Rapid Review of Curriculum 2013 and Textbooks

The Education Sector Analytical And Capacity Development Partnership (ACDP)

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The Government of Indonesia (represented by the Ministry of Education and Culture, the Ministry of Religious Affairs and the Ministry of National Development Planning/ BAPPENAS, the Australian Agency for International Development (AusAID), the European Union (EU) and the Asian Development Bank (ADB) have established the Analytical and Capacity Development Partnership (ACDP) as a facility to promote policy dialogue and institutional and organizational reform of the education sector to underpin policy implementation and help reduce disparities in provincial and district education performance. The facility is an integral part of the Education Sector Support Program (ESSP) which consists of EU sector budget support with agreed arrangements for results-led grant disbursement, and earmarked policy and program-led AusAID sector development grant support consisting of a school infrastructure program, a nationwide district and school management development program and a program to accelerate the GOI's accreditation of private Islamic schools. This report has been prepared with grant support provided by AusAID and the EU through ACDP.

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The views expressed in the report are those of the authors and not necessarily of any other individual or organization.

Curriculum Rapid Review Team
June 2016

Abbreviations and Acronyms

Abbreviation	Bahasa Indonesia	English
ACDP		*Analytical and Capacity Development Partnership*
ACER		*Australian Council for Educational Research*
ADB		*Asian Development Bank*
AIBEP		*Australia Indonesia Basic Education Program*
B-In		*Bahasa Indonesian*
BSNP		*National Education Standards Board*
CLIL		*Content Language Integrated Learning*
DFAT		*Department of Foreign Affairs and Trade*
ICT		*Information and Communication Technologies*
KBK		*Competency-based Curriculum*
KTSP	Kurikulum Tingkat Satuan Pendidikan	
LPPKS	Lembaga Pengembangan dan Pemberdayaan Kepala Sekolah	
LPMP	Lembaga Penjaminan Mutu Pendidikan	
MoEC		*Ministry of Education and Culture*
MoNE		*Ministry of National Education*
MoRA		*Ministry of Religious Affairs*
NCERT		*National Council for Educational Research and Training*
OECD		*Organisation for Economic Cooperation and Development*
P4TK	Pusat Pengembangan dan Pemberdayaan Pendidik dan Tenaga Kependidikan	
PISA		*Programme for International Student Assessment*
PMRI		*Realistic Mathematics Education*
SD	Sekolah Dasar	*Lower primary school*
SMA	Sekolah Menengah Atas	
SMK	Sekolah Menengah Kejuruan	*Vocational school*
SMP	Sekolah Menengah Pertama	
UNESCO		*United Nations Educational, Scientific and Cultural Organization*

Executive Summary

This report provides the findings from a rapid curriculum review conducted in May and June 2016. This study has been undertaken by a team of international and national advisors. It has involved preparing a literature review; administering a small survey; undertaking a review of curriculum documents, instructional materials and assessment items for Grade 1, 4, 7 and 10 in Science, Mathematics, Bahasa Indonesian and English; making school visits; conducting focus group discussions with teachers, principals, district superintendents and senior officials in the Ministry of Education and Culture (MoEC); the presentation of public lectures and the conduct of a workshop to present some initial findings from the review. Although it has been a short review, it has generated some results that have led to the proposal of policy options to guide future directions, and has identified issues that ideally warrant further investigation.

Indonesia has introduced several national curricula since its independence. Each new national curricula has aimed to modernize Indonesia, build the capacity of Indonesia's workforce and to improve the quality of the learning outcomes, achieved by students at school. *Curriculum 2013* was introduced for these same reasons, and to address implementation difficulties that had arisen with the school-based curriculum introduced in 2006. Indeed, *Curriculum 2013* has been introduced to move away from the 2006 standards-based curriculum to a competency-based curriculum. But curriculum documents by themselves do not change practices. The changes in the curriculum documents require changes to the way teachers and principals understand and enact the curriculum. As such, *Curriculum 2013* represents a paradigm shift in the way teachers and school principals undertake classroom activities and lead their schools.

Unfortunately however, the introduction of *Curriculum 2013* has also been problematic. These problems have been seen in both the development and implementation stages of *Curriculum 2013*. Given the extent of the challenges emerging with the implementation of the *Curriculum 2013*, this rapid review was commissioned to provide advice to MoEC about the immediate issues they are likely to face with an increased use of *Curriculum 2013* in the 2016-17 school year; and to identify any immediate issues and solutions that should be addressed prior to the commencement of the next school year, in July 2016.

The *Rapid Review Team* has recognized the reasons Indonesia identified for introducing a new national curriculum aimed at developing students' abilities to build and apply both discipline knowledge and understanding, as well as '21st century skills'. Such an approach to the development and implementation of a national curriculum is consistent with the approaches taken by many developed and developing countries around the world.

However, although this review has been rapid, the Team has also identified several issues at the stages of both the development and implementation of the curriculum. This report identifies these key issues that ought to be addressed if the quality of students' learning outcomes are to be improved. The report concludes by proposing policy options to address these issues in both the immediate and longer terms.

Chapter 1: Introduction

Indonesia wants to improve the quality of students' learning outcomes as a matter of urgency. One strategy being used to achieve this objective, is to improve the national curriculum, *Curriculum 2013*. The theoretical basis underpinning *Curriculum 2013* has been informed by promising practices from across several countries, that have placed an emphasis on fostering student-centred and enquiry-based learning, and the development of '21st century skills'. Generally, the phrase '21st century skills' tends to be used as a shorthand label for developing capabilities such as communication, creativity, problem-solving, sifting and sorting information, lifelong learning, as well more traditional generic capabilities such as literacy and numeracy. In Indonesia, '21st century skills' refers to the following capabilities, as Table 1 below summarises.

Table 1: Summary of the 21st century skills to be included in *Curriculum 2013*

Character quality	Basic literacy	Competencies
Devotion	Reading and writing literacy	Critical thinking and problem-solving
Integrity	Numeracy	Creativity and innovation
Curiosity	Scientific literacy	Communication
Initiative	ICT literacy	Collaboration
Persistence	Financial literacy	
Adaptability	Cultural and civic literacy	
Leadership		
Social and Cultural Awareness		

Incorporating all of these '21st century skills' into *Curriculum 2013*, is an ambitious project, along with ensuring the discipline knowledge to be covered is addressed in ways that foster student-centred, enquiry-based learning. There have been challenges for the Ministry of Education and Culture (MoEC), during the development and implementation of *Curriculum 2013*. These challenges have led to the instigation of the *Rapid Review of Curriculum and Textbooks 2013.*

1.1 Purpose

This *Rapid Review of Curriculum and Textbooks 2013* was undertaken at the request of MoEC, to examine recent curriculum reforms and implementation strategies used in Indonesia, in order for MoEC to gain advice that will support them to determine approaches to make further improvements in the ongoing development, review and implementation of *Curriculum 2013*.

1.2 Background

This 'Background' section is based upon papers prepared previously for ACDP (ACDP, 2015) and those prepared as background papers for the Education Sector in the RPJMN (National Medium-Term Development Plan, 2015-19).

Curriculum 2013 has grown out of the *Competency-based Curriculum* (KBK 2004) and the introduction of school-based curriculum development (KTSP 2006). A brief summary of these initiatives follows, in order to provide context for the current approaches to curriculum development and implementation.

1.2.1Competency-based curriculum (2004–2012)

A 'competency-based' national curriculum was implemented from 2004 to 2012. It reiterated the responsibility of the national government to provide a single national curriculum taking account of:

- the development of faith and character;
- the need to develop students' cognitive skills and interests;
- national diversity and the needs of national and regional development;
- the demands of business;
- the development of science, technology and the arts;
- globalisation; and
- national unity and values.

The goal of education was expressed as *developing the potential of all students as human beings of faith and devotion to God and to develop their character, healthy lifestyle, intellect, skills, creativity, independence and responsible citizenship.*

The National Education Standards Board (BSNP) was established in 2005 with a mandate to develop and monitor the curriculum. Teams of experts developed eight National Standards. These Standards defined the competencies and levels of service to be achieved in the following areas:

1. Learning Content for all subjects, including formal Religious Education;
2. Learning Process (i.e. pedagogy, lesson planning, assessment);
3. Graduate Competencies (i.e what students must be able to do);
4. Competencies of Teachers and other Education Workforce personnel (e.g. principals, supervisors);
5. Equipment and Infrastructure Standards;
6. Management Standards;
7. Financing Standards; and
8. Education Evaluation.

These eight Standards were developed over time. They were issued at irregular intervals by a series of regulations, with the last standard (Finance) completed in 2010. The format and level of detail varied considerably between each Standard. The Standards were intended to be initial statements that would be reviewed and revised. The Board however, was not resourced sufficiently to review implementation or to make the planned revisions. At the same time, a series of regulations in 2006 established that each school should develop its own curriculum (KTSP), based on the Content Standard and Graduate Competency Standard, taking into account local needs and circumstances.

1.2.2 School-based curriculum development (*KTSP*) (2006)

While school-based curriculum development was consistent with international trends, possibly its real importance was to reflect the intention of Law 20/2003, which described the different but complementary roles of national and local government in the provision of education: in this case, a curriculum designed nationally, adapted and delivered locally.

From the start, it appears teachers were unprepared for the requirement for school-based curriculum development. It required a different mind-set and approach from their current teaching roles or anything they had experienced before.

Despite in-service training modules and support from Teacher Working Groups, the *Kurikulum Tingkat Satuan Pendidikan* (KTSP) was widely perceived as an extra burden for teachers, many of whom could not fully appreciate the rationale of a democratisation of education when their own schooling, teacher training and experience had been entirely a top-down approach.

The capacity to adapt the curriculum at the school and district levels from the standards-based to a competencies based framework provided at a national level, has been reported as weak and the implementation of KTSP as ineffective. The difficulties expressed by teachers to implement the KTSP 2006, was a key factor in the decision to develop a new national curriculum. Issues raised included that

- several standards identified for students to achieve were considered to be unachievable for most students;
- the standards expected of students in mathematics and science were not consistent with the requirements of international tests;
- the number of subjects in primary school was excessive; and
- there was 'over-crowding' of the curriculum.

1.2.3 Curriculum 2013

Given the widespread views that KTSP 2006 had not been successfully implemented, in 2012 the then Minister of Education announced a review and the development of a new curriculum for primary, junior secondary and senior secondary education. The Ministry wanted *Curriculum 2013* to

- be streamlined to address the increasing concerns that the curriculum was overcrowded (particularly in primary schools);
- gear up to support students to become independent learners with the capacity to think critically, communicate effectively, to work in teams and to foster entrepreneurship;
- address concerns that students were not receiving enough face-to-face teaching time;
- increase the time students spent at school; and
- increase the overall time allocated to character education, and to the subjects of civics and ideology and religious education.

Since its implementation however, *Curriculum 2013* has received many criticisms, and suggestions that it should be revised. A new version of *Curriculum 2013* has been prepared for phased implementation. It is anticipated that 25% of schools throughout Indonesia will start using *Curriculum 2013* in Grades I, IV, VII, and X, from July 2016.

This *Rapid Review* aimed to identify urgent changes that could be incorporated into the preparation for the school year, beginning July 2016.

Chapter 2: Review processes

The *Rapid Review Team* comprised four curriculum experts:

- two international experts (a visiting academic fellow from India, and an education researcher from Australia); and
- two national curriculum experts, from Sebelas Maret University, Solo, Java.

The *Rapid Review Team* spent two weeks in Jakarta during late May and early June 2016 to meet with relevant MoEC officers, and provincial and district personnel; review textbooks; and to undertake school visits; and subequently spent another two to three weeks reviewing documents either side of the meetings held in Jakarta.

2.1 Review processes

The following processes were used to conduct the *Rapid Review*:

- Preparation of a Literature review (see Appendix 1);
- Presentation of public lectures that presented case studies of curriculum reform in Australia and India, which were then followed by questions and answers (Appendix 2 includes a copy of the lecture about Australia);
- A small survey of participants who attended the public lecture (Appendix 3 provides the questions that were used in the survey);
- Meetings with personnel from the Ministry of Education including Puskurbuk and Paska (a full list of the scheduled meetings is included in Appendix 4);
- School visits to SD, SMP, SMA, SMK schools (a list of the school visits is also included in Appendix 4);
- Short reviews of syllabi, student textbooks, teachers' guides and other associated materials for the subjects of Maths, Science, Bahasa Indonesian and English;
- Attendance at an ACDP organised Press Conference on Teacher Networks held on June 8, 2016; and
- Document analysis.

Taken together, these multiple and concurrent approaches to the *Rapid Review* allowed for the Team to triangulate findings and to identify common themes that emerged from different sources.

2.1.1 Review of Curriculum 2013 documents

The Rapid Review Team focused on reviewing the curriculum documents for Science, Mathematics, Bahasa Indonesian and English, relevant for the grade levels in which *Curriculum 2013* is planned to be implemented from July 2016, (i.e. Grades I, IV, VII, and X).

These documents included:

- The syllabi which include the core and basic competency statements;
- Students' textbooks;
- Teachers guides;
- Assessment materials including tests of students' knowledge; and
- Other associated materials.

Where possible, the syllabi reviewed were those marked ‘draft, March 2016’. That is, those documents being finalized for use in the 2016-2017 school year.

These documents were reviewed to determine whether they met the articulated aspirations for *Curriculum 2013*. That is, did the documents support:

- student-centred, enquiry based learning;
- approaches to integration of the curriculum that addressed issues of overcrowding the curriculum; and
- were the ‘21st century skills’ embedded into *Curriculum 2013*.

The *Curriculum 2013* student textbooks were also reviewed to determine whether they were ‘user friendly’ by the students for whom they were intended. That is, were the *Curriculum 2013* documents ‘age appropriate’?

The review of the textbooks involved choosing at random, some chapters to try to understand to what extent and how effectively:

- student-centred, enquiry-based approaches were incorporated into the textbook;
- the degree of alignment between the basic and core competencies to be taught, and the respective sets of student and teacher resource materials (i.e. textbooks and teacher guides);
- the degree of alignment between the curriculum and the assessments administered; and
- the degree of alignment between the curriculum documents and the training provided to teachers and school principals to implement *Curriculum 2013*.

The review of the curriculum documents was undertaken by the respective members of the *Rapid Review Team*, and their findings are outlined in the following chapter.

3. Findings

3.1 Overall observations

The theoretical principles informing the development and implementation of *Curriculum 2013* are consistent with other countries' curriculum reforms and frameworks, which all aim at developing students' discipline knowledge as well as their general abilities for creativity, critical thinking; sifting and sorting information; using technologies and problem-solving. Most advanced economies around the globe are seeking to introduce enquiry-based, student-centred learning, with an emphasis on building students' character, by placing an emphasis on developing students' tolerance and acceptance of diversity, citizenship and democratic values.

As such, the strengths of *Curriculum 2013* include that

- The curriculum is focused on forming the character of each child and their generic capabilities;
- *Curriculum 2013* supports approaches to integrating competencies and topics;
- The approaches to learning are intended to build on local contexts and support flexible approaches to teaching and learning; and
- There are considerable resources allocated by MoEC for the production of textbooks, teachers' guides and training materials, in order to support the implementation of *Curriculum 2013*.

The *Rapid Review Team* however, has also identified some weaknesses in the development and implementation of *Curriculum 2013*, as well as having identified some structural processes that seem to be absent. Some of the weakness outlined in the coming pages have been generated as a result of the following processes:

- *Curriculum 2013* has been introduced without sufficient time or available mechanisms for trialing, feedback, review and improvement;
- *Curriculum 2013* is a centralized curriculum development without formal structures to allow input and feedback from teachers and principals in schools;
- Student textbooks tend to be over ambitious in the content that can be covered and the time required by teachers to implement them in classrooms does not seem to have been taken into account.

This chapter provides the results of the *Rapid Review Team* from their review of textbooks and associated teaching materials developed for use in Grades 1, IV, VII and X, to be used in 25% of Indonesian schools from July 2016; and their findings in relation to the implementation of *Curriculum 2013*.

3.2 Curriculum

The rapid review of the curriculum documents involved the following:

- identifying the production processes for the development of textbooks and other resource materials; and
- reviewing the curriculum documents for science, mathematics, Bahasa Indonesian and English.

The review of the curriculum documents was accompanied by a review of the implementation processes that accompany the curriculum documents.

3.2.1 Current curriculum development processes

The *Rapid Review Team* sought to understand the overall processes for the development and implementation of *Curriculum 2013*. It was not possible to access a 'flow diagram' that identified which parts of MoEC were responsible for specific roles in the development and implementation of *Curriculum 2013*, and so the *Rapid Review Team* itself prepared a flow diagram to enable a Ministry-wide, 'helicopter' perspective of the development and implementation of *Curriculum 2013*. This flow diagram is included at Appendix 5. An overview of the organisational structure for curriculum development and implementation is included at Appendix 6.

The following processes appear to be used for the development of student textbooks:

- the core and basic competencies generally are included as Appendices to syllabus statements, and these provide the competencies to be covered in each subject and grade level;
- a team of textbook authors (usually teachers in high school or university) write the textbooks;
- the draft textbooks are then reviewed by a team of reviewers (often from universities), and
- editors at Puskurbuk prepare the textbooks for printing.

3.2.2 Integrated curriculum

Curriculum 2013 specifies an integrated thematic approach for the lower primary school and provides a student textbook which includes the topics and activities for one semester. The *Rapid Review Team* reviewed the student textbook for semester 1 of Grade 1. The syllabus for the lower primary school (SD) is included in *Regulation 57, 2014*, as an Appendix to that *Regulation*.

In primary school, mathematics is supposed to be integrated in grades I to III and IV to VI, but for grades IV to VI, it is intended that there are supplementary books for both Mathematics and Physical Education. Natural science is taught from Grade IV to Grade VI, but the concepts of science and social science are expected to be integrated into the curriculum in Grades I to III.

Figure 1 below provides an illustration of how the model of curriculum integration is conceptualized.

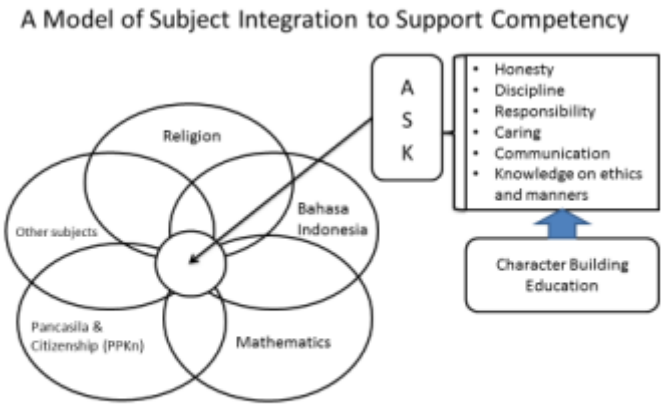


Figure 1: Model of integration for Curriculum 2013
Source: MoEC, 2012

3.2.2.1 Grade 1, semester 1 integrated textbook

The semester 1, grade 1 text book is printed and ready for use in July 2016.

A review of the competency statement and associated textbook showed that it is expected that students

- cover 8 themes in one year (i.e. 4 themes in a semester);
- there are 4 sub themes in a theme (i.e. there are 32 sub-themes in Grade 1 in a year);
- it is expected that 1 sub-theme will be covered in 6 lessons; and
- 1 lesson is the equivalent of 1 day.

The extent of the content to be covered is extensive within the time available. This text has assumed that students attend school for 6 days per week. This level of attendance is not the case across the whole of Indonesia. For example, most schools in Jakarta require students to attend 5 not 6 days per week. The textbooks state that the sixth lesson in each week is intended for 'enrichment', however in several sub-themes, the sixth lesson actually introduces new content.

According to the Regulations, junior primary students should receive a total of 15 hours of school-based tuition time, of which up to 2 hours per week can be allocated to religious studies. The textbook reviewed, aimed to integrate spiritual studies with literacy and numeracy and with physical education. Unfortunately, the approaches taken for several of the activities intended for active learning or for group activities, were superficial. Furthermore, many of the activities presented were passive or promoted rote learning, rather than being enquiry-based. For example, one activity in this textbook asks students to 'recite' content to each other such as numbers and spelling. A variation on this literacy and numeracy approach, is for the students to do certain exercises while reciting information.

The language in this textbook may be little more complex than is appropriate for the age of the children, and the textbook would benefit from the inclusion of explicit statements about what students should know and be able to do, using language that promotes active investigations suitable for lower primary or elementary school aged children. The images used in the textbooks do attempt to reflect a diversity of ethnic groups and races, and there is a reasonable balance between images of girls and boys. The concept of 'diversity' however, does not seem to extend to children with disabilities. There are no images of children or adults on crutches or in wheelchairs. Indeed the images all portray able-bodied people.

The review of this textbook did show however, that the overall presentation (i.e. text and graphics) are presented and published in a professional manner, taking into account the likely age of the students who will be using the textbook. That is, the textbook is presented appropriately with many illustrations and large print.

3.2.2.2 Grade IV student textbooks

There are 8 thematic textbooks for Grade IV and each book is voluminous, which teachers said they are expected to complete in one month. The full load of 8 books is therefore high for children of that age. Two of these student textbooks were carefully reviewed, on the theme of 'Energy' and 'Heroes'. The purpose of this curriculum review was to note if the thematic content had been developed using a child-centred and activity based approach, and if there were a genuine integration of ideas.

The choice of the theme on Energy is not appropriate for this age group as the concept is abstract and therefore tends to lead only to statements which are vague. For instance, in the reading passage, they have a story of "*Ali the Energy Seed*". However, it cannot help a child understand the concept of 'energy stored in a seed' just because it is being narrated in first person. The seed says *"sun gives energy to me. When I grow up and become a plant I will store energy in my roots, my leaves...."*. What does this mean to a child – *"I will store energy in my roots, my leaves"?* How? What is energy and how is it given, or stored?

The entire book is filled with such problematic statements, couched in a cosmetic child-friendly style without at all being conscious of the inappropriateness of presenting such concepts. Similarly, it goes on to define natural resources as renewable and non-renewable. It states that *"plants, animals, sun, wind, water are renewable because each of these is always available.... we can manage to produce and multiply it, to use it wisely and conserve it..."*. This is not correct. What does it mean to say we are able to produce or multiply the *"sun, wind, water, plants and animals*..."? (p. 6)

The questions that follow (p. 7) only require children to repeat these statements, even though not much sense can be made by them at this age:

> *3. Give an example of an economic activity that makes use of both types of natural resources.*
> *4. Write your opinion on the above example. What are its impact on the preservation of those natural resources? What can be done to preserve natural resources?*

The book then goes on to the topic of 'water as a source of energy' and address its uses and importance, adding that living beings have a right to clean water. The moral emphasis on 'rights and duties' seems very artificially forced in all these books. There are pictures of people using or wasting water and the questions asked are:

Do they get their rights? Do they do their duties?
In the table fill the differences between rights and duties.

In a following section on Electricity, there is a picture of an urban child sleeping on a sofa with the TV and other appliances running and the question asked is:

1. Do we have the right to turn on the TV?
2. What do we need to do before we go to bed?

To switch to mathematics these books often use contrived connections, such as, the sudden out-of-context statement that *"paper uses a lot of energy to produce"* – it uses many trees and water. How is that a use of energy? No attempt is made to ask or understand such statements, or even stop to think that the child may ask. It next moralises to say *"save paper to save energy".* And then it conveniently goes on to fractions, through an activity to divide a paper into 12 parts. This activity is followed by almost 30 pages of exercises on fractions, with no relation to the theme nor to their real life contexts.

Later there are more obtuse and inappropriate statements on Alternative Energy, where on p. 98 the book says:

"Water is a source of kinetic energy".
"Geothermal energy is from heat stored under the earth's surface. Earth is a huge source of heat energy".

Next it talks of sea waves, bio-fuels, and imparts much adult information on bio-diesel produced through the jatropha plant.

In a similar manner, the book on the theme of Heroes makes extremely contrived jumps to include topics on science and mathematics. On p. 6 it talks of King Purnawarman who built a water system. A sketch of a girl Dayu shows her watching her image reflected in a pond.

"Do you know why she can see her face?" "Water can reflect light. You will learn about the characteristics of light through the following experiment".

Much information on light rays is forced onto children after this, without realising that there is much research to show how abstract and difficult this concept is (Driver, Guesne & Tiberghien, 1985). Just giving experiments will not help children to understand what is light or what is a light ray. For instance, on p. 17 the book asks them to look at the light beam from a torch and answer the following:

"How is the direction of the beam formed?
Can you find the end point of the light? What can you conclude?"

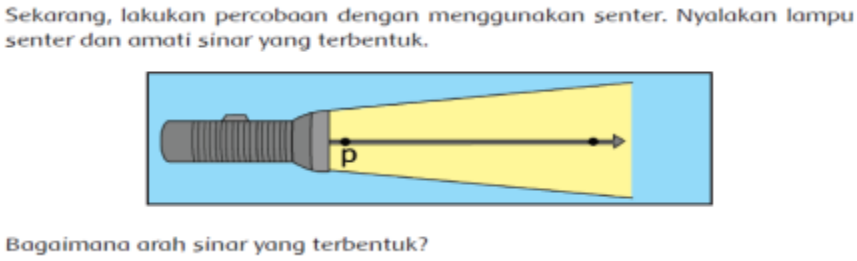


Figure 2: Student task: Grade IV – Light
Source: Grade IV textbook on light, (p17)

Clearly, it is most unreasonable to ask a child such questions when actually she only sees a diverging cone of light, no rays, no straight lines, and cannot conclude anything about the end point.

Even the book on a theme such as 'Plants and Animals' which is more amenable to thematic integration for young children, suffers from information overload and definitions which do not help children to understand phenomena such as photosynthesis, chlorophyll in the leaves, oxygen produced by plants. Therefore it is not only important to choose themes appropriately, but also to carefully plan the syllabus in terms of what concepts are feasible for children to learn through the new approach. Moreover, there is no need to have a full book on a single theme and so many books in one year. Different themes could run across the book and more effort should be invested to meaningfully integrate the ideas without forcing them in a contrived manner.

3.2.3 Teaching and Learning of Science and Mathematics

3.2.3.1 Process

We had met the team at the Curriculum Division (Puskurbuk) and held discussions with them to look at the revised textbooks for grades VII and X. It was a useful interaction where we discussed several issues which helped us realise the challenges the system faced in undertaking this major task. We noted that after the competencies and the syllabus had been made, the team of textbook authors (usually teachers in high school or college) had written the chapters. These were subsequently reviewed by the team of reviewers (from the University), and finally the editors from the Curriculum Division prepared them for printing. It is a good practice to give a brief profile of each of the writing team members of a textbook is given in its appendix.

As it stands, the editors do not seem to have much say in the process and could not respond to questions about why certain kinds of information had been included. They were open to discussion and during our interaction agreed that some information and activities were either inappropriate or even problematic. We had randomly chosen some chapters to try to understand to what extent and how effectively the learner-centred approach had been incorporated in the textbook.

3.2.3.2 Science

The discussion that follows for the Science curriculum is based primarily on the syllabus and a chapter from each of the two textbooks for **Grade VII – semester 1 and 2**. We saw the computer printed version of the revised textbooks and at first glance the quality of the photographs, especially those for the material on life-sciences, seemed of good quality. Substantial material is sourced from the Internet with the site indicated, though it will need to be carefully reviewed if all such information and illustrations are actually useful for learners at this age. Moreover, we saw very little socio-cultural diversity and the books seemed to dominantly represent urban life with barely any knowledge of and empathy for the majority living in diverse and disparate conditions across the country.

The basic competences for science are delineated for each class – for each of the two core competencies of knowledge (3.0) and skills (4.0). As may be seen from Table 2 below for Grade VII, there is often very little or even a contrived distinction forged between the two (knowledge and skills). So while the 'knowledge' competence is, say, 'classifying' living things, the 'skill' is 'presenting the results of classification.

Table 2: Selection of Core Competencies for Grade VII Science

CORE COMPETENCIES (KNOWLEDGE)	CORE COMPETENCIES (SKILLS)
3.1 Applying the concept of measurement for various magnitudes by using standard units (raw)	4.1 Presenting resulting data measurement with the appropriate measuring devices for oneself, other living beings, and objects around, using nonstandard and standard unit
3.2 Classifying living things and objects based on observed characteristics	4.2 Presenting the results of the classification on living creatures and objects in the environment based on the observed characteristics
3.3 Explaining the concept of mixtures and single substances (elements and compounds), physical and chemical properties, physical and chemical changes in everyday life	4.3 Presenting the results of investigation or work on the solution properties, physical and chemical changes, or separation of mixture
3.9 Analyzing climate change and its impact on ecosystems	4.9 Writing the idea about adaptation / mitigation of climate change issues

Chapters are written based on each of these so called 'basic competencies', which can be seen to be thinly veiled 'topics' taken from a more traditional syllabus, rather than science 'competencies'.

3.2.3.2.1. Science Grade VII (semester 1) Textbook: Klasifikasi Materi dan Perubahannya

A rapid scan of this chapter shows us that it covers a vast range of concepts from the area of Chemistry. In fact, the coverage is so rapid that it barely states these concepts as pieces of

information, or definitions. There appears to be little attention to how children, or even adults, actually make sense of these concepts.

If we look at basic competency **3.3 for Class VII,** it deals with the concepts of mixtures, compounds, physical and chemical changes. The corresponding **chapter 3,** in the textbook for Semester 1 is titled *Klasifikasi Materi dan Perubahannya* and runs, from page 92-133.

So the chapter races through the states of matter (Table 3.1 - characteristics of solids, liquids, gases), states of water; gold - extracted from ore, shaped into a bar and plated onto the dome of a mosque; elements, compounds, mixtures, colloidal suspensions, homogeneous solutions.

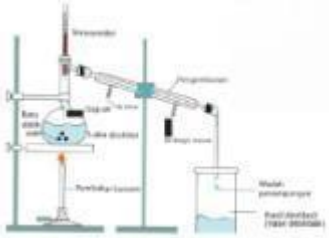
The book states that gold is an element, as when you break a clump of gold and keep dividing it again and again, you get an atom. It further goes on to state that many different elements exist in nature which you find in your daily lives – for example, iron, zinc, copper and nickel. It says

> *"you can see that (as in the case of gold) when iron pieces are sub-divided, the smallest obtained is an iron atom. Same is true for lead, zinc, copper and nickel. ..From this explanation it can be concluded that the elements are a single substance that cannot be broken down into simpler substances by ordinary chemical processes. The smallest part of an element is an atom".*

It has to be noted that the statement above about elements and atoms is neither an adequate nor an accurate 'explanation', and does not help children to understand these concepts. In fact, it is a conventional definition based on Dalton's theory postulated almost two hundred years back, and much work in this area has been done since to develop a deeper understanding of the particulate nature of matter. There is indeed a vast body of research in science education on this theme (Driver, et al, 1985; Harrison and Treagust, 2002), which is known to be extremely abstract and about which children continue to hold several intuitive misconceptions. Authors of textbooks should be aware of these matters.

Moreover, as this science chapter indicates, not much has changed in the way the curriculum is elaborated, despite the laudable aim to move towards a child-centred approach. The chapter burdens learners with 'information statements' about a host of difficult concepts. To illustrate, the Latin, Indonesian names and chemical symbols of elements, the periodic table, types of mixtures, atomic structure of compounds, acids, bases and salts, some chemical equations, ways of separation (ie filtration, distillation, centrifugation, sublimation, chromatography) are all presented without context.

Even where the book claims to invite children to 'let's do it' (see p113 *Ayo Kita Lakukan* which is an experimental set up for distillation), the suggested experiment is not one that is appropriate for class VII learners, and it is doubtful if schools can actually get children to conduct it. Instead, many simpler experiments on different methods of separation could be done by children using a simple apparatus.



"Mixture separation by distillation is used to separate a liquid substance from a mixture. The working principle is based on the different boiling points of the liquid substances in the mixture, so then every substance will separate itself when it evaporates."

Figure 3: Illustration of distillation from the science textbook
Source: *Klasifikasi Materi dan Perubahannya, figure 3.17, p113*

3.2.3.2.2 Klasifikasi Materi dan Perubahannya: *Chromatography*

Chromatography never fails to excite learners when, for instance, different types of inks are analysed to investigate what are the colours they are made of. But the book needs to be written in a style that addresses children, motivating them to understand how this method will help separate the different chemicals (dyes) dissolved in a mixture, even if we have a small amount of each. The children must want to find this out for themselves, and set up the experiment, to observe the different colours that climb up the paper to different heights and thus get separated, leading them to wonder why that happens.

> *"The method of separation by chromatography is widely used in several activities, including to separate various coloured matters and in a urine test when someone is suspected of using illegal drugs or when an athlete is suspected of doping. To understand separation by chromatography, do the following activity*". (p. 114)

That the colours are differently soluble in water and climb due to osmosis is a very difficult concept, and they cannot arrive at it by doing this experiment. It should be made clear that at this stage they are not expected to conceptually understand how and why chromatography works. But it is an interesting phenomenon to observe and can help relate to their curiosity and spirit of playing the role of a detective. However, the book deals with it in a mechanical manner which does not invoke a sense of exploration, and the experimental set up sounds complicated and it is likely that schools do not get all children to perform it.

It should also be noted that the book mentions the term 'solvent' without clarifying what that means and which one is to be taken, but many ordinary inks dissolve in water. The use of the term 'solvent' in this way, is a little mis-leading or confusing here.

3.2.3.2.3 Klasifikasi Materi dan Perubahannya: *Experiments*

We notice that there are very few experiments in the book, especially those that can be done by children, so the critical role of science to encourage observations, exploration, investigations, improvisation and experimentation, seems to have been lost. When activities are given with sophisticated apparatus, teachers will not be encouraged to let children use it, even though the book asks them to sit in groups and do the experiment themselves. To conduct meaningful group work, where children collaborate and discuss freely in their own language, addressing their intuitive ideas, through their own tentative ways to make sense of what they are doing, is challenging; teachers need experience and orientation to be able to understand the significance of meaningful group work and its efficacy in classroom processes.

The syllabus claim for detailed curriculum competencies of 'skills' not withstanding, the emphasis in the book remains on imparting definitions and statements, most of which are densely stated information for older learners and cannot be *understood* by children. This then compels them to resort to rote memorisation.

3.2.3.2.4 Science Grade VII Textbook - Semester 2

Similarly, in the Semester 2 book for Grade VII, **Chapter 4** on **Global Warming** (pp 68-82) consists of a barrage of statements, without checks being made for consistency or comprehensibility, or even accuracy. For instance, the opening paragraph begins with statements on unpredictable patterns of seasons and climate change and claims to offer simple and at times moralistic answers to some very complicated issues which even scientists today are grappling with. Moreover, while it is accepted that human activities contribute to pollution and global warming, the following statement unnecessarily mystifies and contradicts both science and history when it claims that:

> *"Almighty God had created the world with balance. Therefore, let us learn in earnest and try to preserve nature as a form of devotion to God Almighty in order to become an intelligent human who also cares about all creations of God"(p. 69).*

Historical and scientific studies suggest that the earth was not in 'balance' (whatever is meant here by that term), even as recently as 12,000 years back, when at the end of the last known Ice Age, it had begun to significantly warm up. It was only after this that humans could develop agriculture and begin to domesticate animals. The authors must therefore desist from using statements of belief that could be ambiguous and even contrary to basic scientific and historical knowledge.

The description of the first experiment on the 'greenhouse' effect (in *Ayo Amati* or *Let's Observe*, pp 69-70), suggests that the experiment has not been tried by the authors themselves, and would not yield the observations in the manner given. The book pretends to be 'doing experiments' without caring to see if those actually work, or even yield the correct conclusions.

The question (p. 69) 'Is there a difference in the two temperatures in Figure 4.1?' is confusing, because one can see no difference in the given figure. Moreover, the discussion and especially the conclusion expected after the experiment, as seen below, forces children to make an incorrect comparison between the 'space' in the covered jar with the Earth.

> *"Discuss*
> *1. Which thermometer shows higher temperatures during the experiment? Why is that? Explain.*
> *2. What happens when the two jars are kept away from thermal energy sources? Explain.*
> *3. Try to associate the experiment you've been doing with how the principle of greenhouse gases works.*
>
> *Conclude*

What conclusions can be drawn if the space in the jar is analogous to the Earth?" (p69).

It must be noted that technically the 'greenhouse effect' that causes the warming of the atmosphere by what are called 'greenhouse gases' is different from the heating of the air in a glasshouse or 'greenhouse' by the rays of the sun, even though the same term is popularly used by scientists. There is a lot of information almost thoughtlessly given in the following pages (pp72-77) which is too complicated to be understood at this age and in this manner, and which on p. 73 there is even a wrong list 'water cycle' (*siklus air*) instead of water 'vapour' along with carbon dioxide, as some of the gases that cause the greenhouse effect.

