. For instance at the end of the year, teachers would have accumulated a portfolio of pupils' work, or a collation of qualitative feedback based on tests and other forms of

assessment. Some examples of different assessment modes and suitable platforms for assessing skills are given in [Annex D](#).

27. The Committee encourages the equipping of teachers to use assessment tools such as **rubrics to assess and provide pupils with richer feedback on their development in academic and non-academic areas**. Rubrics typically set out the criteria for assessment and provide descriptors for different performance levels that students can achieve. These descriptors present qualitative feedback on how well students have performed and what they can do to improve. Such rubrics should not be used for comparative assessment between pupils, but to encourage pupils to meet their own goals and move forward in their learning. See [Annex E](#) for examples of rubrics currently used by primary schools to assess specific skills.

28. To effectively use these rubrics, MOE should **train teachers to observe and provide meaningful feedback that goes beyond marks**, to help students understand their misconceptions and provide strategies to help them improve. This should include **qualitative feedback on skills acquisition and in non-academic areas**. Each individual student should know his progress, strengths and areas for improvement for further development. We envisage that schools could **provide parents with a more comprehensive progress report or “Holistic Development Profile”, which captures a fuller picture of student learning throughout the school year**. Given to primary school pupils at all levels, this report would include both quantitative and qualitative feedback. See [Annex F](#) for samples of Holistic Development Profiles that schools can provide to students.

29. However, the Committee notes that pupils’ mastery of foundational skills in subjects such as English, Mother Tongue Language and Mathematics should not be compromised. Different assessment modes should still help to check pupils’ mastery and progress. Schools should continue to have **clear guidelines from MOE on the learning outcomes for each subject which teachers can use to design appropriate assessment tasks, at the end of every level**. Variations in the quality of the assessment tasks and tools must be managed to ensure the use of fair, valid and reliable assessment practices.

30. At the national level, MOE should develop a system to measure and report the level of attainment of pupil development in both the academic and non-academic areas. This will help in assessing the schools’ ability to develop their pupils in different areas and in providing a more holistic education.

31. We understand that MOE will need time to build the readiness of schools and teachers to use different modes of assessment and provide richer feedback on student learning. Parents will also take time to be accustomed to the use of a wider range of assessment modes and different channels of feedback on their children’s learning.

32. Overall, a shift in mindset about assessment is necessary to balance the learning of knowledge with the development of important life-skills, as well as to focus more on the learning process instead of the end academic outcome. If we can use assessment to affirm our children's progress, we can ignite their passion and confidence in their ability to learn. This early positive experience can set children on the right path for their subsequent years of schooling, and for life.





## **Chapter 4**

# **Investing in a Quality Teaching Force**





## Chapter 4

## Investing in a Quality Teaching Force

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1. Appropriate enablers have to be put in place to support the implementation of a more holistic education. As the quality of an education system cannot exceed the quality of its teachers, MOE will have to invest in a quality teaching force for the benefit of our children and their future. Our teachers must have the necessary content knowledge and be equipped with a range of teaching methods to implement the recommendations that have been put forward. Thus, besides continuing to recruit quality educators with a passion to teach, MOE must also ensure the continuous professional development and training of teachers.

### PROVIDE ADDITIONAL MANPOWER

2. The Committee supports MOE's earlier announced plans to recruit and deploy more trained teachers to schools to reach its target of 30,000 teachers by 2010. We also recognise the opportunities presented by the economic downturn, and are in favour of MOE's decision to bring forward hiring plans for teachers. In line with the enhanced emphasis on non-academic areas within the curriculum, the Committee recommends that **MOE should invest in recruiting and training more PE, Music and Art teachers to raise the quality of instruction in these areas**, as mentioned in Chapter 3 (para 15).

3. The Committee notes that MOE will be deploying more trained Allied Educators (Teaching and Learning) [AEDs(TL)] as additional teaching support staff in primary schools. MOE has also made known that it will similarly bring forward its hiring plans for AEDs(TL). The AEDs(TL) will co-teach academic and non-academic subjects with trained teachers, and work with teachers to support pastoral care and Co-Curricular Activities. The presence of an additional adult in the classroom will help students with different learning needs learn better. We are confident that more educators in our schools can better address the growing need to inculcate strong values in students and develop well-rounded character. More information about AEDs(TL) is provided in Annex G.

4. To help develop the oral communication skills of primary pupils, the Committee recommends that **individuals with strong oral communication skills could be engaged to support a conducive environment for learning languages in schools, even if they are not trained teachers**. The Committee is pleased to note that **MOE will be piloting the Language Facilitator Scheme in a few primary schools** this year. These language facilitators will complement and support our language teachers, for example, by conducting before or after-school enrichment lessons in areas such as oral presentation, drama or story-telling. This role will be suitable for graduates with professional qualifications in communications or those who can

demonstrate a high level of proficiency in the spoken language, but may not wish to become full-fledged teachers.

### **RECRUIT COMMITTED, QUALITY EDUCATORS**

5. The enhancements that we desire to make to primary education will require committed teachers who possess a strong mastery of both content and pedagogy. While some members of the public have affirmed the need for primary teachers to hold graduate qualifications, there has also been repeated public feedback that a passion and aptitude to teach, as well as a love for children, remain the most important qualities of a primary school teacher.

6. The Committee agrees with these comments, and recognises that MOE has always valued these qualities in recruiting teachers. Even when stepping up recruitment of educators, **MOE should continue to select carefully for these qualities through a rigorous and comprehensive selection process.** This process currently includes interviews conducted by experienced educators, contract teaching internships in our schools, practical teaching experiences as part of pre-service teacher training, mentoring and probation. The Committee is assured that **only teaching applicants who demonstrate the right aptitude, passion and suitability for teaching will progress to become full-fledged teachers,** and that academic achievement will not be the sole deciding factor in the selection of teachers.

7. Some parents have asked if it is necessary for primary school teachers to have such high education levels, when many existing primary school teachers who are non-graduates have proven themselves in our schools. The Committee notes that MOE has been consistently recruiting teachers from the top 30% of each cohort. However, twenty years ago, only about 15% of each cohort gained entry into our local autonomous universities. By 2015, this proportion would have risen to 30%, with a further 15% to 20% obtaining degrees from other universities. Thus, the Committee recognises that **in order to maintain the calibre of the teaching service, MOE will need to focus its efforts to recruit new teachers from the pool of university graduates or those who qualify for an undergraduate education, by 2015.**

8. In addition, the roles of a teacher have grown over the years. Today, teachers conceptualise, design and customise lessons to suit their pupils' learning aptitudes and needs, providing a range of learning experiences for pupils of different abilities. Teachers are encouraged to conduct action research to continuously refine their teaching methods, and many share best practices at conferences. Graduates who have gone through the rigor of a tertiary education would be better prepared to take on these and future job roles as teachers.

