30 Kannangara Memorial Lecture

14th October, 2019

"Redefining Senior Secondary and Collegiate Curricula for Tomorrow's World"

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Dr. C.W.W. Kannangara Memorial Lecture series, inaugurated in 1988 by the National Institute of Education (NIE), is an opportunity to reflect on, rejoice in, and show respect and admiration for the pioneering contributions made by Dr. C. W. W. Kannangara, widely referred to as the father of free education. Furthermore, this event is an occasion to commemorate the significance of his inspirations in building a National System of Education, in the expansion of education to date and in reforming education in the future

Today, on Dr. C. W. W. Kannangara's 135th birth anniversary, I am extremely happy and indeed greatly honoured to have been invited to deliver the 30th memorial lecture and pay tribute to such a committed revolutionary educationist and illustrious personality, whose education reforms enabled generations of students, including myself, who hail from among the poor and humble citizens of the country to become university academics, administrative officers, doctors, engineers, accountants, teachers, lawyers, judges and other professionals holding various positions in the country. At the outset, I wish to take this opportunity to extend my utmost gratitude to the Director General, Dr. (Mrs.) Jayanthi Gunasekara of NIE, and the Research Department of the NIE for this rare honour bestowed upon me on this significant occasion

The contribution made by Dr. C.W.W. Kannangara to the cause of education in this country, especially during the period from 1931 to 1947, when he functioned as the Minister of Education in the capacity of Chairman of the Executive Committee on Education in the State Council, has been recognized before me in this lecture series by 29 orators chosen from among distinguished

educationists, academics and civil servants in the country. Those eminent people who have preceded me in delivering lectures, perhaps with first-hand experience, would surely have spoken more eloquently than I am able to do today. But I will try my best to live up to the high standards they have set.

When Dr. Kannangara passed away in 1969, I was studying in the primary section of Richmond College, Galle, the same school in which he had his secondary education. I remember a few stories associated with young Kannangara and the school being narrated, at times repeatedly, by my teachers when I moved to the senior secondary classes. Then, occasionally I read about him and his contributions to the free education of the country in newspaper articles. But I started learning formally and meaningfully about his background, his early personal scholastic achievements in the midst of family misfortunes, his professional success, and his contribution at national level, in social service, national politics, and more significantly in the field of education, only during preparation for this lecture.

The 1943 Report of the Special Committee on Education in Ceylon chaired by Dr. Kannangara, also known as Sessional Paper XX1V-1943, consisting of 21 chapters in 160 pages, contains a comprehensive review of the then educational system and policy recommendations. In my presentation, I do not intend to talk on the reforms suggested in the report or to make any comments on the significance of those reforms. But I will attempt to relate some observations and comments made in the report on various aspects, to the current educational issues that I am going to address today.

1.   Introduction

The national education system of a country is guided by its national curriculum. It sets the framework for school work by defining the values and objectives for all schools so that the children who leave the school system are able to lead successful lives as citizens. Therefore, the prime concern of the national curriculum should be to integrate the development of the individual so that the students can effectively contribute culturally, socially, politically and economically after they leave school.

The system of education in Sri Lanka provides 13 years of schooling in four cycles: Primary cycle, Junior Secondary cycle, Senior Secondary cycle, and Collegiate cycle.

Thus, in the context of our education system, the senior secondary and collegiate curricula in particular, must provide students with abilities to plan their own future, further and higher education, and future career. It should help students to become familiar with working, and economic life and entrepreneurship, so that as a result, upon completion of school education, students are capable of facing the challenges presented by the changing world in a flexible manner. The curriculum must provide them with the prerequisites for a diverse and full life in the different roles of being human.

In this respect, Dr. Kannangara has expressed[1] his views as follows:

> "It is thus an extremely important part of the work of the school, as it is of the home, to develop "character". By "character" we mean all those indescribable but easily recognized qualities which produce the good citizen, ranging from common politeness and ordinary tact to public spirit and leadership."

Furthermore, the above hypothesis is in accordance with the NEC position[2];

> "General Education should prepare children for a satisfying life in which they live and work together productively with fellow adults. They would be virtually adults when they leave school, and they should be equipped with the knowledge and other competences that would enable them to contribute to the wellbeing of their family, the community in which they live, and the nation as a whole."

In my lecture, I plan to first enlighten you on the current situation of the senior secondary and collegiate curricula of the country, comparing them with the relevant international benchmarks, and then address two issues impacting education at these levels; (1) general criticism of having an overloaded school curriculum causing not only academic stress, but also seriously affecting students' mental and physical health, and (2) whether the current school curriculum provides students with a broader set of skills in order to successfully meet the demands placed on 21st century learners. Finally, I will present my views on the possible reforms that may be carried out on the school curriculum in order to maximize what the students actually learn in the school, to meet the requirements set by the national bodies for recognition of the qualifications, and, most importantly, to meet the needs of our school leavers.