Just rattling off terms and phrases such as: UV or infrared radiation re-reflected by the Earth, greenhouse gases being transparent to certain kinds of radiation; heat trapped causing the temperature of the Earth to rise; does not allow any consistent conceptual understanding to develop at this stage.

Giving confusing and incomprehensible statements only reinforces the perception that school science involves much meaningless repetition of information in jargon that sounds impressive. Not much thinking is promoted and most questions or even observations to be made have the answers provided in the book itself. In such a situation, where will the higher order thinking or deeper level understanding come from?

3.2.3.2.5 Teachers' Book for Grade VII Natural Science

The *Teachers' Book* begins with a detailed discussion on the processes of learning science and the importance of facilitating learners to construct knowledge themselves. The ideas of indirect teaching of competency 1 and 2 however, can be ambiguous and confusing for teachers, and even lead to a contradictory pressure to somehow relate spiritual belief with scientific knowledge. Instead, teachers are encouraged to nurture spiritual and social behavior through indirect teaching during the learning processes, regardless of the content material being taught.

There are suggestions about integrating knowledge in an interdisciplinary manner but the textbooks do not follow this approach, so expecting teachers to creatively do this would be challenging and even unreasonable. The book mentions 'indicators' and 'learning objectives' (listed on pp28-29) which are almost the same, and seem articulated in a traditional behaviourist manner. The rest of the *Teachers' Book* deals with the content of each chapter of the students' book and is similarly full of definitions and information without necessarily helping teachers make sense of the phenomena or activities.

3.2.3.2.6 Suggestions

There is need for discussion on how children think and learn about some concepts or the alternative frameworks they bring with them (say, on the particulate nature of matter, or on heat and temperature as given in Driver et al, 1985). Teachers are generally not exposed to such research and find it useful to know about what kinds of observations or activities, in the classroom or from their daily experience, can help students to grapple with their intuitive notions and enable them to construct new ideas.

Teachers also need concrete suggestions on how locally available materials can be used for some activities. More significantly, they need examples on how they can contextualise the issues to relate to the diverse socio-cultural backgrounds of children from different parts of the country. *Teachers' Books* thus need to play a crucial role to promote a deeper understanding of learners and the new pedagogies, where learners are encouraged to actively construct knowledge instead of being subjected to a barrage of inappropriate information. Only mentioning such principles of learning at the start of the book does not make sense, if the content of the chapters that follow in the *Teachers' Book* are not consonant with the approach proposed.

The *Teachers' Books* must motivate them to develop their own understanding of the concepts, and help them improvise activities, experiments, and projects within different local contexts. In addition, they must provide cross-cultural perspectives about the nature of science (Abd-el-Khalick & Lederman, 2000), engaging historical narratives on how scientists work in the real world (Derry, 1999).

Especially in the context of countries such as Indonesia, where issues of equity and cultural diversity are significant (Lee and Buxton, 2010), the *Teachers' Book* and textbooks must locate science not as a culture neutral enterprise, but must sensitively develop perspectives on the interface of science-technology-society (STS) (Aikenhead, 2006; Cobern & Aikenhead, 1997; Rampal & Mander, 2013;), through interdisciplinary themes that impact the contemporary teaching and learning of science.

3.2.3.2.7 Science Textbooks for Grade X

The Curriculum Division does not produce textbooks for Grade X Physics, Chemistry and Biology which we were told is left to private publishers.

The basic 'competencies' again seem only topics from a traditional syllabus which is overloaded with information dictated by a disciplinary framework rather than a learner-centred one. In fact, developing a syllabus and textbooks from a new approach for this stage is much more challenging. To improve the teaching and learning of science in high school and, subsequently, at higher levels, a serious national effort needs to be made. Puskurbuk must play a significant role in carefully identifying resource persons and orienting them to the new pedagogies and vision, instead of abandoning it to private publishers who are unlikely to invest effort or resources for this purpose.

3.2.3.3 Mathematics

We know that the curriculum for mathematics, the world over, poses a serious challenge to educators. It forces many to develop low self-esteem and to drop out of school, even in developed countries. The mythical assumptions of its 'universal curriculum' render it as a universal gatekeeper', even at the entry level for vocational work or study, to restrict the universal participation of young people towards developing the diverse creative talents and knowledge of society (Hacker, 2016). There is an urgency to make it more learner-centred, connected to diverse lives and cultural contexts, especially till the stage it is compulsory for all (Boaler, 2008), as it creates palpable anxiety among most learners (even adults, long

after they have stopped taking mathematics exams).

A learner centred mathematics curriculum not only requires a deeper understanding of learners and the ways they learn, but a strong commitment to move away from the hegemony of unreasonable disciplinary demands, which have even caused 'math wars' between educators and mathematicians. More than being a concern for improving national economic productivity, the challenge manifests as a basic child rights issue, to develop 'mathematics for all' such that it engenders an ethos of dignity and justice for all.

Several studies have been done to understand the processes of learning mathematics in and out of school, in contexts of work and life-related activities (Nunes, Schliemann & Carraher, 1993; Resnick, 1987;). These have shown that unschooled “street children” often performed sophisticated 'street math' using contextualised reasoning and situation-specific strategies of shared cognition, while they performed poorly in school, where learning focussed on individual cognition, abstract thought and general principles. Rigid rule-bound solutions, taught in formal schools provide learners with procedures and algorithms that do not carry meaning or help them solve problems in practical contexts. In contrast, the strategies they develop while ‘doing mathematics’ in everyday contexts are flexible and help them to stay close to the meaning of the situation, and to the quantities involved (Rampal, 2003). Socially responsive mathematics curricula thus draw upon theories of how people continue to perform well in unschooled life situations and develop context based syllabi and textbooks.

Mathematics teachers are especially ill prepared to deal with children coming from disadvantaged and diverse cultural backgrounds, owing to their deeply entrenched beliefs about math being only for the 'talented', not for these 'slow learners' (Black, Mendick &Solomon, 2009; George, 2014). Seeing their poor performance in standardised procedural exams or international tests lends legitimacy to their conviction that they are dealing with those who need only minimal facility with numbers for 'their' everyday lives. The challenge to change teachers' beliefs and classroom approaches is demanding and a system has to create forums for mathematicians and educators to continue to work together in this endeavour.

Indonesia has had a history of mathematics education reform with a major Dutch funded program (during the period of 2001-2013), to work on a context based approach in a local version of *Realistic Mathematics Education* called PMRI, which began with 12 schools and went up to 300 schools. Detailed standards developed for a 'PMRI Teacher', a 'PMRI Lecturer', 'PMRI Lesson', 'PMRI Learning Material', a 'PMRI workshop' and 'PMRI Local Centre' (Haadi, 2012), suggest that, though the general principles should have influenced the overall math curriculum, there seemed to be a tendency for 'branding' each and every component, keeping it somewhat exclusive from the system. Therefore, though many persons would have been involved in the long project, the shift in thinking about mathematics curricula to a more child centred or context based manner, is not evident in the new 2013 textbooks.

3.2.3.3.1 Basic competencies and the mathematics textbook

The lack of a vision to reconceptualise the mathematics curriculum was evident in our discussion with the Puskurbuk team. We asked about how the revised books were different from the earlier ones and got responses that focused only on minor changes, such as correction of mistakes based on teachers' feedback, or reorganisation of some specific 'competency' in a class. Such as, statistics was first in grades 7 to 9 but is now only in grade 8. Here again we see the same problem of naming conventional topics as 'competencies', without really questioning why, and especially how that needs to be included.

Even what was called an 'activity' was restricted and did not really qualify for that epithet. To illustrate, in the Class VII Semester 1 book, in Kegiatan 5.2 (p. 14), there area a set of statements given, and the child is asked to identify which one of the statements is different. In fact, each one of the statements is different, and the question is unnecessarily confusing. So the bulky textbook (for Class VII, the textbook for each semester comprises about 350 pages) continues to look intimidating, riddled with a host of symbols, formulae or diagrams, without much else. The few and far between photographs seem to have been placed in a superficial manner, to display some real life connections. However, even on a cursory glance, that 'reality' was suspect: a 'farmer' posing with a fancy tie (p. 193), struck as far from real, and turned out to be the author himself, with his name repeatedly occurring in several examples through the book. The woman and child with apples (p. 197) look European and were probably accessed from the Internet. There were also other problems, such as a mismatch between the examples given in the students' book and the teachers' book.

As in the case of science, the mathematics 'core competencies' too are only a list of topics from a conventional syllabus. Table 3 illustrates some of the core competencies required for **Grade VII**.

Table 3: Selection of Core Competencies for Grade VII Mathematics

CORE COMPETENCIES (KNOWLEDGE)	CORE COMPETENCIES (SKILLS)
3.3 Explaining and defining representation of numbers in the form of exponential number of positive and negative	4.3 Solving problems related to numbers in the form of exponential number of positive and negative
3.5 Explaining algebra and performing operations on algebraic form (summation, subtraction, multiplication, and division)	4.5 Solving problems related to operations on the algebra and algebraic form
3.9 Identifying and analyzing various situations related to social arithmetic (sales, purchases, cuts, profit, loss, single rate, percentage, gross, net)	4.9 Solving problems related with social arithmetic (sales, purchases, cuts, profit, loss, single rate, percentage, gross net)

An attempt is made to include some historical narratives into the *Mathematics textbook*, but the text is sourced from Wikipedia, and only gives terse information to an adult reader, say, about Al-Khwarizmi, Fibonacci or Einstein. These can be much more engaging and central to the theme of a chapter, rather than only as incidental appendages. Moreover, much needs

to be done to transform the discourse of the *Mathematics textbook*, to improve the selection of content, its linguistic and visual style, using diverse genres.

The textbook form must change so that its voice resonates with more contextual 'lived' resources (Gueudet, Pepin & Trouche, 2012) of all children of the country. It must include diverse genres of expressive narratives, folklore, humour, fantasy, auto/biographical stories, 'real' documents such as household recipes, travelogues, diaries, letters, electricity bills, birth records, and tentative, tacit and exploratory representations. Mathematics needs to be animated by moving away from conventional illustrations which offer stereotyped and monotonous images, to diverse representations including folk and tribal art, dynamic photographs, children's art, cartoons, and contemporary art informed by multicultural sensibilities (Rampal, 2015). Each page can be designed as a visual text, so that it is processed by children more naturally and actively, in a non-linear manner.

A major shift on these lines was made in India for the national primary mathematics textbooks (National Council for Educational Research and Training (NCERT), (2006-2008) reprinted in 2015. Some special chapters were also developed as thematic units integrating concepts already learnt, to deal with real life issues of work such as that of brick masons or fishworkers, the entrepreneurship of a woman junk seller, on heritage, craft knowledge, history of monuments, and pre-historic cave paintings. The context was chosen to represent the true and often inspiring lives of 'ordinary' people as protagonists from diverse socio-cultural backgrounds.

Most conservative math and science curricula do not acknowledge the importance of culture in the process of learning, and allow at best a tokenistic approach where 'celebratory' multicultural representations are limited to viewing diversity through the lens of the essentialised 'other', without critical engagement about issues of 'difference', discrimination and even dominance. However, the path towards *Education for All*, with the new *Sustainable Development Goals* 2015, must keep us committed to respect culture and indigenous knowledge. Sustained efforts need to be made to effect meaningful curricular transitions from the home to school, primary to junior high and then high school, and further from school to life beyond, at the University or the workplace, or even the other way round, always recognising that these transitions should be smooth and enabling (Rampal, 2015).

Teachers' books have the major responsibility to creatively orient them to the new perspective, the approach and the curriculum structure. They need to give concrete reasons and ways of dealing with concepts differently, encourage observations about students' thinking, suggestions for out of class activities, making them look for lived resources in specific cultural contexts, and persuading them to promote democratic participation in math classrooms in place of the existing authoritative modes of transmission.

3.2.3.4 Concerns about compulsory math for SMK Grade X – for vocational education

We visited a SMK to meet teachers of the vocational education courses and those who had conducted teacher training sessions. There was a discussion on the problems of the general English and Math curricula which were mandated to be the same as those for the SMA stream for academic high school. In fact, the visiting team members on the review were

taken aback at the mathematics SMA textbook which showed topics not only irrelevant for a student of the vocational stream but also for students of the SMA. There were intensive sections with pages and pages on logarithms, integral calculus, trigonometry and matrices. How many of us use these in our lives – in work or as academics? When specifically asked, the teacher said the students found it very difficult and resorted to tuition and guide books by private publishers.

The moot question here is why is the onus on the individual student, instead of the Pukurbuk and the curriculum developers or authors, who have not addressed this challenge. The writers should decide what math a student of business administration or hotel management would find engaging and useful in that field, and to creatively develop a curriculum around that. This is not a question of downgrading or 'diluting' the mathematics for a student from a vocational course, but to understand and respect other fields and knowledge domains, and work towards the math that can empower them.

3.2.3.4.1 Curricula to integrate work and education: some considerations

The SMK we visited had a beautiful spacious campus and a large teaching staff. It ran two courses: hotel management (as part of tourism) and business accounting. The laboratories however, needed to be better equipped. These facilities seemed to be full of toy-like tokenistic apparatus, such as toy telephone intercoms to make students of hotel management pretend to be receptionists, or several unimaginative tools. The library too did not have a very inspiring collection of books or videos. Rather, it was piled with exam guidebooks by private publishers.

We were told there was a demand for such courses, and their students received good placements in well-known hotels abroad. However, what kind of curriculum can enable students to link reflective praxis with meaningful and engaging theoretical knowledge in say hotel management? The teachers themselves needed to grapple with new ideas and found that the expectations of the new curriculum were not clear, especially on relating skills to analysis and knowledge while teaching, or conducting the evaluation of their students' learning. They frankly expressed that the training had been too rushed, even 'inhuman', as one teacher confessed, who has himself been a trainer.

There is growing pressure on national systems to focus on 'skill development'. As a result, courses in vocational education are being designed more by persons from the industry, to cater to their demands, with hardly any 'educational' considerations taken into account. While this might seem to provide funds and sponsorship to the SMKs and better employment opportunities to students entering that particular industry, there are questions that have to be asked. For instance, in our meeting we were told of the SMK for motorcycle engineering run under the monopolistic control of the Yamaha company, which did not even allow components from elsewhere. Yamaha conducted quarterly evaluations themselves, not through the teachers. It was reported that in most other cases the industry was not actively involved with SMKs, and even when students went for field work they came back without learning much, and with only a superficial feel of the workplace. These experiences raise pertinent issues about the role of the industry; especially in the case of monopolised SMKs sponsored by a company. It is worth questioning if public funding should be used to provide trained labour at 'low-cost' for the industry.

The *Education for All* report (United Nations Educational, Scientific and Cultural Organization (UNESCO) 2005) noted that indigenous curricula to promote 'education for production' were developed in several countries such as Ghana, Botswana, Cuba and Vietnam. Cuba, acknowledged to be among the few countries with high quality education for all, has long emphasized developing the whole individual by linking education with life and work.

> *"Giving children productive responsibilities, a typical educational feature of pre-literate agrarian societies, is usually lost in western schools, which traditionally deposit all authority and responsibility with teachers and encourage passive attitudes on the part of students"* (Gasperini 2000 p. 13).

How is a 'good' curriculum meant to integrate life with education and work? Does the curriculum of vocational education serve to further differentiate the 'ability vs skill' divide between the status of students from the general and the vocational streams, reinforcing social perceptions?

A study in the Republic of Korea identified that curriculum reform to morally engineer aspirations in the name of national development without addressing people's work subjectivities could result in a hegemonic project, to mechanically impose 'less challenging' manual work without the State making consonant academic and financial investments in good quality vocational and technical education (Cho & Apple 2003). In the 1990s the State attempted to augment labor shortage through a program for 'career education' by its Department of Moral Instruction, as a way to keep people from pursuing 'irrational' aspirations for college education, and retain them as industrial workers. However, flexibility in terms of basic and common knowledge skills meant to help students adapt to rapidly changing work structures, as opposed to the earlier vocational education model of specific job skills, were seen to append a further disqualification to the curriculum that was popularly perceived as "3D - difficult, dangerous and dirty". Curriculum development, especially for vocational education perceived as 'low status and less academic' therefore calls for a continuous dialogic negotiation between selections of knowledge worth knowing, and public validation of such knowledge (Rampal, 2010).

In low-income countries like India, vocational education curricula remain less sought after, perceived as meant for the non-academic 'backward learners', even while working class families despair that schools alienate their children from their own craft, vocations and livelihoods. More often, institutes or polytechnics that offer such courses are not creatively or academically engaged with education or curriculum development, and in some cases placed under the Labour Department. In the renewed globalizing discourse of the 'brain vs body' skills, where creative '21st century skills' are competitively sought for curricula in industrialized countries, almost justifying the outsourcing of 'low-skill' jobs to low-income countries, there lies an urgent challenge for countries such as Indonesia and India to design indigenous vocational curricula with an innovative and academic 'higher order skill' edge for the majority, and also creatively incorporate artisanal and craft knowledge (Rampal, 2010).

3.2.3.5 Assessment in School Exams and Performance in International Tests

There have been concerns voiced about how children of Indonesia perform poorly in science and mathematics (Wijaya, 2015) on international tests such as PISA and TIMMS. Even a

cursory look at the assessment pattern of those tests (Organisation for Economic Cooperation and Development (OECD), 2009) shows the completely different nature of questions on 'mathematical literacy' or 'scientific literacy' (Bybee, 2009) with challenging expectations from students to be able to think creatively, to exhibit different levels of conceptual understanding and sophisticated abilities to analyse information from real life contexts.

Comparative studies of students' performance in the *Programme of International Student Assessment* (PISA) tests show that the curricula of better-performing countries teach fewer topics more deeply, and develop abilities to find or generate information, conduct investigations, undertake school-based tasks and research projects, analyze and synthesize data, apply learning to new situations, self-assess and improve one's own learning, present written and oral reports, work in teams, and also learn independently. A comparison of the testing pattern in the United States (US) with high-performing countries shows that while the US tests mostly use multiple choice items that evaluate recall of discrete facts, the higher-performing countries use largely open-ended items that require application of knowledge, and extensive writing (Conley & Darling-Hammond, 2013).

When the Indonesian textbooks do not follow such an approach towards science learning, and the annual school examinations consist of narrowly framed multiple choice items, as can be seen from the annual examination paper for Grade VIII (see Appendix 7). It is extremely unfair to expect children to undertake such international tests, with the types of preparation currently being seen in Indonesia.

The situation is similar, if not more serious, in the assessment of mathematics. The dissonance of the school curriculum with the content and format of assessment in *PISA*, which focuses on 'mathematical literacy' and context based learning, or even with that of *Trends in International Mathematics and Science Study* (TIMSS), is very marked.

> *There thus needs to be a serious reconsideration of the national policy which subjects children year after year to such exacting international tests, that can demoralise them and their teachers. The system is not geared to those modes of learning and assessment, and first needs to invest time and effort to restructure its curricula - including syllabi, textbooks, teacher preparation, and assessments - without using children almost as guinea pigs to repeatedly mirror its own problems.*

Moreover, it is important to note that academics have raised concerns regarding the undue pressures exerted on national policies by these competitive 'testing regimes', which tend to distract countries from meaningfully focusing on longer term measures to address their own priorities and cultural contexts (Breakspear, 2014). Calling for a halt on further *PISA* testing, eminent educationists from OECD countries wrote to the Director in 2014, questioning the role of the Organisation in shaping education policy around limited economic aims, often at the cost of democratic participation and other humanistic goals, as the following extract from that letter illustrates:

> *OECD has embraced 'public-private partnerships' and entered into alliances with multi-national for-profit companies, which stand to gain financially from any deficits - real or perceived - unearthed by PISA.....We are deeply concerned that measuring a great diversity of educational traditions and cultures using a single, narrow, biased yardstick could, in the end, do irreparable harm to our schools and our students* (The Guardian, 2014).

3.2.4 Bahasa Indonesian: Syllabus (Grade 1, 4, 7, 10)

In this Rapid Curriculum Review, the focus in this language section will confine its attention to a review of the curriculum for Bahasa Indonesia and English. However, on a more general note, a major concern is the relative unimportance given to making students literate in a nation with a vast diversity of mother tongues. There is but scanty reference to this multi-lingual reality in the curriculum:

> "*the allowance for students to use their "local languages" to assist them in their early stages of learning Bahasa Indonesia is to be commended".*

Despite compelling evidence that children in many parts of country (particularly in rural and remote and indigenous areas) who speak different indigenous mother tongues at home have difficulty in the early grades with Bahasa Indonesia and that this can be a major reason for repetition and dropout, the use of the mother tongue as a bridge language of instruction is not developed, particularly the Mother-Tongue Based Multi-Lingual Education (MTB-MLE) approach used widely throughout the world in the early grades as an effective way of creating literacy and numeracy in the first language before bridging to the second language in Grade 3. Government policy does support the use of local languages in classrooms and there is explicit reference to this in the RPJMN. The curriculum should therefore offer both acknowledgement of this and guidance on the most effective approaches to be used.

Teaching children to read at a young age is the cornerstone of keeping children in school and improving educational outcomes. Children who do not learn to read in the early grades struggle to develop more advanced skills, which are often absorbed through reading. The Curriculum pays very little attention to **Reading skills**. It is assumed that children come to school already as readers and the Grade 1 curriculum and textbooks for Bahasa Indonesia do not include a systematic approach to the development of literacy in these early grades. A thorough "**Foundation to Literacy**" program should be presented in Grades 1 and 2 starting with phonics/"look and say" and other sound-letter approaches merging into developing basic literacy and thinking skills in Grades 2 and 3. The curriculum content is a jumble of topics, situations, functions, skills and structures whereas what is needed is a system of developing letter-sound knowledge, word knowledge and simple decodings which are targeted at building emergent literacy skills – in Bahasa Indonesia or in the mother tongue – by the decoding of letters into sounds and the gradual development of basic literacy and the

encouragement of an enjoyment of reading and a reading habit among students. This early grade literacy boost should be accompanied by reference to the need for early grade reading assessments such as EGRA or the ASER individually administered oral reading tests developed by Pratham in India, all of which have been used in assessing early literacy in Indonesia.

3.2.4.1 Overview

The Bahasa Indonesia *Curriculum 2013* has been developed purportedly based on the concepts of the scientific approach, genre-based approach, and Content Language Integrated Learning (CLIL). While the genre-based approach and Content Language Integrated Learning are common approaches adopted in communicative approaches in language learning, it is unclear how the scientific approach is relevant to the language curriculum. The "scientific approach" relates to an inductive method used in the discipline of science, specifically to acquiring new knowledge through a process of inquiry, questioning, critical reasoning, use of evidence, formulating hypotheses, and making observations. Presumably, the intention is for this approach to be applied somehow to the language curriculum to reflect the promotion of active learning in the classroom. However, this would seem conceptually misguided applied to subject area in which the aim is to make students highly interactive and engaged in authentic communicative activities by using language in real situations. This is yet another example of how a principle "introducing the scientific approach or method" can be applied inappropriately to a discipline in a contrived manner which can only result in confusing teachers and students.

The main drive for the development of the *Curriculum 2013* is that the government of Indonesia has realized the issue of global competition demands high quality human resources. The *Curriculum 2013* of Bahasa Indonesian aims at building four core competencies: spiritual (KI 1), social behavior (KI 2), knowledge (KI 3), and skills (KI 4), which are then used as the basis for developing the basic competences for the respective core competency. The division of competencies into four core competencies is the most prominent aspect of the *Curriculum 2013*, together with the emphasis on authentic assessment. In *Curriculum 2013*, 'authentic assessment' refers to a form of assessment in which students are asked to perform real-world tasks that demonstrate meaningful application of essential knowledge and skills. Curriculum documents, which include the regulations, core and basic competency documents, syllabi, textbooks, and teacher guides are prepared nationally to provide Bahasa Indonesian teachers with legal support, information, models of using the textbooks, and guides to implemeting the *Curriculum 2013* in their respective school contexts.

Despite the three theories supposedly underpinning the development of the *Curriculum 2013* of Bahasa Indonesian, and the support by the Ministry of Education and Culture (MoEC), some concerns over the complexity of teaching and assessment procedures have been raised by teachers. The Bahasa Indonesian curriculum is seen to have been 'atomised' through the division of the Bahasa Indonesian curriculum into the four competencies. This artificial structure has resulted in a massive impact on the development of relevant curriculum documents of Bahasa Indonesian, including the student textbooks and teacher guides. It has also influenced the assessment procedures as indicated in the assessment guides. Without proper assistance, Bahasa Indonesian teachers are likely to consider the Bahasa Indonesian pedagogy information provided in the curriculum documents as the only

"model" to be used in classrooms. Hence, several practical models of teaching, assessment, as well as ongoing assistance for teacher professional development, need to be considered.

3.2.4.2 Competency document (Core and basic competencies)

The core competencies (KI) to be achieved in Bahasa Indonesian through *Curriculum 2013* are similar to other subjects, namely: spiritual, social, knowledge, and skills competencies, with the first two core competencies to be taught indirectly. Indirect teaching means that spiritual/religious and social values are developed indirectly through the learning activities about the knowledge and skill of Bahasa Indonesian; and the Bahasa Indonesian teachers are not obliged to provide scores for the spiritual and social competencies.

One issue about the competencies in Bahasa Indonesian is that of developing language as a means of communication where students should be able to listen, speak, observe, read, and write effectively in polite and acceptable manners. Through the genre-based approach, texts become the focus to teach Bahasa Indonesian. Basic competencies of grade 7 and 10 is dominated by monolog text such as describing, explaining, reporting, and others. Texts such as, saying sorry, asking for help, and complimenting another person, are placed at the Grade 1 only. The concern with this approach is on the habituation and the ability of students to build interpersonal language functions to promote the social and spiritual competencies.

Vocational Schools (SMK) develop the same competencies of Bahasa Indonesian as those used in the SMA curriculum. This concept is questionable since the content of Bahasa Indonesian in SMK consists of nine areas of expertise (Technology and Engineering, Techniques of Information and Communication, Health, Agribusiness and Agro-technology, Fisheries and Maritime Affairs, Business and Management, Tourism, Arts and Crafts, and Performing Arts). These are not the same characteristics required by SMA graduates. As an example, SMK students in the expertise of Information and Communication Technology (ICT) may not require the the competencies to understand, write and appreciate poems as required for SMA students. From the school visits and an interview with an SMK teacher, it was revealed that SMK teachers have to develop teaching materials and assessment tasks for Bahasa Indonesian, that are suited to the SMK student needs. The problem is that when SMK students undertake the National Exams they have to take the same exams as being undertaken by SMA students. This case may affect the low scores in the national exams by SMK students. Consideration should be given to preparing National Exams that match the expected teaching in vocational and senior secondary schools.

From the competency document, teachers are provided information about the scope of the materials, and the time allotments for the content of the Bahasa Indonesian curriculum (i.e. 8 lessons per week for SD, 6 lessons per week for SMP, 4 lessons per week for SMA/SMK, and 3 lessons per week for SMA/SMK Peminatan). One issue in relation to the time allotments is whether they are sufficient for the teachers and students to be able to cover all the basic competencies required. As an illustration, there are 11 basic competencies of knowledge and skill for Grade 1; 10 basic competencies of knowledge and skill for Grade 4; 16 basic competencies of knowledge and skill for Grade 7, and 18 basic competencies of knowledge and skill for Grade 10. It would seem that the amount of lesson time stipulated may not be enough to cover all the competencies.

Although the spiritual (KI 1), social behavior (KI 2) competencies are meant to be taught indirectly in the class and teachers do not provide scores, Bahasa Indonesian teachers are still required to inform teachers of the Civic Education and the Religious Education subjects of students' achievements of the KI 1 and KI 2 competencies, by assessment journals of K1 and K2. Hence, Bahasa Indonesia teachers need direction about the implementation of the spiritual (KI 1), social behavior (KI 2) competencies as they are intended to be promoted through the teaching and learning activities in Bahasa Indonesia. As a example, a list of possible topics/learning activities to cover in the spiritual (KI 1) and social behavior (KI 2) competencies could be inserted within the competency document of Bahasa Indonesian.

3.2.4.3 Syllabi (Grade 1, 4, 7, and 10)

Learning Bahasa Indonesian as mentioned in the syllabus document of Grade 1, 4, 7, and 10, aims to develop the attitude, knowledge, and skills necessary for learners to communicate in education, employment, and social environment, through the ability to listen, speak, observe, read, and write.

The approaches underpinning Bahasa Indonesian *Curriculum 2013* are genre-based, scientific, and Content Language Integrated Learning. While the genre-based approach makes texts the focus of the subject, it is important to remember that genre has meaning and social purpose, not just the physical form of a text. Therefore the language elements such as vocabulary, grammar, or other characteristics should not be taught separately from the structure of the text or from the aural and oral communication aspects of the subject.

Through the genre-based approach, teachers are asked to lead students to:

- set the context and build the field;
- model and deconstruct the texts;
- undertake the joint construction of texts; and
- undertake the independent construction of texts.

The scientific approach is carried out through: observing, questioning, associating, experimenting, and communicating. The syllabus states that scientific approach can be used to develop the knowledge competency (Basic Competency 3). Content Language Integrated Learning approach is used to enrich learning through content/text, communication, cognition, and culture. To be able to synergize these approaches, teachers require good comprehension of the concepts and stages of respective approaches; how to put them together in a lesson; and guidance about how to decide which approach takes bigger portion of class time, in order to meet the requirements of a certain competency.

The syllabus of Bahasa Indonesian for Elementary School (SD) Grade 1, on the other hand, distributes the topics into more element-based approach to the teaching of language, such as sounds, vocabulary; and skills of language, such as reading. In the class, such distribution can be misleading as it detract from the concept of texts as a tool for communication that have social purposes.

Another concern is that unlike the English subject, Bahasa Indonesian has not been implemented a genre-based approach until recently. As such, the level of teachers' comprehension about the approach, and their limited readiness to implement the approach in class, should be anticipated. Challenges that may be encountered by Bahasa Indonesian teachers over the implementation of genre-based approach could include teaching the text structure instead of a text as a means of communication.

The Bahasa Indonesian syllabus also requires teachers use authentic language learning materials - language materials that were originally intended for native speakers, not second-language learners, and at the same time, to apply active student learning approaches. To meet these requirements, teachers have to understand what authentic material is, so that students have exposure to real language use and its use in their own communities. Teachers also have to be able to identify the sources from which to retrieve the authentic material for use in the Bahasa Indonesian classes (e.g. newpapers, train schedules, videos, and so on). Likewise, a lack of knowledge by teachers of active learning concepts may mean teachers are actually able to achieve this in their teaching. Interviews with teachers in the school visit indicated that overgeneralization of the concept of active learning means that teachers take it for granted: "as long as students do something in the class", then teachers perceive this as an active learning.

3.2.4.4 Student text books

Grade 1 textbook

Beside the three approaches of genre-based, scientific, and Content Language Integrated Learning, the Bahasa Indonesia curriculum at the elementary school also adopts an integrated, thematic approach. With this approach, in the student text books of Bahasa Indonesia Grades 1 and 4, the presentation of Bahasa indonesian is integrated with other subjects, such as: Sport and Physical Education, Civic Education, Handicraft and Culture, and Mathematics. The complexity of the design of this curriculum is very complicated for teachers to interpret and put into practice.

The presentation of the student text books however, have been considered carefully, so the characteristics of the children in the textbooks are colorful, the text is simple, and the books use illustrations with which students are likely to familiar, for example, there are illustrations of several students at a school.

Semester 1, Grade 1 has four major themes, each of which is elaborated into 4 sub-themes. One theme is developed into one student text book and an associated teacher's book. One sub-theme consists of six lessons, and one lesson is supposed to be conducted in one day. On average one book and one theme is taught in one month. Every sub-theme is completed with a checklist that the students, with the teacher's assistance, complete about the competencies they think they have been achieved. This checklist is simple, easy to complete, and helps students and the teacher to reflect on students achievement and the learning process. This useful checklist will help teachers better if completed with options of strategies on how to handle the situation when students are not able to complete all the competencies set in each sub-theme.

Comparing the Bahasa Indonesian student textbook to the syllabus document, the four themes of Grade 1 address almost all 11 competencies for KI 3 (knowledge), and the 11 competencies for KI 4 (skill). What is missing from the list of lesson indicators in the textbook are the basic competencies of 3.6 and 4.6. However, the *Review Team* then found that the content of basic competencies 3.6 and 4.6 are covered in basic competencies 3.7 and 4.7. Although there seems to be repetition, nevertheless all the basic competencies should be addressed in the student textbooks. Other cases of repetition are illustrated in basic competencies 3.7 and 4.7. They appear repeatedly in four lessons at student textbook 3 of Grade 4.

Apart from being integrated with other subjects, the structures of learning activities in Bahasa Indonesian are set through the scientific approach. In the student textbook, the presentation of Bahasa Indonesian are arranged through: observation, experimentation, association, and communication, which leaves behind one step of the scientific approach: the questioning stage. This stage asks students (with the teacher assistance) to ask questions about the lesson based on what they observed on the previous stage. Students' questions play important roles in the process of learning. A question posed by a student helps to clarify the lesson, improve comprehension, raise engagement in the lesson, raise inquiry, connect with the previous knowledge, and practice critical thinking. So, if a student's question is that important, why is the *questioning stage* not included and practiced from elementary school, the basic education. The argument that without this stage that there will still be students asking questions is debatable, since including the questioning stage by design, needs considerable pedagogic skills from teachers, including scaffolding by using various strategies to help students formulate and ask questions, learning activities, and classroom management. Students should always be encouraged to ask questions – it is not a stage that goes away.

Grade 4 Textbook

The structure of the Bahasa Indonesian student textbook for Grade 4 is similar to the one for Grade I; but semester 1 of Grade 4 has five themes, each of which is developed into three sub-themes, so that one theme is completed in three weeks. There are three pairs of competencies that are not accommodated in the Grade 4 textbook: basic competencies 3.6 and 4.6; basic competencies 3.9 and 4.9; and basic competencies 3.10 and 4.10. These basic competencies might be addressed in the textbook for Semester 2 of Grade 4 which was not published at the time this review took place.

Regarding the thematic approach, there are subjects in Grade 4 textbooks which are not really compatible. Book 5, sub-theme 1 (*Perjuangan Para Pahlawan)* for example, integrates Bahasa Indonesian with Natural Science, and Social Science. Initially, the learning experience appears to integrate well with Social Science and Bahasa Indonesian, when the textbook presents a text of *King Purnawarman*, followed by exercise related to the text and assignment about the kingdom. Then suddenly the book asks students to make an experiment to learn the character of lightning. The movement to Natural Sciences is too jumpy (Grade 4, Book 5: p 7-8), and the connections between the topics is artificial. Other examples are found in Book 5: p 16; and p 25 – 26:

Grade 7 textbook

The textbook for Grade 7 is developed through strong concepts of genre pedagogy, scientific approach, and Content Language Integrated Learning. The text book for Grade 7 is well prepared addressing all 16 items of basic competency 3 and basic competency 4. That is, the syllabus is completely covered by the textbook. The texts chosen in this book are relevant to the topics and also considered carefully to match with the concept of localized context which is important for the introduction of local cultures.

The structure of each chapter shows that it adopts genre based approach which is arranged through the stages of building knowledge, modeling and deconstruction, independent construction, and joint construction. Learning activities within chapters are constructed to meet the competencies as listed in syllabus. Apart from this, teachers in the class should be aware of other approaches underpinning the Bahasa Indonesian text book: i.e. the scientific approach and Content Language Integrated Learning The teachers need to read carefully the teacher's text book (BG), in order to be able to understand the application of the scientific approach and Content Language Integrated Learning in teaching Bahasa Indonesian.

Grade 10 textbook

The Grade 10 Bahasa Indonesian textbook, is composed similarly to Grade 7 through genre pedagogy, scientific approach, and Content Language Integrated Learning. From the 18 basic competencies of knowledge and skill identified in the syllabus, basic competencies 3.9; 4.9; 3.18 and 4.18 are not covered in the student text book. Basic competencies 3.9; 4.9; 3.18 and 4.18 are undertaken by students as literacy practices. These basic competencies which require students to make a summary of two non-fiction books and one novel are undertaken in the form of long-term assignment. With the teacher assistance, students are asked to choose the books, read the books, and make summaries continuously until all the books are read.

Considering literacy is a new practice endorsed at school, there must be constraints encountered by students in terms of their reading motivation, reading habit, level of reading comprehension, time management, and not to mentioned the challenge of students to focus reading from the temptation of gadgets and other internet-based devises. To support students literacy levels, teachers and the Principal need to consider more creative and interesting activities, such as attractive rewards for students with the most number of books being reviewed in one semester; providing e-books instead of printed version books; exposing students to book reviews through school publications; and conducting various competition.