9. The Committee proposes that **eligible 'A' level and diploma holders can continue to join the teaching service by enrolling in the National Institute of Education's (NIE) degree programmes.** The Committee

understands that NIE will increase the number of places available in the Bachelor of Arts (Education) [BA(Ed)] and Bachelor of Science (Education) [BSc(Ed)] degree programmes, as well as the Postgraduate Diploma in Education programme. Aspiring teachers thus have more opportunities to be well-equipped with the professional and content knowledge to deliver a more holistic primary education.

10. **For ‘A’ level or diploma holders who decide not to pursue a degree but have a passion for teaching, the Committee recommends that they join MOE as AEDs(TL), working closely with the teachers in the classroom to hone their skills in teaching<sup>10</sup>.** This will also help aspiring educators decide if they want to pursue a teaching career in the longer term. The Committee suggests that **MOE continue to provide Allied Educators with the relevant training at NIE so that they are well-equipped for their role. They should also have the opportunity to upgrade their qualifications and join the teaching service as full-fledged teachers if they are found suitable and perform well as Allied Educators.**

11. The Committee is assured that **non-graduates who have specialised skills can still join the profession as teachers in selected areas** such as Art, Music and Mother Tongue Languages. Mid-career applicants who do not have a degree but have experience in a relevant field should also be welcomed as potential candidates.

12. MOE has affirmed that **non-graduates who are already in the teaching profession will continue to play an important role.** As is currently the case, all teachers will continue to be appraised based on work performance and not their academic qualifications. As such, non-graduate teachers should not feel compelled to upgrade their academic qualifications. The Committee also recognises that there are presently many avenues available for teachers to enhance their professional knowledge and proficiency in the classroom. The Committee encourages them to do so. These professional development opportunities as well as possible avenues for academic upgrading are described in *Annex H*.

## **EQUIP TEACHERS WELL THROUGH TRAINING AND PROFESSIONAL DEVELOPMENT**

13. Professional development must be an ongoing process for all teachers so that they maintain currency with the most up-to-date subject content, teaching methods and assessment practices. The Committee is cognisant that since the “Teach Less, Learn More” (TLLM) movement in 2005, MOE has made significant headway in equipping teachers with a stronger grasp of their teaching subjects, as well as the ability to use a wider repertoire of student-centred and interactive teaching methods. Several schools have also adopted

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<sup>10</sup> Suitable candidates can also join as Allied Educators (Counselling) or Allied Educators (Learning and Behavioural Support).

a school-based approach to teacher training to ensure that their teachers are well-equipped to meet the needs of their pupils.

14. However, more can be done to re-orientate the training of teachers to meet the new emphases in curriculum. Teachers should also continuously refine and upgrade their teaching competencies to be skilful teachers. While essential skills must be taught in pre-service training, others are more appropriately obtained as part of a teacher's continuing professional development.

15. The Committee understands that MOE is currently reviewing training provisions to raise the quality of teaching more systematically across the education system. We recommend that **MOE strengthen pre- and in-service training for all teachers to ensure that they have not only the basic teaching skills, but also a good grasp of curriculum content as well as a sound mastery of a variety of pedagogies and assessment practices.**

16. For instance, pre-service teacher preparation can be enhanced to equip teachers with skills for effective facilitation and questioning, assessment techniques, and strategies to better integrate technology. Teachers can be better trained to encourage student learning and to nurture a love for learning and self-confidence in our children.

17. In-service professional development can strengthen teacher ownership of the curriculum by enthusing teachers to be catalysts of change and by keeping them updated on the latest developments and trends in their subject areas and in education. As mentioned in Chapter 3 (para 9), the majority of primary school teachers today are trained to teach three curriculum subjects, namely English, Mathematics and one other subject (viz. Science, Art, Music or Social Studies). In view of the advantages of subject specialisation, and mindful of the practical considerations in teacher deployment, the Committee proposes that **MOE could encourage specialisation at the upper primary levels through in-service training while continuing to provide schools with the autonomy to deploy their teachers according to their needs.**

18. Building on the foundations laid by the TLLM movement, the Committee agrees that **MOE should continue to partner schools to develop new teaching and assessment methods, and continue to provide schools and teachers with rich learning resources and packages to help them build expertise.**

19. The Committee is of the conviction that in addition to selecting and equipping the right individuals as educators, the professional development of teachers must be sustained and reinforced throughout their career by systematic and forward-looking in-service training. These measures are instrumental in ensuring that our teaching force is well-equipped to deliver a high quality primary education not only at present but also in the future.





## Chapter 5 Enhancing Infrastructure



## Chapter 5 Enhancing Infrastructure

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1. In addition to a quality teaching force, the Committee recommends that MOE enhance the infrastructure of primary schools to support a higher quality primary education. This would complement the rebalancing in the primary school curriculum and the enhancements to human resources in our schools. Making available a conducive environment and appropriate facilities for learning will allow teachers to better optimise the learning experiences of our students. Schools could also be provided with additional facilities so that they can partner social service providers to provide after-school care for students from disadvantaged families who may need close supervision outside of school hours.

### SINGLE-SESSION PRIMARY SCHOOLS

2. The Committee recognises that MOE has been moving primary schools from a double-session model to a partial single-session model since 2004 to allow Primary 3 to 6 pupils more time and space in the afternoons for enrichment programmes and Co-Curricular Activities (CCAs)<sup>11</sup>. The partial single-session model has been helpful to primary schools but it still places significant time and space constraints on our schools in developing all levels of pupils holistically. On the other hand, schools that have moved to a single-session model have shared positive feedback about being able to provide a better environment to develop their pupils. This has been repeatedly affirmed by school leaders and teachers alike throughout the consultation process. Members of the public also agreed that the single-session model could give schools more flexibility to provide well-balanced educational programmes for pupils.

3. As such, the Committee **strongly recommends moving all primary schools towards the single-session model**. This will be an important structural change to increase the capacity of our system to serve pupils better, and provide a more favourable school environment that is well-balanced and holistic. Single-session primary schools will also provide pupils with more time and space to interact meaningfully with their teachers. This will help balance the acquisition of knowledge with the delivery of skills and imparting of core values to our children.