R. S. Medagama, during the 25th Dr. C. W. W. Kannangara Memorial Lecture[3] on the topic "A Review of Educational Reforms in the Post - Kannangara Era" made a comprehensive presentation on the evolution of education in Sri Lanka since 1939, and at the end expressed the importance of formulating a set of educational reform proposals with the consensus of all parties and implementing them as a national policy for the sake of the future generations of this country.

Then Dr. Upali M. Sedere, delivering the 27th Dr. C. W. W. Kannangara Memorial Lecture[4] on the topic "Educational Reforms Beyond Kannangara for the 21st Century", highlighted some educational issues faced by the country today, including the heavy examination and academic orientation of the curriculum, and discussed instructional system and assessment system reforms needed to match the 21st Century educational expectations.

My lecture today will supplement some of the key points made in those two previous lectures.

2.   Education System

Sri Lanka, as a former British colony like many other Commonwealth countries, has inherited a system of education based on the British system. In particular, senior secondary and collegiate education systems are modeled on the British system and the GCE Ordinary Level and GCE Advanced Level qualifications at the respective levels are designed by using specifications equivalent to the UK based qualifications.

2.1   The General Certificates of Education as Global Qualifications

The entire duration of senior secondary and collegiate education in Sri Lanka is utilized to train students for two national qualifications, the GCE Ordinary Level and the GCE Advanced Level.

GCE, which stands for General Certificate of Education, is a subject-specific family of academic qualifications that originated in the United Kingdom, in particular from the awarding bodies in England, Wales, and Northern Ireland.

The GCE is composed of three levels. They are the Ordinary Level (OL), the Advanced Subsidiary Level (AS Level), and Advanced Level (AL) in increasing order of hierarchy. In 1988, the GCE OL qualification in England, Wales, and Northern Ireland was replaced by the General Certificate of Secondary Education (GCSE).

The two qualifications GCE OL and GCE AL are currently offered internationally in several Commonwealth countries including Bangladesh, Brunei, India, Malaysia, Mauritius, Pakistan, Seychelles, Singapore and Zimbabwe, along with Sri Lanka. In most of these countries they are conducted by the United Kingdom based organizations, Cambridge International Examinations (CIE) and Pearson International.

The GCE AL, in which the final examinations are normally taken at the end of 13 years of schooling after two years of classroom study, is considered a school leaving qualification and is primarily designed to define and assess achievement of the knowledge, skills and understanding which are needed by students planning to progress to undergraduate study in the respective countries, particularly in the same subject area. Normally, students take 3 AL subjects because most university admissions are generally based on 3 AL subjects.

The GCE OL, designed as a pathway to the more in-depth and academically rigorous GCE AL, is a two-year study programme and the final examinations are taken by a student at the end of 11 years of schooling. As a global qualification, in most countries, the number of subjects required to be passed by a student to earn the GCE OL qualification is either five or six[5].

Students wishing to continue their studies up to the GCE AL, are often required to fulfill a minimum admission requirement in terms of earning a certain number of passing grades in the GCE OL examination, including in the mother tongue and mathematics.

Each of the study programmes leading to the two qualifications, GCE OL and GCE AL, has a well-defined workload of studies in terms of the time that the student needs for studies and the quantity and level of difficulty of the study material.

In this context, the syllabi of subjects taught at both the GCE OL and GCE AL are designed on the assumption that learners have a certain number of Guided Learning Hours (GLH) per subject over the duration of the study programme. GLH is an expression of the size of a regulated qualification. Guided learning hours is defined as the time when teachers are present to give specific guidance towards a learning aim being studied. This can include classroom teaching, tutorials and other supervised study. By combining GLH with an estimate of the time that a learner will spend in preparation, study and assessment, one can arrive at the notional learning hours estimated for that subject. The total amount of notional learning hours expected for a study programme is called the volume of learning required to award that qualification.

The GCE OL and GCE AL qualifications offered in the United Kingdom have specifications requiring an OL subject syllabus to have 130 GLH[6] and an AL subject syllabus to have 360 GLH[7] over the duration of the respective study programmes, which is normally two years each.

2.2   The General Certificates of Education as Sri Lankan Qualifications

In Sri Lanka, the senior secondary cycle consists of Grade 10 (14-15 year olds) and Grade 11 (15-16 year olds) and incorporates the GCE Ordinary Level Examination, whereas the collegiate cycle consists of Grade 12 (16-18 year olds) and Grade 13 (17-19 year olds) and leads to the GCE Advance Level Examination. These examinations leading to the respective qualifications are conducted annually by the Department of Examinations of the Ministry of Education.

2.2.1 Senior Secondary Curriculum

The senior secondary curriculum consists of six core subjects namely, First Language, Religion, Mathematics, Science, History and English Language, and three optional subjects, one chosen from each of the following three subject groups[8].