There are basic competencies which are stated slightly different from what is presented in the syllabus. The differences in expression can be seen for basic competencies 3.1, 4.1, 3.2, 3.5, 3.7, 4.7, and 4.15. For example: basic competency 3.1 in the syllabus document states: '*Mengevaluasi teks aneot dari aspek makna tersirat*' (to evaluate anecdotal texts from the implicit meaning). In the Grade 10 student text book states: '*Mengkritisi teks anekdot dari aspek makna tersirat*.' (to criticize anecdotal texts from their implicit meaning). Substantively, the outcome for the student may be different which should be addressed differently in the

student textbook, and there should also be consistency between the syllabus and the textbook.

3.2.4.5 Teachers' Guides

Grade 1 and 4

Bahasa Indonesian at the elementary school level uses a thematic approach and is developed through several themes. One theme is presented in one student textbook and accompanied with one teacher's guide). At the beginning of the teacher's guides for Grades 1 and 4, a map shows several subjects (up to 6 subjects) can be integrated in each theme, including the basic competency to be achieved. In each sub-theme, the map is then elaborated into lessons (6 lessons for Grade 1, and 4 lessons for Grade 4). The number of subjects integrated into one lesson is between 3 and 4 subjects.

The teacher's guide also provides a table showing subjects being integrated, possible learning activities, and list of the basic competencies to be achieved: attitude, knowledge, and skills. Teachers should benefit from this arrangement, since it helps teachers to be more focused. However, the integration of the subjects is not always seamless as indicated in the review of the textbook above. There is space for teachers to use their pedagogical and professional analysis to identify and select which subjects are best to combine. The teacher's guide indicates that teachers should be active and creative to think of other techniques of teaching.

Grade 7 and 10

There are two major topics covered in the Grades 7 and 10 Teacher's Guide: general direction and more specific guidelines related to each of the chapters of Bahasa Indonesia. In general, the Grades 7 and 10 Teacher's Guides provide brief overviews of *Curriculum 2013*; characteristics of the Bahasa Indonesian; approaches that should be adopted in teaching Bahasa Indonesian; and the assessment system.

The Bahasa Indonesian student's textbook of Grade 7 and 10 are developed based on the genre based approach. In this case, teachers may overlook other concepts underpinning the required Bahasa Indonesian learning: such as the scientific approach and Content Language Integrated Learning. However, the teacher's guide does provide assistance to teachers on how to use the learning stages of the scientific approach (that is, observing, questioning, experiencing, associating, and communicating), to deconstruct the text and use the concept of Content Language Integrated Learning to make choices about the text in relation to their local and cultural senses.

For example:

- Grade 7 teacher's guide, p 38, p 42: to deconstruct a text through the stages of scientific approach: observing through reading a descriptive text; questioning the descriptive text, experiencing through collecting information in the text
- Grade 7 teacher's guide, p 42: to construct a text through the stages of scientific approach: observing through reading a descriptive text; questioning the descriptive text, experiencing through collecting information in the text, associating, and communicating.

- Grade 10 teacher's guide, p 11-12: questioning stage of scientific approach, together with possible answers.

In the student textbook of Bahasa Indonesia Grade 10, the choice of texts as learning materials is longer texts and more complex in structures. The concern is that students may get bored to study those kind of texts. Hence, through the teacher guide, it is expected that teachers require more assistance on how to teach longer texts in more challenging and attractive ways.

3.2.4.6 Assessment statement

The Ministry of National Education and Culture (MoNE) has issued two regulations that provide guidelines for conducting learning assessments (Regulation No. 53, 2015) and guidelines for conducting National Examination (Regulation No.57, 2015). In addition to these regulations on assessment, there are official assessment guides that are prepared nationally for use by teachers in conducting authentic assessments of students learning. These guides provide information about procedures and examples of models of authentic assessment relevant to each level of education: elementary (SD), junior secondary (SMP), senior secondary (SMA), and vocational (SMK) schools. Teachers are encouraged to use observation, peer assessment, journal to provide information about students' religious and social competencies; written and oral tests, projects, and portfolio to assess student knowledge; and students' performance, projects, and portfolio to assess student skill.

Assessment models for assessing student learning performance are generic in that teachers of different levels of school are supposed to adopt and adapt suitable assessment models relevant to the subject taught, i.e. Bahasa Indonesian. Teachers are also encouraged to base their assessment procedures on relevant theories of learning and theories of language learning that underlie Bahasa Indonesian curriculum of the *Curriculum 2013*. Hence, Bahasa Indonesian teachers are supposed to be able to assess their students in terms of their knowledge and skills of Bahasa Indonesian based on the principle of genre-based (functional) language teaching, scientific approach, and Content Language Integrated Learning, which are adopted in the development Bahasa Indonesian syllabi for junior and senior secondary schools.

Bahasa Indonesian elementary school teachers, on the other hand, are supposed to base the assessments of knowledge and skills on the thematic approaches of teaching. Since the students competencies of spiritual (KI1) and social behavior (KI2) are to be developed though indirect teaching, Bahasa Indonesian teachers are expected to provide inputs of assessment to teachers of PPKN (Civics and Ideology) and Religion subjects based on their observation of student learning progress. Assessment of student learning is supposed to be authentic, which includes daily assessment, mid-term assessment, and final-term assessment. Conducting authentic assessments of student learning, teachers are expected to be more informed about student learning progress so that they will be able to prepare better lesson plans, learning materials, and assessment instruments for use in the next lessons including remedial teaching for underachievers.

Notwithstanding the practical look of the assessment guides, the set of assessment procedures for assessing Bahasa Indonesia, there appears to be a misconception about

how to conduct language learning assessments. The assessment guides indicate that the **knowledge** of Bahasa Indonesian should be conducted separately to the procedures for assessing **skills** of Bahasa Indonesian. Such an approach to students' assessments is unhelpful to the teaching of languages, and artificially disaggregates 'knowledge' from 'skills'. Student language proficiency is built upon their knowledge of the language being learned and their ability (skills) in using their language knowledge for communication. These components of language proficiency develop symbiotically, over time. The assessment of students' language proficiency, therefore, should be conducted progressively, as the students' language capabilities progress by looking at both knowledge and skills of Bahasa Indonesian as an organic whole of language proficiency.

Regulation 57/2015 controls the National Exams throughout Indonesia and in Indonesian schools located in several cities abroad. The results from the National Exam are aimed at regulating the quality of education in Indonesia. The results of National Exams are also used to map the quality of schools in Indonesia. Among the criticism towards National Exams is the unfairness to examine students' competencies based on four subjects only, while students generally study between six to nine subjects; and National Exams focuses on examining the knowledge only, while students develop attitude (religious and social), knowledge, and skill competencies. A parent revealed in a newspaper article (Kompas, 29 June 2015), that her daughter is a victim of the National Exams when the policy require the national exams scores to become the requirements of school entry. In the newspaper, it was mentioned that the girl failed to enter the intended high school because her National Exam scores were lower than the requirement in that school. She dropped her dream to become a doctor, and started building another dream through a vocational school. This parent claims that her daughter and other students may not be able perform well and achieve high scores due to sickness, fatigue, or depression when they undertake the National Exams.

3.2.4.7 Additional Documents Peer Reviewed:

1. Core Competence and Basic Competence, Primary School/Madrasah Ibtidaiya, Class I, Class II, Class III, Class IV, Indonesian (Ministry of Education and Culture, 2016)

2. Core Competence and Basic Competence, Junior High School / Madrasah Tsanawiyah, Class VII, Class VIII, and Class IX, Indonesian (Ministry of Education and Culture, 2016)

3. Core Competence and Basic Competence, Senior High School/Madrasah Aliyah/Vocational Senior High school/Vocational Madrasah Aliyah, Indonesian, Class X, XI, and XII, Indonesian (Ministry of Education and Culture, 2016).

General Comments

1. The difference between Basic Competencies (Knowledge) and Basic Competencies (Skill) is strained, and does not seem to serve a useful purpose.
2. It would seem that the teaching of Bahasa Indonesia for Classes I – III follows the integrated approach, while Classes IV-XII follow a genre-based approach.
3. The "integrated approach" does not seem to serve the intended purpose. It is not clear how the learning of Indonesian is sequenced from one Class to another. The

curriculum for Class III seems to be particularly problematic since it is not clear what students will learn about Bahasa Indonesia though the prescribed themes. A curious theme has been chosen as a basis for Bahasa Indonesia language development at Class III (Basic Competence 4.7):

> *Explaining the concept of eight wind directions of the compass and its utilization for site plan in written and visual form using standard vocabulary and effective sentence [structure].*

4. The allowance for students to use their 'local languages' to assist them in their early stages of learning Bahasa Indonesia is to be commended.

5. What follows is a summary of the content of Classes I – III. Class III has been highlighted as it doesn't seem to fit with the other classes.

Table 4: Bahasa Indonesia Class I-III

Class I	● Practicing early reading preparation (how to hold a book) ● Practicing early Writing preparation (how to hold a pencil) ● Spelling of vowels and consonants ● Explaining body parts in Indonesian (assisted by local languages) ● Explaining health using proper Indonesian vocabulary ● Describing objects ● Explaining day and night events using Indonesian ● Practicing thanking, apologizing ● Introducing oneself ● Conversing about family ● Poems and songs.
Class II	● Imitating expressions, invitations using polite Indonesian ● Reporting based on observation about diversity of objects ● Reporting based on geographical environment, economic, social/cultural environment ● Presenting about health ● Reading a poem about environment (correct intonation etc.) ● Writing in capital letters (days and months) ● Recounting out aloud the text of a fable ● Imitating expression of greeting (fairy tale) ● Writing capital letters (name of God)
Class III	● Presenting information (daily lives) ● Presenting information (energy) ● Presenting information (effects of weather on people) ● Presenting information (living things in local environment) ● Presenting information (caring for plants and animals) ● Summarizing information (development of technology, transport) ● Explaining (8 wind direction and its utilisation for site plan, 4.7) ● Acting out a message of fairy tales ● Presenting information (symbols, visual texts) ● Expressing the language of feedback and problem solving.

6. However, the application of the *genre-based approach* (Classes IV – XII) would seem much more successful than the *integrated approach* (Classes I – III). The curriculum is varied and is likely to be of interest to the student. One can trace the sequence of learning intended in the curriculum from 'organising and presenting and exploring

information in texts' in Class IV to 'designing, constructing, composing texts, and exploring values and formulating opinions' by Class XII.

Some further observations, of the curriculum from Class IV to XII, are offered:

- Each class seems to have enough content. The content is interesting.
- In each class there seems to be enough variety of genres, texts, and language skills development.
- There is a very good range of genres (written, oral, multimodal)
- There is an emphasis on cross-disciplinary genres at each class level (e.g. scientific articles and reports, historical narrative, presenting data, mind maps, the language of experiments, lecture, review of scientific paper, research proposal). This is seen as a positive.
- There is a wide variety of texts (nonfiction, fiction, fables, poems, advertisements, drama texts, film, newspapers, news bulletins, posters, short stories, 'inspiring stories', biography, anecdotes). This range of texts helps maintain student interest, allows access to contemporary text-types, and allows the student to develop their critical literacy skills.
- There is a little too much emphasis on summarizing and presenting information and not enough on personal responses to text and creative writing (at the lower classes, Class IV to Class VI).
- Students come across expository, discussion, descriptive, narrative, and persuasive texts. It would seem that not sufficient emphasis is placed on the creation of persuasive text. This is introduced in Class VIII, 4.13 and 4.14, and it is also presented as 'negotiating text' in Class X. However, students could benefit with a stronger focus on this aspect in the higher classes.
- There is a good balance between oral (speeches, acting out aloud, presenting, pronouncing, debating), and writing (recounting, summarizing, describing, narrating, noting).
- At all class levels, due attention is given to undertaking these activities "by considering the structure, linguistic or verbal aspects".
- In the curriculum, there is a strong emphasis in most classes on the ability to analyse.
- Literary criticism is introduced at Class IX. Also introduced at Class X, is the explicit discussion of values in text – societal values, and an exploration of the student's values. This focus on values is carried, and increased, at Classes XI and Class XII.
- The use of comparison as a strategy for teaching linguistic features is introduced at Class X.

7. Overall, the curriculum for the Bahasa Indonesia is sound, interesting, and challenging.

8. The following charts, which show the content for Class IV – XII in schematic form, are provided for reference.

Table 5: Bahasa Indonesian Class IV-XII

Class IV	● Organising information (to make sense of a text) ● Presenting observations (coherence in writing) ● Exploring information and reporting results of interviews ● Comparing two instructional texts ● Elaborating personal opinion on content of a literary text ● Exploring content of poems ● Exploring new knowledge in nonfiction texts ● Comparing matters in nonfiction texts ● Looking at figures in fictional texts ● Comparing the character of each figure in the fictional text.
Class V	● Determining main ideas in oral and written texts ● Classifying and presenting info: what, where, when, who, why, how ● Presenting a summary of an explanatory media text ● Analysing advertisement in electronic media ● Exploring narrative history text: what, where, when, who, why, how ● Exploring content and message of poem ● Presenting interrelated concepts of story in nonfiction text ● Restating events in nonfiction text ● Invitation letter
Class VI	● Presenting a conclusion to a report after interviewing ● Presenting results of a scientific report ● Delivering a speech ● Exploring and presenting essential information in a history text ● Comparing poems ● The language of form-filling ● Guessing contents of a non-fiction book ● Figures of speech in fiction text ● Relating a character in a fiction text to personal experience
Class VII	● Explaining a descriptive text ● Presenting data ● Recounting a narrative text ● Presenting a creative idea in oral or written story ● Procedural text ● Scientific report ● Presenting scientific observations ● Creating mind maps of nonfiction and fiction books ● Presenting content of nonfiction and fiction books ● Summarizing content of news ● Write a private letter ● Folk poetry – content and linguistic structure ● Recounting fable ● Acting fable
Class VIII	● News ● Presenting data and information ● Advertisement ● Presenting ideas, messages and invitations in the form of advertisements, slogans, and posters ● Popular scientific articles from newspapers ● Expository text in scientific articles ● Finishing a poem

	● Presenting feelings and opinions on poems ● Presenting data and information on natural phenomena ● Recounting a short story or film ● Analysing and presenting persuasive text ● Interpreting and presenting drama ● Creating concept map of fiction and nonfiction ● Presenting responses to fiction and nonfiction.
Class IX	● Writing up experiments ● Understanding structures of experiment report writing ● Summarizing an idea ● Expressing thoughts, ideas, direction or message in a speech ● Understanding linguistic structures in literary work ● Analysing structure of short stories ● Literary criticism, refutation, or praise in response to text ● Discussion texts: pros and cons ● Analysing pros and cons in a discussion text ● Expressing sympathy, empathy, or personal feelings in stories ● Analysing an inspiring story ● Exploring information of elements in fiction and nonfiction ● Analysing relationship between elements in fiction and nonfiction ● Presenting responses to fiction and nonfiction.
Class X	● Comparing the content of two report texts ● Writing an expository text (with argument and recommendations) ● Analysing an expository text ● Evaluating anecdotes ● Analysing anecdotes ● Identifying values in folklore (saga) ● Comparing values and linguistic elements of folklore ● Comparing of two nonfiction books and one novel ● Analysing a negotiating text ● Analysing debate ● Analysing biography text ● Poetry (atmosphere, theme) ● Writing a poem ● Analysing one fiction and one nonfiction book, writing reviews
Class XI	● Procedural text, oral or written (and analysis) ● Explanatory text, analysis, oral or written ● 'Problems' presented in a lecture (notes) ● Linguistic analysis of a lecture ● Identifying key points in nonfiction text ● Values in a collection of short stories ● Analysing elements of a short story ● Key points of two nonfiction texts ● Analysing message of one fiction text ● Research proposal ● Scientific paper ● Reviews of scientific paper ● Analysing two scientific reviews ● Identifying storyline, episodes in drama ● Analysing message in two fiction books, novels and poetry.
Class XII	● Job application ● Values in a historical narrative explanatory text ● Writing personal history

	● Analysing and creating editorial text ● Preparing reports of book discussion on two fiction and one non-fiction text ● Interpreting the author's view of life in a text ● Designing a novel or novelette ● Formulating opinion about an article ● Analysing articles or scientific books ● Literary criticism ● Essays using literary criticism ● Writing a reflection about the value of a nonfiction and fiction text.

3.2.5 English

3.2.5.1. Overview

The *English* subject in *Curriculum 2013* is built on the reforms of education currently being undertaken in Indonesia, in which prominent emphasis has been placed on building competencies required for the 21th century, through building the *English* language competencies of **knowledge** and **skills** as well as **spiritual** and **social behavior** competencies. The first two competencies are to be developed through 'direct teaching' and the latter two are to be developed by means of 'indirect teaching'. 'Direct teaching' refers to pedagogical practices that intended to directly teach and assess the knowledge and skills of English. 'Indirect teaching' refers to using the statements about the required English knowledge and skills, to indirectly build the spiritual and social competencies. The division of *English* curriculum into four core competency areas, which are then developed into basic competencies of *English*, has underpinned the development of the documents required to implement the *Curriculum 2013*.

To prepare this paper, the *Review Team* read documents for *English* in the *Curriculum 2013* including the core and basic competencies, syllabi, assessment statement, student textbooks of Grade VII (junior secondary school) and Grade X (senior secondary and vocational school), and the teacher guides (teacher books). School observations and interviews with *English* teachers also informed the development of this paper. The *Review Team* used the school observations to look at implementation how the *Curriculum 2013* is being implemented in terms of the content of the curriculum and assessment materials, and to consider the practicality of using these documents in classroom. As a result of the analysis of the respective *Curriculum 2013* documents listed above, and the observations and interviews held during the school visits, the *Review Team* identified some strengths and weaknesses relating to the *Curriculum 2013 English* subject, which are outlined below.

3.2.5.2 Competency documents (core and basic competencies)

The competency documents for *English* for junior, senior secondary and vocational schools state the general purpose of the *Curriculum 2013*, which is to build the competencies of

1) spiritual behavior,
2) social behavior,
3) knowledge, and
4) skills.

It is also stated in these documents is that the above four competencies are to be developed through intra-curricular, co-curricular, and/or extra-curricular activities. The intra-curricular activities are the classroom activities listed in the curriculum in which the knowledge and skills of *English* are built through direct teaching; and the spiritual and social behaviors are built through indirect teaching. The co-curricular activities are intended to support the intra-curricular activities to better improve students' knowledge and skills of *English* and to build students' responsibility in doing tasks. The extra-curricular activities are outside of the curriculum (but *Pramuka*/Boy Scout is compulsory) and intended to build students' 'soft skills'.

The concept of dividing the *English* curriculum into four competencies, following Krathwohl (attitude: spiritual and social behavior), Dyer (skills) and Anderson's update on the Bloom's taxonomy of learning (knowledge) is believed to be a good idea for discussing what learning aspects should take place in the classroom. Regardless of the popularity of each of these concepts, incorporating these three concepts into a good *English* pedagogy really requires good critical thinking and understanding of *English* language and language pedagogy.

The noble objective of building good attitudes through the discovery of knowledge and the development of thinking skills by means of the scientific method of learning is a very big concept, and might only be understood by the curriculum writers, leaving teachers to take the concepts for granted without a deep understanding of which concept is relevant to and/or applicable in their contexts. The concept of having a good *attitude* could be misinterpreted as 'being a good person' in a general way only; while instead there should be more specific emphasis on 'having good attitude' in relation to English, such as 'having full control over *English*' to communicate in many different social and cultural contexts.

The concept of *skill* might also be only partially understood by teachers, as having *English* skills, including listening, speaking, reading and writing skills. *English* proficiency is indeed a language skill, but the emphasis on *skill* according to Dyer et al (2011), should be more on thinking skills: i.e. how students develop their thinking skills as a result of learning processes. The taxonomy of learning by Bloom updated by Anderson, which divides cognitive processes into six procedures, is believed to provide teachers with clear cut levels of learning. This approach however, may result in misunderstandings such as the view that learning is a linear process from the simplest (remembering) to the most complex (creating) as proposed in the taxonomy of cognitive processes. In fact, learning is a complex process. Remembering, for example, may involve analysis of any related information when a student is in doubt. Besides, what is taking place in students' brains is not as linear as the concept of the learning taxonomy. Furthermore, teachers have varied understandings of the taxonomy which may result in prescriptive teaching procedures. Examples of possible practices could be that at the beginning levels of learning English, that students are taught factual knowledge, and that they are not able to learn conceptual knowledge or procedural knowledge; of that students at the beginning levels will only learn by remembering and it will be too premature for them to learn English by analyzing *English* utterances in different contexts.

The division of *English* competency into four core competencies is thought to be helpful for teachers, especially for giving teachers clear information about specific aspects of

competencies required for building *English* language proficiency. With good analytical skills and *English* content knowledge as well as pedagogical content knowledge of *English*, teachers should be able to provide good *English* instructions without being distorted by these four competencies. If teachers are not well informed about these professional and pedagogical competencies of an *English* teacher, they might think that they are supposed to deliver *English* instructions based on each core competency in isolation. Their instructions, in turn, are likely to be fragmented. Even, the ordinal number of core competency 1 to core competency 4 might be misinterpreted as outlining the required sequence of teaching procedures. To illustrate this point, the *Review Team* found some evidence from the interviews with *English* teachers that they stated that the first teaching activity in each *English* language class is to nurture and assess students' attitudes for the core competencies 1 and 2 at the beginning of every *English* lesson.

Another common pattern of teaching English in Indonesia is to follow the sequence of first teaching a knowledge of *English* which is then followed by teaching *English* language skills. The development of *English* language fluency however, generally takes place at the same time the knowledge of *English* is also being developed, not at the point when the knowledge is fully developed. The assessment procedures also tend to follow the fragmented approach to the teaching of *English* knowledge and skills, while teachers should assess students through their learning processes and as their knowledge and skills of *English* are developing hand in hand, over time.

In order to provide a complete picture of *English* language competency of *Curriculum 2013* to all *English* teachers in Indonesia, the core and basic competency documents of *English* must be well aligned, and state that the **knowledge** and **skills** competencies are to be built simultaneously.. A clear statement of the importance of incorporating the four competencies into a set of classroom *English* pedagogies, with the knowledge and skills of *English* as the main content, will help teachers to move to an wholistic approach to teaching the English language. Some adjustments in terms of making the core and basic competencies an organic whole, that follows the scope and sequence appropriate to the respective school grades, need to be made.

Another issue which has to be addressed is the nature of the content reflected in the statement of core and basic competencies. As language learning should include the learning of cultures, which represents a whole social interaction of a particular speech event, language learning materials should not be delivered as separate, disaggregated parts. The curriculum materials for learning interpersonal language for example, has to be integrated and self-contained. A text of introduction of oneself has to include the natural exchange occurring in a natural context together with the relevant grammar rules. For the purpose of developing a language curriculum structure with appropriate gradation across the different school grades and school levels, more texts with topics that focus on functional language expressions and grammar rules should be included into the *English* curriculum.

As to the basic competence of *English* for vocational schools, the statement of *English* language competencies should be aligned with the nature of *English* required for students attending the vocational schools. Totally adopting the basic competencies of the senior secondary curriculum as the basic competencies required by students in vocational schools,

is misleading and unhelpful. It is a problematic idea that once *English* language learners have mastered a general *English* proficiency that they will be able to develop and apply their *English* for their own context. More specialized *English* language materials appropriate for use in vocational schools would develop better and more appropriate *English* language proficiencies that are aligned to the development of workplace *English*. The basic competencies relating to *English* for Special Purposes (ESP) would be more appropriate for the vocational school curriculum. The learning materials for teaching *English* to students expecting to work in the hospitality industry (e.g. hotels) for example, could focus on learning and practicing the linguistic structures of communication events or genres such as greeting tourists, giving directions, accounting, explaining accounts, responding to complaints, making public announcements, advertising, and so on.

3.2.5.3 Syllabi (Grades VII and X)

The development of the respective documents, which will in turn be used as the basis for classroom instructions by teachers, seems to have neglected teachers' possible understanding of the documents. Oversimplification of the key points underpinning *Curriculum 2013* such as 'student-centered learning', may lead to misconceptions by teachers, which will result in unintended classroom practices. Teachers, for example, may be fond of assigning their students tasks and require their students to have discussion during the lesson. Teachers will easily be happy to find their students having group discussion, which might only resemble a group of students doing the task together without any social interaction that may facilitate their language learning through communication.

English language teachers require a good repertoire of linguistics (language teachers' professional competency), and a good repertoire of *English* language pedagogy (teachers' pedagogic competency), to fully understand what is meant by most of the key points (i.e. genre based teaching, student centered learning, scientific approach), as well as the technical terms used in the documents (e.g. authentic material. authentic assessment, portfolio). To provide teachers with relevant information and clues for understanding the documents, such as definitions of key terms with some examples are required and should be included in the curriculum materials. To avoid ambiguity, phrases such as *student-centered learning*, could be replaced with the phrase *learner-centered*, so that application of educational concepts have meaning in Indonesian contexts.

The *English* syllabi for Grades VII and X present information about the rationale, genre-based language teaching, the content materials covering the knowledge and skills of *English*, and the nurture of attitude (spiritual and social behavior). The rationale explicitly states that spiritual and social behaviors are to be nurtured as the students are learning the required content specified for the subject of *English*.

> *The use of texts is also aimed at developing attitude for valuing and internalizing religious and social values including honesty, discipline, responsibility, toleration, hospitality, and confidence in interacting with social environment and nature effectively (Syllabi of SMP/SMA, p.1).*

This statement means that the core competencies are not to be understood as a sequence that starts from the teaching of spiritual and social behavior, to knowledge, and then skills.

The genre-based approach is adopted since it relates to the use of 'genres' of particular classes of communicative events (both in the form of spoken and written texts). These are considered by the speech community as being of the same type, e.g., prayers, sermons, conversations, songs, speeches, poems, advertisements, letters and novels. A genre is usually characterized by its communicative purpose(s) in general, associated themes, conventions (lexicogrammar and other textual features), the channel of communication (e.g., spoken, electronic, hardcopy) audience types, and the roles of the writer and readers. In practice, the classroom would include a range of language events (written and spoken texts) that would relate to the type of communication activities the students would be confronted with in the real world.

It is stated in the document that teachers are supposed to develop syllabi appropriate to their contexts, so the nationally developed *English* syllabi gives teachers opportunities to accommodate local contexts. Since texts (both spoken and written) with associated social and cultural contexts are the means for learning *English*, the texts used for *English* instructions must be the ones that are familiar to the students of respective regions. It would be inappropriate to use 'Halloween Party' as the theme for writing an announcement or invitation since most students might not be familiar with the social and cultural context. 'Market day', or 'car free day' would be an appropriate theme for students in urban areas, *'Karaban Sape'* for students in Madura, *'Ngaben'* for students in Bali, 'Lompat Batu' for students in Nias, and so on. As may be seen in the Table 1 below, the *English* syllabi also specify the expected *English* basic competencies to be mastered by students after learning the materials.

Table 6: Selection of Core Competencies for Grade VII *English*

Core Competency	**Suggested Scope of Material**
▪ Demonstrating acceptable attitude in the personal, social-cultural, academic, and professional contexts; ▪ Identifying the social function, structure, and language features of short and simple texts found in the students' daily life; ▪ Communicating using interpersonal, transactional, and functional expressions to tell about self, family, people, animal, and concrete and abstract things found in the students' daily life; ▪ Understanding the meaning of and composing short and simple spoken and written texts by using text structure and	▪ Short and simple texts of interpersonal, transactional, specific functional, functional texts in the form of descriptive, recount, narrative, procedure, and information report at the level of functional literacy; ▪ Various types of texts including the aspects of social function, structure, and language features of texts, all of which are chosen based on the purpose and contexts of communication; ▪ The skills include listening, speaking, reading, writing and watching, in effective ways, in the social and natural environment within students' zone of social interaction; ▪ The language features include discourse markers, vocabulary, grammar, pronunciation, stress, intonation, spelling, punctuation, and handwriting neatness;

language features accurately, acceptably and fluently.	▪ Modality: use of modality with appropriate meaning.

A range of suggested materials relevant to each basic competency is provided in the syllabi, giving more options to be elaborated by teachers in developing lesson plans and learning materials, as stated in the syllabi of SMP/SMA/SMK, as follows:

> *This syllabus is flexible, contextual, and gives teachers opportunities to develop and deliver instructions ... The description of instructions in this syllabus is an alternative ... teachers are expected to be creative in developing learning materials, maintaining classroom management, using teaching methods and models tailored with the condition and development of students.*

The framework of the *English* curriculum development is well articulated, underpinned by strong concepts of genre-based language teaching and theories of language learning, as illustrated in the Figure 1 below. The content materials are quite well distributed, covering the functional language expressions, the taxonomy of knowledge and skills relevant to the level of students. The distribution of genre-based basic competencies into text-based materials which are interpersonal texts, transactional texts, specific functional texts, and functional texts, however, may result in fragmentation and oversimplification of texts. The interpersonal and transactional expressions, for example, are language resources that are commonly used in one speech event, complementing one another as the situation demands.

Dividing language resources into types of language expressions might be wrongly interpreted as rigid divisions of communication, while there are always possibilities for interpersonal and transactional expression to take place in one natural speech event. A text, therefore, has to be presented as an organic whole, taking into account any possible functional expressions (both interpersonal and transactional) as well as the social and cultural contexts.

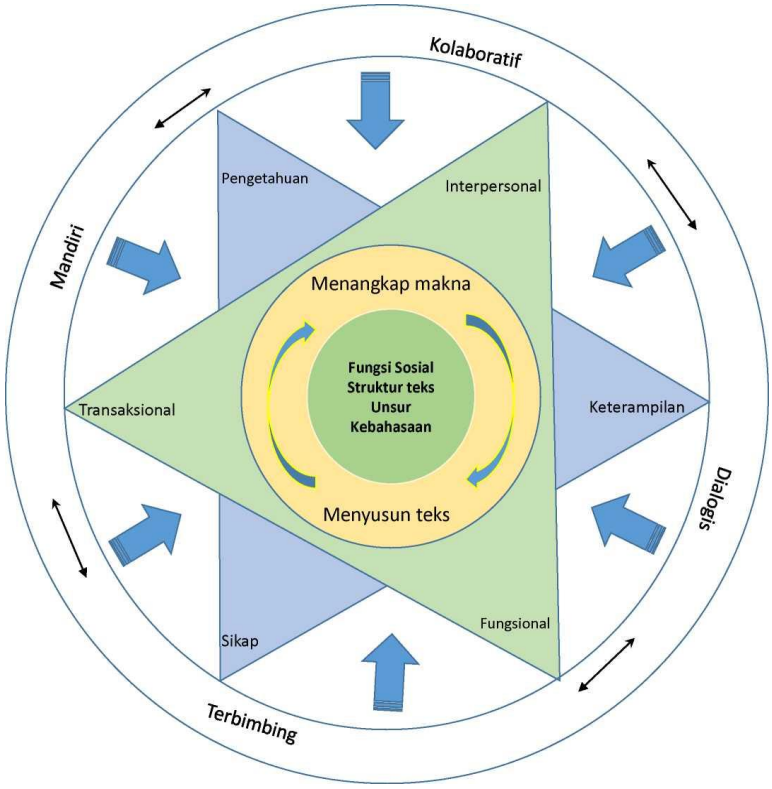


Figure 4. The diagram of *English* syllabi development

The specification of certain genre associated with certain basic competency in the syllabi might also be taken for granted by teachers as something which is compulsory. The use of the term 'song lyric' as a genre-based material for learning a specific functional text (Grades VII and X), for example, might be interpreted as the only option, putting aside other literature choices such as poetry. Besides, the use of songs, which are not always familiar to all students, might lead to giving much attention to learning how to sing the songs, rather than to learning the language content materials. Teachers need to be informed about the rationale of using songs so that they are aware of the requirements for creating or choosing similar learning materials and understand how to deliver the material using a song (which constitutes a typical genre) for teaching *English* based on genre-based approach.

3.2.5.4 Student textbooks

The materials and the structure of learning activities presented in the student textbooks of junior and senior secondary schools of Grades VII and X respectively, show that the books are written with the influence of competency fragmentation in the core and basic competency documents. For example, the Grade X *English* textbook clearly presents an activity aimed at building character at the very beginning of Chapter 1. The activity called 'Chinese whispers', which should be aimed at introducing the material, is about introducing oneself. It is provided with an instruction requiring the students to discuss what character their group needs in order to do the activity successfully. If teachers are not aware of the main purpose of the activity, they will slip into teaching for the wrong purpose, by giving too much focus to character building and neglecting the *English* language competency. A different approach could be to wipe out the instruction from the student textbook and put it into the teacher guides with some technical suggestions about how to implement this activity while incorporating the indirect teaching of attitude.

Another example of the influence of understanding the basic competencies in a fragmented way is the division of content material in the student textbook of Grade VII. Authentic *English* materials, which constitute any *English* text either spoken or written used in the real social communication, should not be separated from its natural context. A formal greeting, for example, is usually employed by two interlocutors in a formal situation or between two interlocutors having a distant social relationship. Since the *Curriculum 2013* is using a genre-based approach, the multifaceted aspect of communication has to be considered in developing the content material. The *Review Team* found that most of the interpersonal language expressions are separated from other possible language functions such as the transactional function. The idea of introducing greetings to 7th graders, who are learning *English* for the first time, is good. However, it would be better if a complete communicative event is used to give context to the interpersonal language use, throughout a chapter, rather than just presenting a set of greetings in isolation.

Greetings usually start a new communication, and students require exposure in a natural way, to how communication proceeds after the greetings. They have to learn the discourse (i.e. coherence and logic of texts), how to take turns and how to respond, using the correct grammar and vocabulary by considering the topic, participants, and setting. A complete story line, for example, will incorporate several language and cultural inputs, including the possibility of using interpersonal and transactional expressions within the same speech event. In this way, students are provided with authentic materials which are rich in both language as well as cultural inputs.

Drilling is good in some ways, but too much drilling will result in over-learning. Students tend to use expressions or structures drilled into them in any context, which may result in the production of errors. This phenomenon is evidenced by the way Indonesian students respond to a greeting, which tends to be of one variety of language choice – the one drilled into them. Indonesian students tend to greet *'Good morning', 'How are you'* and reply to the greeting with *'I'm fine, and you?'* in all occasions. An example of an error caused by over learning of copula verb 'be' is *'I am is* a student'*, *'She is* can swim'*, or *'He smiles*'*.

Oversimplification of texts and inappropriate illustrations were found in the student textbooks for Grade VII and X. There were also some mistakes, which included some typographical errors. Below are examples of parts of the textbooks that contain mistakes and typographical errors.

- Grade VII, some typos (p.155: *'States of or* related to Lina's house'*, p.161 and 162: the character's name *'Benny'* should be *'Udin'*;
- Grade VII, inappropriate illustrations (p.8, 100);
- Grade VII, inappropriate title (p.149, 177);
- Grade X, inconsistent bold type markers showing specific grammar (p.42, 43, 44) can confuse students;
- Grade X, *(must) be* is not a thinking verb (p.161);
- Grade X, Incorrect heading: possessive pronoun (p.15).

The textbooks also include some unnatural expressions. For example, the Grade X textbook states: *'Let me introduce myself'* in an email (p.4), *'I must express my admiration to you!'*

(says a boy to a fisherman?) *'Thanks a lot for your appreciation'* (replies the fisherman) (p.34). The more appropriate expressions in relation to the contexts could be *'My name is Hannah', 'Wow, that's a lot of fish! Well done!', 'Thanks!'* respectively.

The textbook for Grade X integrates teaching of language skills covering listening, speaking, reading, and writing. The book provides activities that can help students invent grammar rules in context, but to some extent the book tends to prescribe some grammar rules, which would be better if the students invented them for themselves. It would be better for example, if the prescription of the use of *'be going to + simple verb'* and *'would like + simple verb'* (p.44) is left to the students after they are given sufficient exposures to the use of the patterns in context. The glossary and the index make the book very helpful to students.

The textbook for Grade VII, on the other hand, requires revisions in terms of employing more natural, well elaborated but simple texts that are rich in the language as well as the cultural inputs related to learning the *English* language. A whole text containing *English* expressions as the learning materials would provide students with a complete communicative discourse. Students will have the opportunity to notice rules and deduce from the facts presented in the text. Students will learn to use the rules when they can notice the purpose of communication as well as the social and cultural contexts in which the respective communications take place. For example, they will learn reciprocal greetings between strangers or non-reciprocal greetings between participants having different social status. Students will also learn the structure of turn taking in a dialog, or how communication proceeds from greeting to leave-taking.