4. The Committee acknowledges that time will be required to make infrastructural enhancements to schools and manage the changes in school enrolment in implementing the single-session model. Taking into consideration MOE's preliminary estimates, we recommend that **MOE facilitate the transition of all government schools to a single-session**

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<sup>11</sup> Currently, 43% of primary schools (76 schools) are in the single-session model, 49% (86 schools) are in the partial single-session model and 8% (15 schools) are in the double-session model.



**model by 2016**, while ensuring that every child continues to have access to a primary school near his home.

5. The Committee also recognises that government-aided schools may need additional time to raise their share of 5% of the infrastructural costs in view of the current economic conditions. Hence, **MOE should work closely with these schools to facilitate their transition to the single-session model at a pace comfortable to them, bearing in mind the needs and concerns of their respective communities.**

6. In addition, **MOE should ensure that our primary schools, especially the more popular ones, maintain a sufficient number of places such that students who have no affiliation to the school can still have access for admission to Primary 1.** To achieve this, **MOE should work closely with schools and their stakeholders on the options, timeline and implementation details as the schools transit to a single-session model.**

*Schools have flexibility to adjust start and end times*

7. As public feedback on the start and end times for schools has been mixed, the Committee recommends that **schools should continue to be given the flexibility to adjust their start and end times with careful consideration of their local conditions such as the profile of their pupils, pupils' transportation arrangements, the local traffic conditions and the arrangements of other schools in the vicinity.**

8. With the single-session model, we expect schools to operate quite differently from today. Consultation threw up a range of views about school hours. While some parents expressed support for full-day school so that their children could remain engaged in a safe environment for the entire day, others were concerned that their children would be tired from spending longer hours in school, and would also have less time to spend with their families. Mindful of the feedback received, the Committee feels that **the number of school hours should be primarily determined by educational goals. This is to ensure that quality time for learning can be maintained.** Specifically, the Committee agrees that **single-session primary schools should not be pressured to become full-day schools to provide for other social needs.**

9. **To achieve educational goals,** the Committee envisages that **schools may adjust the school day differently to capitalise on the single-session model. For example, some may choose to lengthen their formal school day slightly, while others may opt to have a longer school day once or twice a week.** Primary 1 and 2 pupils could have a slightly extended curriculum day to facilitate the inclusion of non-academic aspects of the curriculum, such as the Programme for Active Learning (PAL). Primary 3 to 6 pupils who have a longer attention span could have up to two longer days in a week, to include enrichment or CCAs.

10. In general, formal curriculum time could thus be reconfigured, but the Committee is of the opinion that it should not increase significantly. For instance, some schools might decide to have longer periods that facilitate the use of teaching methods such as experiential learning. Principals might make minor upward adjustments to school hours to cater to the needs of their pupils, but should take into careful consideration the length of each school day, and ensure that it is not unduly long. The Committee recognises the temptation to use the additional time and space arising from the single-session model to provide more remedial and supplementary lessons than is currently practised. While some selected students may need and benefit from this, this should not be applied to the majority of students. **As far as possible, additional time arising from the single-session model should primarily be used for non-academic learning activities to provide an all-rounded education.**

11. MOE has indicated that the minimum number of curriculum hours in a week would remain unchanged as 24½ hours for Primary 3 to 6 (excluding the additional estimate of two to four hours per week for CCAs) and 26 hours for Primary 1 and 2 (with the introduction of the new PAL within the curriculum). In light of the flexibility given to schools by MOE to customise the single-session model, the Committee recommends that **MOE monitor the implementation of single-session primary schools to ensure that the intended objectives are met.**

#### *Implications on Transportation*

12. The Committee acknowledges that the implementation of the single-session model may have implications on transportation arrangements for pupils and on local traffic conditions. Feedback received from the public reflected concern over the availability of school buses if schools were to start later, and the potential impact on traffic conditions. Thus the transition to single-session primary schools should take place gradually over the next few years, and **MOE should work closely with the Land Transport Authority (LTA) to anticipate and address school bus transportation issues. MOE should also work closely with LTA, the Traffic Police and other agencies such as the Housing and Development Board and the local Town Councils to ensure the safety of pupils and minimise the impact on traffic around schools.**

### **NEW GENERATION PRIMARY SCHOOL FACILITIES**

13. The Committee recommends that **MOE should provide additional infrastructural support in line with the move towards a more holistic education.** The Committee notes that **MOE is presently studying how to design facilities for a new generation of primary schools so that learning spaces are able to better support broad-based and effective learning.** Some facilities that would support the new emphases in curriculum include specially-designed classrooms that encourage greater interaction and self-discovery, outdoor learning facilities for more experiential and hands-on

learning, and specialised rooms to support the teaching of Performing and Visual Arts, and Sports and Outdoor Education. More details about new generation primary school facilities are given in [Annex I](#).

## SUPPORT FOR SOCIAL SERVICES

14. Presently, several primary schools have Student Care Centres (SCCs) which provide custodial care to pupils who have no adult supervision at home before and after school hours. The Committee understands that SCC programmes are largely decided by the operators and a typical programme includes supervised study time, meal or rest time and bath times. Activities vary from individual to group activities (e.g. reading, projects) and could include enrichment as well as parent involvement programmes. Schools also work closely with social service providers such as Voluntary Welfare Organisations (VWOs) and Self Help Groups (SHGs) to run tuition, reading and holiday enrichment programmes for their pupils at these Centres.

15. The Committee recognises that these partnerships allow schools to provide stronger support to children, particularly those from disadvantaged families who may not have adequate supervision at home. While the priority must be to provide schools with sufficient resources to adopt a single-session model and have sufficient space for teaching and learning, the Committee recommends that **MOE should make provision for facilities within new schools and schools being upgraded so that VWOs and SHGs (through the Ministry of Community Development, Youth and Sports) can provide student care services, especially for pupils from disadvantaged families.** VWOs and SHGs should continue to be the provider of student care or other social services, and schools can supplement these services with educational programmes. More importantly, pupils will benefit most with closer alignment of the educational and custodial components of the student care programmes.



## Chapter 6 Conclusion





## Chapter 6

# Conclusion

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1. Singapore has built up strong foundations in our education system over the years. These are well-recognised and should be preserved. The recommendations that we have put forward are not intended to fundamentally overhaul the system, but seek to significantly strengthen primary education for the future. However, schools alone will not be able to deliver the desired outcomes of education for our children. The Committee recognises that its recommendations can only come to fruition with the strong support of various stakeholders in society, especially parents.