Group I – Geography, Citizenship Education and Governance, Entrepreneurship Education, Classical and Modern languages (Pali, Sanskrit, French, German, Hindi, Japanese, Arabic) Sinhala/Tamil as a second language.

Group II - Music (Eastern/Western/Karnataka), Art, Dancing (Local, Indian), Drama and Theater (Sinhala/Tamil/English), Literature (Sinhala, Tamil, English, Arabic)

Group III – Information Technology, Agriculture and Food Technology, Fisheries and Food Technology, Design and Technology, Arts and Crafts, Home Economics, Electronic Writing and Short Hand, Health and Physical Education, Communication and Media Studies.

The following table shows how the Ministry of Education expects the time to be allocated for senior secondary classes to accommodate teaching of nine subjects, and NIE guidelines for the total number of periods required to teach each of the subjects as per the approved syllabus.

Subject	Number of periods per week*	Total number of periods in the syllabus**	
		Grade 10	Grade 11
1. Religion	2	60	60
2. First Language	5	160	160
3. Mathematics	6	190	190
4. Science	6	165	164
5. English Language	5	90	90
6. History	3	174	177
7. Elective 1*	3	90	80
8. Elective 2**	3	90	90
9. Elective 3***	3	90	90
Using Library	1		
Other Activities	3		
Total	40	1109	1101

* As recommended by the Ministry circular[8]
** As recommended by the respective syllabi prepared by the NIE

Each of the subjects taught in the senior secondary cycle is considered a component of the GCE OL qualification. Thus in Sri Lanka, senior secondary education has essentially become a training programme for the GCE OL Examination.

The situation was no different in the 1940s. In this regard, referring to the secondary schools, the special committee report[1] says;

> "the appropriate examination should not dominate the curriculum, though it will determine the specialist groups into which students will fall", and

"It is not too much to say, however, that the whole of secondary education in Ceylon has been dominated by London Matriculation."

It is generally accepted by the academic community that differences can exist in the level of difficulty of the subjects taught in the same study programme and the grades of such subjects are compared only after assigning appropriate weights according to their relative importance. One major component of the difficulty level can be attributed to the amount of work involved, or the number of learning hours associated with the subject. In the subjects taught under the current GCE OL curriculum, there is significant variance in the teaching time of different subjects. Hence the current practice of considering the grades of these nine subjects on a uniform scale is neither an appropriate nor a fair method of reporting student achievement.

2.2.2 Collegiate Curriculum – Academic Streams

A student who obtains at least 6 passes, including in Mathematics and First Language, with at least credit passes in 3 main subjects in the GCE OL examination is eligible to proceed to the GCE AL class in a government or private school.

Collegiate education is described in terms of the subject streams available to students following the GCE AL curriculum. It comprises of six broad streams: Arts, Commerce, Biological Science, Physical Science, Bio-system Technology and Engineering Technology. Additional requirements that students should fulfil in order to choose a particular stream are described in the Ministry of Education circular 2008/17[9].

The total number of subjects available in the GCE AL Examination is 53. Each subject is expected to be taught during a total of 600 periods in school in order to cover the syllabus during the two-year period.

Selection of GCE AL subjects and subject combinations by a student is guided by the circular number 2016/13[10] issued by the School Activities Division of the Ministry of Education. This process is totally dependent on the admission criteria for state universities prescribed by the University Grants Commission of Sri Lanka. It is so complicated that even the circular admits that some students have faced difficulties in securing university admission due to not choosing the correct subject combination at the start of Grade 12.

It is a sad state of affairs that collegiate level education has not changed much in this aspect during the last seventy-five years, as understood when one reads the comment,

"Not all those who leave schools at the age of eighteen will enter the University. Nor, indeed, is it desirable that the requirements of the University should dominate the school curriculum in the final two years of school work,"

in the special report.[1]

Guidelines for the selection of subject combinations for university admissions under different streams

Guidance for selection of subjects for Arts Stream

As there are many subjects in the Arts stream for the G.C.E. (Advanced Level) Examination, subjects are classified under *four baskets*.

Basket 1- Social Sciences/Applied Social Studies: Economics, Geography, History, Home Economics, Agricultural Science or Mathematics or Combined Mathematics, Communication & Media Studies, Information & Communication Technology, Accounting or Business Statistics, Political Science, Logic & Scientific Method, One subject from Technological Subjects (Civil Technology, Electrical, Electronic and Information Technology, Agro Technology, Mechanical Technology, Food Technology, Bio-Resource Technology)

Basket 2- Religions and Civilizations: Buddhism or Buddhist Civilization, Hinduism or Hindu Civilization, Christianity or Christian Civilization, Islam or Islamic Civilization, Greek & Roman Civilization