While the textbook for Grade X is good for students of senior secondary school in terms of providing students with general *English* learning materials, the book requires some adjustments in terms of relevant topics and language functions to be adopted for use by students of vocational schools (i.e. *English* for Specific Purposes). Since students of vocational schools expect to work industries where English is required (e.g. hotels), the learning materials need to be focused on learning and practicing the linguistic structures of communication events or genres relevant to hospitality industry such as greeting tourists, giving directions, accounting, explaining accounts, responding to complaints, making public announcements, advertising, and so on.

3.2.5.5 Teachers' Guides

The teacher books for Grades VII and X contain relevant and helpful information about pedagogical knowledge covering teaching methods and assessment procedures and pedagogical content knowledge covering strategies to use for teaching certain language skills. The teacher guides also provide model lesson plans to implement the material in the student textbooks. The model lesson plans, however, are not provided with an accompanying rationale or conceptual basis for using certain stages of instructions. As such, teachers could take the model lesson plans and use them without making the necessary adaptations to tailor their instructions to their contexts. Providing teachers with information pertinent to *English* language pedagogies is very helpful for them to develop good lesson plans, learning materials, and assessment instruments. The following excerpt from a model lesson plan in the teacher guides for Grade X *English* (Table 2) may illustrate this point.

Table 7: Selection of Grammar Review Lesson Plan for Grade X *English*

PROCEDURE	INSTRUCTION	TIME ALLOTMENT
- Teacher asks students to read the summary of the text. - Teacher asks students to work in pairs to pay close attention to the words printed in bold and understand their functions within the sentences. - Teacher asks students to identify the different forms of questions and statements for *I would like, I will, I am going to,* and *I would rather* and put them in the table provided. - Teacher asks students to discuss their answers.	- Read the excerpt and discuss with a partner the words printed in bold. Fill in the table based on what you read from the excerpt. - Can you share your discussion result with the class? Raise your hand please!	20'

The sample of model lesson plan above seems very practical. However, there are many possibilities that may happen in different classrooms. Without sufficient understanding about teaching grammar related to the proposed activity, i.e. focus on form, communication and consciousness raising, teachers are likely to slip into testing their students by means of the activity or task, and consider that the students doing the task together as classroom discussion forms the communication aspect to the learning. When teachers are not well informed about *English* grammar however, their instructions will deviate from the expected learning-centered approaches expected. Prescriptive grammar teaching then, is likely to happen since the teacher guides contain answers to the key questions or tasks in the texts.

3.2.5.6 Assessment statement

The Ministry of National Education (MoNE) Regulation No. 53, 2015 about student assessments. It provides guidelines for conducting assessments of students' learning, which specify the importance of conducting assessment of all the competencies the students are expected to demonstrate during and upon completing their learning process. According to the Regulation No. 53, 2015 article 3.1, teachers are encouraged to do assessments, which includes *'assessment for learning'* as for determining students' current progress for the purpose of helping them learn better, and *'assessment of learning'* for measuring students' competency or learning quality based on certain criterion at the end of a learning process. In addition to the two types of assessment above, the assessment guides also mention another type of assessment, which is *'assessment as learning'* for helping students monitor and evaluate their own learning. Teachers are also encouraged to use various assessment methods suitable for certain competencies, and to use the results from assessments for informing their teaching, including conducting remedial teaching and enrichment programs, as stipulated in the Regulation No. 53, 2015 article 3.3, as follows:

Assessment of student learning conducted by teachers is aimed at:

a. knowing the level of students' competency mastery;

b. determining competency mastery;

c. determining remedial and enrichment program based on the level of students' competency mastery;
d. improving learning process.

Assessment guides have been prepared for teachers to illustrate how to conduct student assessments. A range of suggested models of assessment, including observation of student learning progress, peer assessment, written and spoken tests, tasks, projects, language performance, are presented with examples. Teachers are encouraged to develop rubrics for their own use. Assessments of students' learning includes daily assessments, mid-term assessments, and final-term assessments for assessing attitudes, knowledge and skills.

Teachers are also encouraged to use portfolios in the assessment process. The assessment guides are general and *English* teachers are encouraged to develop relevant assessment procedures. Besides assessments conducted by teachers, there are assessments of students' learning conducted at the school level. The method used for the school level assessments is the traditional assessment in the form of a test for the purpose of assessing knowledge and skills.

The National Exam, which is specially stipulated in Ministry of National Education (MoNE) Regulation No. 57, 2015, is intended to provide control over the quality of learning across provinces and districts in Indonesia. This high-stake test, however, deviates from the nature of authentic assessment, which is multiple forms of assessment that are consistent with classroom goals, curricula, and instruction (O'Malley and Pierce, 1996:2). Teachers are encouraged to do authentic assessments on the one hand, but on the other hand their students are tested nationally by means of a National Test, which is still taken into account for determining students' learning successes besides the use of authentic assessment by teachers. The assessment by teachers is based on Minimum Mastery Criterion *(KKM)* which is determined at the school level. *KKM* is determined by school teachers at the school level by considering the quality of the input (students), the learning facilities at the school, and the complexity of the materials of each subject.

3.2.5.7 Additional Documents Peer Reviewed:

Core Competence and Basic Competence, Senior High School/Madrasah Aliyah, English Language and Literature (Specialization), Class X, XI, and XII (Ministry of Education and Culture, 2016).

General Comments

The content of Class X is made up of 'transactional interactions' (that deal with specific grammatical points), and some learning of particular 'genres' (specifically, recount, event/advertisement, and report). There is also some content related to modern day use, by teenagers, of proverbs and riddles and a study of contemporary song lyrics. On face value, it would seem that the content is neither balanced nor sufficient in scope. There is no 'literature' component.

Table 8: Class X Outline of Topics *English*

Class X	● Form filling (gist) ● Transactional interaction (*should speak, should be speaking, should have spoken* ● Transactional interaction (*will speak, will be speaking, will have spoken*) ● Transactional interaction (conjunctions; *both, and, only, either… or*) ● Recount (gist), and composition on famous people ● Transactional interaction (too, to, enough to) ● Event, advertisement (gist) and composition ● Report text (gist, of something in Class X), and composition ● Proverb or riddle related to teenager life ● Song lyrics.

Class XI, outlined in brief below, is composed of 'transactional interaction' and the study of some particular genres. At this level there is an emphasis on the past tenses and a first beginning study of mood (subjunctive). The transactions focus on pragmatic language and skills for social events and commercial institutions. The genres promoted in at this level are also in tune with these transactions settings – brochures, leaflet, banners, etc. In terms of 'literature' students study some short stories. Students also learn about 'hortatory exposition text' where they are expected to analyse and compose written or oral pieces on "actual issues" (p.8).

Table 9: Class XI Outline of Topics *English*

Class XI	● Transactional interaction (advising to do an action) ● Transactional interaction (giving information related to activities - *past perfect, present perfect, futures perfect*) ● Transactional interaction (giving information related to future plans; if in present tense) ● Poem related to teenage life (gist) ● Short stories (gist) ● Transactional interaction (giving information on telephone related to events, offers, appoints, reservations, social functions) ● Brochures, leaflets, banners, pamphlets (gist, composition) ● Transaction interaction (*for example, such as*…) ● Hortatory exposition text (gist, composition of text related to 'actual issues') ● Song lyrics, teenager life (gist)

Class XII, outlined in brief below, shows the dominance of a grammatical approach to the learning of English. At this level emphasis is placed on aspects of the English language that express nuance, caution, doubt, contrast. This is taught through the teaching of particular tenses and moods (subjunctive and conditional) and linguistic devices (modifiers). This continues the approach commenced at Class X.

There is very little to warrant the title 'Literature', as students at this level study a scientific text, and are only asked to grasp the meaning of reviews of a book/movie/story.

Table 10: Class XII Outline of Topics *English*

Class XII	● Transactional interaction (causal relationship; *such…that; so…that* ● Transactional interaction (modifiers; prepositional phrase, adjectival clause, fine and non-finite verbs) ● Transactional interaction (description/circumstance; *finite and non-finite clauses)* ● Transaction interaction (occurrence; *conditionals, past and past perfect*) ● Transactional interaction (contrasting relationships; *unless, however, on the other hand, in contrast, nevertheless* ● Scientific discussion text (gist, discussion of controversial actual issues) ● Transactional interaction (concessions; *although, even though*) ● Written text reviews related to book, movie, or story ● Song lyrics (gist)

Summary:

- This course adopts a grammatical approach to the study of English. It focuses on the tenses and students are stepped through these from Class X to XII.
- The course focuses on the language that students may need if they are in the services industries.
- There is no sense of completeness in the curricular content and it would see, there is very little to warrant the title 'Literature'.

3.2.6 Survey results

The findings from this rapid review of the curriculum documents is consistent with the outcomes from the survey conducted with participants at the public lecture, held on 31 May 2016, at the commencement of the *Rapid Review* in Jakarta. Responses were received from 45 participants with over half being school principals, teachers and university academics. The results from this survey about the respective curriculum documents prepared to support the implementation of *Curriculum 2013,* indicated the following:

- The language in the curriculum documents is not easily understood by everyone;
- The teachers' guidelines are not practical, too theoretical, and there are too few contextualized examples of student activities;
- *Curriculum 2013* seems to have lessened the degree of accommodation of cultural differences in Indonesia compared to previous curriculum, and it is difficult for teachers to develop appropriate approaches in regional contexts;
- The lower primary thematic syllabus is too general and broad, and should be reviewed;
- There should be alignment between the specified core and basic competencies, the student textbooks and the teachers' guides;
- Syllabus documents should be more operational so that teachers can translate them into learning materials and classroom activities;
- There should be alignment between the required competencies to be taught and the formal examinations students are required to undertake;
- The materials in the textbooks often lack context; and

- The content and scope of many textbooks and the competencies ought to be reviewed as there is too much content.

The full set of responses is included at Appendix 8.

3.3 Implementation

The Dikdasmen has responsibility for the implementation of *Curriculum 2013*. Each of the school level directorates within Dikdasmen have responsibility for the provision of training teachers and school principals. That's is, the Primary School Directorate (Direktorat SD) provides the training for SD teachers; the Direktorat SMP provides the training to SMP teachers; and so on. The *Rapid Review Team* heard a number of concerns expressed about the processes of selection of the trainers, and about quality of the training provided. Some of the concerns expressed to the *Rapid Review Team* are outlined briefly, here.

3.3.1 Training and assessment of training

Awareness-raising about the paradigm shifts inherent in the construction of *Curriculum 2013*, and about the requirements for implementation of *Curriculum 2013*, occurs through socialization activities. The implementation of *Curriculum 2013* is then more fully supported through the use of a cascading training approach, using the train the trainer model. That is, trainers are provided with training about the nature of the training to be provided to others, in order to implement *Curriculum 2013*. This approach creates a 'cascading' effect of trainers training others about the implementation of *Curriculum 2013*.

It was not possible for the *Rapid Review Team* to gain access to the content of the training materials used to train the trainers, supervisors, principals or teachers. It was also not possible to review the assessment items used to assess the quality of those trained to the trainers. It would be useful to review these materials to ascertain to what extent these training materials support teachers and principals to make the paradigm shifts required in their teaching in order to successfully implement *Curriculum 2013*. The *Rapid Review Team* however, heard similar and consistent criticisms about the quality of the training provided from many different sources including from personnel in schools, district and provincial offices and from within MoEC.

The responsibility for the development of both student examinations and assessments of those seeking to be trainers, are developed by Puspendik. The *Rapid Review Team* were advised that the assessment of those trained to be trainers was conducted through a computer-based, multiple choice test. This test is used to identify which people are accepted as trainers and those who fail and are rejected. While this approach may be efficient in testing a large number of people, it may not be the most effective way of ensuring that the trainers are of a suitable quality to be able to train others to make changes to their teaching and leadership approaches that are consistent with the requirements of *Curriculum 2013*.

3.3.2 Lack of coordination

There also seems to delineations made between the respective Directorates responsible for the development of the content of *Curriculum 2013* and the associated student textbooks and teachers guides which are the responsibility of the Puskurbuk; and the implementation of *Curriculum 2013*, which is the responsibility of Directorates with MoEC, provincial and district dinas and schools. These responsibilities can be seen from both the flow diagram in Appendix 5 and the organizational diagram in Appendix 6. One of the challenges facing Puskurbuk, is that the writers and editors are often given very tight timelines within which to produce the textbooks and teachers' guides to support the implementation of *Curriculum 2013*. As a result, the *Rapid Review Team* became aware of instances where the curriculum was planned for implementation, but the teachers had not received the necessary textbooks at the time of training, and therefore reported difficulties with implementing the new *Curriculum 2013*.

What is not shown in the flow diagram and organizational chart (Appendices 5 and 6 respectively), is any involvement by Puslitjak for research and evaluation of *Curriculum 2013*; nor are there any feedback loops for accommodating feedback into the *Curriculum 2013* publications, or implementation strategies. While it was reported to the *Rapid Review Team* that social media and websites such as Facebook are used by MoEC for the receipt of feedback, there appeared no formal or productive ways to take account of that feedback. Nor did there seem to be personnel with the necessary authority identified, to make judgements about which feedback to act and not act upon. As a result, it was not apparent to the *Rapid Review Team* that any formal or publicly accountable mechanisms are operating successfully, for monitoring and evaluating either the development and review of the respective curriculum documents, nor the implementation of *Curriculum 2013*.

Furthermore, the Teacher and Education Personnel (GTK) is launching Guru Pembelajar which will give block grants of IDR.35,000,000 to MGMP, but the *Rapid Review Team* were advised that there is no agenda for the MGMP to support the implementation of *Curriculum 2013* through this funding. Prior to the implementation of *Curriculum 2013*, a well prepared, well executed, and effective training program is central. The training has to more than simply socialization of *Curriculum 2013*. The training has to address the transformative concepts that have been deliberately included into *Curriculum 2013*. The training also has to address the ways in which to use the textbooks, and how to make workable and effective lesson plans and associated assessment processes.

Moreover, during the implementation of *Curriculum 2013*, teachers require ongoing assistance from knowledgeable resource people and school-based support people such as the school principal, and the district supervisor. As such, school principals and supervisors require training in how to conduct in-school professional learning, and about how to support teachers in their schools make changes to their classroom practices. Learning these sorts of leadership strategies takes time, and cannot be evaluated through multiple choice, computer-based questions. Furthermore, optimizing education structures, such KKG/MGMP to share the professional development responsibilities, by working in cooperation with LPMP, P4TK and LPTK (for example), would strengthen the professional support for the implementation of *Curriculum 2013*.

Based on the triangulated observations and feedback received, and that there seems to be no overall 'map' or organizational diagram within MoEC that identifies who has what responsibilities for the development and implementation of *Curriculum 2013*, it has appeared to the *Rapid Review Team*, that there is a level of operational fragmentation evident across the respective Directorates with MoEC, which is replicated through the various levels of government with authority to implement *Curriculum 2013*. The concomitant result is that the synthesis of the different initiatives developed to support *Curriculum 2013*, does not occur until they each get to the school level, and they collectively then become the responsibility of principals and teachers. The result of which can be too much content, and too many competing demands on schools. The consequence is a poor implementation of new initiatives, and little change to the quality of the student learning outcomes achieved.

While it is necessary and understandable that different Directorates within MoEC take responsibility for different parts of the development and implementation of *Curriculum 2013*, the result seems to have been a fragmented and dysfunctional approach to these tasks. There seems the need to establish a high-level coordinating group across the respective Directorates that have some responsibility for *Curriculum 2013*, in order to present a more coordinated approach.

3.3.3 Survey results

Participants at the public lecture, held on 31 May 2016, also reported a number of concerns about the implementation of *Curriculum 2013*. One of the most common concerns expressed was that the nature of the training is not focused on teachers learning, but rather on imparting information, which occurs in a short time with a lot of material to cover. As a result, less emphasis is placed on teachers learning and understanding the concepts included in the training materials, and more emphasis on the provision of information. Such an approach to training will not bring about the paradigm shifts that are sought.

Other concerns reported in the survey were as follows:

- Socialization and training of *Curriculum 2013* is too rushed and not well conducted;
- The uniformity in the information provided in the regions has become a constraint to the implementation of *Curriculum 2013* as it does not take account of regional differences*;*
- Training is required to support teachers to develop Lesson Plans and associated authentic assessment tasks;
- The changes from the grading to the scoring system has generated considerable angst;
- The different forms of assessment and the administration associated with the implementation of *Curriculum 2013* confuse teachers;
- Improvements in the monitoring and evaluation of the implementation of the textbooks and training provided is required, and that the methods used should enable suggestions from teachers in schools to be incorporated.

Survey respondents offered the following suggestions to improve the introduction of Curriculum 2013:

- Training should have not be conducted in haste, and the curriculum documents and human resources people should be more seriously prepared;

- Socialization and training should be comprehensively implemented covering general training materials and technical implementation of learning in the classroom;
- Changes to the theoretical framework in the curriculum should be more explicitly addressed in the training and should be related directly to the real and changing needs of students as they get ready to take their place society;
- There should be synergies, consistency and a clear balance between the work of Puskurbuk and Dikdasmen;
- MGMPs should be supported to regularly conduct training to support the implementation of *Curriculum 2013*; and
- Universities should be involved so that pre-service teachers learn about Curriculum 2013.

4. Policy options

These policy options are structured in two parts:

1. Those that can support teachers and school leaders to implement *Curriculum 2013* immediately; and
2. Those that propose more extensive and longer term changes to improve *Curriculum 2013*.

The purposes of the policy options are to propose directions for the following:

- Existing *Curriculum 2013* documents, textbooks and other associated materials;
- Existing Regulations;
- Training and professional learning provided to support the implementation of *Curriculum 2013*.

An underpinning assumption of the following policy options is that they build on and leverage existing human and technology infrastructures and initiatives.

4.1 Policy options for immediate implementation

The focus of the following policy options are offered for immediate implementation for the 2016-17 school year. These options have been structured according to location of responsibility, starting from the school level and moving to the whole of MoEC level.

4.1.1 Communities of practice: school and district levels

Establish and foster at both the school and district levels, small groups of teachers of the same subject and school level, to meet together to share ideas and experiences with assistance from acknowledged exemplary resource teachers or consultants, for implementing *Curriculum 2013*. Consideration could be given to how the KKG and MGMP could support or be reinvigorated to assist teachers and school leaders to implement *Curriculum 2013*.

4.1.1.1 School level

At the school level, school principals have to be empowered to and provide support for teachers of the same subjects and across subjects within their schools, to co-create and share ideas about how to implement, assess and report on *Curriculum 2013*. School principals require professional learning about how to support whole school change; how to lead school-based strategic planning; how to conduct professional learning activities with their staff; and how to mentor and coach staff.

Issues that could be addressed through this approach include how to:

- Prepare a lesson plan
- Design instructional media
- Take a variety of approaches to teaching;
- Prepare, conduct and report on assessments of students' work; and
- Solve issues that seem problematic
- Design methods to apply the textbooks to classroom activities
- Design assessments that support curriculum implementation

- Creatively use ICT and other media in innovative ways
- Use the environment as a teaching tool
- Develop local wisdom based teaching materials
- Implement thematic learning (in elementary schools)

4.1.1.2 District level

At the District level, the existing subject-based, professional learning structures (eg KKG and MGMP) could be energized or re-energized so that small groups of teachers are supported across schools within a district to:

- Co-create and share ideas about how to prepare and implement lesson plans;
- Share ideas about local learning materials;
- Connect with curriculum writers and text book writers;
- Prepare and implement assessment and reporting plans;
- Undertake moderation sessions of students' work across schools; and
- Solve common issues and dilemmas.

The communities of practice could be supported by resource people (eg acknowledged exemplary resource teachers or consultants that work with the KKG and MGMP), who can liaise with relevant senior officers and other stakeholders (eg District Supervisors, Puskurbuk). This approach could be supported through the existing structures where a small number of schools within each district are allocated with a subject-specific resource teacher.

As part of the subject-specific teachers' communities of practice, teachers could share examples of successful lesson plans and assessment rubrics. Once a month or once a semester (for example), these district-level communities of practice could identify the examples they think are of a suitable standard to share with teachers in other districts, through a *K-13 Online National Resource Portal* (see below). The purpose of such an approach would be for teachers to share with other teachers, teaching, assessment and reporting materials they have found effective, and believe would have application in other settings.

If necessary this approach could be extended from the district level to provincial level, bringing together district officials and subject consultants. At the provincial level, teachers could be provided with options and recommendations of materials drawn from the local context (content and coverage); and provincial officers could make recommendations and provide feedback about the implementation to *Curriculum 2013* to MoEC.

4.1.2 Check through all curriculum, textbooks and associated materials planned for use from July 2016, to ensure they are suitable for use

Building on this Rapid Review, all textbooks planned for use in the 2016-17 academic school year, should be thoroughly reviewed and carefully checked before being disseminated. This detailed review should ensure that the scope and sequence of *Curriculum 2013*, is of a suitable standard for each of the respective school levels; and that the textbooks accurately and meaningfully support the content and pedagogical approaches to be covered in the *Curriculum 2013*. A priority list of the most urgent texts could be established first, so that those considered to be most vital could be reviewed first.

4.1.3 Correct all textbooks and other materials that have mistakes, or are currently inappropriate to support a July 2016 implementation of *Curriculum 2013*

It is proposed that those textbooks and other materials that have factual mistakes or are inappropriate for the immediate implementation of the subject, should be immediately corrected and reviewed for quality assurance purposes. Examples of what is required include the following:

- Reduce the length of textbooks that are too long by removing superfluous information or activities (eg junior secondary mathematics textbook);
- Review and correct the text books that require minor edits;
- Review the thematic textbook (elementary school) which imposes subjects that have clumsy transitions from one lesson to an another. Eg *King Purnawarman*, followed by an experiment to learn the character of lighting (Year 4, Theme 5);
- Amend the textbooks and other curriculum materials that have photographs or other images that are an inappropriate or inaccurately present the concepts to be taught (eg farmer in a shirt and tie);
- Correct information included in the curriculum materials or textbooks where statements are inaccurate or expressed in ways that are not appropriate for the age of the students (eg factual science or mathematics concepts);
- Prepare and circulate assessment and reporting templates that are not multiple choice, and accompany these with annotated examples of authentic assessment items.

If changes are to be made to the syllabi, textbooks or any other curriculum materials, then these should be marked clearly, with information such as the date and edition number, to enable version control.

Consideration could also be given to whether the textbooks and other support materials could be circulated electronically to schools or posted on an interactive website that would allow teachers and school leaders to download the materials.

4.1.4 Reconsider the structure of the current training

Training has to move beyond ‘socialization’. The current training provided to support the implementation of *Curriculum 2013* is conducted over five consecutive days by a Master trainer. It is conceptualized as ‘training’ rather than ‘professional learning’: the training is provided so that teachers can learn the technical requirements of implementing *Curriculum 2013*; rather than building critical and creative teachers who thoughtfully reflect on the new paradigms they are being asked to implement.

It is proposed that the structure and content of the training program is reconsidered to support teachers to learn and reflect on what it is they are learning, and to consider the implications *Curriculum 2013* has for their classroom practices. That is, the professional learning should support teachers to learning what and how they have to teach so they are clear about what it is they ought to be doing in classrooms with students.

The professional learning (for example), could be offered over 10 weeks with one day per fortnight allocated to attend a whole day professional learning session. Each of the 5 days could be planned so that teachers build their knowledge, skills and understandings over the 10 weeks. This could be achieved by ensuring that an outcome from each of the 5 days is for the teachers to identify a specific activity they plan to trial and implement in their classroom or school, and then to reflect on what happened. These findings could be used at the start of the next training day, as a mechanism or springboard from which to move to new learnings.

4.1.5 Align approaches across MoEC

It is proposed that a high-level, decision-making group called *Curriculum 2013 Coordination Group* is established to have oversight for the coordinated preparation and implementation across-MoEC of *Curriculum 2013*. The *Curriculum 2013 Coordination Group* should be comprised of the group of senior officers with decision-making responsibilities for the coordination of the development, review and/or implementation of *Curriculum 2013*, and the associated assessment and reporting practices. A Director-General should take responsibility for the organization of regular meetings and outcomes arising from the development and implementation of *Curriculum 2013 Coordination Group.*

The *Curriculum 2013 Coordination Group* should meet at least twice per semester to ensure that there is practical and policy alignment between the actions being taken by the respective Directorates within MoEC, implementing *Curriculum 2013*. This Group could also be responsible for handling the respective feedback loops that should be put in place as a matter of urgency. The first step could be the development of an 'Alignment Plan' for the coordinated development, review, implementation of and feedback to *Curriculum 2013*. The development of such a plan should involve all the relevant Directors and Directors General, across MoEC including for students' and staff assessments (eg teacher, principal and supervisor assessments).

An immediate outcome from the *Curriculum 2013 Coordination Group* could be to prepare and circulate an organizational map or flow chart which highlights which parts of MoEC have specific responsibilities for the development, review and implementation of *Curriculum 2013.* So that there is coordination across MoEC, and so that each Directorate supports the work of the other Directorates, the 'Alignment Plan' should be focused on:

- what is to be implemented in schools;
- what are the respective policies or regulations and practices that have to be in place to enable schools to implement the requirements;
- what are the timelines for achieving outcomes in schools;
- what communication strategies are required;
- who are the stakeholders who should be involved;
- what strategies are currently missing.

Consideration could be given to whether the *Curriculum 2013 Coordination Group* should include key officers responsible for policies or regulations about pre-service teacher education.

4.1.6 Implement international workshops for senior officers and faculty

To support informed implementation of *Curriculum 2013*, consideration could be given to whether senior officers and their respective faculties, at all levels of *Curriculum 2013*, (from development through to assessment and reporting), should participate in workshops with international experts, about specific issues related to the *Curriculum 2013*. These workshops could include:

- Linking curriculum outcomes with authentic student assessments;
- Developing principals and supervisors as curriculum leaders in their communities;
- Approaches to co-creating, writing and reviewing national textbooks;
- Approaches to vocational education and training in schools and beyond;
- Approaches to national quality assurance of curriculum and assessment strategies.

4.1.7 Consider postponing the next phase of implementation of *Curriculum 2013*

It is apparent from the documentation received and from the observations and conversations held by the *Rapid Review Team*, that *Curriculum 2013* and the associated textbooks and teachers' guides, were developed in a very rushed manner. Subsequently, the training and in-school implementation of the *Curriculum 2013* has also been rushed: to the point of generating a many errors, and a considerable backlash to the introduction of *Curriculum 2013*. Many of the problems with the textbooks could be resolved if more time were given to their conceptualization, writing, trialing, and editing before implementation. Given the immediate policy options proposed in this report, consideration could be given to whether the next phase of implementation of *Curriculum 2013* in July 2016, is too early.

4.2 Longer term policy options

The following longer term policy options are proposed to work incrementally to continue to build alignment between the curriculum, assessment and reporting requirements necessary for the implementation of *Curriculum 2013*. Considering policy options over a longer period of time provides the opportunity to restructure policy, curriculum and assessment regulations and supporting documentation.

4.2.1 Review and simplify all the relevant regulations relating to *Curriculum 2013*

All regulations that are relevant to *Curriculum 2013* and associated assessment and reporting requirements should be reviewed, simplified and presented in way that makes it clear which regulations are dependent on other regulations. The regulations should move away from the presentation of competencies that are so atomized that they become a constraint rather than an enabler of learning. Syllabi should avoid artificial boundaries between 'skills' and 'knowledge', and instead present learning requirements that are holistic and that enable meaningful contextualizing to local contexts.

4.2.2 Establish robust feedback mechanisms of the syllabi, textbooks and associated materials planned for use from July 2017

Establish ongoing feedback structures that can be enacted, to enable feedback to all the relevant regulations and texts. These feedback loops should support input from teachers, principals, parents, students, consultants, district superintendents, academics and senior education officers within MoEC and the Ministry for Religious Affairs (MoRA). These feedback loops could be inbuilt to the *Curriculum K-13 National Resource Portal* (see below).

4.2.3 Link curriculum, assessment and reporting

Consideration could be given to moving away from competency-based curriculum and computer-based assessments, to supporting teachers and trainers to use a broader range of assessment approaches that are directly linked to the content and requirements of *Curriculum 2013*. To make such changes, teachers, principals and district superintendents will require varying types of professional support. Some suggestions for such support are addressed in the following set of policy options.

4.2.4 Reconsider *Curriculum 2013* and SMK requirements

The scope and sequence of what SMK students study should be reviewed to ensure it is of an appropriate level and current for workplace requirements. In particular, the mathematics and language requirements for SMK students should be reviewed and more carefully aligned with the workplace requirements appropriate to the respective industries into which students plan to graduate. Input into the SMK curriculum requirements could be sought from relevant industry representatives. Once the SMK curriculum and assessment requirements have been reviewed and updated, then the SMK teachers will have to undertake specialized professional learning to ensure they can teach and assess the revised SMK requirements.

4.2.5 K-13 Online National Resource Portal

It is proposed that an online *Curriculum K-13 National Resource Portal* is developed that builds on an existing national website (eg WAPIK), and provides sufficient functionality to support and host the following:

- All syllabi, regulations, textbooks, templates and other relevant print-based materials that can be downloaded in order to teach *Curriculum 2013*;
- The upload by teachers, principals and those in districts of lesson plans, examples of assessment and reporting rubrics and approaches, annotated examples of students' work, and samples of teaching materials;
- Online discussions by teachers and school principals about challenges and issues being faced in schools;
- Examples of school-based strategic plans for implementing *Curriculum 2013*;
- Videos of exemplary teachers conducting lessons;
- Videos of exemplary principals leading professional learning with their staff;
- Feedback to extant *Curriculum 2013* materials;
- Research reports about relevant topics (eg authentic assessment);
- A Frequently Asked Questions (FAQ) page;
- News items, that is up-to-date and accurate.

The portal could also be used to support the planned development of digital resources to progressively supplement hard copies of text books, ie 'e-books'. Puskurbuk could undertake a regular meta analysis of the samples of students' and teachers' lesson plans and assessment materials to inform the future development of text books.

The *Curriculum K-13 National Resource Portal* could also be developed as a mobile phone or tablet app, which could then also be associated with using social media for discussions about specific curriculum, assessment or reporting issues.

This policy option is proposed as an electronic resource to all levels of MoEC: from schools to the respective central Directorates, and could be used to provide feedback loops that are currently missing from the implementation of current policies and practices.

4.2.6 Promoting regular professional learning

Teachers, principals, supervisors and staff in the LPMP and P4TK all require specific professional learning to support their respective roles in the implementation of *Curriculum 2013*. Their requirements differ according to where they are placed in the phase-in of the implementation of *Curriculum 2013*. Resources to support principals to conduct in-school professional learning, train-the-trainer materials and regular professional learning sessions should be developed that support principals and teachers to be professional leaders in their school communities.

The training materials used by LPPKS to develop school principals should be updated to take account of the leadership requirements on principals for implementing *Curriculum 2013*. These materials should address the following topics:

- the theoretical framework that has informed the development of *Curriculum 2013*;
- relationships between curriculum, assessment and reporting;
- approaches to the leadership of in-school professional learning over time, to support teachers' to consistently implement *Curriculum 2013*;
- approaches to meaningful coaching and mentoring that leads to deliberate school improvement.

4.2.7 Preservice teacher education

To bring about the desired and ongoing paradigm shifts, pre-service teacher education programs should be updated to cover the theoretical framework and requirements of teaching, assessing and reporting of *Curriculum 2013*.

4.3 Other policy options

One of the challenges that has emerged in the *Rapid Review of Curriculum 2013*, has been a lack of accurate and effective communication channels from MoEC to provinces and districts, to principals and teachers in classrooms, and vice versa. Given the extent of mobile phone coverage across Indonesia, consideration could be given to the use of messaging systems, mobile phone or tablet apps, which house news items and teaching and assessment materials.

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Appendices

Appendix 1: Literature Review

Introduction

Indonesia is progressively introducing *Curriculum 2013* (K-13), with implementation in all schools expected to be achieved by 2019.*Curriculum 2013* (K-13) represents a paradigm shift in the way teachers, school principals and education officials understand and implement curriculum policies and practices in Indonesia. *Curriculum 2013*has grown out of the *Competency-based Curriculum* of 2004, and replaces the school-based *Curriculum 2006*, which decentralized the responsibility for curriculum implementation to the school level.

The purpose of this Literature Review is to examine selected curricula from around the globe in order to enable comparisons to be made about key curriculum issues facing Indonesia, and to identify potential lessons that can be learned. The focus for this paper has been on national and local curriculum reforms undertaken in developing and high performing countries in the same geographical region as Indonesia (ie South East Asia), and in selected developed countries.

Appendix 1.A provides a summary of six national, one state and one city's approaches to curriculum and implementation, along with rankings on international tests.

'Curriculum' for the purposes here is considered to be a statement of what students should learn and be able to do at various levels throughout school education. It is recognised through, that curriculum policies are often contested, as they are statements which propose the ways in which a given society plans to reproduce itself, and the values that nation particularly wishes to promote.

There is an increasing desire expressed by some developing countries including Indonesia, to improve their students' performances on international standardized tests such as *Trends in* in International Mathematics and Science Study (*TIMSS),*Programme for International Student Assessment*(PISA)* and Progress in International Reading Literacy Study*(PIRLS)*. Results from *PISA 2012*, saw Indonesian students ranked 64th, of the 65 nations that participated in the mathematics and science tests, and 63rd in reading (Organisation for Economic Development, (OECD), 2014).

These results compare with Indonesia's near neighbours the Republic of Korea, Hong Kong and Singapore, who were ranked in the top 5 countries, and with Vietnam which was ranked in the top 20 countries (OECD), 2014). Indonesian students were ranked 41st (of 45 countries) on mathematics, and 42nd for science in *TIMSS 2011;* and 42nd (of 45 countries) in *PIRLS, 2011* (Mullis, Martin, Foy & Drucker, 2012; Thomson, Hillman & Wernert, 2012).Unlike Indonesia, India withdrew from both the 2012 and 2015 rounds of *PISA*, and did not participate in the 2011 rounds of *TIMSS* and *PIRLS*. The Philippines however, has indicated it will participate in the 2018 round of *PISA*.

While the educational purposes of international tests are sometimes questioned, it is nonetheless instructive to look at the countries nearby to Indonesia that are performing well, to consider the nature of the curriculum reforms undertaken in these countries. In so doing, insights both positive and negative may be gained, that can then be applied in other contexts. Furthermore, countries such as the Republic of Korea, Singapore and Hong Kong, like Indonesia, were fragile states whose sovereignty were under threat in the 1960's. These

countries are now among the highest performers on international tests, and so their experiences may offer some insights into how to reform school education curriculum.

Structure of the Literature Review

Strong links between education policy and practice are required to implement curriculum reforms, along with effective coordination across government. This Literature Review is organized around the following main themes that are pertinent to the Indonesian context:

- Curriculum aims
- Curriculum and pedagogies
- Curriculum structure
- Curriculum, assessment and reporting
- Textbooks
- Teaching and leadership capacity.

Curriculum aims

Like many countries such as Finland and Korea, the main aims or objectives and broad lines of education policy in Indonesia are defined at central level, with the responsibility for their implementation held at the local level. Common aims of national curriculum reforms in developing countries such as Indonesia, are to rapidly expand access to education, achieve equity, and to improve the quality of education. The Indonesian Ministry of Education and Culture (MoEC) *Strategic Plan* indicates the following aims:

1. Empower actors of education and culture
2. Assure nation-wide and equal access to quality education
3. Improve the quality of learning
4. Preserve cultural heritage and develop language
5. Strengthen good governance and improve the effectiveness of the bureaucracy and public engagement (Ministry of Education and Culture, Indonesia, 2016a).

These aims share some commonalities with the United Nations *Sustainable Development Goals* (SDG), which form part of a wider agenda for sustainable development. Education is identified as one of the 17 goals for sustainable development. Goal 4 aims to "ensure inclusive and equitable quality education and promote lifelong learning outcomes for all" (United Nations, 2015, p1). National approaches to achieving this Goal include curriculum and pedagogical reforms.

In Indonesia the reasons *Curriculum 2013* being introduced include the following aims:

- strengthen the national identity;
- move to a knowledge-based economy;
- improve Indonesia's performance on *TIMSS , PISA* and *PIRLS*;
- embrace globalization and link education to strategies to improve Indonesia's economy (eg Indonesia's involvement with the World Trade Organization (WTO), Market Expansion (ME), Association of Southeast Asian Nations (ASEAN), Asia-Pacific Economic Cooperation (APEC), Central America Free Trade Agreement (CAFTA));
- address environmental concerns;

- accommodate advances in information and communication technologies (ICT);
- address the convergences of science and technologies;
- support the emergence of creative and cultural industries in the Indonesian economy;
- achieve better efficiency on the education investments; and
- improve the quality and the transformation of the education sector (Ministry of Education and Culture (MoEC), 2016b).