2. Parents are a key influence in a child's educational development, especially in the early years. Their views and philosophy toward education, and their affirmation of the importance of holistic development beyond academic results, will shape their children's attitude for learning. Their belief in the enjoyment of the learning process and the importance of an enduring curiosity will help mould their children into keen life-long learners. Even as teachers put in place strategies to develop confident children, independent learners and caring citizens, parental support is necessary to reinforce the same educational objectives at home. Thus, in this endeavour our schools must work closely with stakeholders, especially parents.

3. The Committee is deeply appreciative that members of the public from all walks of life have come forward with heart-felt comments and well-meaning suggestions. We look forward to parents working hand-in-hand with the schools and building stronger ties with them as partners, to help our children achieve the full benefit of the Committee's recommendations. The mindsets and attitudes of the wider community at large – our employers, grassroots organisations, social service providers and other agencies – must also be aligned to support the enhancements to primary education.

4. We must continue to improve our education system to benefit future generations of Singaporeans. The Committee recommends that substantial investment be made over the next ten years to raise the quality of primary education. Based on MOE's preliminary estimates, an expenditure of approximately \$4.8 billion will be needed over the next ten years to move all schools to the single-session model, upgrade facilities for a more holistic education, as well as strengthen the quality of teaching and educational programmes. This is explained in *Annex J*.

5. We firmly believe that we must equip our children with the necessary skills and dispositions to flourish in an increasingly complex environment and better prepare them for life beyond the classroom. This provides a strong impetus for us to place renewed emphasis on holistic education, including character and life-skills development, starting at the primary level. We should

also put in place enablers, including qualified and capable teachers, as well as a conducive school environment for better teaching and learning. It is our hope that the recommendations will help MOE raise primary education to a new level, as we work together towards our common goal of preparing our children to meet the challenges of the future.



# Annexes

Annexes





ANNEX A

## COMPOSITION OF THE PRIMARY EDUCATION REVIEW AND IMPLEMENTATION COMMITTEE

<b>CHAIRPERSON</b>	
1.	Ms Grace Fu Senior Minister of State, Ministry of National Development and Ministry of Education
<b>GOVERNMENT PARLIAMENTARY COMMITTEE (GPC) REPRESENTATIVES</b>	
2.	Dr Lily Neo Member of Parliament for Jalan Besar GRC Chairperson, GPC on Education
3.	Mr Michael Palmer Member of Parliament for Pasir Ris-Punggol GRC Member, GPC on Education
<b>MINISTRY OF EDUCATION (MOE) REPRESENTATIVES</b>	
4.	Ms Yeoh Chee Yan Second Permanent Secretary, MOE
5.	Miss Seah Jiak Choo Director-General of Education, MOE
6.	Mr Wilbur Wong Principal, Telok Kurau Primary School

<b>COMMUNITY AND PARENTS IN SUPPORT OF SCHOOLS (COMPASS) REPRESENTATIVES</b>	
7.	Mr Harish Nim CEO, Emerio Globesoft Pte Ltd Member, COMPASS
8.	Mr Alfie Othman Managing Director, Ikhlas Holdings Pte Ltd Member, COMPASS
<b>PRIVATE SECTOR REPRESENTATIVES</b>	
9.	Prof Jackie Ying Executive Director, Institute of Bioengineering and Nanotechnology
10.	Mr Piyush Gupta CEO, South East Asia Pacific, Citi
11.	Mr Goh Sin Teck Deputy Editor, Lianhe Zaobao, Singapore Press Holdings



ANNEX B

## SUMMARY OF PUBLIC CONSULTATION FINDINGS

### DESIRED OUTCOMES OF PRIMARY EDUCATION

1. There was generally strong support from stakeholders for the increased emphasis on primary education. Most agreed that 'soft skills' like the ability to ask questions or to communicate fluently should be developed from a young age. Many also expressed the view that pupils should learn to be more confident, and develop good social values and skills. Communication and language skills, such as proper pronunciation, should also be cultivated from young.
2. However, there were some who felt that while holistic education was important, it would be sidelined in schools as long as "academics came first", especially since academic results were still the most important criteria to progress to the next level of education.

### REBALANCING CONTENT KNOWLEDGE AND DEVELOPMENT OF SKILLS AND VALUES

3. Besides the general sentiment that the education system should be less academically-focused, there were suggestions that schools should make learning more fun, and reduce the amount of stress. There were also suggestions to use a more integrated curriculum arranged by themes instead of by traditional subjects. Many expressed support for teachers to use more engaging teaching methods when delivering the academic curriculum. There was strong support for using group work or project work to engage pupils in their learning. In addition, respondents felt that values education should continue to remain a high priority in primary education.
4. While a few respondents called for changes to the Primary School Leaving Examination (PSLE) as a way to change mindsets on the emphasis on academic results, many felt that assessment, including the PSLE, was necessary to gauge the progress and learning outcomes of each pupil. Reactions were mixed on the type of assessments in schools. Some felt that year-end examinations would help to prepare pupils for the PSLE, while others found school examinations too stressful. There were suggestions for lower primary pupils to be assessed in different, less stressful ways. For instance, continual assessment such as topical tests and observation of group work could be used, in place of pen-and-paper semestral examinations. Given the wide-ranging views on this issue, some respondents noted the importance of parental engagement, and suggested that schools would need

to communicate regularly and frequently with parents while implementing these changes.

5. There were suggestions to move towards smaller class sizes of between 20 and 30 pupils at all levels, so that teachers could pay greater attention to helping weaker pupils. However, some respondents noted that reducing class sizes could have a negative impact on the quality of teachers.

### **ENHANCING NON-ACADEMIC PROGRAMMES**

6. Many supported the idea of enhancing non-academic programmes in primary schools, including having a wider variety of Co-Curricular Activities (CCAs). Some felt that CCAs were currently too competitive, and most agreed on the need for lower primary pupils to try out different types of activities. These would also help pupils to develop essential life-skills such as communication and teamwork, and build confidence, character and leadership. Pupils shared that they generally enjoyed CCAs, and welcomed the idea of 'short term' or modular CCAs for wider exposure to help them identify their areas of interest. However, there were concerns about the availability of good CCA instructors, and suggestions for MOE to provide additional resources in this area.

### **RAISING THE QUALITY OF THE TEACHING FORCE**

7. There was general consensus that the most important qualities of primary school teachers were a passion for teaching, patience, and an aptitude for interacting with children. These qualities were seen to be more important than academic qualifications, especially for lower primary teachers. Many expressed concern that requiring all new teachers to be graduates would preclude some with the right passion and aptitude. However, some respondents acknowledged that it was important for teachers to have sufficient content knowledge, even in primary schools. Some also noted that being a graduate and having the passion to teach were not mutually exclusive. Instead, they felt that MOE should provide more opportunities for non-graduates to take up degree courses and become teachers.