Basket 3- Aesthetic Studies: Aesthetic Subjects consists of four subject areas. These are;
Art, Dancing (Sinhala or Baratha), Music (Oriental or Carnatic or Western), Drama & Theatre (Sinhala or Tamil or English)

Basket 4 - Languages: The language basket has three subject areas. These are;
National Languages (Sinhala, Tamil, English), Classical Languages (Arabic, Pali, Sanskrit), Foreign Languages (Chinese, French, German, Hindi, Japanese, Malay, Russian)

Guidance for selection of subjects for Commerce stream

Students should select at least 2 subjects from among the subjects; Business Studies, Economics, and Accounting. They can select the third subject from the list: Agricultural Science, Geography, Business Statistics, German, Combined Mathematics or Mathematics, History, Political Science, English, Logic & Scientific Method, French, Information & Communication Technology.

Guidance for selection of subjects for Biological Science stream

Students who wish to study in this stream should select Biology and two other subjects from the list of subjects; Chemistry, Physics, Mathematics, Agricultural Science

However, if a student is planning to study Medicine, Dental Surgery, or Veterinary Science in the university, then he/she must follow the combination Biology, Chemistry, and Physics.

Guidance for selection of subjects for Physical Science stream

Students who wish to study in this stream should select three subjects from the list of subjects; Chemistry, Physics, Combined Mathematics, Higher Mathematics

However, if a student is planning to study Engineering in the university, then he/she must follow the combination Chemistry, Combined Mathematics and Physics.

Guidance for selection of subjects for Engineering Technology stream

Students who wish to study in this stream should select the two subjects Engineering Technology, and Science for Technology. The third subject can be chosen from the list Economics, Geography, Home Economics, English, Communication and Media Studies, Information & Communication Technology, Art, Business Studies, Agricultural Science, Accountancy, Mathematics

Guidance for selection of subjects for Biosystems Technology stream

Students who wish to study in this stream should select the two subjects Biosystems Technology, and Science for Technology. The third subject can be chosen from the list Economics, Geography, Home Economics, English, Communication and Media Studies, Information & Communication Technology, Art, Business Studies, Agricultural Science, Accountancy, Mathematics

Subject		Number of periods per week*	Number of periods in the syllabus**	
			Grade 12	Grade 13
Main Subject 1		10	300	300
Main Subject 2		10	300	300
Main Subject 3		10	300	300
General English		6	325	
GIT (Grade 12 only)		2	60	-
Other Activities	Grade 12	2		
	Grade 13	4		
Total		40		

* As recommended by the Ministry circular[10]
** As recommended by the respective syllabi prepared by the NIE

The above guidelines on selecting subject combinations are rigid and they give very little flexibility for students to choose subjects to suit their interests.

The following table shows how the Ministry of Education expects the time to be allocated for collegiate classes to accommodate teaching the relevant subjects, and the NIE guidelines for the total number of periods required to teach each of the subjects as per the approved syllabus.

2.3 Collegiate Curriculum – Vocational Stream

In keeping with the government policy of 13 years of guaranteed education, allowing each learner to continue his or her studies till the end of Grade 13, without dropping out after sitting the GCE OL examination, a new programme of study called "Vocational Stream" was introduced in 2016 at the collegiate level. The structure of this new stream is designed to enable the achievement of certain skills of a chosen vocation by the time the student finishes Grade 13. There is a General Component in the Vocational stream structure that consists of modules covering the following topics: First Language, Business English and Communication Skills, Literary Appreciation through Aesthetic activities, ICT Skills, Skills related to Citizenry, Health and Life Skills for Social Well-being and Entrepreneurship Skills. This component is expected to be delivered within 360 hours (equivalent to 540 periods) of interactive time spread over the first two terms of Grade 12.

Currently, this stream is operating on a pilot basis and there are 26 vocational skill areas available for students to choose from. Due to the nature of the structure, curriculum, and method of assessment proposed for the vocational stream study programme, it is not in line with the required specifications to be awarded the GCE AL qualification. A suitable qualification name for the Vocational stream study programme will have to be designed according to the guidelines given in the National Vocational Qualification (NVQ) Framework and the Sri Lanka Qualifications Framework (SLQF). In view of Public Administration Circular: 28/2016[11], which states that the completion of NVQ level 3 and NVQ level 4 are considered as equal to passing the GCE OL and GCE AL examinations respectively for employment purposes, the new Vocational stream qualification could be considered to be equivalent, perhaps with additional requirements, to the traditional GCE AL qualification.

2.4 School Based Assessment Programme

At present, a School Based Assessment (SBA) programme has been implemented in all government and private schools at senior secondary level and collegiate level. The SBA Circular, No. - 23/2017[12] of the Ministry of Education states that the instructions

related to senior secondary level and collegiate level grades for the SBA programme will be issued by the Department of Examinations, and that the Subject Directors in the Ministry of Education, Provincial Education Directors, Zonal Directors and Divisional Education Directors must take all the steps needed to successfully implement and monitor this programme.