One aim, common in many countries' national curricula,(including in England, Hong Kong, Singapore, Korea and the city of Shanghai), is an explicit emphasis on both personal and national values in the context of globalisation. The Indian and Hong Kong national curricula place an emphasis on educating the 'whole child'(Education Bureau, Hong Kong 2016; National Council of Educational Research and Training (NCERT), 2005);while in Singapore, the curriculum has focussed on the provision of education that fosters the abilities and interests of students (Ministry of Education (MoE), Singapore, 2016).

In several countries, curriculum aims and the pedagogies to implement the curriculum are conceptualised concurrently. In Singapore for example, there is an emphasis placed on being pragmatic rather than ideological; there is consistent, high level, multi-agency government coordination; and consistency and stability in the policies influencing school education over time. In Ontario, Canada, there is the aim of ensuring teachers use pedagogical approaches that best suit their students' respective learning styles (Ontario Ministry of Education (2016). In other words, in these countries' policies, there is a symbiosis between their stated curriculum aims and the pedagogies envisaged to achieve these aims.

Curriculum and pedagogies

The subject disciplines in *Curriculum 2013* in Indonesia are underpinned by *Bloom's Taxonomy,* which ranges hierarchically from 'remember' content through to 'create' specific content (Bloom, Engelhart, Furst, Hill, Krathwohl, 1956). *Bloom's Taxonomy* emerged from attempts to make assessments more systematic and to support multiple choice questions, but the *Taxonomy* is expressed as a hierarchy of complexity of learning specific content. Indeed, the focus of *Curriculum 2013*based on *Bloom's Taxonomy*, means that students learn subject-specific knowledge to different levels of complexity.

In comparison, countries such as Australia, Finland and several states in the United States of America (USA) have structured their curricula to include the development of both discipline content and general capabilities such as literacy, numeracy, problem-solving, and creativity. As a result, importance is placed on curriculum coherence and alignment between the curriculum aims, content, teaching and learning or pedagogical practices, assessment and reporting requirements. In some countries this alignment also includes policies about the textbooks to be used (see for example, Oates, 2014).

Another consistent and related aim of curriculum reforms across the globe has been to move away from a curriculum focused on learning facts often through rote learning, to a curriculum that supports student-centred learning and the development of more generic capabilities such as problem-solving, creativity, innovation and critical thinking. In Korea for example, the development of creativity, higher order thinking skills, and problem-solving are key foci in their curriculum. Similarly, since 1997 when Singapore's school education policy *Thinking*

Schools, Learning Nation was created, there has been an emphasis on developing creative thinking skills, lifelong learning and the development of a culture of innovation. The *National Curriculum* in India explicitly states that learning should not rely on rote methods of teaching (NCERT, 2005).

Technologies and the curriculum

Over the past two decades, teaching and learning with technologies has consistently been promoted as a way to build access to learning, and to build innovation in the school system. The *Sustainable Development Goals* identify the use of technologies as one of the enablers to achieve *Goal 4: Education* (United Nations, 2015). In Indonesia however, while *Curriculum 2013* advocates that students use ICT to assist with their studies, the subject 'Information Technology' has been removed. Most countries in the South-East Asian region however, are placing a priority on teaching and learning with technologies.

In Hong Kong for example, in the 2015-16 school year, the Government launched the *Fourth Strategy on Information Technology in Education* (ITE4),which covers six actions: upgrading of WiFi infrastructure in all public sector schools; enhancing the supply of quality e-learning resources; renewal of curriculum and transformation of pedagogical and assessment practices; building professional leadership and capacity; building community involvement; and conducting on-going research and evaluation studies for coherent and sustainable development of the use of technologies in school education (Government of Hong Kong, 2016).

In Singapore, *Thinking Schools, Learning Nation* encompassed a wide range of initiatives that have been consistently implemented since 1997, with the underpinning aims remaining consistent for almost two decades. These initiatives have included deliberate and meaningful use of technologies for teaching and learning, which has transformed the systemic infrastructure of education (OECD, 2010).

The Korean *National Curriculum* promotes the use of ICT in classrooms, and recommends that for every subject, more than 10 per cent of classroom time is allocated to using computers (Center on International Educational Benchmarking, 2015). One of the general capabilities identified in the *Australian Curriculum* is 'ICT Capability', which includes primary students learning how to program and code software (Australian Curriculum, Assessment and Reporting Authority,(ACARA) 2013). Furthermore, in several African countries, the use of ICT to support students' learning, is a key policy focus, with policymakers accepting that access to ICT can help create a skilled work force and facilitate social mobility. The *e-Learning Africa Report 2015*, documents the extent of progress and impact being made in several African countries with using technologies for education purposes (Elletson & Burgess, 2015).

Compared to its near neighbours, and to other developed and developing countries, Indonesia's approach to ICT in the curriculum and in teaching and learning, rather than being futures-focused, is more consistent with past, 20th century practices.

Curriculum structure

Many countries across the globe have accompanied curriculum reform with increasing the autonomy of schools. In Korea for example, although the *National Curriculum* is centralised, it has placed an emphasis on decentralising the control for implementing the curriculum, and increasing the autonomy of schools. This direction is consistent with the Indonesian context.

One of the challenges arising from the implementation of *Curriculum 2013*however, is a concern about the over-crowding of the curriculum. This is a trend that has been common to many countries as they have revised and implemented new curricula (United Nations Educational, Scientific and Cultural Organization (UNESCO), 2003). In the Philippines for example, an overcrowded curriculum was blamed for low levels of achievement among students, and for delays in the development of generic competences. Research showed however, that teaching of extensive subject matter tended to have taken priority over in-depth learning, with relatively little time provided to implement the extensive curriculum (UNESCO, 2003).

When introducing *Thinking Schools, Learning Nation*, the Ministry of Education in Singapore deliberately looked at how it could cut back on the amount of content knowledge that students were required to learn. Instead they placed an emphasis on encouraging teachers and students to spend more time on projects that would support students to develop thinking and learning skills (Goh, 1997). While in Korea, a review of the *National Curriculum* resulted in a move away from rote learning of fragmented knowledge, to a 30 per cent reduction in the subject content students covered each year (National Council for Curriculum and Assessment (NCCA), 2010).

Integration of the curriculum

The integration of curriculum has also emerged as a consistent trend in school education. In *Curriculum 2013*, integration of subjects is intended to occur in several ways. Firstly, in grades 1 to 3,science is intended to be integrated into the Bahasa Indonesian curriculum. Secondly, local content is intended to be integrated into Art and Culture, Craft and Physical Education. Thirdly, ‘character education’ is intended to be integrated into religious education, as well as in other subjects and in extra curricula activities (Ministry of Education and Culture, 2016b). It is unclear what theoretical foundations are intended to support the integration of curriculum in *Curriculum 2013*, as little guidance seems to be offered by the Ministry of Education and Culture in Indonesia, to teachers about how it is intended that an integrated curriculum should be implemented.

Figures 1, 2 and 3 below, provide illustrations of different approaches to curriculum integration, with Figure 1 illustrating how integration of the curriculum can occur within a specific subject area. Figure 2 illustrates how generic skills such as literacy, numeracy and thinking skills can be integrated across subject discipline areas. Figure 3 illustrates how a theme can be identified and then different subjects can be utilized for students to gain deep knowledge and understanding about that theme.

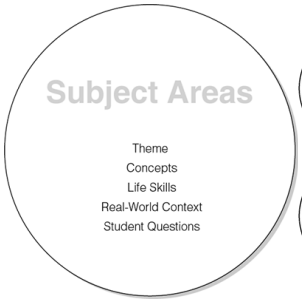

Figure 1:
Integration within a subject area

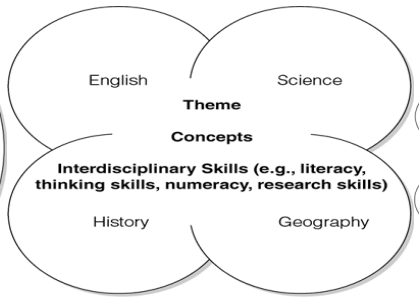

Figure 2:
Integration across subjects

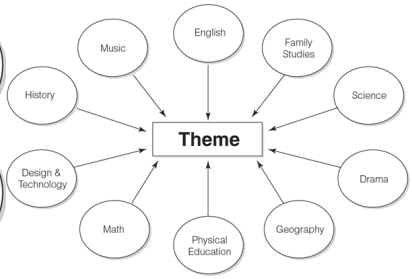

Figure 3:
Using a theme to integrate subject knowledge

(Drake & Burns, 2004).

In Korea, the integration of subject areas is promoted through moral education (so that students have a disciplined life); social studies and science (for an intelligent life); and physical education, music and the fine arts (for a pleasant life) (NCCA, 2010). An emerging trend in several countries including Australia, the USA and the United Kingdom (UK), is the promotion of integrating Science, Technology, Engineering and Maths (STEM) as an integrated suite of subjects.

Related to issues about whether to, and if so, how to integrate the curriculum, is also the question about whether a suite of mandatory core subjects is required in a national curriculum. Some developed countries and some developing countries identify a core set of subjects that are mandatory for all students to study at school. Donnelly and Wiltshire (2013) have argued for example, that a core set of subjects is required, to ensure a level of equity in the implementation of a national curriculum.

Curriculum, Assessment and Reporting

One of the challenges for countries undertaking curriculum reform, is to ensure that the assessment and reporting processes support the aims of the curriculum, and provide feedback to students, teachers and parents about whether progress in learning is being made. While performances on international tests provides national insights, if individual students are to improve their learning, they require regular feedback to their performances on regular classroom activities. As such, coherence between teaching methods, learning outcomes, assessment and reporting approaches is required if students are each to improve their learning over time.

An important risk to be avoided is to introduce too much testing, that then detracts from students' learning. This risk of 'teaching to the test', was recognised in 1997, by Singapore's President Goh Chok Tong, in his speech to the *International Conference on Thinking* where he outlined his vision for *Thinking Schools, Learning Nation*. He specificallyrecognized that strict, centrally-controlled curriculum and a heavy emphasis on testing students' knowledge of factual content, would not serve Singapore well (Goh, 1997). He stated that what is critical is that "… we fire in our students a passion for learning, instead of studying for the sake of getting good grades in their examinations" (Goh, 1997, p2).

A challenge for Indonesia is to provide meaningful feedback to students, so that they can improve their learning. Currently, there is a heavy emphasis on the use of multiple choice tests. While multiple choice tests can be administered relatively quickly, they tend to only assess factual, and lower order thinking. Authentic assessments which focuses on contextualized tasks, provides students and teachers with better information to inform their future learning.

Textbooks

Some governments in high performing countries generate their own textbooks, while others do not. Reviews of curriculum that also include a review of textbooks tend to highlight the role of high quality textbooks in realising the aims of national curricula and supporting effective teaching (see for example, Oates, 2014). The textbooks by their very nature, provide the detailed knowledge implicit in the national curriculum through the descriptions of the content that have to be taught.

As part of the review of the *National Curriculum* in the United Kingdom (UK), over 200 teacher textbooks, teacher guides and student workbooks from several different countries, for use in both primary and secondary schools, were studied. These resources were drawn from Hong Kong, Singapore, Finland, Massachusetts, England, and Alberta. Although the subject of Mathematics was the key focus, textbooks for geography, physics, chemistry, biology, history, literature and first language learning were also reviewed (Oates, 2014). The findings from this study advocated for government-produced textbooks, but it was also acknowledged that the "… frequent change in the form and content of national qualifications poses considerable challenges to production of high quality textbooks" (Oates, 2014, p4).

In Korea, there has been a tradition of both the Government and private publishers generating textbooks, but this direction seems to be changing with more Government-generated textbooks being released. Government generated textbooks are now also being viewed as another arm of State authoritarianism, as can be seen by the recent demonstrations in the Republic of Korea, (BBC News, 2015).

Australia on the other hand, does not prescribe textbooks, and the Government does not produce textbooks. The production of hardcopy and online textbooks (or e-books) and other teaching materials, is left to the private sector. These materials include teaching guides, student workbooks, literacy packs, interactive whiteboard software, classroom kits and reading boxes.

Where governments do not freely provide textbooks, a challenge for families can be the cost of purchasing these resources, or to purchase cheaper but perhaps, out of date books. Recent initiatives in Poland, however, are aimed at providing free, open-licenced textbooks into classrooms. Textbooks are made available online and due to the use of an open education licence, can be adapted, translated, and improved upon by teachers and students. This approach is known as a national open textbook approach. Poland is the first country in the world to adopt this program. The Polish Government has implemented two open textbook initiatives: one specifically for the first three years of school; and the other for primary and secondary education across all subjects. This approach enables teachers to

enrich the standard curricula with local materials developed within the school community through student projects or parental input, which is making the lessons more relevant and interesting to students. Interest in this initiative is being taken by governments in the Czech Republic, Macedonia, Moldova, Romania, Slovakia, Kyrgyzstan, and Tajikistan. This initiative is being supported by the Open Society Foundations (Hagemann&Hugyecz, 2016).

Teaching and leadership capacity

The implementation of national curricula through decentralized systems, is dependent on the capacity of teachers and school principals. Pritchett & Beatty (2012) point out however, that there is cumulating evidence that the relationship between the number of years a child attends school, and the measures of student performance, are 'too flat'; by which they mean that children are learning too little from each year at school. As such, a key question for countries such as Indonesia, is why is there so little learning being demonstrated, and what can be done about it?

Curriculum 2013 is a large scale curriculum reform aimed at altering school leadership and teachers' pedagogical assumptions, teaching methods, classroom organization and assessment strategies. Simply re-writing the curriculum will not lead to substantive, changed practices by teachers, or improved learning outcomes from students. An extensive approach to building the capacity of all those who work in school education systems is necessary to bring about large scale reforms, since the nature of the provision of school education is discretionary, in that teachers have to use their own judgements about how to teach the curriculum. Pedagogical practices are also variable as students are not an homogenous group, and teachers use a variety of teaching styles. School education is intensive, as learning is produced through multiple, thoughtful and frequent interactions and activities. Large scale curriculum reforms therefore require sustained preservice and inservice professional learning to enable their implementation.

It is problematic to try to break down the learning process into a set of discrete actions that can easily be imposed within an education system to deliver learning for all. Identifying single, technical solutions for individual system elements (eg teacher development, curriculum design and implementation, school management) are not sufficient to raise learning outcomes by themselves. Instead it is necessary for policymakers to understand how and why certain solutions are (or are not) adopted and adapted effectively within a specific context.

McDonald (2003) has identified three models of curriculum reform: the 'top-down' approach of a 'teacher proof' curriculum, popular in the 1960s and 1970s, and reappearing in some recent standards-based approaches such as in Indonesia; the 'bottom-up' approach of school-based curriculum development plus action research; and approaches through collaborative partnerships of schools, professional associations and other stakeholders. McDonald (2003) argues though, that each of these approaches are based on modernist assumptions about knowledge, where students are positioned as consumers in a regulated education system (Gilbert, 2011), rather than as agents active in their own learning.

If 'top-down' or centralized approaches to curriculum reform are to be implemented, they have to be associated with long-term, curriculum renewal process that actively seek the

'buy-in' of teachers and school principals. Without ownership of the proposed changes, the curriculum initiatives will be ineffective. Indeed, studies show that teachers in all contexts struggle to implement centralized curriculum reforms, whether they are in post-colonial countries such as South Africa, Namibia and Botswana, or well-resourced, developed countries such as the UK or Australia (Westbrook, Durrani, Brown, Orr, Pryor, Boddy& Salvi (2013), if school communities do not feel a commitment to the proposed changes.

Studies in China (Ni, Qiong, Li & Zhang, 2011), Thailand (Sahasewiyon, 2004), and Peru (Balarin & Benavides, 2010) have all found that supporting teachers when implementing a new curriculum initiative, is key to developing higher-level teaching. A study from Ghana shows that without ongoing 'scaffolding' teachers tend to default to traditional, directive teaching approaches (Agyei & Voogt, 2011). Studies also show that teachers often misunderstand the intentions and meaning of new curricula, partly due to a mismatch between pre-service teacher education and the curriculum required to be taught in schools (Mizrachi, Padilla, & Susuwele-Banda, 2010). Longitudinal studies investigating the scaling-up over five to ten years of national curriculum reforms and the influence of different interventions are required, to enable deeper insights about what does and does not work. Nonetheless, the implementation of large scale curriculum reforms does appear to require deep, subject-focused, transformative learning on the part of teachers, if such learning is to lead to substantive changes in core instructional practices.

Summary

The implementation of *Curriculum 2013* represents a paradigm shift in the ways teachers and school leaders have to conceptualise the curriculum, teaching and learning, and assessment and reporting requirements to be enacted in schools.

While national curriculum policies such as those in Indonesia, establish the requirements for school education, the implementation of the curriculum, is by its nature, decentralized. Management and institutional reforms, such as centralized curriculum development and decentralized curriculum implementation, are designed to improve efficiency, accountability, and responsiveness in the provision of education. Reforms to decentralize the provision of school education however, usually follow on from the assumption that centralized education systems often are not responding adequately to local needs. Decentralization reforms are therefore meant to encourage local participation and ultimately improve coverage, efficiency and quality.

Centralized curriculum reforms and their implementation in many countries including England, Finland, Hong Kong, Singapore, Korea, some countries in Africa and in the city of Shanghai, provide insights into what has worked and has not worked in those countries. Some of the lessons that studies from these countries show, is that to bring about curriculum reform requires

- a curriculum structure that includes a knowledge base and the development of generic capabilities that includes explicitly stated personal values and attitudes;
- a suite of mandatory core subjects that includes a much stronger emphasis on personal development, including values and physical education;
- a focus on improving the quality of teaching and school leadership;

- the use of both external and school-based assessment and evaluation that is aimed at the close monitoring of students' progress; and
- an aligned and sustained approach to pre-service education and inservice professional learning.

A summary of the features of several countries' approaches to curriculum and implementation can be found in Appendix 1.A.

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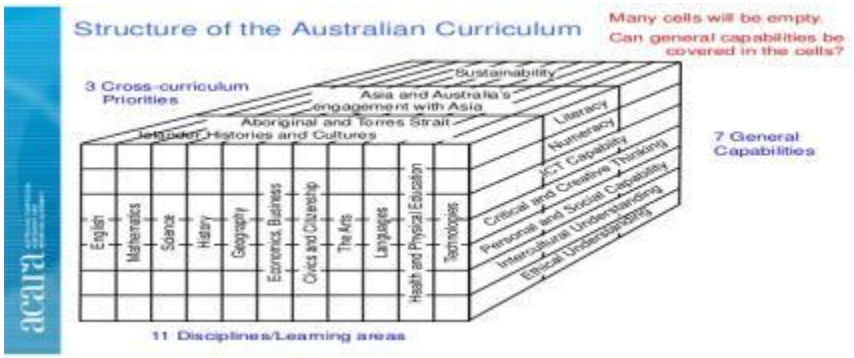
Appendix 1.A: Comparisons of Features of National School Curricula and Implementation

The following summary presented here in Appendix One, is based upon one prepared for the *Review of Australian Curriculum* (Donnelly & Wiltshire, 2014). It has been adapted and amended to take into account additional issues of interest to the Indonesian context.

Australia

Curriculum and Assessment

AUSTRALIA	
Curriculum aims	The Melbourne Declaration on Educational Goals for Young Australians is the overarching, national policy for school education upon which the Australian Curriculum is based. This Declaration has two goals: 1. Australian schooling promotes equity and excellence; and 2. All young Australians become: o Successful learners o Confident and creative individuals o Active and informed citizens
Curriculum structure	The Australian Curriculum is comprised of ● Discipline knowledge (English, Mathematics, Science, History, Geography, Economics and Business, Civics and Citizenship, The Arts, Languages, Health and Physical Education, Technologies) ● General capabilities (Literacy, Numeracy, ICT capability, Critical and creative thinking, Personal and social capability, Intercultural understanding, ethical understanding) ● Cross curriculum priorities (Sustainability, Aboriginal and Torres Strait Islander Histories and Cultures, Asia and Australia's engagement with Asia) 
Core curriculum	There are no formal 'core' subjects in the Australian Curriculum
General capabilities	The Australian Curriculum has seven general capabilities (Literacy, Numeracy, ICT capability, Critical and creative thinking, Personal and social capability, Intercultural understanding, ethical understanding)

Mandatory subjects	The Australian Curriculum does not mandate subjects. Most jurisdictions – the Australian Capital Territory, the Northern Territory, Queensland, South Australia and Tasmania – have adopted the Australian Curriculum as published by the Australian Curriculum, Assessment and Reporting Authority (ACARA) as the primary source from which schools develop learning programs and lesson plans appropriate for their students. New South Wales and Victoria have adapted Australian Curriculum content to incorporate it into their existing curriculum structures. For example, the Australian Curriculum endorsed to date has been adapted for incorporation into the New South Wales' Foundation–10 syllabus. In the syllabuses the mandatory *Australian Curriculum* content descriptions have been supplemented with additional explication for teachers, as well as additional content direction. The syllabus is also presented in a two-year stage structure and not the single year structure developed by ACARA. Victoria has incorporated the Australian Curriculum F–10 for English, mathematics, history and science within its existing AusVELS curriculum framework. It states on its website that AusVELS uses an 11-level structure to reflect the design of the new Australian Curriculum while retaining Victorian priorities and approaches to teaching and learning. Western Australia has adopted the Australian Curriculum for the phase 1 learning areas of English, mathematics, science and history; however, indicated in its submission to the Review of the Australian Curriculum that the curriculum for phases 2 and 3 is 'not suitable for implementation' in its current form, and will be subject to revision in that jurisdiction. All jurisdictions are continuing to use existing state and territory curricula and syllabus documents for learning areas that have not, as yet, finalised comparable Australian Curriculum. States and territories have agreed to endorse the senior secondary (Years 11 and 12), as the agreed and common base for the development of state and territory senior secondary courses.
Religious education	There is no requirement to teach 'religion' as a specific subject in the Australian Curriculum.
Stages versus years	The organisation of schools in Australia is a state and territory responsibility, rather than one specified in the Australian Curriculum.
Textbooks	The Australian Government does not produce or authorise textbooks.
Assessment	Australian Government legislation requires that all schools report to parents twice per year using a five-point scale, reported as A, B, C, D or E (or on an equivalent five-point scale) for each subject studied, clearly defined against specific learning standards.

The method for assessing and reporting against this scale can vary between jurisdictions.

In its submission to the Review of the Australian Curriculum, BOSTES NSW states that in the Australian Curriculum F–10:

> the achievement standards are presented through a model where C represents the very broad centre of a normal range of achievement against the standard. This approach has been adopted by most jurisdictions. The New South Wales' assessment and reporting model, however, does not align directly with ACARA's model. In the New South Wales standards-referenced approach, A to E grades are awarded against course performance descriptors; there is no assumed distribution of grades for any year level.

Descriptors attached to the A to E scale differ between jurisdictions. For example, a comparison of descriptors for A to E reporting for Tasmania and South Australia follows:

	Tasmania	***South Australia***
A	Indicates that a student is performing well above the standard expected	*Your child is demonstrating **excellent** achievement of what is expected at this year level*
B	Indicates that a student is performing above the standard expected.	*Your child is demonstrating **good** achievement of what is expected at this year level*
C	Indicates that a student is performing at the standard expected	*Your child is demonstrating **satisfactory** achievement of what is expected at this year level*
D	Indicates that a student is approaching the standard expected	*Your child is demonstrating **partial** achievement of what is expected at this year level*
E	Indicates that a student is performing below the standard expected.	*Your child is demonstrating **minimal** achievement of what is expected at this year level*

For students in Years 1 and 2, Queensland uses the five-point scale of 'very high', 'high', 'sound', 'developing' and 'support required' to explain students' understanding of required concepts, facts and procedures.

	In addition to A to E reporting, each jurisdiction can have their own requirements for reporting to parents. Victoria, for example, has mandatory additional requirements for student report cards including: ● a graphical representation that shows achievement against the expected AusVELS during the reporting period, as well as achievement in the preceding 12 months (i.e. where the child was placed against expected standards in their previous year of school compared to their current achievement) ● a graphical representation to show a child's work habits (effort and behaviour in class) ● written information about what a child knows and can do, where the child may need additional support or to be extended, how the school will provide that assistance and what parents can do at home to help their child's learning ● student involvement in reporting through student comment and in secondary school, student identification of their own personal learning goals ● parental involvement in reporting through parent comment ● details of absences.

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Implementation

AUSTRALIA	
Ages of compulsory school attendance	The age at which schooling becomes compulsory is six years in all states and territories, except Tasmania, where it is five years. The National Youth Participation Requirement includes the mandatory requirement for all young people to participate in schooling until they complete Year 10, and to participate full time in education, training or employment, or a combination of these activities, until the age of 17. Policy on promotion and retention varies by state but, generally, there is automatic promotion for Grades 1–8.
Length of school day	The length of the school day is generally set at a school level, depending on locally-based factors. Some jurisdictions do provide guidance on school hours of operation. In Queensland most schools hold classes from 9 am to 3 pm, in the Northern Territory most schools are open from 8 am to 2.30 pm, and in Victoria most schools are open between 8.30 am and 3.30 pm, and schools must provide a minimum of 25 hours of instruction time per week.
Number of days in school year	In Australia in 2014 there is about 39 weeks of tuition, though will vary by a few days per year across jurisdictions.
Number of school days in a week	5 days
Streaming	There are no national policies about streaming in schools.
Teachers' qualifications	The qualifications required of teachers to become registered depends on the requirements of each state and territory, but generally, successful completion of a four year undergraduate teacher education program is required. Entrants into initial teacher education must possess personal literacy and numeracy levels broadly equivalent to the top 30% of the population.
Teachers' registration	Teachers' registration is the responsibility of the respective state and territory teacher regulatory authorities. These agencies are responsible for nationally consistent teacher registration in Australia, as endorsed by Education Ministers in 2011.
School inspections	Australia does not have an external school inspection authority. Any approaches to school inspection in Australia, are the responsibility of the respective states and territories.

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International comparative rankings

AUSTRALIA	
PISA 2012	Maths: 19th (score: 504) Science:16th(score: 512) Reading12th(score: 521)
TIMSS 2011	Maths: 12th (score: 505) Science: 12th (score: 519)
PIRLS	27th(score: 527)
Networked Readiness Index (NRI) 2015	Overall: 16th Internet access in schools: 11th Quality of education system: 19th

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England

Curriculum and Assessment

ENGLAND	
Curriculum aims	The objectives of the National Curriculum in England are to promote the spiritual, moral, cultural, mental and physical development of students and society, and to prepare students for the opportunities, responsibilities and experiences of later life.
Curriculum structure	The National Curriculum is structured according to four Key Stages (KS) and 12 subjects. A Programme of Study (POS) is published for each subject. It outlines the matters, skills and processes that are to be taught in each KS.
Core curriculum	Maintained schools in England are required to follow the national curriculum. However, the National Curriculum forms only one part of the school curriculum. In England's National Curriculum there are 'core' subjects (English, mathematics and science) and 'foundation' subjects (see below).
General capabilities	The National Curriculum in England notes two general capabilities that are to be fostered across all learning areas: 'numeracy and mathematics', and 'language and literacy'.
Mandatory subjects	The 'core' subjects of English, mathematics and science are mandatory in KS1, 2, 3 and 4. All other subjects are 'foundation' subjects. Of the foundation subjects physical education and computing are also mandatory in KS1, 2, 3 and 4. Art and design, design and technology, geography, history and music are mandatory in KS1, 2 and 3. Citizenship is mandatory in KS3 and 4 and languages are mandatory in KS2 and 3 only. Secondary schools must also provide sex and relationship education in KS3 and 4.
Religious education	In addition to the subjects listed above, all schools are required to teach religious education in KS1, 2, 3 and 4.
Stages versus years	Subjects are structured according to Key Stages in the national curriculum of England. KS1 corresponds to Years 1–2, KS2 to Years 3–6, KS3 to Years 7–9 and KS4 to Years 10–11.
Textbooks	The UK Government does not produce textbooks to accompany the National Curriculum. Textbooks and other resources are produced by private sector publishers.
Assessment	Once the new National Curriculum in England comes into effect (September 2014), assessment will be conducted at the end of KS2 along with the General Certificate of Secondary Education. GCE Advanced Level (A level) qualification is used as the main assessment for university entrance. In addition to the above, the English Baccalaureate is conducted as a performance measure. It indicates whether students have attained a C grade or above across the subjects of English, mathematics, history or geography, the sciences and a language at KS4.

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Implementation

ENGLAND	
Ages of compulsory school attendance	Children usually commence school in the term of their 5th birthday (ie September, January, or April), although some local authorities make provisions for all children to begin in the September of the school year in which they will turn 5, and others have changed the discretionary time so that children can begin at a younger age, subject to parental discretion.
Length of school day	Schools typically start at 8.50am and end at 3.00pm.
Number of school days in a year	39 weeks (195 days)
Number of school days in a week	5 days
Streaming	There are no provisions for formal streaming in the National Curriculum of England. There is also no policy on promotion and retention of children from one grade to another.
Teachers' qualifications	To become a teacher requires the successful completion of Initial Teacher Education or Training (ITET) and to gain qualified teacher status (QTS). To gain entry to an ITET requires ● GCSEs (A*- C) in English and maths (and science, depending on your teaching subject) or equivalent qualifications; and ● passes (before starting ITET) in numeracy and literacy skills tests.
Teachers' registration	Since September 2012, England has administered Teachers' Standards that define the minimum level of practice expected of trainees and teachers from the point of being awarded qualified teacher status (QTS). The Teachers' Standards are used to assess all trainees working towards QTS, and all those completing their statutory induction period.
School inspections	School inspections in England are conducted by Ofsted. All inspections follow a framework and results are published on Ofsted's website. Inspections can vary with respect to the number of inspectors, the length of the inspection, the amount of notice provided, what happens during an inspection, and the content of the final report.

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International comparative rankings

ENGLAND	
PISA 2012	Maths: (United Kingdom): 26th (score: 494) (England score: 495) Science: (United Kingdom):20th (score 514) Reading: (United Kingdom):21st (score 499)
TIMSS 2011	Maths (England): 10th(score: 507) Science (England): 9th (score: 533)
PIRLS	England: 11th (score: 552)
Networked Readiness Index (NRI) 2015	Overall (United Kingdom): 8th Internet access in schools (United Kingdom): 7th Quality of education system (United Kingdom): 23rd

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Finland

Curriculum and Assessment

FINLAND	
Curriculum aims	The National Core Curriculum for Basic Educationincludes the objectives and core content of different subjects, as well as the principles of student assessment, special-needs education, student welfare and educational guidance. The central objective of the national core curriculum is to provide all citizens with equal opportunities, and that the learning of all children should be maximized. The principles of a good learning environment and teaching and learning approaches are also addressed in the core curriculum. The present national core curriculum for basic education was confirmed in January 2004 and was introduced in schools in August 2006. The national core curriculum has since been reformed and the new curriculum is gradually being implemented in schools from August 2016.Schools draw up their own curricula for pre-primary and basic education within the framework of the national core curriculum. These curricula may be prepared for individual municipalities, schools or both agencies.
Curriculum structure	Attainment targets and subject content are specified by subject in the National Core Curriculum for Basic Education.
Core curriculum	The national core curriculum is determined by the Finnish National Board of Education. The National Core Curriculum for Basic Education specifies the objectives and core subject content for students aged 7 to 16. In addition to this, there is a core pre-primary curriculum for students aged 6 to 7 and a core upper-secondary curriculum for students aged 16 to 19.
General capabilities	There are seven cross-curricular themes incorporated into all subjects. These are growth as a person; cultural identity and internationalism; media skills and communication; participatory citizenship and entrepreneurship; responsibility for the environment, well-being and a sustainable future; safety and traffic; and technology and the individual.
Mandatory subjects	The core subjects of the Finnish basic education are mother tongue and literature, the second national language, foreign languages, environmental studies, health education, religious education or ethics, history, social studies, mathematics, physics, chemistry, biology, geography, physical education, music, art, crafts, and home economics.
Religious education	Religious Education is a compulsory subject both in comprehensive schools (7 – 16 years) and in senior / upper secondary schools (16–18/19 years). Students who do not belong to any religious group can choose between Religious Education or secular Ethics. Religious Education in schools is informative, non-confessional, and according to students' own religion, if the denomination is registered in Finland. The objective of Religious Education in schools is for students to obtain a broad and diverse general education regarding religions and world views.
Stages versus years	Subject-specific content in the National Core Curriculum for Basic

	Education is set out according to stages. The stages vary according to subject; for example, Finnish is set out for grades 1–2, 3–6 and 7–9 whereas mathematics is set out for grades 1–2, 3–5 and 6–9.
Textbooks	Finland currently has no explicit processes of State approval of textbooks. Previously however, Finland has had a history of tight regulation of the form and content of textbooks. Textbooks were approved by the Examining Office of the National Board of Education, from 1968 until the early 1990's.
Assessment	There are no national tests for students in basic education in Finland. Instead, teachers are responsible for assessment in their respective subjects on the basis of the objectives included in the curriculum. The only national examination is a matriculation exam at the end of general upper-secondary school. These results are used to determine students' placement in universities, polytechnics or vocational institutes.

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Implementation

FINLAND	
Ages of compulsory school attendance	Children begin school in the autumn of the year of their 7th birthday. It is possible to enter school either one year earlier or one year later than the official policy, if discussed with an expert such as a school psychologist. School education is compulsory for 9 years from 7 to 16 years of age.
Length of school day	Typically 5 hours per day
Number of school days in a year	Typically 38 weeks
Number of school days in a week	5 days
Streaming	There is no streaming in Finland between the ages of 7 and 16. There is automatic promotion for Grades 1–8, with retention only in extreme situations. After completing their basic education, students enter either

	upper-secondary school, or vocational and apprenticeship training.
Teachers' qualifications	In general education all teachers in Finland are required to have a Master's degree.
Teachers' registration	The qualifications requirements set for teachers are determined in legislation. Appointment to teaching positions is highly competitive and managed at the level of the municipality. Compliance with the qualifications requirements rests with education providers, which means in practical terms with local authorities, joint municipal boards and, in terms of state-owned schools, with the Finnish Government.
School inspections	School inspections in Finland were abolished in the early 1990s. The focus is now on schools' self-evaluation and national evaluations of learning outcomes. National evaluations are carried out frequently and undertaken by a sample base.

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International comparative rankings

FINLAND	
PISA 2012	Maths: 12th (score: 519) Science: 4th(score: 545) Reading: 5th (score: 524)
TIMSS 2011	Maths: 8th(score: 514) Science: 5th (score: 552)
PIRLS 2011	3rd (score: 568)
Networked Readiness Index (NRI) 2015	Overall: 2nd Internet access in schools: 4th Quality of education system: 2nd

Sources

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Hong Kong, China

Curriculum and Assessment

HONG KONG, CHINA	
Curriculum aims	The overall educational aims in Hong Kong are identified as enabling students to learn how to learn; and providing experiences for the development of the whole-person in the domains of ethics, intellect, physical development, social skills and aesthetics.
Curriculum structure	Hong Kong's curriculum has three interconnected components: Key Learning Areas (KLAs), generic skills, and values and attitudes. The curriculum also contains pathways, which enable differences in the breadth and depth of content learnt, as well as the pedagogical approaches used.
Core curriculum	Hong Kong has a Basic Education Curriculum for primary 1 to secondary 3. All subjects in this curriculum are grouped into eight KLAs: Chinese; English; mathematics; personal, social and humanities; science; technology; art; and physical education.
General capabilities	The curriculum in Hong Kong promotes nine 'generic skills', which are developed across all learning areas. The generic skills are collaboration, communication, creativity, critical thinking, information technology, numeracy, problem-solving, self-management, and study skills.
Mandatory subjects	From primary 1 to secondary 3 all eight KLAs are mandatory. However, in primary 1 to primary 6 three KLAs (science; personal, social and humanities; and technology) are grouped into one subject 'General Studies for Primary Schools'.
Religious education	In 2015 the Hong Kong Education Bureau introduced a new optional syllabus: Senior Secondary Curriculum - Ethics and Religious Studies.
Stages versus years	Subject syllabuses in Hong Kong are structured according to Key Stages (KS). The KS cover the following year levels: KS1 (primary 1-3), KS2 (primary 4-6), KS3 (secondary 1-3), KS4 (secondary 4 and above).
Textbooks	Schools can choose from a range of approved resources, developed by private providers. The Hong Kong Education Bureau approves textbooks on the basis of their alignment with the Hong Kong curriculum and formal quality criteria: The Government reviews the textbooks submitted by publishers and includes those textbooks which meet the requirements of the relevant curriculum guides and the required standard in the Recommended Textbook List (RTL) for schools' selection. Specific, carefully-limited developments in electronic resources as analogues and developments of existing textbooks have been put in place within the approved system.
Assessment	In Hong Kong there are internal and external assessments. Teachers may conduct internal tests and exams for the purpose of student assessment. Hong Kong Examinations and Assessment Authority (HKEAA) provides online material to assist in this process. The Territory-wide System Assessment (TSA) is an external examination. The TSA provides schools with data on student attainment in the areas of Chinese language, English language, and mathematics. The purpose of the TSA is to assist schools in improving their teaching and learning plans. The results of individual students in the TSA are not made

	available. HKEAA also administers the Hong Kong Diploma of Secondary Education, which is undertaken at the completion of secondary education. The results of this exam may be used for admission into higher education institutes.