8. There were suggestions for in-service training to focus on pedagogy and mastery of relevant content to help teachers keep abreast of the latest practices and content. Teachers should also be given more space and time to research, reflect and re-evaluate their practice to improve their delivery of the curriculum.

9. There were also suggestions for teachers in the upper primary levels to specialise in certain subjects, especially core subjects such as Languages, Mathematics and Science, to facilitate more effective teaching and learning.

## **SINGLE-SESSION PRIMARY SCHOOLS**

10. Most welcomed the move towards single-session primary schools, and suggested that the additional time and space be used for more non-academic programmes, including outdoor activities. Some felt that it was important to maintain sufficient places in popular schools, including places for pupils with no affiliation to the school.

11. There were mixed views on the start and end times for primary school. Some parents preferred a later start time so that their children could get more rest, while others preferred the current start time, which fit well into their daily routine. Some concerns were also raised on the possible challenges of arranging for school bus transportation, including a rise in bus fares if school bus operators had to give up transporting factory workers due to the later start-times of schools.

12. Some parents expressed support for full-day school so that their children could remain safe and engaged in school for the entire day, but others were concerned that children would be tired from spending longer hours in school, and would have less time to spend with their families. There were also concerns that single-session primary schools with a longer school day would increase the workload of teachers.

13. Many respondents expressed support for schools to work with social service providers to offer after-school student care services within the school compound, especially for pupils from disadvantaged backgrounds. However, private student care operators were concerned about the possible decline in demand for private Student Care Centres.

## **CATERING FOR SPECIAL NEEDS**

14. Some parents wrote in to reiterate the importance of integrating children with special needs with pupils in mainstream schools, wherever possible. Besides having children with mild special needs in mainstream schools, they called for more opportunities for children in special education schools to be involved in frequent and meaningful interaction with mainstream school children. In addition, they hoped that MOE would continue to ensure that there were sufficient educators trained to support children with special needs in both mainstream primary schools and special education schools.



## EXAMPLES OF PEDAGOGIES THAT APPLY ACROSS SUBJECTS

### LEARNING BY INQUIRY

1. Guiding students' natural desire and aptitude for inquiry is one of the ways to draw out students' learning. If students learn by asking questions of themselves and one another, they are more likely to view questioning as learning rather than focus on providing the right answer. Likewise, the learning experience will also be shaped for students to tackle a problem from different angles, rather than for them to simply find the right answer.

2. Effective questioning by teachers increases student participation. It provokes curiosity and deepens thinking as students are given opportunities to express and refine their thoughts and ideas, while hearing different perspectives from their classmates. Good questioning by teachers also enables the "big ideas" in lessons to be highlighted. In Art, for instance, teachers are encouraged to adopt the Feldman approach which uses four stages in the examination of artwork (namely describe, analyse, interpret and evaluate). Through probing and rich questioning by teachers and peers, students are able to express their thoughts about artwork in a more systematic manner, deepen their thinking, and develop the language and vocabulary to communicate about art.

### LEARNING BY INTERACTING

3. A distinguishing feature of 21<sup>st</sup> century learning is the social element in learning. Providing suitable settings for students to learn and solve problems in teams will help to develop collaborative and persuasion skills.

4. Cooperative learning is a widely used pedagogy which offers students opportunities to work in groups. It emphasises positive interdependence, face-to-face interaction, individual accountability, teamwork and group processes. For instance, in Science lessons, the cooperative learning strategy "*jigsaw*" can be used to learn about the characteristics of animals. Students form expert groups to learn about a certain category of animals (mammals, fish, insects or birds), before returning to a home group (comprising students from the different expert groups) to share what they have learnt with each other. This way, students better internalise their learning through teaching their classmates.

## LEARNING BY DOING

5. Hands-on learning leverages on students' excitement and energy. They are also more likely to take ownership of their learning, and transfer their learning to new situations. For instance, drama is a hands-on approach to learning that simulates reality and inspires creativity in students. It enhances students' social and emotional awareness through role-play. It gives them the room to express themselves in a variety of ways, builds self-confidence, and can also help in conceptual understanding<sup>12</sup>.

## LEARNING IN AND OF THE REAL WORLD

6. Learning should be contextualised and situated in real world experiences so that students appreciate the purpose of what they are learning, and see the connections between what they learn in school and what they experience in the world.

7. Experiential learning allows students to learn through interacting with the surroundings and reflecting on their observations to develop deeper understanding. For instance, Mathematics Trails expose students to authentic experiences related to Mathematics. These trails can be conducted within the school or in other settings such as the Zoo, the Botanic Gardens or the Esplanade. Tasks that require interaction with the environment are planned, e.g. estimate the circumference of a tree using one's arm to encircle the tree, or investigate the speed of the escalator using a stopwatch. These tasks allow students to associate the learning of Mathematics with real world experiences. It can arouse their curiosity in applying mathematical concepts to their surroundings, help them to reflect on their learning, and develop new or deeper understanding of mathematical concepts.

## LEARNING BY REFLECTING

8. With knowledge becoming obsolete at a faster pace, students need to continuously learn and be able to apply new knowledge and skills. Students also need to be more aware of their own learning approaches. As students encounter new problems and issues, they require reflective and meta-cognitive skills in order to evaluate their thinking and choice of strategies to tackle new situations. Some examples of teaching strategies that encourage learning by reflecting include setting aside time for students to reflect, and facilitated self-assessment coupled with peer-assessment.

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<sup>12</sup> For example, in English or in the Mother Tongue Languages, drama can be used as an entry point to stimulate ideas for narrative writing, while in Mathematics and Science, drama can be used to help students visualise and better understand concepts such as algebra, condensation or evaporation.