The two tables below show the number of assessment stages that should be completed within a term for each subject and the number of assessment stages considered in deciding the mastery level of OL and AL competencies. In addition, at the collegiate level, the marks of the team project will be considered in deciding the mastery level.

Subject	Column 1*	Column 2**
Religion	1	5
First Language	1	5
Mathematics	1	5
Science	1	5
English Language	1	5
History	1	5
Elective 1*	1	5
Elective 2**	1	5
Elective 3***	1	5

*   Column 1: Number of assessment stages related to a term for deciding mastery level of OL Examination

**   Column 2: Total number of assessment stages obtained from Grades 10 and 11 for deciding the mastery level of OL Examination

Subject	Column 3*	Column 4*
Main Subject 1	1	5
Main Subject 2	1	5
Main Subject 3	1	5
Team Project	-	1

*   Column 3: Number of assessment stages related to a term for deciding the mastery level of AL Examination

**   Column 4: Number of assessment stages obtained from Grades 12 and 13 for deciding mastery level of AL Examination

According to the scores for the aforementioned 5 assessments received by the Department of Examinations at the end of the second year of the two respective study programmes, SBA marks and corresponding competency levels are determined as per the following table.

SBA marks	Level of Competency
9, 10	Excellent Level Competency
8	High Level Competency
6, 7	Credit Level Competency
4, 5	Near Competency
1, 2, 3	Not reached the Competency Level

A study conducted by the NEC[13] shows that the SBA results are not satisfactory with negligible impact on student development. At the same time there are concerns regarding issues related to

reliability and quality control. The cumulative mark obtained for the SBA of a subject is not added to the marks obtained at the GCE OL examination in determining the final grade for that subject. SBA levels achieved by the students for different subjects along with their GCE OL and GCE AL grades are documented in the common result sheet sent to the school by the Department of Examinations. They are also available in the student record book that is certified by the Principal of the school.

In case a student has met all the other requirements, but has obtained only two credit passes, and not three as mandatory to fulfil the eligibility criteria to enter the GCE AL class, he/she can combine a simple pass obtained in the GCE OL examination for a subject, and a credit or higher competency level obtained for the SBA of that subject and consider it as equivalent to one credit pass for the purpose of admission to the GCE AL class. But this scheme is not applicable to the subjects First Language and Mathematics.

2.5 National Education Commission Guidelines

The National Education Commission (NEC) established in 1991 to advise the government on the overall national education policy covering all aspects of education has produced a series of policy documents since its inception. Some of the reports relevant to general education are:

1992 - Final Report of the Commission

1995 - An Action Oriented Strategy towards a National Education Policy

1997 - National Policy on General Education

2003 - Proposal for a National Policy Framework in General Education

2016 - Proposals for a National Policy on General Education in Sri Lanka

Even though the national education policies of NEC are to be conformed to by all authorities and institutions responsible for education, several of the recommendations proposed in the above reports have not yet been fully implemented.

However, the National Goals (NGs) and Basic Competencies (BCs) identified by the NEC[14] with the intention of ensuring that basic education enables the individual to participate in productive activities, achieve the stability of self and society, view overall structures objectively in broad perspectives and evolve a sensitivity towards a shared regional, national and international outlook seem to be adhered to by the NIE. The curriculum documents of the NIE at all levels, prominently display the relationship between the Common National Goals and the Competencies of the respective syllabus in a grid.

NGs and BCs first appeared in the 1992 Report of NEC[15] that was based on the education reforms proposed by the Youth Commission in 1990 (Sessional paper 1 of 1990). The report identified nine NGs which were considered 'relevant to the individual and significant to the national community' and five BCs as a framework for educational development, including curriculum development and implementation.

In the 2003 report[14], the NEC had reviewed the situation and reinforced the existing NGs and BCs with minor modifications. The number of NGs were reduced to eight by amalgamating two goals and two additional competencies were introduced to the

BCs relating to generic skills that will contribute to personality development, and competencies relating to enhancing capacity for preparation for the world of work.

The 2016 report of NEC[2], without making any reference to the currently practiced NGs of the 2003 report, identifies a different set of NGs amounting to nine in number and states that general education must necessarily lead to the attainment of these nine NGs.

Since all the current school curriculum documents claim that they follow the NGs and BCs recommended by the 2003 report of NEC, I present them below due to their relevance to my lecture.

National Goals

I. Nation building and the establishment of a Sri Lankan identity through the promotion of national cohesion, national integrity, national unity, harmony and peace, and recognizing cultural diversity in Sri Lanka's plural society within a concept of respect for human dignity.

II. Recognizing and conserving the best elements of the nation's heritage while responding to the challenges of a changing world.

III. Creating and supporting an environment imbued with the norms of social justice and a democratic way of life that promotes respect for human rights, awareness of duties and obligations, and a deep and abiding concern for one another.