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Implementation

HONG KONG	
Ages of compulsory school attendance	After they have turned 5 years, 8 months old, children can begin school in the September. Representatives of the Education Bureau may prescribe a maximum rate of grade repetition for some students.All students are entitled to 12 years of free public education, which includes either full-time vocational courses or academic-oriented upper secondary education.
Length of school day	Primary schools are moving to whole-day schooling, but currently run on one of three schedules: morning, afternoon and whole schooling. School days for other levels of education generally start between 8.00am and 8.30am and end between 3.00pm and 4.00pm.
Number of school days in a year	190 days
Number of school days in a week	5 days
Streaming	Education in Hong Kong is guided by the principle 'one curriculum framework for all'. As such, while provisions are made for gifted and special education needs students, there is no streaming.
Teachers' qualifications	Each higher education institution offering a teacher education program establishes their own admissions requirements for their programs. Generally, admission to a teacher education program, requires that candidates are assessed through practical tests, on their knowledge of various subjects, and typically must also undergo at least one interview to assess their aptitude for teaching, and fluency in both

	English and Chinese.
Teachers' registration	To be hired as a teacher, an application for registration must be submitted to the Education Bureau.
School inspections	Hong Kong's Education Bureau conducts school inspections. These inspections complement a self-evaluation process undertaken by schools. For primary and secondary schools, inspections focus on specific KLAs and aspects of the school's work.

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International comparative rankings

HONG KONG, CHINA	
PISA 2012	Maths:3rd (score: 561) Science: 2nd (score: 555) Reading: 2nd (score: 545)
TIMSS 2011	Maths: 4th (score: 586) Science: 8th (score: 535)
PIRLS 2011	1st (score: 571)
Networked Readiness Index (NRI) 2015	Overall: 14th Internet access in schools: 16th Quality of education system: 20th

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Ontario, Canada
Curriculum and Assessment

ONTARIO, CANADA	
Curriculum aims	To support high-quality learning, to give every student the opportunity to learn that suits their strengths and weaknesses, and to choose programs that suit their skills and interests.
Curriculum structure	The Ontario Curriculum is a collection of subject syllabuses that contain subject aims, content (including skills, knowledge and values), and learning objectives. Some subject syllabuses also contain overarching 'curriculum expectations'.
Core curriculum	All publicly-funded schools in Ontario offer the same core curriculum and program. However, many schools offer special additional programs such as English as a second language, international language, or French immersion programs.
General capabilities	Some capabilities are emphasised in the subject syllabuses; for example, literacy along with communication skills, critical thinking, social skills and aesthetic appreciation are emphasised in the English secondary curriculum. However, there are no provisions for teaching set general capabilities throughout the Ontario Curriculum.
Mandatory subjects	In order to graduate from secondary school in Ontario, students must earn 30 credits. 18 of these credits are called 'compulsory credits'. Most of these 18 credits must come from each of the following subjects: English or French, mathematics, science, Canadian history, Canadian geography, art, health and physical education, civics, and career studies. The remainder of the 18 credits must come from one subject in each of the following groups: (1) an additional English, a language other than English or French, a social science/humanities, additional Canadian and world studies, native studies, guidance and career education, or cooperative; (2) business studies, an additional health and physical education, an additional art, French as a second language, cooperative education; (3) an additional science, technological education, French as a second language, computer studies, cooperative education.
Religious education	In Ontario the Catholic system is fully publicly funded while other faiths are not. Religious education is taught in Catholic schools. Regulation 298 of the 1990 Education Act indicates that the teaching of religious education is optional in grades 1 to 8, at the discretion of the school board.
Stages versus years	Subject syllabuses in the Ontario Curriculum (primary and secondary) are structured according to year levels.
Textbooks	The authority of selection of textbooks for use in schools is covered in Regulation 298 of the 1990 Education Act. School boards are responsible for selecting textbooks for use in their schools from the *Trillium List,* prepared by the Ministry of Education. The *Trillium List* contains the titles of those textbooks that are approved by the Ministry for use in Ontario schools. The textbooks on the *Trillium List* have been subjected to a rigorous evaluation to ensure that

	they conform to Ministry standards. School boards have the sole responsibility for the selection and evaluation of supplementary resources.
Assessment	The Ministry of Education provides Provincial Report Cards for school-based assessment. These are used in Years 1–12 and should reflect students' attainment of the curriculum. They are completed by teachers against the achievement standards provided in the Ontario Curriculum. The Education Quality and Accountability Office (EQAO) administers a provincial-wide assessment in Ontario which involves the assessment of reading, writing and mathematics in the primary division (grades 1–3) and the junior division (grades 4–6), mathematics in grade 9, and the Ontario Secondary School Literary Test in grades 10 and above. Students also undertake the national Pan-Canadian Assessment Programme (PCAP) which assesses the reading, maths and science skills of students aged 13 to 16.

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Implementation

ONTARIO, CANADA	
Ages of compulsory school attendance	Children must commence school in September if they turn 6 years old by September 1 up to December 31 of that calendar year. Parents can enrol their children in junior kindergarten at age 4 or senior kindergarten at 5 years of age.
Length of school day	Regulation 298 of the 1990 Education Act specifies that the school day for children of compulsory school age is not less than 5 hours per day, and that schools must not open before 8.00am and not close after 5.00pm.
Number of school days in a year	The minimum number of school days required by regulation is 194. Mathematics, English and Science are expected to be scheduled for 220 hours in a school year.
Number of school days in a week	5 days

Streaming	There are no provisions for formal streaming in the Ontario Curriculum.
Teachers' qualifications	To qualify as a teacher, graduates must ● complete a minimum three-year postsecondary degree from an acceptable postsecondary institution; and ● successfully complete a four semester teacher education program.
Teachers' registration	To teach in Ontario's publicly funded schools, teachers must have completed the teacher education qualification, and be certified by the Ontario College of Teachers. Potential teachers apply to the College for certification and pay the annual membership and registration fees.
School inspections	The major transparency and accountability measure in the Ontario education system is the School Board Progress Report. Each year the Ministry of Education reports on the progress of school boards across ten criteria collected from assessments administered by the EQAO. The 10 criteria are: ● reading results in Year 6, along with progress in this area ● literacy results in Year 10, along with progress in this area ● the percentage of students who have completed 16 credits or more by the end of Year 10, along with progress in this area ● the percentage of students who have completed 23 credits or more by the end of Year 11, along with progress in this area ● the percentage of primary classes with 20 or fewer students, along with progress in this area.

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International comparative rankings

ONTARIO, CANADA	
PISA 2012	Maths: (Canada): 13th (score: 518) Science: (Canada): 11th (score: 525) Reading: (Canada): 8th (score: 523)
TIMSS 2011	Ontario was an international 'benchmarking' state for TIMSS 2011. Australia and Ontario students perform at about the same level.
PIRLS 2011	Ontario was an international 'benchmarking' state for PIRLS 2011 Score: 552
Networked Readiness Index (NRI) 2015	Overall (Canada): 11th Internet access in schools (Canada): 9th

	Quality of education system (Canada): 11th

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Dutta, S., Geiger, T. & Lanvin, B. (eds). (2015). The Global Information Technology Report 2015. ICTs for Inclusive Growth, World Economic Forum, accessed from http://www3.weforum.org/docs/WEF_Global_IT_Report_2015.pdf on 14 June 2016

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Republic of Korea
Curriculum and Assessment

REPUBLIC OF KOREA	
Curriculum aims	Education in the Republic of Korea aims to build citizens' character based on humanitarianism; develop autonomous life skills; and to achieve the qualifications to live a humane life as a democratic citizen who contributes to the development of a democratic country; and realises the 'public idealism of humankind'.
Curriculum structure	The national curriculum establishes general standards for the local community and school level curriculum. It is divided into a general introductory section, which includes the Direction of Curriculum Design; Educational Goals by School Level; Organisation of the Curriculum and Time Allocation; Guidelines for the Formulation and Implementation of the Curriculum; and an explanatory section which describes the curriculum in detail by subject.
Core curriculum	The national school curriculum consists of the Basic Common Curriculum (which covers 10 years from the first year of elementary school through the first year of high school) and the Selected Curriculum at the high school level. The national curriculum, along with regional guidelines accord flexibility to individual schools in accordance with the particular characteristics and objectives of each school.
General capabilities	The national curriculum framework identifies general capabilities such as problem-solving, creativity, social skills, and critical thinking. However, they appear only under the general educational goals for each level of school.
Mandatory subjects	Elementary and middle school are compulsory. Mandatory subjects include Korean language, social studies/moral education, mathematics, science/practical course, physical education, arts (music/fine arts) and English. The curriculum for first and second grade is structured differently – into Korean language, mathematics, disciplined life, intelligent life and pleasant Life, as well as 'We are the first graders' in first year. In high school, students must take 10 mandatory subjects in Year 10, comprising Korean language, ethics, social studies (including Korean history), mathematics, science, technology and home economics, physical education, music, fine arts, and English; however, they are able to select their own subjects in Years 11 and 12.
Religious education	Religious education does not form part of the National Curriculum
Stages versus years	Subject syllabuses are structured according to year levels.
Textbooks	Textbooks and teachers' manuals are developed both by the Government and private publishing companies that are then government-approved (depending on the subject and year level), within the framework of the National Curriculum. There is currently controversy in the Republic of Korea about who should write the history textbooks used in schools. The Korean Government is set to replace all current history textbooks for middle and secondary school students, with one history textbook produced by

	the government, from March 2017. Primary school students currently receive a state-authored history textbook.
Assessment	Students undertake school-based testing at all year levels. All students in Years 6, 9 and 10 also undertake a national test in two subjects. These tests are known as the National Assessment of Educational Achievement and are used for informational purposes. The Republic of Korea also has an Admissions Officer System, which assesses students' skills, potential, aptitudes and character. This system is designed to move away from the selection of students for college based on test scores alone. However, students are also required to take a College Scholastic Ability Test.

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Implementation

REPUBLIC OF KOREA	
Ages of compulsory school attendance	Children between the ages of six and fifteen are required to attend school, which is free.
Length of school day	In elementary school, the school day is typically 5 hours per day In junior high school, the school day is typically 8 hours per day In senior high school, the school day typically exceeds 8 hours per day
Number of school days in a year	220 days
Number of school days in a week	5 to 6 days per week
Streaming	High schools are divided into general/academic, vocational, and special purpose (foreign language, art, and science) high schools. Admittance into high school is, for the most part, based on each student's educational attainment level in middle school. General high schools offer the national basic curriculum, in which there are general and advanced courses for most subjects.
Teachers' qualifications	Prospective teachers can be trained in a number of different institutions: colleges of education within universities; departments of education in general colleges; teaching certificate programs in general colleges; and graduate schools of education. Elementary teachers are recruited from the top 5% of the high school academic cohort. All secondary school teachers are required to hold a bachelor's degree, though there are multiple paths to certification. Once teachers have

	completed four years of coursework leading to a bachelor's degree, they are eligible to apply for a teacher certificate. They are issued a grade two certificate, which can be upgraded to grade one after three years of experience and fifteen credit hours of in-service professional learning. There is no probationary period for new teachers, though there is in-school pre-employment professional learning that typically lasts for two weeks and includes case studies, practical tasks and theory study as well as instruction in student guidance and classroom management. Additionally, there are six months of post-employment training, which involves instructional guidance and evaluation, classroom supervision and instruction on clerical work and student guidance.
Teachers' registration	To enter the teaching profession, graduates of teacher education programs have to pass an employment examination. It is administered by metropolitan and provincial offices of education, under the authority of the superintendents of those offices.
School inspections	Schools are inspected by external monitoring groups. Inspections are based on the Ministry of Education's evaluation plan, which includes the assessment of teaching and learning practices, curriculum, and student needs. The results of inspections are publicly available.

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International comparative rankings

REPUBLIC OF KOREA	
PISA 2012	Maths: 5th (score: 554) Science: 5th (score 536) Reading: 7th (score: 538)
TIMSS 2011	Maths: 1st (score: 613) Science: 3rd (score: 560)
PIRLS 2011	Did not participate
Networked Readiness Index (NRI) 2015	Overall: 12th Internet access in schools: 10th Quality of education system: 73rd

Sources:

Dutta, S., Geiger, T. & Lanvin, B. (eds). (2015). *The Global Information Technology Report 2015. ICTs for Inclusive Growth*, World Economic Forum, accessed from http://www3.weforum.org/docs/WEF_Global_IT_Report_2015.pdf on 14 June 2016

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Shanghai, China
Curriculum and Assessment

SHANGHAI, CHINA	
Curriculum aims	Education in China over the past two decades has been guided by the fundamental principle that education should be oriented to modernisation, to the outside world, and to the future. In addition to responding to the contexts of changing socioeconomic and cultural development, the objectives of the national curriculum standards reflect the desired outcome for a 'qualities-oriented education'. This aims at all improvement of basic qualities of all learners for all-round development (moral, intellectual, physical and aesthetic education) and to lay the solid foundation for learning after school leaving and throughout life.
Curriculum structure	Shanghai's curriculum has three components: the basic curriculum, to be experienced by all students, mainly implemented through compulsory courses; the enriched curriculum, which aims to develop students' potential and is realised mainly through elective courses; and inquiry-based curriculum, which is mainly implemented through extracurricular activities. The inquiry-based curriculum asks students – backed up by support and guidance from teachers – to identify research topics based on their experiences. It is hoped that through independent learning and exploration, students can learn to learn, to think creatively and critically, to participate in social life and to promote social welfare.
Core curriculum	The core curriculum covers eight domains of learning: language and literature, mathematics, natural sciences, social sciences, arts, skills (including ICT), sports and fitness, and integrated practical learning. The last domain comprises community service and other activities that serve to motivate students to engage with the community.
General capabilities	Curriculum reform in Shanghai has seen a fundamental shift from one-sided focus on discipline-based 'basic knowledge' and narrowly defined 'basic skills' to three dimensions of curriculum content in the interest of holistic, all-round human development of the learners; namely, knowledge and skills, processes and approaches and affection/attitudes and values. The nationally-set curriculum aims to strengthen linkages of knowledge acquisition and skills development to learners' own life experiences and to actual social realities in developing creativity, innovative spirit and practice capabilities as key competencies of future Chinese citizens.
Mandatory subjects	The curriculum is divided into three broad subject categories: Foundational Subject, Expanded Subject and Inquiry/Research Subject. Foundational Subjects are standardised subjects that are compulsory for all students and cover the eight domains of learning. Expanded Subjects are intended to cater to the students' different interests and learning abilities as well as society's needs. There are two types of Expanded Subjects: Compulsory Expanded Subjects focus on real life application in society, while Elective Expanded Subjects centre on the various domains of learning such as language, sports and fitness and the arts. Inquiry/Research Subjects serve to

	help students to 'learn to learn', inspire them to learn and conduct research independently and apply what they have learnt in real life. It is known as Inquiry Subject from the primary to the junior secondary levels and as Research Subject at the senior secondary level.
Religious education	Religious education is not taught in Shanghai's schools.
Stages versus years	The structure of the nationally-set curriculum is based on learners' physical-psychological development characteristics at different ages/grades. It is defined in terms of grades and level of education. For example, the mathematics curriculum is set at three levels respectively for Years 1–3, 4–6, and 7–9; Chinese language and literature at four levels for Years 1–2, 3–4, 5–6, and 7–9; and science at two levels for Years 3–6 and 7–9.
Textbooks	The textbooks used in Shanghai schools are written and edited by expert authors, and are regularly supplemented by 'adjustments' from teacher-research groups. Competitions are held, where the 'top' adjustments are fed through into the next versions of textbooks.
Assessment	Students receive formative assessments throughout their education. These typically take the form of year-end or term-end tests as well as casual assessment from teachers. They are also required to take graduation examinations at the end of primary, lower secondary and upper secondary school, in addition to the entrance examinations for the next level of schooling. These tests are formulated by the local education departments, and typically examine at least mathematics and Chinese language knowledge, though they can include other subjects. Students who hope to go on to university must also sit for a rigorous university entrance examination at the end of upper secondary school.

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Implementation

SHANGHAI, CHINA	
Ages of compulsory school attendance	Children in Shanghai using start school at the age of six. There is nine years of compulsory education.
Length of school day	The length of the school day varies, with the hours of tuition being greater in secondary schools, compared to primary schools. Most schools start at 8.00am and finish at 3.00pm or 4.00pm, with an hour

	or more for lunch. There is a municipal requirement that every Shanghai school student has to engage in at least one hour per day of physical education.
Number of school days in a year	The primary school year comprises about190 to 195 days: ● 38 weeks of teaching sessions, with an additional week in reserve; and ● 13 weeks for holidays. The junior secondary school year comprises about 195 to 200 days: ● 39 weeks for teaching with an additional week in reserve; and ● 12 weeks for holidays. The senior secondary school year comprises about 200 to 210 days: ● 40 weeks of teaching with one or two weeks in reserve and ● 10 to 11 weeks for holidays.
Number of school days in a week	5 days
Streaming	After completing junior secondary education, students take a locally administered entrance exam. Students who wish to continue their studies have the option to attend a regular senior secondary school or enter a vocational secondary school. Regular senior secondary schools usually offer three years of education. Graduates from senior secondary school education are admitted to a university after successfully completing a nation-wide entrance examination.
Teachers' qualifications	Teachers are required to complete both educational and professional preparation requirements. Entrants to the teaching profession are required to have the relevant degree or certificate. In China, a primary-schoolteacher requires a minimum of a high school diploma. In Shanghai however, all primary school teachers must hold post-secondary, sub-degree diploma.To become a junior-school teacher, a Normal College certificate (sub-degree) or above, is required. Senior-school teachers require a four-year bachelor's degree or above. Entrants also have to pass a Mandarin language test. Teacher's capacity building has accompanied ongoing curriculum changes in China and Shanghai. Shanghai has a particularly strong approach to induction and the Shanghai Municipal Education Commission has policies around supporting new teachers in the system at the school and district level. In Shanghai's induction programs, beginning teachers learn from different teachers in different settings. They have multiple specialist mentors and learn from senior teachers in research and lesson groups. They model effective practice in demonstration lessons for group feedback and undertake research projects under mentor guidance.
Teachers' registration	The Shanghai Municipal Education Commission is responsible for ensuring that appropriately qualified teachers work in the city's schools.
School inspections	The Shanghai Municipal Education Commission is responsible for inspecting schools every three years based on both common measures and on the school's stated individual goals, taking into account research data and parent and teacher feedback. At the district level, monitoring systems for school leaders and teachers are in place

	through the mechanics of performativity such as league tables, appraisal meetings, the annual reviews, report writing, site visits, inspections and peer reviews.

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International comparative rankings

SHANGHAI, CHINA	
PISA 2012	Maths: 1st (score: 613) Science: 1st (score: 570) Reading1st (score: 580)
TIMSS 2011	Shanghai, China did not participate
PIRLS 2011	Shanghai, China did not participate
Networked Readiness Index (NRI) 2015	Overall (China): 62nd Internet access in schools: 38th Quality of education system: 52nd

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Dutta, S., Geiger, T. & Lanvin, B. (eds). (2015). *The Global Information Technology Report 2015. ICTs for Inclusive Growth*, World Economic Forum, accessed from http://www3.weforum.org/docs/WEF_Global_IT_Report_2015.pdf on 14 June 2016

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Singapore
Curriculum and Assessment

SINGAPORE	
Curriculum aims	Singapore has desired outcomes of education (DOE), which are attributes that educators aspire for every Singaporean by the completion of formal education. DOE are different to learning outcomes as they outline the desired characteristics for students. In summary, Singapore articulates these as being a good sense of self-awareness, a sound moral compass, and the necessary skills and knowledge to take on challenges of the future; also, a sense of responsibility to family, community and the nation, and an appreciation of the beauty of the world, a healthy mind and body, and a zest for life. In sum, the Singaporean student is: ● a confident person who has a strong sense of right and wrong, is adaptable and resilient, knows them self, is discerning in judgment, thinks independently and critically, and communicates effectively ● a self-directed learner who takes responsibility for their own learning, who questions, reflects and perseveres in the pursuit of learning ● an active contributor who is able to work effectively in teams, exercises initiative, takes calculated risks, is innovative and strives for excellence ● a concerned citizen who is rooted to Singapore, has a strong civic consciousness, is informed, and takes an active role in bettering the lives of others around them. There are a further three sets of eight more detailed DOE: one for the end of primary, secondary and post-secondary education. Each syllabus within the curriculum also expresses the aims for learning in each subject area.
Curriculum structure	The curriculum contains subject syllabuses which specify content, learning outcomes, concepts, values and attitudes. The subject syllabuses form the content-based component of the curriculum. They are complemented by life and knowledge skills, which run throughout all subject syllabuses for primary and secondary education.
Core curriculum	All students in Singapore are required to complete six years of primary education. During this phase, all students follow a broad-based curriculum. In the secondary phase of education streaming occurs (see below). As such there is no one core secondary curriculum.
General capabilities	The curriculum includes a framework for 21st century competencies. The inner circle of this framework contains values that define a person's character. The middle circle contains social and emotional competencies. The outer circle contains general capabilities: civic literacy, global awareness and cross-cultural skills; critical and inventive thinking; and communication, collaboration and information skills.
Mandatory subjects	The subjects that are examined in the Primary School Leaving Examination (PSLE) are English, mother tongue, mathematics and science. Each of these subjects is offered in the 'standard' and 'foundation' stream. Higher mother tongue is an optional subject that is

	also examinable. In addition to these subjects, students also take non-examinable subjects: co-curricular activities, character and citizenship education, national education, program for active learning, physical education and values in action. The combination of subjects and streams taken by each student is decided by parents with advice from teachers.
Religious education	There is no syllabus for Religious education provided by the Ministry of Education.
Stages versus years	The learning objectives in the subject syllabuses are typically structured by stages. For example, primary 1–2, primary 3–4, primary 5–6. The scope of stages differs between subjects.
Textbooks	The Singaporean Government does not write textbooks, but does provide schools with an approved list of textbooks. Schools are not legally obliged to use the textbooks listed, but if they do use textbooks, they must use approved textbooks. As such, this list is intended to provide principals, discipline leaders and teachers with guidance about suitable texts. This list is updated each August and can be downloaded from the Ministry of Education website. The Curriculum Planning & Development Division and Student Development Curriculum Division in the Ministry of Education receives comments and feedback from principals and teachers on the learning materials in the Approved Textbook List (ATL).
Assessment	Teachers conduct assessments of their students at each year level. At the end of primary school, all students take the PSLE. This examination is used to determine each student's placement in a lower-secondary school and within a particular stream. After four years of lower-secondary school, students take the Cambridge GCE O- or N-level examination. This exam determines each student's placement and stream for their upper-secondary education. Students who enter a pre-university stream of upper-secondary education will take the Cambridge General Certificate of Advanced Level (A level) to determine their university entrance.

Sources:
Keat, H. S. (2011).*Keynote Address, Ministry of Education Work Plan* Seminar, 22 September 2011, MoE, Singapore, accessed from http://www.nas.gov.sg/archivesonline/data/pdfdoc/20110929001/wps_opening_address_%28media%29%28checked%29.pdf on 5 June 2016,

Ministry of Education (MoE), Singapore (2016).*21st Century Competencies*, MoE, Singapore, accessed fromhttps://www.moe.gov.sg/education/education-system/21st-century-competencies on 15 June 2016

Ministry of Education (MoE), Singapore (2016). *Approved Texbook List*, MoE, Singapore, accessed from https://www.moe.gov.sg/education/syllabuses/approved-textbook-list on 15 June 2016

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Ministry of Education (MoE), Singapore (2016). *Syllabuses*, MoE, Singapore, accessed from https://www.moe.gov.sg/education/syllabuses on 15 June 2016

Tee, Ng Pak 2003, The Singapore school and the school excellence model, *Educational Research for Policy and Practice*, vol. 2, issue 1, pp. 27–39.

Implementation

SINGAPORE	
Ages of compulsory school attendance	According to the Compulsory Education Act, a child of 'compulsory school age' is one who is above the age of 6 years and who has not yet attained the age of 15 years.
Length of school day	Primary school students generally spend about 6 hours per day attending school. The school day starts about 7.30am and concludes between 1.30pm and 2.00pm each day.
Number of school days in a year	The school year comprises four terms of 10 weeks each: amounting to 200 days per year (less public holidays)
Number of school days in a week	Generally 5 days per week.
Streaming	Streaming was introduced into Singaporean schools in 1979. It commences after the primary education. Students aged 12 sit the Primary School Leaving Examination, which determines the stream that each student will be placed for their secondary education. The streams available are: ● secondary express course, ● secondary normal academic course, and ● secondary normal technical course. Students may also enter specialised independent schools or private schools. There are also pathways that enable students to attain different levels of learning irrespective of the stream in which they are placed.
Teachers' qualifications	Teachers and educarers in pre-school centres in Singapore, must meet all the professional, academic and language qualifications for the respective categories in which they plan to teach, which includes a minimum qualification of a Certificate or Diploma in Early Childhood Education. Candidates must also be of good character not convicted for any criminal offence. Teachers in government primary and secondary schools (including Junior Colleges) must have a Diploma in Education (Dip.Ed) or a Post Graduate Diploma in Education (PGDE). These qualifications can only be gained from the National Institute of Education at Nanyang Technological University (Singapore).
Teachers' registration	The Ministry of Education oversees all teachers' registration processes. These may require teachers undertaking subject specific proficiency tests.
School inspections	In Singapore, the school inspection system replaced in 2000, with a self-assessment tool known as the School Excellence Model (SEM). It is intended that this tool better aligns with national vision of 'Thinking Schools, Learning Nation'. SEM incorporates and adapts business concepts to enable school assessment models appropriate to local contexts. The SEM aims to enable schools to measure their strengths and weaknesses. It also enables schools to benchmark themselves against other schools with the aim of promoting improvement.The SEM is used by all schools for their annual self- assessment and by the Ministry of Education (MOE) for the external validation of schools.

Sources:

Ministry of Education (MoE) Singapore, (2016). *Compulsory Education*, MoE, Singapore, accessed from https://www.moe.gov.sg/education/education-system/compulsory-education#sthash.aifmOD6f.dpuf on 14 June 2016

Ministry of Education (MoE) Singapore, (2016).*Entrance proficiency test*, MoE, Singapore, accessed from https://www.moe.gov.sg/careers/teach/entrance-proficiency-test on June 15 2016

Ministry of Education (MoE) Singapore, (2016). Nurturing students, MoE, Singapore, accessed from https://www.moe.gov.sg/education/education-system/nurturing-students on June 15 2016

Ministry of Education (MoE) Singapore, (2016).*School terms and holidays*, MoE, Singapore, accessed from https://www.moe.gov.sg/education/school-terms-and-holidayson June 15 2016

International comparative rankings

SINGAPORE	
PISA 2012	Maths: 2nd (score: 573) Science: 3rd(score: 551) Reading: 3rd (score:542)
TIMSS 2011	Maths: 2nd (score: 611) Science: 1st (score: 590)
PIRLS 2011	4th (score: 567)
Networked Readiness Index (NRI) 2015	Overall:1st Internet access in schools: 6th Quality of education system: 4th

Sources:

Dutta, S., Geiger, T. &Lanvin, B. (eds). (2015). *The Global Information Technology Report 2015. ICTs for Inclusive Growth*, World Economic Forum, accessed from http://www3.weforum.org/docs/WEF_Global_IT_Report_2015.pdf on 14 June 2016

Mullis, I., Martin, M., Foy, P. & Drucker, K. (2012). *PIRLS 2011. International results in reading*, International Association for the Evaluation of Educational Achievement (IEA), accessed from http://timssandpirls.bc.edu/pirls2011/downloads/P11_IR_FullBook.pdf on 14 June 2016

Organisation for Economic Development (OECD), (2014). *PISA 2012 results in focus. What 15 year olds know, and what they can do with what they know,* OECD, Paris, accessed from https://www.oecd.org/pisa/keyfindings/pisa-2012-results-overview.pdf on 4 June 2016

Thomson, S., Hillman, K. & Wernert, N. (2012). *Monitoring Australian Year 8 student achievement internationally*, Australian Council for Educational Research (ACER), Melbourne, accessed from https://www.acer.edu.au/files/TIMSS-PIRLS_2011-MonitorinAustralian-Year-8-Student-Achievement.pdf on 14 June 2016

Appendix 2: Public lecture: Australia's presentation

ACER

Improving Learning

Australian Council *for* Educational Research

Curriculum Review in Australia

Professor Kathryn Moyle (PhD)

kathryn.moyle@acer.edu.au

Australian Council *for* Educational Research

ACER

Australian context

- Australian Constitution gives responsibility for school education to the states, (not the Australian Government)
- Authority of curriculum is regulated at the state and territory level: all Ministers have to agree through the Education Council (Ministers Council)
- Over the last 30 years, there have been several attempts by Australian Governments, to develop a national approach to the curriculum
- The Australian Curriculum was reviewed in 2014

What is curriculum?

- Statements of what students should learn and be able to do
- Often contested
- One of the ways in which society reproduces itself and what is valued

GOALS

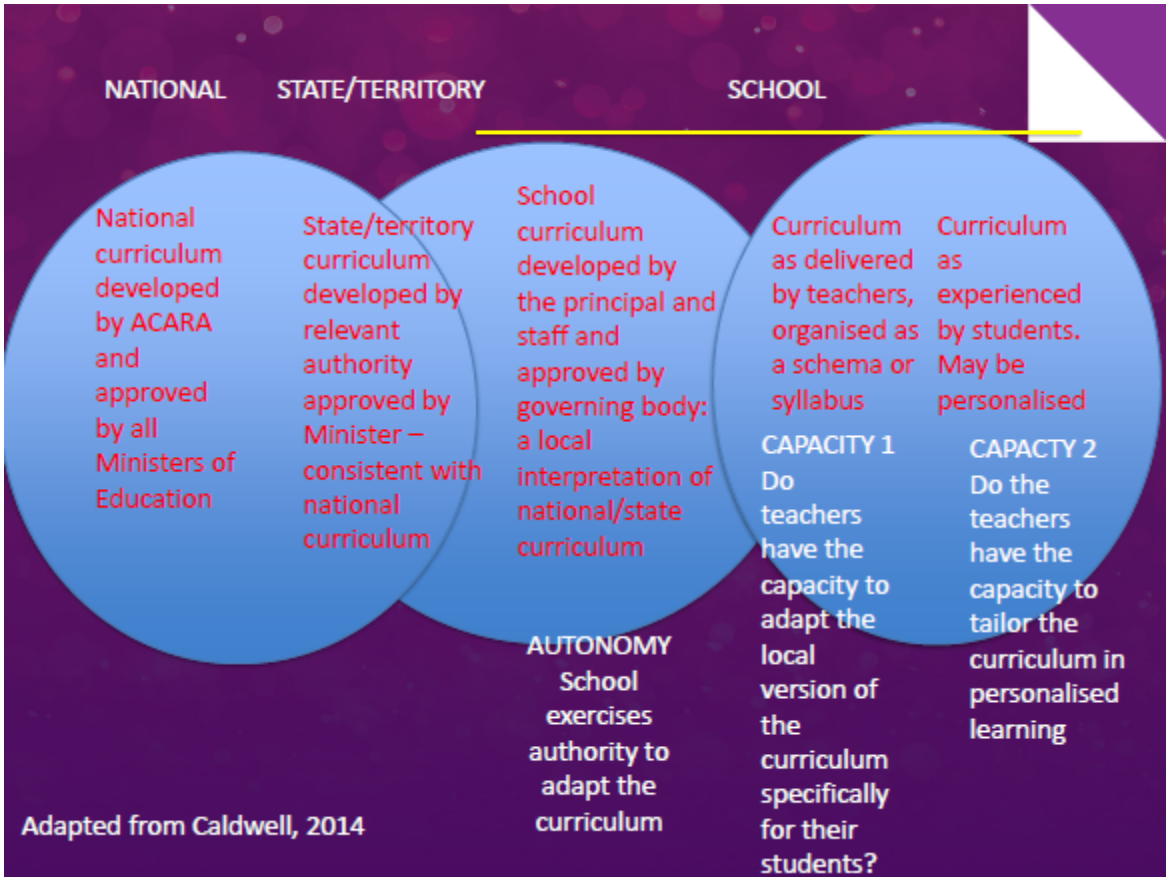
- Statements of the goals of education.
- Statements of values and culture.

CURRICULUM

- Rationale, framework, structure, hours of instruction;
- Subjects, standards, competencies, scope and sequence of topics;
- Approach to teaching (*pedagogy*); sample lesson plans;
- Assessment process and activities; student work samples;

EXPECTED STUDENT OUTCOMES

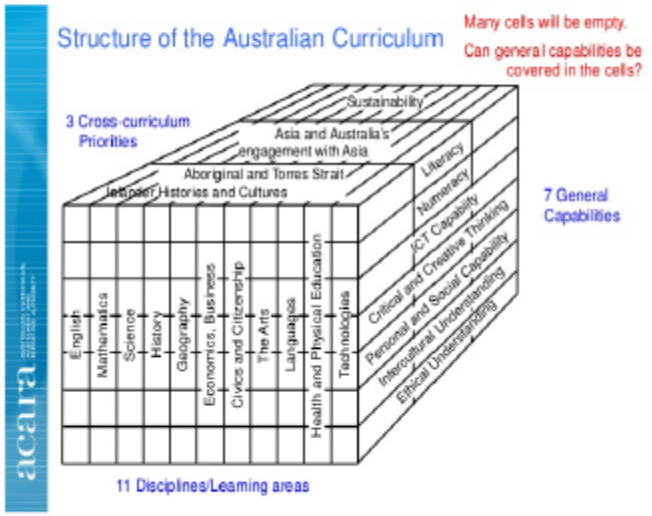
- What students understand, know and can do. Also expressed as *Skills, Knowledge* and *Attitudes*.