## ANNEX D

## SKILLS TO BE EMPHASISED AND POSSIBLE MODES AND PLATFORMS FOR ASSESSMENT

Student Outcomes	Associated Skills & Mindsets	Examples of Assessment Modes	Examples of Platforms for Assessment
<ul style="list-style-type: none"> <li>∞ <b>Confident Person</b></li> <li>! Thinks independently</li> <li>! Communicates effectively</li> <li>! Has good interpersonal skills</li> </ul>	<ul style="list-style-type: none"> <li>∞ Thinking skills</li> <li>∞ Communication skills</li> <li>∞ Collaborative skills</li> <li>∞ Interpersonal skills</li> <li>∞ Leadership skills</li> </ul>	<ul style="list-style-type: none"> <li>∞ Pen-and-Paper</li> <li>∞ Project Work</li> <li>∞ Oral Presentation</li> <li>∞ Performance Task</li> <li>∞ Peer Assessment</li> <li>∞ Student Reflection</li> </ul>	<ul style="list-style-type: none"> <li>∞ International Surveys</li> <li>∞ National Assessment</li> <li>∞ Classroom Assessment</li> <li>∞ Co-Curricular Activities</li> <li>∞ Community Involvement</li> <li>∞ Programme and Service Learning Activities</li> </ul>
<ul style="list-style-type: none"> <li>∞ <b>Self-Directed Learner</b></li> <li>! Takes responsibility for own learning</li> <li>! Questions, reflects, perseveres</li> <li>! Uses technology adeptly</li> </ul>	<ul style="list-style-type: none"> <li>∞ Self-management skills</li> <li>∞ Problem-solving skills</li> <li>∞ Information and Media literacies</li> <li>∞ Technological literacy and skills</li> </ul>	<ul style="list-style-type: none"> <li>∞ Portfolio</li> <li>∞ Coursework</li> <li>∞ Practical</li> </ul>	
<ul style="list-style-type: none"> <li>∞ <b>Concerned Citizen</b></li> <li>! Is informed about world and local affairs</li> <li>! Empathises with and respects others</li> <li>! Participates actively</li> </ul>	<ul style="list-style-type: none"> <li>∞ Multicultural literacy</li> <li>∞ Cross-cultural skills</li> <li>∞ Civic literacy</li> </ul>		
<ul style="list-style-type: none"> <li>∞ <b>Active Contributor</b></li> <li>! Exercises initiative and takes risks</li> <li>! Is adaptable, innovative, resilient</li> <li>! Aims for high standards</li> </ul>	<ul style="list-style-type: none"> <li>∞ Planning skills</li> <li>∞ Management and Organisational skills</li> <li>∞ Innovative skills</li> </ul>		

ANNEX E

## EXAMPLES OF RUBRICS USED BY PRIMARY SCHOOLS TO ASSESS SPECIFIC SKILLS

1. Meridian Primary School uses rubrics to promote pupil development and give feedback that is richer and more detailed than a single grade or score. Rubrics, such as those in the examples for Primary 1 and 2 pupils shown below, state the criteria being assessed, provide a rating scale for each criterion, and describe the characteristics of achievement or performance standards at each point on the scale.
2. Instead of merely receiving a grade or score, rubric-based assessment notes the level of attainment for each criterion and more importantly, informs pupils on specific areas to improve. Rubrics are also useful because they clarify teachers' expectations of the assignment, provide clear benchmarks for learning, and thereby enable pupils to have greater ownership of their own learning.
3. For instance, pupils are assessed on five different criteria in writing. For each criterion, four different levels of attainment are described. For instance, under the criterion "vocabulary", if the pupil demonstrates the ability to use a wide range of vocabulary, he has achieved a "Level 4" standard. In this example, the pupil can present his ideas quite well, write coherently and has a wide vocabulary, but can improve in paragraphing of ideas and the use of grammar. The descriptors of attainment in the rubrics begin with "I" because the pupils can better relate to the "I" statements when the rubrics are explained to them or when feedback is subsequently given. The different levels and descriptors help the pupils to look ahead and strive towards the next level of achievement.

Assessment Rubrics for Writing				
Criteria	Level 1	Level 2	Level 3	Level 4
<b>Presentation of ideas</b>	I give very little of the important information needed. I do not have an ending.	I give some of the important information needed. I have a sudden ending.	I give enough of the important information needed. I have a suitable ending.	I give important information needed and provide relevant details. I have an interesting and creative ending.
<b>Sequence of events</b>	I do not write about the events in the order that they happened.	I write about some events in the order that they happened.	I write about most of the events in the order that they happened.	I write about events in a clear and logical sequence.
<b>Paragraphing of ideas</b>	I do not write in paragraphs; or, my ideas are not arranged clearly in paragraphs.	Some of my ideas are arranged clearly in paragraphs.	Most of my ideas are arranged clearly in paragraphs.	All my ideas are arranged clearly in paragraphs.
<b>Vocabulary</b>	I choose unsuitable words. I use a limited variety of words.	I choose some suitable words. I use a fair variety of words.	I choose suitable words. I use a variety of words and use them well most of the time.	I choose suitable words and use them well throughout. I use a wide variety of words creatively.
<b>Grammar</b>	I do not write in complete sentences. I use grammar incorrectly most of the time	I write in complete sentences most of the time. I use grammar correctly some of the time.	I write in complete sentences all the time. I use grammar correctly most of the time.	My use of grammar is almost perfect.

4. In oral presentation, pupils are assessed on how well they articulate and pronounce their words. Teachers also consider whether they speak confidently, make eye contact with their audience and if they can respond well to questions from their peers. Teachers then highlight to pupils, using the rubrics, their strengths and areas for improvement.

Rubrics for Oral Presentation				
		☺☺		☺
<b>Oral skills</b>	Speaks clearly and expressively.		Speaks with some hesitation.	✓
	Expresses ideas in complete sentences.	✓	Expresses ideas in short phrases.	
	Elaborates on topic.	✓	Touches on topic.	
	Responds well to peers' queries.	✓	Needs help in responding to queries.	
<b>Presentation</b>	Speaks with confidence.		Speaks with some confidence.	✓
	Shows spontaneity.	✓	Shows some spontaneity.	
	Explains in a coherent manner.	✓	Explains in a fairly coherent manner.	
<b>Disposition</b>	Stands with poise.		Shows a little poise.	✓
	Makes full eye contact with audience.		Makes some eye contact.	✓
<b>Teacher's Remarks</b>	<i>Speaks spontaneously and adds a sense of humour in his response to peers.</i>			

## SAMPLE HOLISTIC DEVELOPMENT PROFILES

1. Greenridge Primary School provides parents with qualitative feedback through a Holistic Progress Report twice a year. Ticks are made against smiley faces to indicate the pupil's level of development in each area (see sample provided below). The knowledge and skills assessed are not only in academic areas, but also in non-academic areas that range from art appreciation and social skills, to character development and National Education.

2. The teachers at Greenridge Primary meet frequently to build a common understanding of the areas of learning to be assessed. They also develop the rubrics and discuss the detailed feedback to be given to each child. As a result, the teachers have observed visible improvement in the child's development. Parents are also pleased that their children are assessed in meaningful ways.