IV. Promoting the mental and physical well-being of individuals and a sustainable life style based on respect for human values.

V. Developing creativity, initiative, critical thinking, responsibility, accountability and other positive elements of a well-integrated and balanced personality.

VI. Human resource development by educating for productive work that enhances the quality of life of the individual and the nation and contributes to the economic development of Sri Lanka.

VII. Preparing individuals to adapt to and manage change, and to develop capacity to cope with complex and unforeseen situations in a rapidly changing world.

VIII. Fostering attitudes and skills that will contribute to securing an honourable place in the international community, based on justice, equality and mutual respect.

It is expected that the following seven BCs developed through education will serve as the foundation to achieve the above NGs.

Seven Basic Competencies

BC 1. Competencies in Communication

Competencies in communication are based on four subsets namely Literacy, Numeracy, Graphics and IT proficiency.

i. Literacy: Listen attentively, speak clearly, read for meaning, write accurately and lucidly and communicate ideas effectively.

ii. Numeracy: Use numbers for things, space and time, count, calculate and measure systematically.

iii. Graphics: Make sense of line and form, express and record details, instructions and ideas with line form and colour.

iv. IT proficiency: Computer literacy and the use of information and communication technologies (ICT) in learning, in the work environment and in personal life.

BC 2. Competencies relating to Personality Development

i. Generic skills such as creativity, divergent thinking, Initiative, Decision making, Problem solving, Critical and analytical thinking, team work, inter–personal relations and Discovering and exploring

ii. Values such as integrity, tolerance and respect for human dignity

iii. Emotional intelligence.

BC 3. Competencies relating to the Environment

These competencies relate to the environment: social, biological and physical environment.

i. Social Environment – Awareness of the national heritage, sensitivity and skills linked to being members of a plural society, concern for distributive justice, social relationships, personal conduct, general and legal conventions, rights, responsibilities, duties and obligations.

ii. Biological Environment – Awareness, sensitivity and skills linked to the living world, people and the ecosystem, the trees, forests, seas, water, air and life – plant, animal and human life.

iii. Physical Environment – Awareness, sensitivity and skills linked to space, energy, fuels, matter, materials and their links with human living, food, clothing, shelter, health, comfort, respiration, sleep, relaxation, rest, wastes and excretion.

BC 4. Competencies relating to preparation for the World of Work

Employment related skills to maximize their potential and to enhance their capacity

i. To contribute to economic development

ii. To discover their vocational interests and aptitudes

iii. To choose a job that suits their abilities, and

iv. To engage in a rewarding and sustainable livelihood

BC5. Competencies in relation to Religion and Ethics

Assimilating and internalizing values, so that individuals may function in a manner consistent with the ethical, moral and religious modes of conduct in everyday living, selecting that which is most appropriate.

BC 6. Competencies in Play and the Use of Leisure

Emotions of Pleasure, Joy, and such human experiences as expressed through aesthetics, literature, play, sports and athletics, leisure pursuits and other creative modes of living.

BC 7. Competencies relating to 'learning to learn'

Empowering individuals to learn independently and to be sensitive and successful in responding to and managing change through a transformative process, in a rapidly changing, complex and interdependent world.

A study[16] was done by the Sri Lanka Association for the Advancement of Education (SLAAED) in 2010 on how far the NGs and BCs have been incorporated into the school curriculum that was introduced in 2007, how far these goals are achieved and the competencies developed through each subject in each of the grades. Among the major findings of the report is the observation that there is an absence of focus on the NGs in some subjects and that little thought has been given to deriving curricular aims and objectives from NGs in some other subjects.

2.6 Sri Lanka Qualification Framework Guidelines

One fashionable phrase we hear these days is "21st Century Skills". In education, the term 21st century skills broadly refers to the knowledge, skills, work habits, and valued aspects of a person's behavior that have been identified as being required to be successful in a rapidly changing 21st century society and

workplaces, by educators, school reformers, business leaders, academics, governmental agencies, and others.

The Sri Lanka Qualification Framework (SLQF)[17], a nationally consistent framework that accounts for the qualifications, mainly in higher education institutions in Sri Lanka, including senior secondary and collegiate level qualifications, gives a set of general statements on the wider abilities that a typical student is expected to have developed by the end of the study programme as the attributes of a qualification holder. It lists twelve statements on specific outcomes identified by the Ministry of Higher Education as of national importance and the 21st century skills required by qualification holders from the senior secondary level to the doctoral level.