Australian Curriculum

Structure: Foundation -10

- Discipline knowledge
- General Capabilities
- Cross-curriculum priorities



National Agency responsible:
Australian Curriculum, Assessment and Reporting Authority (ACARA)

Elements of the Australian Curriculum

- Rationale
- Aims
- Organisational overview
- Content descriptions
- Achievement standards
- General capabilities
- Cross-curriculum priorities
- Work samples

Processes of curriculum development

Processes used

- Development of Shaping papers:
  - Overall Australian Curriculum (2009)
  - Each discipline area
  - Periods of consultation
  - Trialling of curriculum
  - Approval processes

Curriculum development: about 18 months

Consultation: about 10 weeks

Curriculum statements implicitly or explicitly favour various approaches to teaching and learning

Shaping papers look at:

- Educational goals for young Australians
- Key research
- Learning needs in the 21st century
- Leading national and international curriculum

Phasing in the Australian Curriculum: 2011 -2017

Australian Capital Territory: 2011

- Familiarisation with phase 1 Australian Curriculum subjects
- Whole school planning for the Australian Curriculum including professional development.
- Bridging document developed to transition ACT Curriculum Framework *Every Chance to Learn* to the Australian Curriculum

New South Wales: 2011

- The New South Wales Minister announced that the introduction of the Australian Curriculum will be delayed until 2014
- The Board of Studies continued state curriculum development
- The Board of Studies consulted with teachers about F-10 syllabus statements in English, Mathematics, Science and History
- Information sessions were held

Phasing in the Australian Curriculum: 2011 -2017

Australian Capital Territory

2012: Australian Curriculum commenced

- English and Science taught in primary schools
- English, Science, Mathematics and History taught in Years 7, 8, and 9
- Professional development for teachers
- Identification of 'Lead schools'

2013: K-10 Australian Curriculum – English, Science, History and Mathematics

Assessment based on standards and annotated work samples

New South Wales

2012: status quo

- Existing syllabuses were used

2013: familiarisation and planning

- Professional development of teachers commenced

2014: NSW K-10 syllabuses for Maths, Science and History incorporating the Australian Curriculum, are taught

2015-17 : Continued implementation

Phasing in the Australian Curriculum: 2011 -2017

Australian Capital Territory: 2014

- Commenced familiarisation of Geography and the Arts

2015

- Commence familiarization with Languages, Civics and Citizenship, Economics and Business, Technologies, Health and Physical Education and Work Studies

2016

Consolidate teaching of the Australian Curriculum

2017

Full implementation

Review of Australian Curriculum

- The Australian Curriculum (K to Year 12) was reviewed in 2014
- Review established by the Australian Government
- Led by two senior education researchers and supported by a Secretariat of 4 full-time staff, and casual staff as required
- Involved review of curriculum documents by specialists
- Public submissions prepared by key stakeholders
- Panel meetings and stakeholder consultations
- Interim report and
- Final report

Nature of the public debate

- Ongoing
- Timelines
- Extent of consultations
- Going too quickly
- Not going quickly enough
- Place of religion (Judeo-Christian)
- Place of cross-curriculum priorities
- Extent of discipline knowledge (potential 'over crowding')
- Teacher preparation and ongoing professional learning
- Role of the school principal

Purpose of the review

- Evaluate the development and implementation of the Australian Curriculum
- Consider the robustness, independence and balance of the Australian Curriculum including:
  - The process of curriculum shaping, development, monitoring, evaluation and review
  - Curriculum content from F to 12 for English, Mathematics, Science, History and Geography, and the place of the Cross-Curriculum Priorities and General Capabilities
- Make recommendations to the Australian Government Minister of Education

Key findings from the Curriculum Review

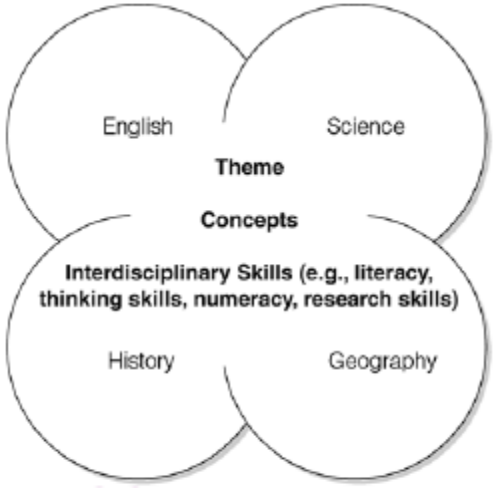
Commitment to an Australian Curriculum

- the Education Council endorsed the Australian Curriculum in eight learning areas:
  - Foundation to Year 10 Australian Curriculum for English, Mathematics, Science, Humanities and Social Sciences, The Arts, Technologies and Health and Physical Education.
  - Foundation to Year 10 Australian Curriculum: Languages for Arabic, Chinese, French, German, Indonesian, Italian, Japanese, Korean, Modern Greek, Spanish and Vietnamese.
  - Australian Curriculum: Work Studies Years 9-10 (an optional subject designed to ready young people for work).
- Teaching coding

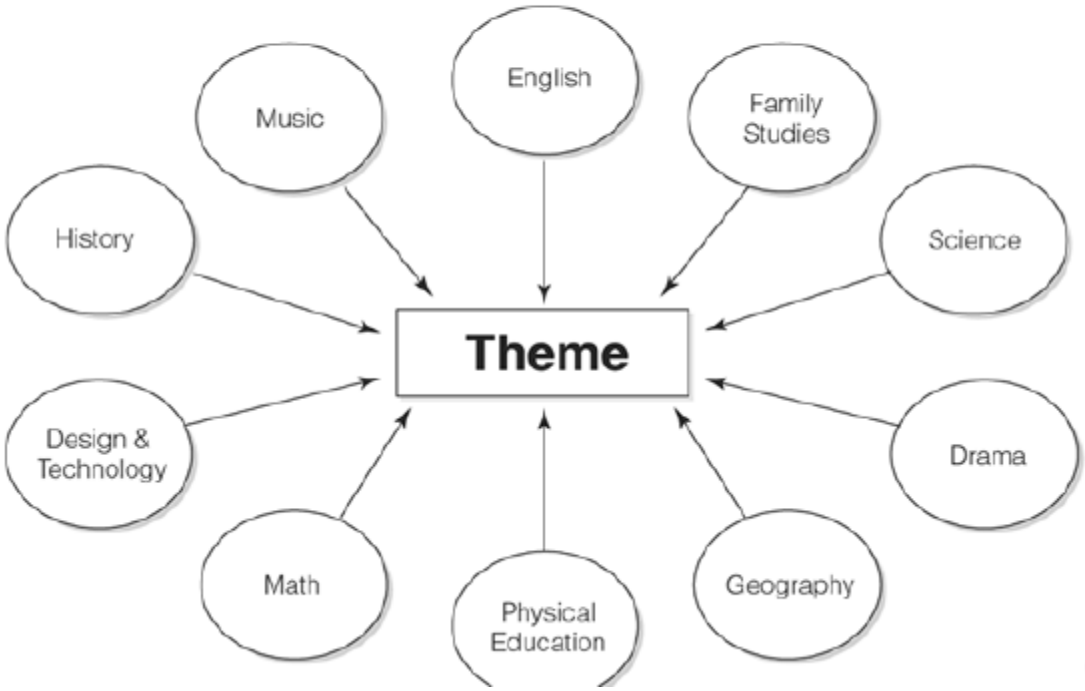
Integration in the Curriculum: emerging developments

- Making connections between big ideas, themes, disciplines
- STEM (Science, Technologies, Engineering and Maths)
- STEAM (Science, Technologies, Engineering, Arts and Maths)
- Cross curriculum priorities
- General capabilities: eg
  - ICT in teaching and learning

Integrating the curriculum



Integrating the curriculum



Teaching teachers

- Teaching teachers who can teach well
- Professional standards for teachers
- Teaching teachers to implement curriculum: general approaches

- Different professional learning for different purposes
- Working with professional associations

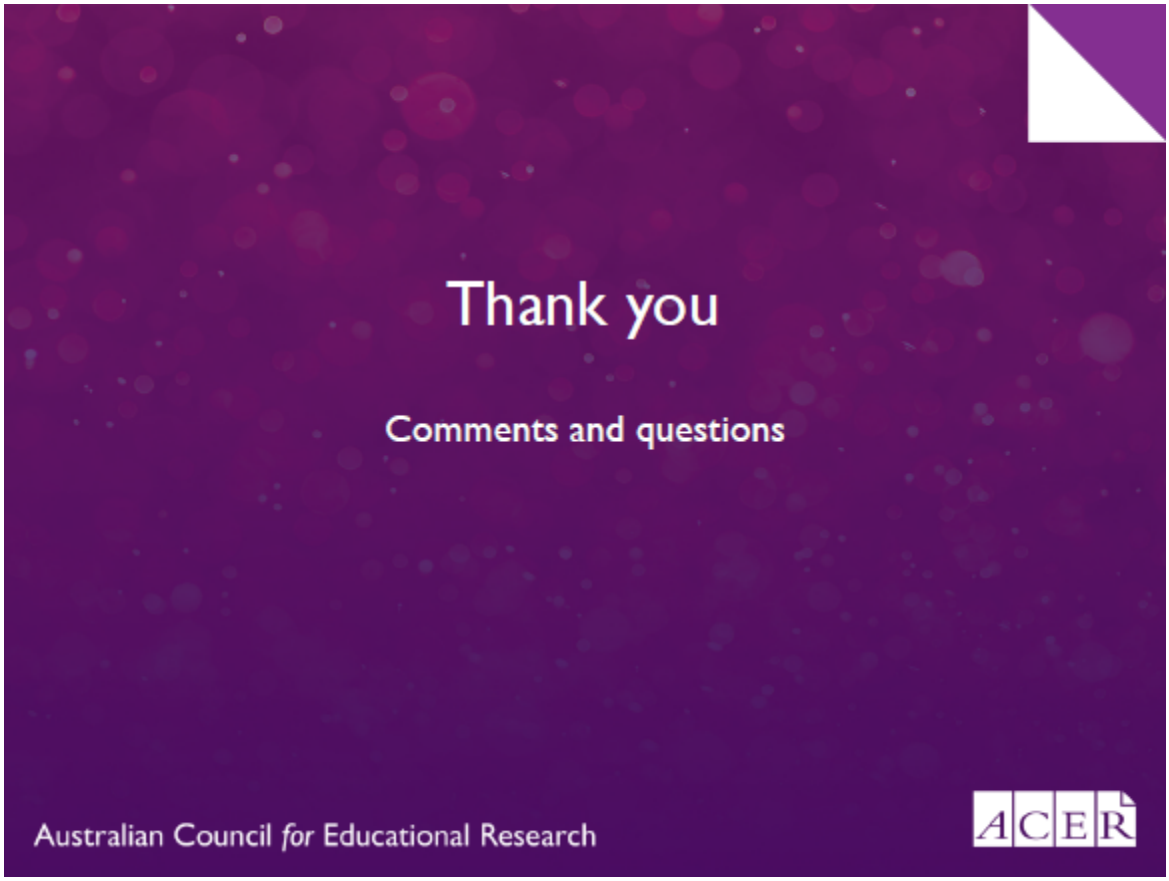
  Role of school principals and supervisors
- Communities of practice

Review of Initial Teacher Education

Teacher Education Ministerial Advisory Group

- National approach to Initial Teacher Education
- Stronger quality assurance of teacher education courses
- Rigorous selection for entry to teacher education courses
- Improved and structured practical experience for teacher education students
- Robust assessment of graduates to ensure classroom readiness
- National research and workforce planning capabilities

- Outcome: Accreditation of Initial Teacher Education programs


Thank you
Comments and questions
Australian Council for Educational Research
ACER

Appendix 3: Survey Questions

Please state your role:

(e.g. teacher, principal, supervisor, master trainer)

Review of the Curriculum K13 Documents

Aspects of K13 documents		**Question**	
1. Policy	a. Regulation	In what ways do the regulations and policies support or not support the intended outcomes from the K13?	
	b.Information		
	c.Supporting K13 implementation		
	d. Accommodate differences in Indonesia		
2. Guidelines	***a.*** Information	Can you please tell us what you understand is the purpose of guidelines? If you can use the guidelines, please tell us how you use	

Aspects of K13 documents		Question	
	b. Practicality	the guidelines.	
	c. Applicability		
3. Materials	a. Syllabus		a.
	b. Lesson plan		b.
	c. Books		c.
	d. Assessment		d.

Aspects of K13 documents		Question	
	e. Report book		e.

Implementation of the Curriculum K13

Aspects of Implementation		**Question**	
1. Training: Capacity building on K13	***a.*** Duration	What are the strengths and weaknesses of K13 training?	Strengths:
	b. Process (K, S, A)		
	c. Output		Weaknesses:
2. Teaching Preparation	***a.*** Lesson plan	What are the strategies used for lesson preparation?	
	b. Material		
	c. Methods		
	d. Instrument of evaluation		
3. Implementation in the class	***a.*** Processes of teaching	What indicators in classrooms reflect that the curriculum K13 is being appropriately implemented? Please respond to	a.

	b. Teachers roles-students roles-material roles	each (a, b, and c).	b.
	c. Student-teacher Interaction		c.

Aspects of Implementation		Question	
4. Supports	***a.*** School (principal and scool community)	In what ways do principals, supervisors and national director support the implementation of the curriculum K13?	
	b. District Dinas (Supervisors)		
	c. National (Directorate)		
5. Monitoring and evaluation	***a.*** Documents (produced by schools/teachers)	In what ways have the findings from the monitoring and evaluation studies already conducted (e.g.monev) been incorporated into the current curriculum K13 policies?	
	b. Implementation		

Do you have any other comments you would like to make (suggestions for the improvement of curriculum K13 and/or

ongoing concerns)

Appendix 4: Schedule of Meetings - ACDP

Contact Person from Center of Curriculum and Textbook (*Pusat Kurikulum dan Buku*), MoEC:

- Mutiara (08128869046)
- Emira (08118056788/081287191129)

Day/Date	Time	Program	Activity	Participants	Remarks
Monday, 30 May 2016	08.30 – 12.00	Internal meeting	Pre-kick off meeting between the Rapid Review team and ACDP	ACDP Rapid Review team	Tempat/*Venue*: ACDP Secretariat Office, Building E, 19th floor, MoEC
	13.00 – 16.00	Briefing with Balitbang, Puskurbuk and Consultant Team	1. Curriculum Change: from Kurikulum 2006 to Kurikulum 2013 a. The rationale b. Plan of Kurikulum 2013 implementation c. Local Content within Kurikulum 2013 d. Integration of Character Education in Kurikulum 2013 2. Behavioural Changes in	1. Rapid Review Team 2. ACDP 3. Interpreter 4. Head of Center of Curriculum and Textbook 5. Head of Division of Curriculum 6. Head of Division of Learning 7. Head of Division of Textbook 8. Mutiara O Panjaitan (English PIC) 9. Erry Utomo 10. Yusri Saad 11. Sujatmiko (Mathematic PIC) 12. Yogi Anggraena	Tempat/ *Venue*: Building E, 2nd floor

Day/Date	Time	Program	Activity	Participants	Remarks
			teachers (difference between Kurikulum 2006 and Kurikulum 2013) a. Strategy and forms of training of Kurikulum 2013 b. Implementation of Kurikulum 2013 in stages c. Evaluation results of Kurikulum 2013 implementation d. Appropriateness between curriculum and assessment e. Challenges in implementing Kurikulum 2013 (within the context of teacher competency)	13. Helga Kurnia 14. Ariantoni (Bahasa Indonesia PIC) 15. M. Hamka 16. Mariati Purba (Natural Science PIC) 17. Rennie Diastuti 18. Elly Marwati 19. Heni Waluyo (Social Science PIC) 20. Zulfikrie Anas 21. Suharyadi 22. Maria Listiyanti 23. Maria Chatarina 24. M. Irfan (Thematic Education PIC) 25. Yuke 26. Djuharis Rasul (Vocational Education PIC) 27. Emira Novitriani 28. Fristalina (Textbook PIC) 29. Syamsunisa 30. Dessy 31. Mega	
Tuesday, 31 May 2016	08.30 – 12.00	General Lecture on Curriculum Reformation: International	Opening 1. Report on Implementation by the Head of Curriculum and Textbook, MoEC	1. SD Islam PB Sudirman, Jakarta Timur 2. SDN Menteng 01 Jakarta Pusat 3. SDN 08 Rawajati, Jakarta	Teachers, school principals, supervisors, education

Day/Date	Time	Program	Activity	Participants	Remarks
		Experience in India and Australia	2. Opening by the Head of Research and Development Agency, MoEC 3. Presentation a. *"Reforming Curriculum" Sharing Experience from India* by Prof. Anita Rampal b. *"Reforming Curriculum" Sharing Experience from Australia by* Kathryn Moyle, Ph.D. 4. Question and Answer	Selatan 4. SD High Scope, Jakarta 5. SD BPK Penabur, Jakarta Pusat 6. SMP Madania, Bogor 7. SMP Ekselensia Indonesia, Bogor 8. SMPN 103, Cijantung, Jakarta Timur 9. SMPN 29, Jakarta Selatan 10. SMP Labschool, Rawamangun, Jakarta Timur 11. SMAN 8, Bukitduri Jakarta Selatan 12. SMAN 78, Jakarta Barat 13. SMAN 3 Jakarta, Jl. Setiabudi 14. SMA BPK Penabur 3, Jakarta Timur 15. SMA Labschool, Jakarta Timur 16. Mathematic Supervisor for SMP in Suku Dinas Jakarta Pusat 17. Mathematics Supervisor for SMA in Suku Dinas Jakarta Pusat 18. Bahasa Indonesia Supervisor for SMP in Suku Dinas Jakarta Pusat 19. Bahasa Indonesia Supervisor for SMA in Suku Dinas Jakarta	activists, heads of MGMPs, higher education institution lecturers, academicians, Ministries' official, P4TK staff, LPMP staff, staff of local education office Tempat/ *Venue*: Hotel Le Meredien, Jakarta Sasono Mulyo Room 2, and Room 3

Day/Date	Time	Program	Activity	Participants	Remarks
				Pusat 20. English Supervisor for SMP in Suku Dinas Jakarta Pusat 21. English Supervisor for SMA in Suku Dinas Jakarta Pusat 22. Supervisor for SD in Suku Dinas Jakarta Pusat 23. Mathematics Lecturer, UNJ 24. Bahasa Indonesia Lecturer, UI 25. English Lecturer, UNJ 26. Physic Lecturer, UNJ 27. Chemistry Lecturer UNJ 28. Biology Lecturer, UI 29. History Lecturer, UI 30. Geography Lecturer, UI 31. *Widyaiswara* for English, P4TK Bahasa (1 orang) 32. *Widyaiswara* for Natural Science, LPMP Jakarta 33. *Widyaiswara* for Mathematics, LPMP Jakarta 34. *Widyaiswara* for Social Science, LPMP Jakarta 35. Head of English MGMP in SMA (SMA 8, Jakarta 8) 36. Head of English MGMP in SMP (SMP 19, Jakarta) 37. School Principal of SMK 56, jakarta	

Day/Date	Time	Program	Activity	Participants	Remarks
				38. School Principal of SMK 57, Jakarta Selatan 39. School Principal of SMK 63, Jakarta 40. Wei Linhan, Indonesia Mengajar 41. Donny Koesoema 42. Dinas Pendidikan Provinsi DKI Jakarta 43. David Harding, ACDP 44. Totok Amin Soefijanto, ACDP 45. Budiarti Rahayu, ACDP 46. Hilary Saccomanno, ACDP 47. Head of Research and Development Agency, MoEC 48. Head of DG of Basic and Secondary Education 49. Head of DG of Teacher and Education Personnel 50. Secretary Head of Research and Development Agency, MoEC 51. Head of Center of Curriculum and Textbook 52. Head of Center of Education Assessment 53. Head of Center of Policy Research 54. Head of Center of National Archeology	

Day/Date	Time	Program	Activity	Participants	Remarks
				55. Directorate of Guidance for Primary School (*Direktorat Pembinaan Sekolah Dasar*) 56. Directorate of Guidance for Junior Secondary School (*Direktorat Pembinaan Sekolah Menengah Pertama*) 57. Directorate of Guidance for Senior Secondary School (*Direktorat Pembinaan Sekolah Menengah Atas*) 58. Directorate of Guidance for Vocational Secondary School (*Direktorat Pembinaan Sekolah Menengah Kejuruan*) 59. Head of Sub-directorate of Primary School Learning 60. Head of Sub-directorate of Junior Secondary School Learning 61. Head of Sub-directorate of Senior Secondary School Learning 62. Head of Sub-directorate of Vocational Secondary School Learning 63. Head of Division of Academic 64. Head of Division of Non-academic Assessment	

Day/Date	Time	Program	Activity	Participants	Remarks
				65. Head of Division of Assessment Analysis and System 66. Head of Division of Curriculum 67. Head of Division of Learning 68. Head of Division of Textbook 69. Mutiara O Panjaitan (English PIC) 70. Erry Utomo 71. Yusri Saad 72. Sujatmiko (Mathematics PIC) 73. Yogi Anggraena 74. Helga Kurnia 75. Ariantoni (Bahasa Indonesia PIC) 76. M. Hamka 77. Mariati Purba (Natural Science PIC) 78. Rennie Diastuti 79. Elly Marwati 80. Heni Waluyo (Social Science PIC) 81. Zulfikrie Anas 82. Suharyadi 83. Maria Listiyanti 84. Maria Chatarina 85. M. Irfan (Thematic Education PIC) 86. Yuke 87. Djuharis Rasul (Vocational	

Day/Date	Time	Program	Activity	Participants	Remarks
				Education PIC) 88. Fristalina (Textbook PIC) 89. Syamsunisa 90. Emira Novitriani 91. Dessy 92. Mega	
	12.00 – 15.00	Courtesy Call with the Minister of Education and Culture	Meeting between International Consultants and ACER with the Minister		PIC: Head of Center of Educational Assessment
	13.30 – 16.00	Roundtable Discussion	Room 1 Topic: Curriculum Moderator: Erry Utomo from Center of Curriculum and Textbook, MoEC Note-takers: Yusri Saad, Emira, Irfan Participants: Consultant Team, ACDP, Division Heads and Staff of Center of Curriculum and Textbook, Room 2	1. Head of Center of Curriculum and Textbook 2. Head of Center of Education Assessment 3. Head of Division of Curriculum 4. Head of Division of Learning 5. Head of Division Textbook 6. Head of Division of Academic Assessment 7. Head of Division of Non-academic Assessment 8. Head of Division of Assessment Analysis and System 9. David Harding, ACDP 10. Totok Amin Soefijanto, ACDP 11. Budiarti Rahayu, ACDP 12. Interpreter, ACDP	Hotel Le Meredien, Jakarta Ruang Sasono Mulyo Room 2 & Room 3

Day/Date	Time	Program	Activity	Participants	Remarks
			Topic: Assessment Moderator: Staff of Center of Education Assessment, other stakeholders Note-takers: Staff of Center of Education Assessment	13. Mutiara O Panjaitan (English PIC) 14. Erry Utomo 15. Yusri Saad 16. Sujatmiko (Mathematics PIC) 17. Yogi Anggraena 18. Helga Kurnia 19. Ariantoni (Bahasa Indonesia PIC) 20. M. Hamka 21. Mariati Purba (Natural Science PIC) 22. Rennie Diastuti 23. Elly Marwati 24. Heni Waluyo (Social Science PIC) 25. Zulfikrie Anas 26. Suharyadi 27. Maria Listiyanti 28. Maria Chatarina 29. M. Irfan (Thematic Education PIC) 30. Yuke 31. Djuharis Rasul (Vocational Education PIC) 32. Fristalina (Textbook PIC) 33. Syamsunisa 34. Emira 35. Dessy	

Day/Date	Time	Program	Activity	Participants	Remarks
				36. Mega	
Wednesday, 1 June 2016	07.00 – 08.30	First group going from the MoEC office in Senayan to SDN 11, Pondok Labu, Jakarta and SMPN 98, Lenteng Agung, Jakarta ---------- Second group going from the MoEC office to SMAN 38, Lenteng Agung, Jakarta and	First group: SDN 11, Pondok Labu & SMKN 62, Lenteng Agung ---------- Second group: SMAN 38, Lenteng Agung and SMPN 98 Jakarta, Lenteng Agung	1. Prof. Anita Rampal 2. Prof. Dewi (UNS) 3. David Harding, ACDP 4. Budiarti Rahayu, ACDP 5. Interpreter 6. Staff of Directorate of Primary School 7. Staff of Directorate of Vocational Secondary Education 8. Staff of Agency of Education Quality Assurance (LPMP) in DKI Jakarta 9. Staff of Center of Development and Empowerment for Teachers and Education Personnel (P4TK) on Language in DKI Jakarta 10. Staff of Center of Curriculum and Textbook (Erry Utomo, Yogi, Mutiara) **----------** 1. Prof. Kathryn Moyle 2. Prof. Kristanti (UNS) 3. Hilary Saccomanno, ACDP 4. Interpreter 5. Staff of Directorate of Senior Secondary School	**PIC: Center of Curriculum and Textbook, DG of Basic and Secondary Education** **Total: 12 people** ---------- -**Total: 11 people**

Day/Date	Time	Program	Activity	Participants	Remarks
		SMPN 98 Jakarta, Lenteng Agung Jakarta		6. Staff of Directorate of Junior Secondary School 7. Staff of Agency of Education Quality Assurance (LPMP) in DKI Jakarta 8. Staff of Center of Development and Empowerment for Teachers and Education Personnel (P4TK) on Language in DKI Jakarta 9. Staff of Center of Curriculum and Textbook (Sujatmiko, Emira, Irfan)	
	09.00 – 12.00	School visit to SDN 11, Pondok Labu	Discussion with school principal and homeroom teachers	1. Prof. Anita Rampal 2. Prof. Dewi (UNS) 3. David Harding, ACDP 4. Budiarti Rahayu, ACDP 5. Interpreter 6. Staff of Directorate of Primary School 7. Staff of Directorate of Vocational Secondary Education 8. Staff of Agency of Education Quality Assurance (LPMP) in DKI Jakarta 9. Staff of Center of Development and Empowerment for Teachers and Education Personnel (P4TK) on Language in DKI Jakarta	**Total: 12 people**

Day/Date	Time	Program	Activity	Participants	Remarks
		---------- - School visit to SMAN 38, Lenteng Agung	---------- --- Discussion with the school principal and Subject teachers (Mathematics, Physic, Chemistry, Biology, Economics, Sociology, History, Geography, Bahasa Indonesia, English)	10. Staff of Center of Curriculum and Textbook (Erry Utomo, Yogi, Mutiara) **----------** 1. Prof. Kathryn Moyle 2. Prof. Kristanti (UNS) 3. Hilary Saccomanno, ACDP 4. Interpreter 5. Staff of Directorate of Senior Secondary School 6. Staff of Directorate of Junior Secondary School 7. Staff of Agency of Education Quality Assurance (LPMP) in DKI Jakarta 8. Staff of Center of Development and Empowerment for Teachers and Education Personnel (P4TK) on Language in DKI Jakarta 9. Staff of Center of Curriculum and Textbook (Sujatmiko, Emira, Irfan)	---------- - **Total: 11 people**
	12.00 - 13.00	*Lunch Box*	First group in SDN Pondok Labu 11 Second group in SMAN 38		

Day/Date	Time	Program	Activity	Participants	Remarks
			Jakarta		
	13.00 – 13.30	First group trip to SMKN 62, Lenteng Agung Second group trip to SMPN 98 Jakarta, Lenteng Agung			
	13.30 – 16.00	Discussion in SMKN 62, Lenteng Agung	Discussion with the school principal and Subject teachers (Mathematics, Bahasa Indonesia, English, and Vocational Subjects)	1. Prof. Anita Rampal 2. Prof. Dewi (UNS) 3. David Harding, ACDP 4. Budiarti Rahayu, ACDP 5. Interpreter 6. Staff of Directorate of Primary School 7. Staff of Directorate of Vocational Secondary Education 8. Staff of Agency of Education Quality Assurance (LPMP) in DKI Jakarta 9. Staff of Center of Development and Empowerment for Teachers and Education Personnel (P4TK) on Language in DKI Jakarta	**Total: 12 people**

Day/Date	Time	Program	Activity	Participants	Remarks
		---------- Discussion in SMPN 98 Jakarta, Lenteng Agung	---------- Diskusi dengan School principal dan Guru (Mathematics, Natural Science, Social Science, Bahasa Indonesia, English)	10. Staff of Center of Curriculum and Textbook (Erry Utomo, Yogi, Mutiara) **----------** 1. Prof. Kathryn Moyle 2. Prof. Kristanti (UNS) 3. Hilary Saccomanno, ACDP 4. Interpreter 5. Staff of Directorate of Senior Secondary School 6. Staff of Directorate of Junior Secondary School 7. Staff of Agency of Education Quality Assurance (LPMP) in DKI Jakarta 8. Staff of Center of Development and Empowerment for Teachers and Education Personnel (P4TK) on Language in DKI Jakarta 9. Staff of Center of Curriculum and Textbook (Sujatmiko, Emira, Irfan)	---------- **Total: 11 people**
	16.00 – 17.00	Return Trip to the MoEC office			
Thursday, 2	08.30 –	*Internal meeting* between	*Internal review*	Consultant Team	Atlet Century

Day/Date	Time	Program	Activity	Participants	Remarks
June 2016	12.00	consultants			Hotel
	12.00 – 13.00	*Lunch Box*			Center of Curriculum and Textbook, Jln. Gunung Sahari No. 4, Assembly Room, 7th floor
	13.00 – 16.00	*Meeting/round table discussion*	Discussion on the Curriculum of Each Subject between the consultant team with the Center of Curriculum and Textbook and Center of Education Assessment	● Mathematics and Science: Prof. Anita Rampal with Yogi, Sujatmiko, Helga, Elly, Reni D, Mariati ● Bahasa Indonesia: Prof. Dewi with Hamka, Ariantoni, Neneng ● English: Prof. Kristanti with Mutiara, Yusri ● Integrated Thematic for Primary School: Prof. Kathryn Moyle with Irfan, Yuke ● Social Science: Heni Waluyo, Zulfikri Anas, Suharyadi, Maria L, Maria Ch	Center of Curriculum and Textbook, Jln. Gunung Sahari No. 4, Assembly Room, 7th floor

Day/Date	Time	Program	Activity	Participants	Remarks
Friday, 3 June 2016		Internal review of consultant team		Consultant Team	Tempat/*Venue*: ACDP Secretariat Office, Building E, 19th floor, MoEC
Monday, 6 June 2016	08.30 – 10.30	Review SMK	Discussing SMK (Vocational Secondary School) Curriculum between Consultant team and Puskurbuk Team (Djuharis Rasul dan Sutjipto), Center of Development and Empowerment for Teacher and Education Personnel (*Pusat Pengembangan dan Pemberdayaan Pendidik dan Tenaga Kependidikan* or P4TK), and SMK Teachers	1. ACDP Team 2. Consultant Team 3. Interpreter, ACDP 4. Djuharis Rasul (SMK PIC) 5. Sutjipto, Head of Center of Curriculum and Textbook 6. Staff of Directorate of SMK (3 people) 7. P4TK Business and Tourism (2 people *WidyaIswara*) 8. SMK in Technology and Engineering 9. SMK in Information and Communication Technology 10. SMK in Health 11. SMK in Agribusiness and Agritechnology 12. SMK in Tourism 13. SMK in Art and Crafts 14. SMK in Business and Management 15. SMK in Fishery and Maritime 16. SMK in Performance Art 17. Mutiara O. Panjaitan	Tempat/*Venue*: ACDP Secretariat Office, Building E, 19th floor, MoEC

Day/Date	Time	Program	Activity	Participants	Remarks
				18. Erry Utomo 19. Yogi Anggraena 20. Helga Kurnia 21. Maria Chatarina 22. Ariantoni 23. Sujatmiko 24. M. Irfan 25. Emira Novitriani 26. Dessy Herfianna 27. Mega M. Batavia	
Tuesday, 7 June 2016	09.00 – 12.00	Consolidation between the consultants		1. Prof. Kathryn Moyle 2. Prof. Dewi 3. Prof. Kristianti 4. Tim ACDP Tim Puskurbuk *on call*	Tempat/*Venue*: ACDP Secretariat Office, Building E, 19th floor, MoEC
	12.30 – 14.30	Presentation on Initial Observation from The Consultant Team	Discussion on the concept and implementation of K13 1. Presentation and comments from Prof. Kathryn Moyle 2. Comments from Prof. Anita Rampal 3. Discussion	1. David Harding, ACDP 2. Totok Amin Soefijanto, ACDP 3. Budiarti Rahayu, ACDP 4. Interpreter, ACDP 5. Head of Research and Development Agency, MoEC 6. Director General of Primary and Secondary Education 7. Director General of Teachers and Education Personnel 8. Head Secretary of Research and Development Agency, MoEC	Tempat/*venue*: Gedung E, 2nd floor, Sidang B1 Room

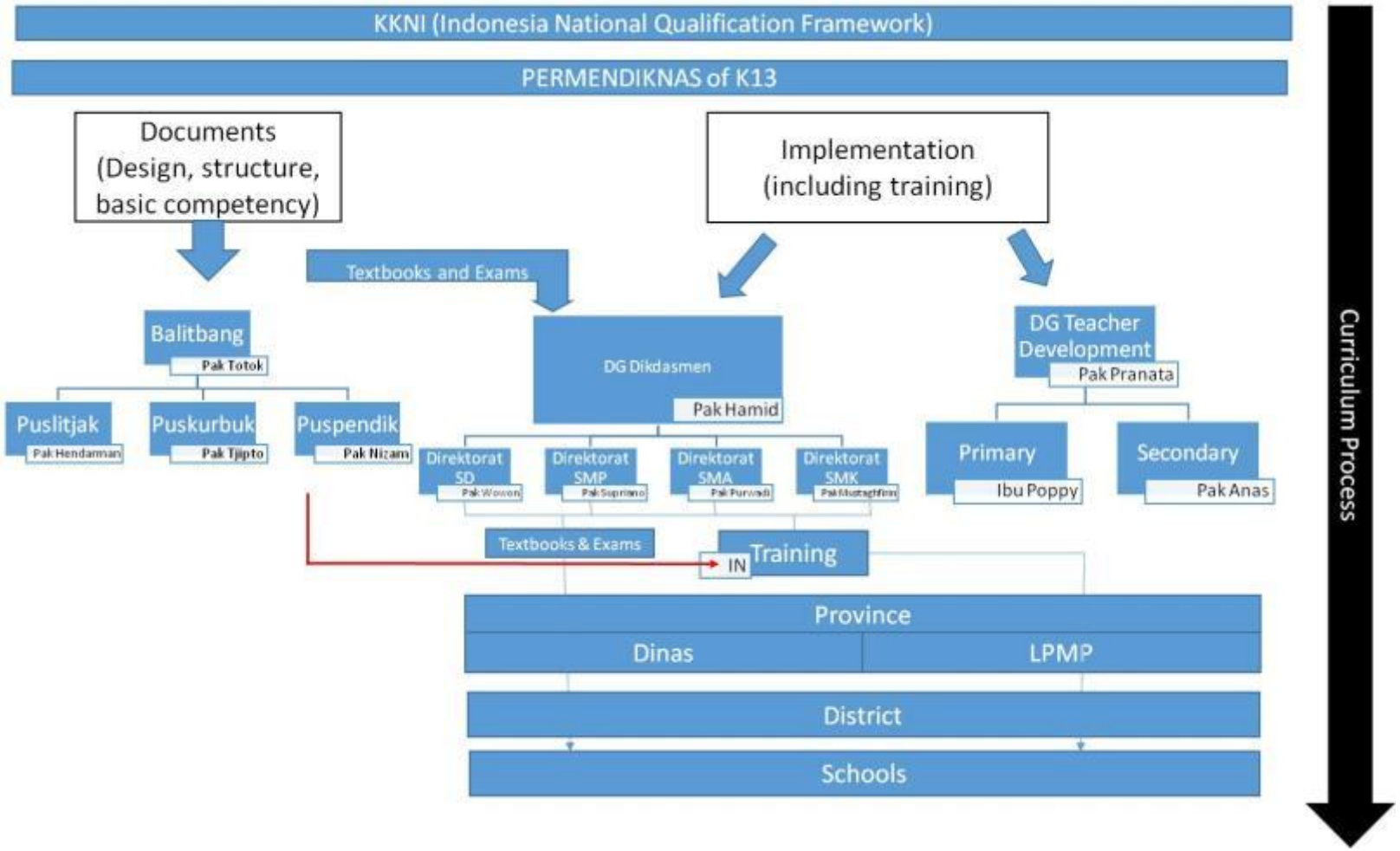
Day/Date	Time	Program	Activity	Participants	Remarks
				9. Head of Center of Curriculum and Textbook 10. Head of Center of Education Assessment 11. Head of Center of Policy Research 12. Head of Sub-directorate of Primary School Learning (*Kasubdit Pembelajaran SD*) 13. Head of Sub-directorate of Junior Secondary School Learning (*Kasubdit Pembelajaran SMP*) 14. Head of Sub-directorate of Senior Secondary School Learning (*Kasubdit Pembelajaran SMA*) 15. Head of Sub-directorate of Vocational Secondary School Learning (*Kasubdit Pembelajaran SMK*) 16. Head of Division of Academic Assessment (*Kabid Penilaian Akademik*) 17. Head of Division of Non-Academic Assessment (*Kabid Penilaian Non-Akademik*) 18. Head of Division of Assessment Analysis and	

Day/Date	Time	Program	Activity	Participants	Remarks
				System (*Kabid Analisis dan Sistem Penilaian*) 19. Head of Division of Curriculum (*Kabid Kurikulum*) 20. Head of Division of Learning (*Kabid Pembelajaran*) 21. Head of Division of Textbook (*Kabid Perbukuan*) 22. Mutiara O Panjaitan (English PIC) 23. Erry Utomo 24. Yusri Saad 25. Sujatmiko (Mathematics PIC) 26. Yogi Anggraena 27. Helga Kurnia 28. Ariantoni (Bahasa Indonesia PIC) 29. M. Hamka 30. Mariati Purba (Natural Science PIC) 31. Rennie Diastuti 32. Elly Marwati 33. Heni Waluyo (Social Science PIC) 34. Zulfikrie Anas 35. Suharyadi 36. Maria Listiyanti 37. Maria Chatarina 38. M. Irfan (PIC for Thematic	