☺ : <b>Improving</b> – Needs a lot of assistance ☺☺ : <b>Novice</b> – Needs some assistance ☺☺☺ : <b>Competent</b> – Needs little assistance ☺☺☺☺ : <b>Expert</b> – Does not need any assistance								
<b>Primary 1 Learning Outcomes</b>	<b>Progress</b> <i>(Put a tick "✓" under the most appropriate descriptor)</i>							
	<b>Term 1</b>				<b>Term 3</b>			
	☺	☺☺	☺☺☺	☺☺☺☺	☺	☺☺	☺☺☺	☺☺☺☺
<b>Language &amp; Literacy (English)</b>								
Can listen and follow given instructions.			✓				✓	
Can speak and present ideas clearly.		✓					✓	
Can read simple words.			✓					✓
Can read a short passage fluently and expressively.								✓
Can read and understand a short passage.			✓					✓
Can write neatly.		✓					✓	
Can form simple sentences.			✓					✓



Primary 1 Learning Outcomes	Term 1				Term 3			
	☺	☺☺	☺☺☺	☺☺☺☺	☺	☺☺	☺☺☺	☺☺☺☺
<b>Numeracy</b>								
Can count, add and subtract within 10.				✓				
Can use manipulatives to solve problems.			✓				✓	
Can solve word problems.			✓					✓
Can understand and apply Mathematical concepts.			✓					✓
Can count, add and subtract within 40.								✓
Can measure and compare the mass of different objects.								✓
Can read, compare and interpret simple picture graphs.								✓
<b>Information and Communications Technology</b>								
Can switch on and shut down a computer.			✓					✓
Can login to the school's system using own username and password.			✓					✓
Can identify the basic parts of a computer.		✓						✓
Can login to the E-learning portal.		✓						✓
Can complete assignments in the E-learning portal.							✓	
Can send email to teachers and friends.							✓	
<b>National Education and Character Development</b>								
Can work and play well with friends.				✓				✓
Can understand the festivals of other races.			✓					✓
Knows how to sing the National Anthem and school song, and recite the pledge and pupils' creed with respect and pride.			✓					✓
Is gracious, responsible and public-spirited.			✓					✓
Has respect for teachers and friends.			✓					✓
Can take care of oneself.			✓					✓

Primary 1 Learning Outcomes	Term 1				Term 3			
	☺	☺☺	☺☺☺	☺☺☺☺	☺	☺☺	☺☺☺	☺☺☺☺
<b>Arts Education</b>								
Can follow beat and rhythm.				✓				
Can sing in tune.				✓				
Can express oneself through music.			✓					
Can create own Art works.							✓	
Enjoys Art activities.								✓
<b>Personal &amp; Environmental Awareness</b>								
Can keep oneself clean.				✓				✓
Has good healthy habits (e.g. oral hygiene, eye care).			✓				✓	
Can keep the classroom clean.			✓				✓	
Knows the school well.			✓					✓

3. Meridian Primary School provides parents with qualitative feedback each term. Below is an example of the progress card for a Primary 2 pupil in Term 1. Feedback on skills attained in English, Mother Tongue and Mathematics is provided, as well as feedback in non-academic areas such as work habits and social development. Including both academic and non-academic areas in the progress card is the school's way of emphasising the importance of both intellectual and character development to parents and pupils.

Primary 2 Progress Card (Term 1)		SD – some difficulty WI – working at it MI – made it!		
Developmental Areas	Description	SD	WI	MI
<b>English Language</b>				
<b>Speaking &amp; Listening</b>	Expresses ideas in sentences and elaborates on them.			✓
	Follows a conversation and responds confidently.			✓

<b>Developmental Areas</b>	<b>Description</b>	<b>SD</b>	<b>WI</b>	<b>MI</b>
<b>English Language (continued)</b>				
<b>Reading</b>	Reads in an audible and fluent manner.			✓
	Articulates well and pronounces most words clearly.		✓	
	Reads expressively with appropriate variation in pitch and tone.			✓
	Is able to read a given text and comprehend its content.			✓
	Is able to infer.		✓	
<b>Writing</b>	Uses relevant and interesting ideas.			✓
	Good organisation of ideas and use of paragraphs.			✓
	Uses a good range of vocabulary.			✓
	Shows good use of grammar and writes in complete sentences.			✓
<b>Mother Tongue Languages ( Chinese / Malay / Tamil Language )</b>				
<b>Speaking &amp; Listening</b>	Follows a conversation and responds confidently.			✓
	Articulates ideas in sentences with elaboration.			✓
<b>Reading</b>	Recognises and reads words from the vocabulary list.		✓	
	Understands and reiterates the main gist in a passage.			✓
	Reads with clarity and fluency.			✓
<b>Writing</b>	Writes in complete sentences.			✓
	Uses grammar, punctuation and vocabulary correctly.			✓
	Shows creative use of ideas.			✓

<b>Developmental Areas</b>	<b>Description</b>	<b>SD</b>	<b>WI</b>	<b>MI</b>
<b>Mathematics</b>				
<b>Length, Mass, Multiplication &amp; Division</b>	Performs basic mathematical operations for addition and subtraction within 1000.			✓
	Demonstrates understanding of word problems with evidence of working shown for the following: i) addition and subtraction ii) use of pictorial representation for problem-solving			✓ ✓
<b>Conduct</b>				
<b>Work Habits</b>	Works co-operatively.			✓
	Completes set tasks.			✓
	Participates in class activities.			✓
	Takes pride in work.		✓	
<b>Social Development</b>	Is courteous and has good manners.			✓
	Observes class rules.			✓
	Displays responsibility.			✓

ANNEX G**ALLIED EDUCATORS (TEACHING AND LEARNING)**

1. To strengthen the professionalism of the school team, MOE introduced a new Allied Educators Scheme from 1 Jan 2009 to attract, motivate and retain good quality people as Allied Educators (AEDs). Three groups of officers comprise the AED family: AED (Counselling), AED (Learning and Behavioural Support) and AED (Teaching and Learning)<sup>13</sup>. They work closely with teachers to enhance the holistic development of students.
2. Under the new scheme, the salaries of AEDs will be benchmarked to the market to ensure competitiveness. AEDs will enjoy the school holiday scheme similar to teachers, and also benefit from better career development and advancement opportunities. Outstanding AEDs can aspire to progress up to positions of superscale grade in MOE. More information about AEDs (Counselling) and AEDs (Learning and Behavioural Support) is available on the MOE website at: <http://www.moe.gov.sg/careers/allied-educators>.
3. The Allied Educator (Teaching and Learning) [AED(TL)] co-teaches academic and non-academic subjects with trained teachers in school to help students with different learning needs learn better. They also work with teachers to support pastoral care and Co-Curricular Activities as part of the holistic development of students.
4. The entry requirements for AED(TL) are:
  - a. At least a post-secondary qualification or equivalent, preferably a diploma from any of the five local polytechnics or GCE 'A' level, with a pass in GCE 'O' level English and Mathematics
  - b. Specialised knowledge or skills relevant to the learning of students
  - c. Aptitude and passion in developing and nurturing youths
  - d. Good interpersonal skills and a team-player
5. Successful candidates will be fully sponsored to attend a ten-week training programme at the National Institute of Education, which covers topics ranging from educational psychology, classroom management, teaching strategies to managing students with behavioural and learning problems. Candidates undergoing training will receive a full monthly salary and are required to serve a one-year Minimum Service Period upon the successful completion of their training.