Many countries worldwide have introduced National Qualification Frameworks (NQFs) in the last three decades. An NQF is an instrument used to classify a country's qualifications at different levels. Each qualification level is defined in terms of a set of learning outcomes expected at that level. NQFs are useful in making qualifications transparent and globally comparable. Another benefit of an NQF is that it brings coherence and clarity to different qualification systems such as General and Vocational Education, Continuing Training, Adult and Work-based Learning, and Higher Education that may co-exist in one country. According to the Global Inventory of NQFs[18] published by UNESCO in 2017, there are more than 150 countries worldwide now developing and implementing NQFs. The SLQF can be considered as the NQF of Sri Lanka since it provides the comparable levels of NVQ in addition to academic qualification levels.

Different SLQF Levels with Higher Education Qualification Types and Comparable Levels of NVQ are given in the following table

SLQF Level	Qualification Type	Comparable NVQ Levels
12	Doctor of Philosophy / MD with Board Certification/Doctor of Letters/Doctor of Science	
11	Master of Philosophy	
10	Masters with coursework and a research component	
9	Masters by coursework	
8	Postgraduate Diploma	
7	Postgraduate Certificate	
6	Bachelors Honours	
5	Bachelors	7
4	Higher Diploma	6
3	Diploma	5
2	Advanced Certificate (GCE AL or equivalent)	4
1	Certificate (GCE OL or equivalent)	3
		2

The first two levels (levels 1-2) of the SLQF are senior secondary level education qualifications equivalent to the GCE OL and GCE AL respectively and the next four levels (levels 3-6) are undergraduate qualifications. The other six levels (levels 7-12) relate to postgraduate qualifications. The demand for learning outcomes and the complexity of learning increases with each level.

Learning outcomes in the SLQF are statements that describe what learners should know, understand and demonstrate upon the completion of a course or study programme. The 12 Learning Outcomes (LOs) in the SLQF are derived from the attributes of the qualification holders, and is a set of general statements of the wider abilities that the typical student is expected to have developed by the end of the course or study programme.

Each learning outcome has been further described to suit each SLQF level. Such customised, level-appropriate descriptions of learning

outcomes are called level descriptors. In describing each level, the degree of intellectual abilities or cognitive skills, psychomotor or practical skills and soft skills achievable is considered. So the level descriptors are a set of specific outcome statements, achievement of which is assessed and which a student should be able to demonstrate for the fulfilment of the requirements of the qualification; i.e., the specific broad abilities that the qualification holder should be capable of demonstrating, for award of the qualification.

The purpose of the level descriptors for the SLQF levels 1 to 12 is to guarantee consistency across learning in achieving the expected attributes of respective qualifications, and to help an education institute to evaluate the comparability of qualifications and part-qualifications issued by another education institute. The level descriptors may also be used as a guideline to develop the course materials of a particular study programme having several course units or modules, in order to make sure that the learners progressively gain the expected attributes of the relevant qualification type at the end of the study programme.

Twelve Learning Outcomes in SLQF

1. Subject / Theoretical Knowledge
2. Practical Knowledge and Application
3. Communication
4. Teamwork and Leadership
5. Creativity and Problem Solving
6. Managerial and Entrepreneurship
7. Information Usage and Management
8. Networking and Social Skills
9. Adaptability and Flexibility
10. Attitudes, Values and Professionalism
11. Vision for Life
12. Updating Self / Lifelong Learning

Having explained the purpose and benefits of the SLQF so far, ideally I should be next quoting the level descriptor requirements for levels 1 and 2, that are relevant to this lecture, from the document published by the Ministry of Higher Education in 2015. Unfortunately, the table that depicts the 12 learning outcomes related to the SLQF levels 1 to 6 has its first two columns, meant for levels 1 and 2, empty. This has resulted due to lack of coordination between the officials of the two ministries, Higher Education and Education, at the time of preparation of the current version of the SLQF. The editorial team could not get the learning outcomes developed by them validated by the education authorities to be included in the final document.

I would like to present below the statements developed for levels 1 & 2 by the editorial team in 2015.

Categories of Learning Outcomes	Senior Secondary Education	
	SLQF Level 1	**SLQF Level 2**
1. Subject / Theoretical Knowledge	Explain how basic knowledge can be applied to straight forward problems under guidance. Interpret routine information within the subject area.	Explain simple phenomena using fundamental theories within the subject area. Interpret non-routine information within the subject area.
2. Practical Knowledge and Application	Select appropriate skills, methods and procedures, under guidance within the subject area.	Select and use appropriate skills, methods and procedures within the subject area.
3. Communication	Present and respond to simple arguments with reasons, within the subject area.	Present and respond to arguments with reasons, within the subject area.
4. Teamwork and Leadership	Fulfill responsibilities under guidance and tolerate others' points of view.	Fulfill responsibilities and respect others' points of view.