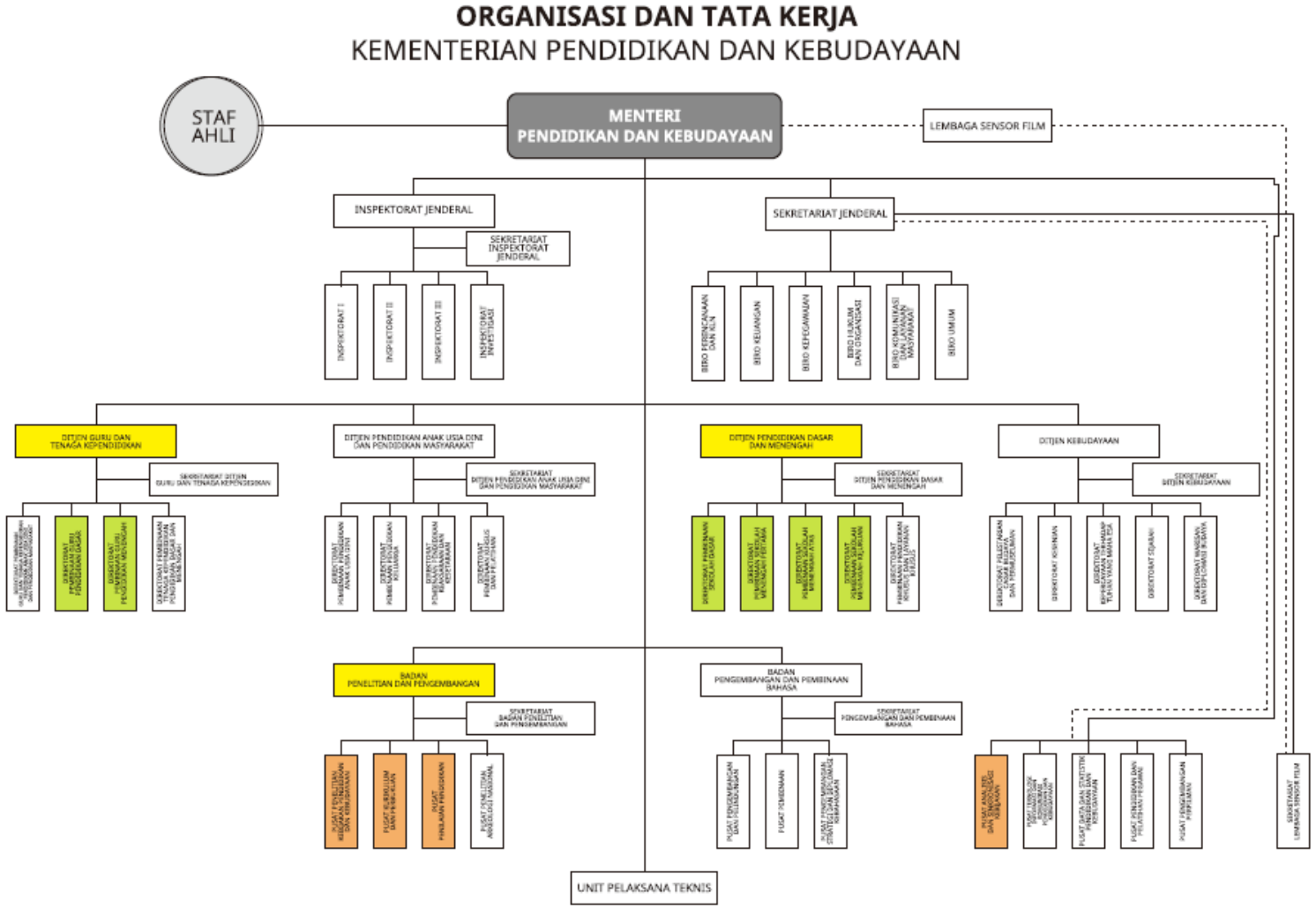
Day/Date	Time	Program	Activity	Participants	Remarks
				Education of Primary School) 39. Yuke 40. Djuharis Rasul (SMK PIC) 41. Fristalina (Textbook PIC) 42. Syamsunisa 43. Emira 44. Dessy 45. Mega	
Wednesday, 8 June 2016	09.00 – 12.00	Review on Textbooks for Primary and Secondary Schools (SD, SMP, and SMA)	Review of Textbooks for 1st and 4th Grade by: 1. Prof. Kathryn Moyle 2. Prof. Dewi 3. Prof. Kristianti	5. Prof. Kathryn Moyle 6. Prof. Dewi 7. Prof. Kristianti 8. Tim ACDP Tim Puskurbuk *on call*	Tempat/*Venue*: ACDP Secretariat Office, Building E, 19th floor, MoEC
Thursday, 9 June 2016	09.00 – 15.00	Consolidation between the consultants	Review on Textbooks for 7th Grade (Math, Bahasa Indonesia, English, Natural Science, and Social Science) and Textbooks for 10th Grade (Math, Bahasa Indonesia, and English) by: 1. Prof. Kathryn Moyle 2. Prof. Dewi 3. Prof. Kristianti	1. Prof. Kathryn Moyle 2. Prof. Dewi 3. Prof. Kristianti 4. Tim ACDP Tim Puskurbuk *on call*	Tempat/venue: Gedung/Building C, 18th floor

Note: Consultants to have an office in Gedung/Building C, 18th floor and can also work on ACDP Secretariat, Building E, 19th floor

Appendix 5: Flow Diagram of Curriculum Development and Implementation



Appendix 6: Organisational Diagram for Curriculum Development and Implementation



Appendix 7: Annual Examination Paper for Grade VIII: Natural Science

YOGYAKARTA CITY GOVERNMENT
EDUCATION AGENCY
SMP NEGERI 8 YOGYAKARTA
Jalan prof. Dr. Kahar Muzkir 2 yogyakarta phone 516013, 541483
http / www.smpn8jogja.sch.id; humas.smpn8jogja@gmail.com
SMS HOTLINE: 08122780001 EMAIL HOTLINE: upik@jogjakarta.go.id
WEBSITE: www.smpn8jogja.sch.id
Postal code: 55223

FINAL EXAM OF SEMESTER 2
ACADEMIC YEAR 2015/2016

Subject : Natural Science
Class : VIII
Day/Date : Tuesday/15 March 2015
Time : 10.00 – 12.00

Choose the best answer by blackening the Answer Sheet (LJK)!

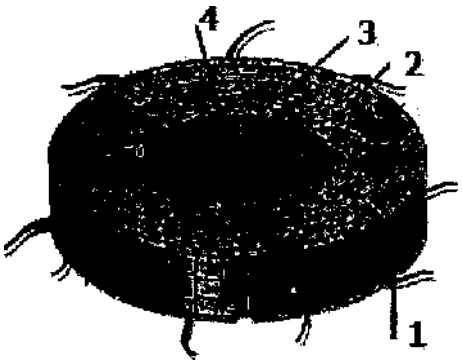
1. Plants do not have a fluid pumping mechanism such as a human heart. Water and nutrients from the roots go up to the leaves as the upper part of plants for some of the following, **except....**

A. The nature of the capillarity of stem phloem vessels
B. The nature of the capillarity of stem xylem vessels
C. The leaves suction power due to evaporation process
D. The roots press power due to osmosis process

2. The entry of water from the soil to the roots xylem into through Symplast in osmosis process respectively as follow...

A. endothermic - root hair epidermis - cortex – peryscle - root xylem
B. hair roots epidermis - endothermic - cortex - peryscle - root xylem
C. hair roots epidermis - endothermic - peryscle - root xylem - cortex
D. Hair root epidermis - cortex - endothermic – peryscle - root xylem

3. Pay attention to the following dicotyl root structure!



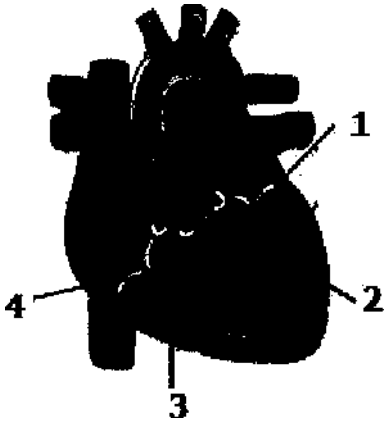
The part functioning to **absorb water and nutrients from soil** and to **transport the**

photosynthesis to all parts of the body

plant is indicated in number....

A.1 and 3
A.1 and 4
B.2 and 3
C.3 and 4

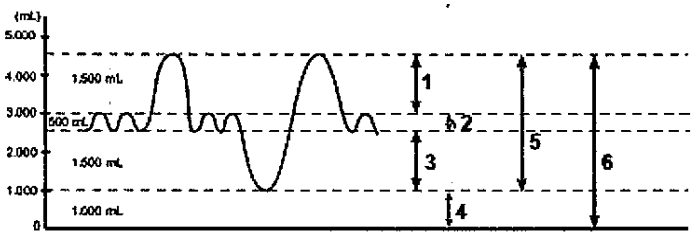
4. Look at the following heart picture!



Bicuspid valve and the aortic valve is shown in number ...

A.1 and 2
B.2 and 3
C.3 and 4
D. 1 and 4

5. Look at the following graph of air breathing!



Vital and total capacity of lung is shown in number....

A. 1 and 3
B. 2 and 4
C. 3 and 5
D. 5 and 6

6. Blockage of the respiratory tract caused by allergies such as dust, feathers and hair is disease of....

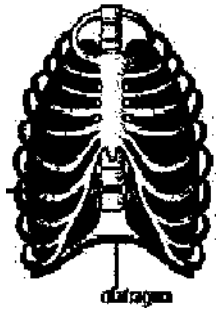
A. emphysema
B. Asthma

C. Lung cancer
D. bronchitis

7. Konka/collection of capillary blood vessels in the nose serves to...

A. Filter dust and dirt that get into the nose
B. Humidify the air entering the nose
C. Adjust the ambient air temperature with the air temperature in the nose
D. Filter out germs that enter the nose

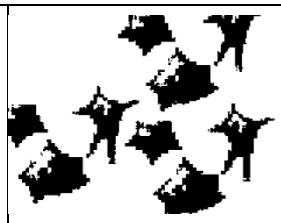
8. Look at the following picture!



The position of horizontal diaphragm as shown in the picture indicates the occurrence of....

A. Inspiration of abdominal breathing because of diaphragm contraction
B. Expiratory of abdominal breathing because of diaphragm relaxation
C. Inspiration of abdominal breathing because of diaphragm relaxation
D. Expiratory of abdominal breathing because of diaphragm contraction

9. The exact relationship between form and function of blood cells is....

			
A	kill germs	Close the wound	transporting 02
B	Transporting nutrients	kill microbes	Freeze the blood
C	transporting oxygen	Freeze the blood	kill microbes
D	transporting carbon dioxide	transporting 0_2	Close the wound

10. The shape is not fixed, move freely outside the blood vessels, normal number is about 8,000 in each

1 mm^3 blood are the characteristic of

A. leukocytes
B. erythrocytes

C. thrombosytes
D. blood plasma

11. The correct order of blood circulation is...

A. whole body - right ventricle - right atrium - lungs - left ventricle – left atrium - whole body
B. whole body - left ventricle - left atrium – lungs - right ventricle - right atrium - whole body
C. whole body - right atrium - right ventricle - lungs - left ventricle - left atrium - whole body
D. whole body - left ventricle - left atrium - lungs - right atrium - right ventricle - whole body

12. Read the following table!

distinguishing	***vena***	***Arteria***
Beat	feel	Do not feel
Blood flow	from heart	To the heart
Chamber	Thin, inelastic	Thick, strong, elastic
number of valves	One in heart	Many in every vessel

Correct comparison in the table above is in...

A. beat
B. Blood flow
C. Wall
D. number of valves

13. Old Erythrocytes will be overhauled in liver and lymph. Hemoglobin laying inside Erythrocytes is overhauled into three parts, namely iron (Fe), hemin, and globin. Globin resulted in hemoglobin overhauling will form....

A. The new erythrocytes
B. Hemoglobin new
C. bilirubin
D. biliverdin

14. Read the following statements!

1) Avoid the body from infection
2) Conducting the process of blood clotting
3) binding CO_2 from the tissues to the lungs
4) circulate 0_2 throughout the body
5) Transporting food juices

Which of the above a function of erythrocytes?

A. 1, 2, 3 4, 5

B. 2, 1, 2, 5

C. 3, 4

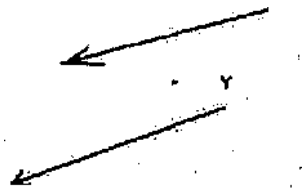
D. 4, 5

15. Ani looked unhealthy, pale, lethargic and drowsiness. Ani went to the doctor for a checkup. Ani asked by the doctor to check the blood, and blood test results show that Ani has a low hemoglobin, the doctor said that Ani suffer from...

A. Leukemia
B. leucopenia
C. leucocytosis
D. Anemia

16. Look at the blood clots in the chart below! Mechanism of blood clotting:

Broken Platelets



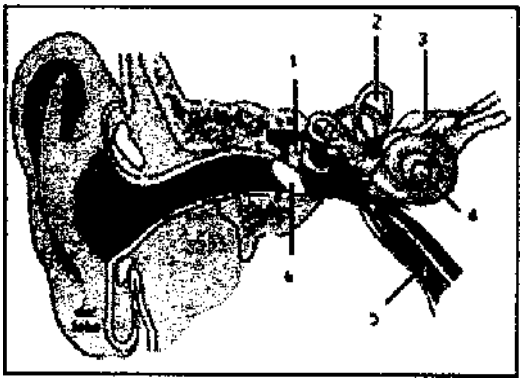
To complete the blood clotting process chart, the correct X, Y and Z is...

A. Thromboplastin, fibrinogen, thrombin
B. Thromboplastin, thrombin, fibrinogen
C. Fibrinogen, thromboplastin, thrombin
D. Thrombin, thromboplastin, fibrinogen

17. Baskara Blood pressure measured using sphygmomanometer is 120/90 mmHg. 120 show....

A. Systolic pressure, measured when the contractions ventricle pump blood out of the heart
B. Systolic pressure, measured when the contractions atrium pump blood to ventricle
C. Diastolic pressure, measured when the contractions ventricle pump blood out of the heart
D. Diastolic pressure, measured when the contraction atrium pump blood to ventricle

To Question 18 and 19, look at the following picture!



18. Number 5 indicated ear function to....

A. Maintain body balance
B. Receive vibrations from sound waves
C. Transform sound vibrations into an impulse wave
D. Connect with the mouth to keep balance of air pressure in the ear

19. Fonoreseptor cells in the ear are shown in number...

A. 1

B. 2

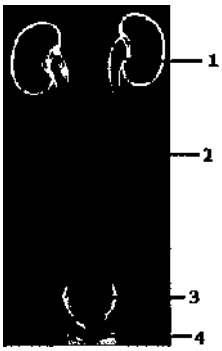
C. 4

D. 6

20. The sequence of bones in the ear from outer to inner is...

A. incus - hammer - stirrup
B. Stirrup - incus - Hammer
C. Hammer - stirrup - incus
D. Hammer - incus - stirrup

21. Look at the following urinary tract



Number 2 and 3 indicate respectively....

A. Urethra and bladder
B. Ureter and bladder

C. Urethra and ureter
D. Ureter and urethra

22. Look at the picture below excretory organs.

Organs that secrete metabolism waste like salt, urea and water is...

A. I and II
B. I and III
C. II and N
D. III and IV

23. Read the data about skin section below!

1. Blood vessel
2. spinosum layer
3. sweat glands
4. oil glands
5. Malpighian layer

The above data contained in the dermis layer is....

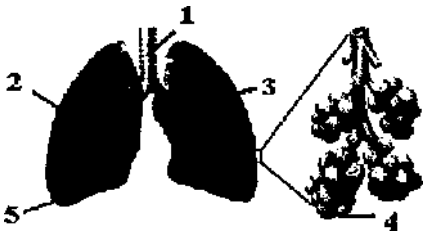
A. 1, 2, 5

B. 1, 3, 4

C. 2, 3, 4

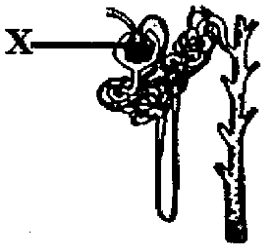
D. 2, 3, 5

24. Look at the following picture that shows the trachea and alveoli respectively is...

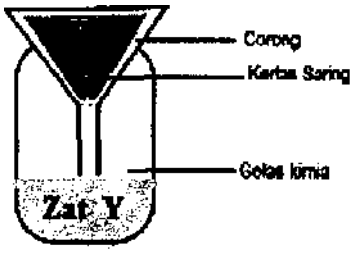


A. 1 dan2
B. 1 and 4
C. 2 and 3
D. 4 and 5

25. Consider the following picture of the kidney! The process that occurs in this part (X) is...



26. Look at the experiments of blood filtration model in the kidneys below!



If the funnel and filter paper likened to the glomerulus and beakers as Bowman's capsule, then substance X and substance Y likened to....

Option	substance X	substance Y
A	Blood and Protein	primary urine
B	Urea and Protein	primary urine
C	Glucose and amino acids	secondary urine
D	Salt and urea	secondary urine

27. In studying the excretory system, a junior high school grade 8 students test the urine using biuret reagent and Benedict. Data obtained in one of the groups is as follows:

No.	Student's name owner of urine sample	tube 1		tubes 2	
		Bluret		Benedict	
		Initial color urine	End color	Initial color urine	color after heating
1	Riko	Yellow	Blue	yellow	Yellow
2	Aldi	Yellow	Blue	Yellow	Yellow
3	Johan	Yellow	Purple	Yellow	Yellow

4	Farrel	Yellow	Blue	Yellow	Light red

Based on the above data it can be concluded that....

A. Johan urine contains glucose, whereas Aldi urine is normal
B. Johan urine contains protein, whereas Rico urine is normal
C. Johan urine contains glucose, whereas Farrel urine contains protein
D. Johan urine contains protein, whereas Farrel urine contains glucose

28. Look at the statement below!

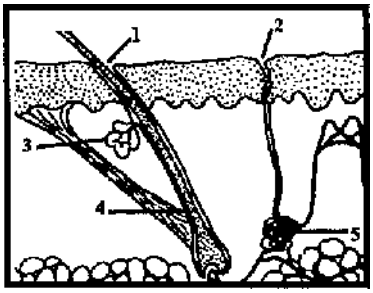
1) Dismantling protein into urea
2) Remodel broken red blood cells into bile
3) Changing provitamin A to vitamin A
4) Stockpiling glucose in the form of glycogen

Liver function related to excretion is....

A. (1) and (2)
B. (1) and (4)
C. (2) and (3)
D. (3) and (4)

29. Look the picture of skin below:

Section functioning to sweat out and to produce sweat successively indicated by number....



A. 1 and 3
B. 1 and 4
C. 2 and 5
D. 2 and 4

30. Human blood is made up of blood plasma and blood cells. Each section has a different function. Here is a function of the blood plasma, except....

A. circulate oxygen
B. Distribute food juices
C. Circulating hormones
D. Circulate metabolic waste

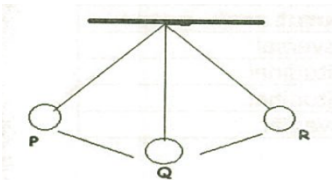
31. A body vibrates with a frequency of 125 Hz, the meaning of the statement is...

A. Within 125 seconds there is 1 vibration
B. Within 1 minute vibration occurs 125 vibrations
C. Within 1 second occurs 125 vibrations
D. Within 125 minutes occurs 1 vibration

32. The period of vibration is 5 seconds, if the objects vibrate for 1 minute, then the number of vibrations that occur are...

A. 0.2 times
B. 2 times
C. 5 times
D. 12 times

33. Look at the following picture ... If PR is 8 cm distance, and movement of objects P-Q-R-Q for 6 second, then amplitude and frequency is...



A. 8 cm and 0.125 Hz
B. 4 cm and 0.125 Hz
C. 8 cm and 0.25 Hz
D. 4 cm and 0.25 Hz

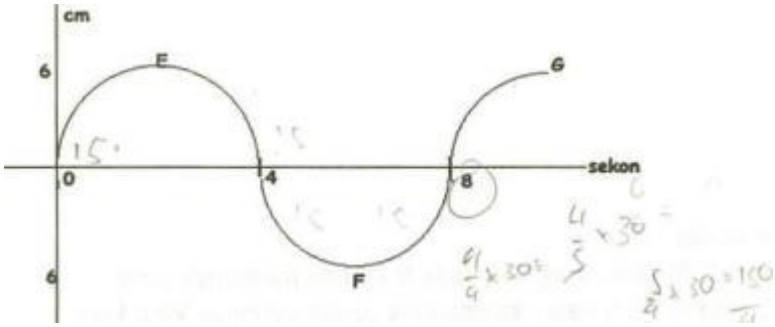
34. In experiments determining the earth's gravity acceleration using mathematical swing, the formula used is $= 2\pi\sqrt{\frac{l}{g}}$, this shows that the amount of period is...

A. Proportional to the length of the rope, the longer the string, the greater the period is
B. Proportional to the length of the rope, the shorter the string, the greater the period is
C. Proportional to the amplitude, the greater the deviation, the greater the period is
D. Proportional to the amplitude, the greater the deviation, the smaller the period is

35. Differences between mechanical and electromagnetic waves are...

A. Mechanical waves can propagate through the air, the electromagnetic waves can not
B. Mechanical waves can propagate through solid substance, electromagnetic waves can not
C. Mechanical waves do not require medium, electromagnetic waves need a medium to propagate.
D. Mechanical waves need a medium to propagate, electromagnetic waves do not.

36. Look at the following picture!



If the distance from E- F 30 cm, determine the amplitude and wavelength!

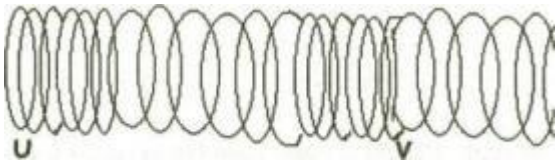
A. 6 cm and 45 cm
B. 12 cm and 45 cm
C. 6 cm and 60 cm

D. 12 cm and 60 cm

37. Based on picture in question no 36, specify the amount of period and wave propagation speed!

A. 4 s and 7.5 cm /s
B. 4 s and 15 cm /s
C. 8 s and 7.5 cm /s
D. 8 s and 15 cm /s

38. Look at the following longitudinal wave picture!



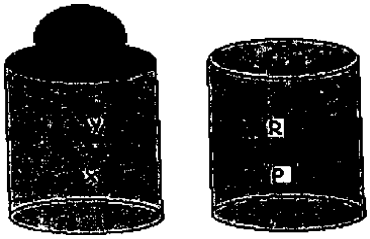
The distance between the U to V is 24 cm. If the wave propagation speed 64 cm/s, the wave length and period is…

A. 18 cm and 6 s
B. 18 cm and 4 s
C. 16 cm and 6 s
D. 16 cm and 4 s

39. The right wave is shown in...

option	**Wave**	**According medium**	**According to vibration direction**
A	Sound	mechanics	transversal
B	Radio	electromagnetic mechanics	longitudinal longitudinal transversal
C	Water level	mechanics	longitudinal
D	Light	electromagnetic	transversal

40. Look at the picture below!



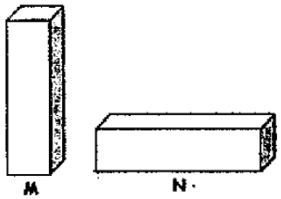
Tube 1 Tube 2

Tubes 1 and 2 filled with water full, and then the tube 1 is closed, and is loaded on it. Tube 2 is left open. Point X on tube 1 is as high as point P.

Y is as high as point R. Correct statement is...

A. Pressure at P is equal to pressure at point R
B. pressure at point X is as large as pressure at point Y
C. pressure at the point R is greater than pressure at point P
D. pressure at point X = Y = P = R

41. Two objects with the same mass are placed on the floor as shown below



The correct statement is...

A. Pressure generated by object M equals to object N due to the same mass
B. Pressure generated by object M is greater due to smaller cross section
C. Pressure generated by object N is greater due to larger cross section
D. Pressure generated by objects N is greater due to smaller cross section

42. A city is located at an altitude of 900 m above sea level. The city air pressure if measured with a mercury barometer is....

A. 67 cm Hg
B. 69 cm Hg
C. 72 cm Hg
D. 76 cm Hg

43. A diver under pressure of 330 kPa while diving in the sea water with mass of 1100 kg / m^3, If the earth's gravity acceleration is 10 m/s^2 , then the depth of the diver is...

A. 100 m
B. 200 m
C. 300 m
D. 400 m

44. A hydraulic jack can lift loads weighing 15,000 N on the big vacuum that has a large cross section of 2000 cm2, If the area of small vacuum is 40 cm2, then the force will be done on the small vacuum is...

A. 300 N
B. 750 N

C. 3000 N
D. 7500 N

45. Large hydrostatic pressure is influenced by:

1) density of liquid
2) form of a liquid container
3) depth of liquid

The correct statement is....

A. 1 and 2
B. 1 and 3
C. 2 and 3
D. 1, 2 and 3

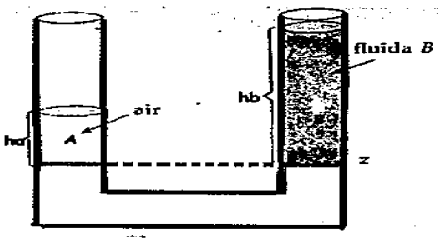
46. 450 ml of gas in a confined space has a pressure of 56 cmHg. The amount of gas pressure when compressed into 300 ml volume at a constant temperature is...

A. 76 cm Hg
B. 78 cm Hg
C. 80 cm Hg
D. 84 cm Hg

47. A student experiment and obtain the following data; body weight when weighed in air to 300 N, when weighed in water weighs 265 N, when weighed in the oil 280 N. Correct students analysis about the amount upward force by the water and oil are...

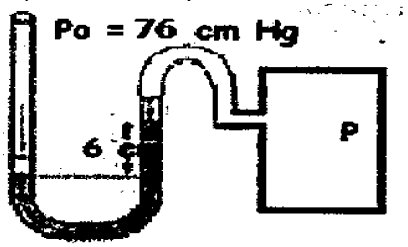
A. 565 N and 580 N
B. 580 N and 565 N
C. 35 N and 20 N
D. 20 N and 35 N

48. Look at the following picture. Pipe U filled with water where its density is 1 g / cm3, then also on the right side of fluid so that water on the left tube foot rose 6 cm. If fluid B is 12 cm high, then the mass of fluid type b is...



49. Look at the following manometer picture, if outside air pressure is 76 cmHg and liquids rose as high as 6 cm as shown on the picture, then the air pressure in a closed tube (P) is...

A. 1gr/cm^3
B. 0,8 gr/ cm^3
C. 0,5 gr/ cm^3
D. 0,5 gr/ cm^3



50. The following table is a tool that works in accordance with the law inventor....

option	Pascal's law	Archimedes law
A	hydraulic pump	air balloon
B	hydraulic pump	hydraulic jack
C	floating bridge	hydraulic pump
D	Submarine	hydraulic jack

Appendix 8: Summary of Responses Received to the Survey

Respondents

Instructor / Teacher Trainer / School Consultant: 1
State University Lecturer: 4
Curriculum Developer: 2
Researcher: 1
Elementary School Teacher: 12
School Principal: 7
Widya Iswara- Vocational Senior High School Curriculum Developer: 1
Bureaucrats / State Civil Apparatus: 1
Anonymous: 16

Documentation Study of Curriculum 2013 (K13)

Aspects of K13 document	Question	RESPONSE
4. Document ***a.*** Policy ***b.*** Regulation ***c.*** Information ***d.*** Support the implementation of K13 ***e.*** Accommodate differences in Indonesia	In terms of what rules and policies support or not support the goals of K13?	***1.*** K13 is considered hard administratively. ***2.*** Socialization (and training?) of K13 is not well conducted and made in a hurry. ***3.*** Documents are not easily understood by everyone. ***4.*** K13 less accommodates differences in Indonesia, and is difficult for teachers to develop it appropriate to regional context. ***5.*** Uniformity of information in the region becomes the constraint for K13 implementation. ***6.*** K13 implementation should be gradually conducted so as not cause anxiety for teacher. ***7.*** Lesson Plan models need to be developed.
5. Guideline document ***a.*** Information	What do you know about the purpose	***1.*** Guideline used in training is different with revised K13 version. ***2.*** A guide for preparing Lesson Plan is necessarily provided for teacher.

	of the issuance of guidance? If you have used the guides, how do you use it?	***3.*** Language used in guideline is not easy to understand, less user friendly. ***4.*** Guideline is not practical, too theoretical,and less contextual examples. ***5.*** In addition to guideline, teachers should receive special training in terms of learning and assessment.
b. Practicality		
c. Applicability		
6. Material document ***a.*** Syllabus	How do these materials (left column) support the implementation of K13? Please provide a comment for each of these aspects.	***7.*** Thematic syllabus needs to be reviewed because it is general and broad. ***8.*** Structure of competence need to be aligned. ***9.*** Syllabus should be more operational so that teachers can interpret it into learning materials. ***10.*** Lesson Plan model containing rational and examples of learning stages likely to be developed (annotated lesson plan model) is necessarily made. ***11.*** Teachers need training and assistance in developing the Lesson Plan. ***12.*** Some material in the textbook is less contextual. ***13.*** Content and scope of textbooks (and KD) need to be reviewed; too much content). ***14.*** Teacher is not proficient in authentic assessment. ***15.*** Assessment form and administration complicate the teachers.
b. Lesson Plan (RPP) ***c.*** Textbooks ***d.*** Appraisal ***e.*** Report Book		

Implementation of K13

Implementation aspects	Question	
6. **Training: Increasing the capacity of teachers on K13** ***d.*** Duration	What are the strengths / advantages and disadvantages of K13 training?	Strengths / advantages: ***1.*** K13 is focused on forming the character of each child: soft skills, independent, and able to solve problems; and also balance of students knowledge and skills; cognitive and psychomotor ***2.*** Good learning process, directing towards local wisdom, and more flexible in the application. ***3.*** Assist teachers to have shared perception and have capacity building ***4.*** Guidebooks are available and training materials are well prepared.
e. Process (attitudes, knowledge, skills)		
f. *Output*		Weakness: ***1.*** Training contains only socializing, not training, theoretical, not related to implementation, and hard to implement. ***2.*** Training Document in providing examples is incoherence between KI, process and assessment. It is supposed to be direct and supplemented by examples. ***3.*** With such training, teachers do not understand K13, not professionally ready, difficult to apply K13. ***4.*** A short time with a lot of material, seem in a hurry, less mastery on training materials. Training is less empathy towards fellow human beings. ***5.*** Training Media is less supporting ***6.*** Informant (IN and IK) is less competent, less experienced, and unable to cover all expected material because of lack of training time. ***7.*** What if teacher training is handed over to school and the school can choose a consultant who can answer until it succeeds; the government just need to

		prepare the fund for it. ***8.*** Training is implemented gradually starting from the understanding of K13, lesson planning, teaching methods, and assessment. ***9.*** Requesting for example of appropriate Lesson Plan, materials, methods and evaluation to apply
7. **Preparation of teachers to teach using K13** ***e.*** Lesson Plan	What strategies are used in preparing the learning by aspects 1 to d?	***1.*** Lesson Plan: create your own or collaboratively with other and discuss it with parallel teachers, and MGMPs. ***2.*** Teaching materials: a greater emphasis on learning experience/go into the field/case studies; not only textbook, but able to use the environment and other various sources ***3.*** Scientific learning approach, constructivism, and contextual learning, CTL method, PBL; adapted to basic competence, up to date and relevant teaching materials to the students realities. Evaluation is prepared in accordance with the gradation and type of competence. ***4.*** Evaluation instruments: not only written tests, but also projects. ***5.*** Strategy: cooperation and discussion with KKG/MGMPs; training, and workshops on a-d, plus ICT training. ***6.*** Preparation of complete guideline documents (Lesson Plan and evaluation instrument) and the assistance of expert
f. Teaching materials		
g. Method		
h. Evaluation instruments		
8. **Implementation in the classroom** ***d.*** Learning process	What indicators in the classroom which shows that K13 implemented properly? Please provide a comment for each letter (a, b,	***1.*** Contextual and meaningful learning, Problem Based Learning, scientific, integrated with learning. ***2.*** Interactive Learning, fun, independent child, given opportunity, active students, dynamic, dare to express opinions, active to seek out. ***3.*** Students are not just sitting in groups and asking questions.
e. Role of teacher - role of pupil – role of teaching		***1.*** Teachers are not dominant in teaching and learning, but as a facilitator and mediator, teachers actively motivate students to think critically.

material	and c).	***2.*** Students give feedback on the teacher's explanation, become actors in solving the problem, explore more about the given subject in classroom ***3.*** Teaching materials is as a reference, and should be creative, not relying solely on textbooks, ***4.*** Giving support to each other and teacher should encourage an understanding instead of memorized things
f. Student- teacher interaction		***1.*** Three way communication, a more active open class, discussion, activity based and active teacher as a facilitator; trust, openness, ability to understand the characteristics of students, mutual interaction, and students feel free to think and express their vision on thinking ***2.*** Teachers guide, motivate, and allow students to find and build knowledge
9. **Support** ***d.*** Schools (principals and school communities)	How do principals, supervisors and directorates at the national level support the implementation of K13?	***1.*** School Principals and supervisors need to be trained to implement K13dan able to assist teachers, not just do socializing. ***2.*** School Principal: give support simply through providing a letter of assignment to participate in training activities for the development of K13; prepare facilities and infrastructures especially technology media; prepare a concrete example: creating lesson plans, teaching materials, methods, media; evaluation of learning; teacher training; supervising, mentoring, providing concrete examples, training ***3.*** Supervisors: training for teacher active in supervising, mentoring, evaluating the learning, ensuring the preparation for the implementation of K13 schools. ***4.*** Supporting policy and budgeting ***5.*** Directorate has the task to organize training and provide other support to help the school, as a forum for aspirations, feedback from teachers/stakeholders, adequate learning media support.
e. District / City (Supervisor)		
f. National (Directorate)		
10. Monitoring and evaluation ***c.*** Documents (made by schools / teachers)	How have findings resulted from undertaken	***1.*** Documents have been identified but not the practice ***2.*** Improvement of each monitoring theme is always conducted ***3.*** Technical administration of M & E tend to discourage creativity

d. Implementation	monitoring and evaluation study (e.g. M & E) been incorporated into the current policy of K13?	***4.*** No yet influence and change the learning process ***5.*** Tend to be copy-paste ***6.*** M & E inputs are still not enough to be the design for K13 development. M & E is often not substantive. ***7.*** Monitoring results should be explained to the teacher as a form of reflection so it will inform better in the future on the strength and weaknesses. ***8.*** Necessary for follow-up action. ***9.*** Who accompany and how the process goes is not known. The results of monitoring and evaluation have been included in the K13 policy currently, one of which is the learning process.

Are there any suggestions and / or complaints to improve the implementation of K13?

1. Training should have not been conducted in haste, and document and HR should be more seriously prepared.
2. Socialization should be comprehensively implemented covering general training materials and technical implementation of learning in the classroom.
3. Changes in the curriculum should have a clearer theoretical framework, and also be based on the changing real needs of students as future society and generations. There should be Synergies and a clear balance of puskurbuk to directorate then to teachers and supervisors (to be consistent)
4. Providing Self-paced training for the group / MGMPs conducted regularly to practice implementing the curriculum. Universities are involved to provide input/materials on the group/MGMPs
5. Providing necessary speakers who have mastered well with K13 training materials, with practical preparation of lesson plans, instructional media, and the methods to better understand especially the assessment.
6. Requesting to provide the teachers a training concerning:
- ***a.*** Preparing Lesson plan
- ***b.*** Designing instructional media
- ***c.*** Designing methods to apply
- ***d.*** Ways to overcome recent and frequent problems of students behavior

e. Assessment and implementation
f. Creative and innovative ICT / media use
g. Using the environment as a teaching material
h. Developing local wisdom based teaching materials
i. Thematic learning (Elementary School)

7. Adding more e-book so as teachers/students get it easily
8. Adjusting source book to be in accordance with the type of general high school or vocational school
9. Too many evaluations, the prepared material do not always correspond to the age of students (textbooks), sometimes not in accordance with the conditions of the school (textbooks)
10. Not easy to change prior habits of learning, the revision of K13 made already encourage the need to make strengthening effort through socialization intended to establish ecosystems that sustainably involve the entire bureaucrats, educators, practitioners and public.
11. All aspects, all stakeholders ranging from teachers, principal, Sub Agency, Agency, and provincial level should participate in supervising, and controlling the implementation of K13 routinely and continuously.
12. M & E should be done regularly to find out the schools/teachers weaknesses/difficulties in implementing K13.