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<sup>13</sup> AED (Counselling) was formerly known as Full Time School Counsellor, AED (Learning and Behavioural Support) was formerly known as Special Needs Officer and AED (Teaching and Learning) was formerly known as Education Associate.

6. AEDs(TL) who demonstrate good performance and potential can look forward to taking on higher level appointments as Senior Allied Educators (Teaching and Learning). AEDs(TL) who are keen and have demonstrated their suitability to become teachers can also be recommended by the schools to join the Education Service after a minimum of two years.



ANNEX H

## **PROFESSIONAL DEVELOPMENT AND ACADEMIC UPGRADING OPPORTUNITIES FOR CURRENT TEACHERS**

### **PROFESSIONAL DEVELOPMENT**

1. Both graduate and non-graduate in-service teachers may participate in Professional Learning Circles in schools to enhance their pedagogical skills, as well as make use of the Teacher Work Attachment to broaden their perspectives and outlook beyond the school environment. Teachers can also utilise the Professional Development Leave Scheme to attend courses that will bring value to the service. Teachers are encouraged to apply the knowledge and skills acquired through these opportunities to enhance their work performance.
2. Primary school teachers who are interested to deepen their content knowledge and improve their skills are provided with in-service courses that lead to an Advanced Diploma in Teaching awarded by the National Institute of Education (NIE). For non-graduate primary school teachers, the Advanced Diploma would lead to accreditation for a Bachelor of Arts (Education) [BA(Ed)] or Bachelor of Science (Education) [BSc(Ed)] (General) programme. This would allow them to complete the degree programme within two years as a full-time course.

### **ACADEMIC UPGRADING**

3. Teachers who wish to upgrade themselves academically can make use of the study leave schemes to pursue part-time or full-time degree courses. MOE also offers professional development packages that provide interest-free study loans for both part-time and full-time undergraduate and postgraduate studies from \$7,000 - \$18,000 per annum. Under the Professional Development Co-Payment Scheme, MOE subsidises 60% of the course fees for the part-time Bachelor in Education courses at NIE and Mother Tongue Language related degrees offered by the SIM University (UniSIM). In addition, MOE offers study awards, grants and scholarships for outstanding teachers to pursue higher degrees.

## NEW GENERATION PRIMARY SCHOOL FACILITIES

1. Possible facilities to support broad-based and effective learning include:
  - a. **Redesigned Classrooms.** The classroom is a key area for learning. MOE is exploring how best to redesign classrooms and furniture to flexibly support various teaching methods and create an environment conducive for the learning of both knowledge and skills. In addition to the usual frontal mode of teaching, the layout will be designed so that furniture can be reconfigured to support both central sharing (e.g. through presentations) as well as learning in small groups. Small 'Learning Centres' will be incorporated to facilitate various modes of learning, e.g. a reading corner, a performance station for speech and drama, and an Information and Communications Technology (ICT) centre. Ample display space will also be provided to showcase interesting learning materials and pupils' work.
  - b. **Outdoor Experiential Learning.** Experiential learning can evoke in pupils a spirit of inquiry and curiosity about the world around them. It can stimulate interest and facilitate better understanding and application of concepts in Science and Mathematics in an authentic setting. MOE is studying how to better use outdoor facilities to provide students with richer opportunities for experiential learning and to have fun learning through discovery. Examples of such facilities include outdoor science labs, eco-gardens, insectariums and ponds.
  - c. **Programme for Active Learning (PAL) facilities.** With PAL, all pupils will be given the opportunity to participate in Sports and Outdoor Education. Most primary schools already have a range of indoor and outdoor sports facilities, e.g. a Multi-purpose Hall, school field, games courts and the new Indoor Sports Hall (ISH). The plan to equip all primary schools with an ISH could be accelerated to be in tandem with the transition to single-session primary schools. To further support the delivery of PAL, MOE is looking into the provision of facilities such as a Performing Arts Studio or a Band Room to support Performing and Visual Arts. MOE is also studying the provision of a Media Hub where pupils can build confidence in communication through role-playing as reporters or deejays. Exposure to such activities from a young age can help pupils develop useful life-skills and nurture leadership qualities.

- d. **Social Interaction and Fitness**. The provision of facilities which provide a natural meeting place for children to meet, have fun and build up their fitness, is being considered for all primary schools.

## PRELIMINARY FINANCIAL ESTIMATES

1. The enhancements to primary education require significant amounts of human and financial resources. The Committee recommends that substantial investment totalling \$4.8 billion be made over the next ten years to raise the quality of primary education.

2. Based on MOE's preliminary estimates, this includes \$600 million to build an estimated 18 new schools, another \$700 million to upgrade about 80 existing schools, and about \$1.4 billion to provide new generation primary school facilities. In addition, \$100 million will be required for teacher training, \$400 million for manpower and other operating expenditure in moving to the single-session model, \$710 million to recruit new teachers, \$540 million for hiring Allied Educators and \$330 million on new programmes. This is summarised in the table below.

	<i>Recommendation</i>	<i>Estimated Cost</i>
<b>Infrastructure &amp; Operating Expenditure (over ten years)</b>		
1	Build 18 new schools	\$600m
2	Upgrade about 80 existing schools	\$700m
3	Provide new generation primary school facilities	\$1.4b
4	Teacher training in pedagogy and assessment	\$100m
5	Manpower and other operating expenditure for 18 new schools	\$400m
6	Recruit new teachers	\$710m
7	Recruit Allied Educators	\$540m
8	New programmes (Instructors for the Programme for Active Learning (PAL) <sup>14</sup> , language facilitators, and Music, Art and Physical Education (PE) equipment <sup>15</sup> )	\$330m
	<b>Total</b>	<b>\$4.8b</b>

<sup>14</sup> The amount of funding given to each school could be in the range of up to \$170,000 per year.

<sup>15</sup> A once-off sum of up to \$90,000 could be given to each school to invest in equipment for PE, Art, Music and other PAL activities.