5. Creativity and Problem Solving	Read and write coherent descriptions and narratives within the subject area.	Develop initial arguments in accordance with basic theories and concepts of the areas of study.
6. Managerial and Entrepreneurship	Recognize importance of planning, prioritization and time management.	Plan, prioritize and manage time efficiently.
7. Information Usage and Management	Demonstrate basic ICT skills.	Utilize the relevant ICT applications within the subject area.
8. Networking and Social Skills	Recognize the fact that the environment changes with time and circumstances.	Select and participate in appropriate social environments, beyond one's own.
9. Adaptability and Flexibility	Participate as a useful member within one's own social environment.	Discuss how the environment changes with time and circumstances.
10. Attitudes, Values and Professionalism	Recognize the importance of caring for others' needs	Exercise personal responsibility in tasks performed, under guidance. Develop empathy towards others.
11. Vision for Life	Recognize the importance of having long term goals in life.	Broadly identify where one wants to be and develop long term goals, under guidance.
12. Updating Self / Lifelong Learning	Develop the basic skills of learning around the subject area.	Identify the necessity of continuous learning and training to achieve life goals.

In developing the above statements, the editorial team wanted to ensure that the twelve specific learning outcomes in the SLQF incorporate the seven BCs suggested by the NEC. At the senior secondary and collegiate curricula levels, the terms, Basic Competencies (BCs) and Learning Outcomes (LOs) are both considered to describe broad abilities and thus are used interchangeably. However, a learning outcome at a level other than at the curriculum level; e.g., subject level or lesson level, was treated differently as a very specific, focused ability that follows the SMART (Specific, Measurable, Achievable, Relevant, Time-bound) principles, and was stated using appropriate action verbs that align with each level in Bloom's Taxonomy.

During this exercise, the importance of mapping the SLQF LOs to the NEC BCs was noted. In doing so, where possible, an attempt was made to map an entire NEC BC with the relevant SLQF LO. In some instances, a part of a BC was mapped to the relevant SLQF LOs. The following table that shows the mapping, needs to be carefully studied and validated by a committee responsible for school education.

2.7 SLQF Learning Outcomes Mapped to NEC Basic Competencies

SLQF Learning Outcome	NEC Basic Competencies
Subject / Theoretical Knowledge	BC 4, BC 1(ii)
Practical Knowledge and Application	BC 4
Communication	BC 1
Teamwork and Leadership	BC 6, BC 2(i)
Creativity and Problem Solving	BC 4, BC 2(i)
Managerial and Entrepreneurship	BC 4
Information Usage and Management	BC 4, BC 3, BC 1(iv)
Networking and Social Skills	BC 3, BC 2(iii)
Adaptability and Flexibility	BC 3, BC 2(iii)
Attitudes, Values and Professionalism	BC 5, BC 6
Vision for Life	BC 2
Updating Self / Lifelong Learning	BC 7

When the SLQF is fully implemented in the country, each qualification is expected to meet the respective requirements in order to claim the level of that qualification. Thus the curriculum structure of the senior secondary and collegiate cycles are required to facilitate learners to achieve the 12 learning outcomes of the SLQF.

## 3.	Analyzing the Current Situation

### 3.1	Curriculum Delivery

During the last couple of decades, we have seen, heard and read about the many concerns regarding the academic workload of students and the inadequate quality of learning in school education. There are several reports by different committees and groups, urging the authorities to address the problems of curriculum load and examination-related stress that students undergo.

When we compare the current state of education in the country with the situation in the 1940s as commented in the special report[1];

> "Many students end their scholastic career with much knowledge and little understanding. They have not read books; they have "studied" texts. They cannot write, they produce essays after a set style. They can answer questions but not question answers. They have little power of applying their knowledge to practical problems. Their imagination has been stunted, their originality suppressed, their capacity for thought undeveloped, their emotions inhibited. Brilliant students are undoubtedly produced, but the quality of the general average - and the general average is a better test of an educational system than the quality of the cream - is not high enough,"

we find that our education system has not changed much in the past 75 years even though the world has changed.

A careful analysis is needed to meaningfully understand the academic workload of a student at each of these levels.

According to the guidelines issued by the Ministry of Education, the number of school days for a year is 210 or equivalently 42 weeks, the number of periods per day is 8, and the duration of a period is 40 minutes. This shows that the number of periods available for a school year is 210 x 8, i.e., 1680 and as a result, the number of hours that a pupil spends on studies in the school for a year is (1680 x 40)/60 = 1120.

Our analysis on the academic workload of a particular subject is based on three factors; the minimum workload required according to the specifications of the respective global qualifications GCE OL and GCE AL, the number of periods assigned in the school timetables as per the Ministry of Education circulars, and the expected workload as stated in the respective syllabi of the subjects approved by the NIE.

As stated earlier, the minimum time allocation for a GCE OL subject is 130 hours, whereas for a GCE AL subject it is 360 hours. Also, the number of subjects required to be passed by a student to earn the GCE OL qualification is either five or six and for the GCE AL qualification it is three

On this basis, in terms of periods, the minimum time allocation for a GCE OL subject is 195 periods whereas for a GCE AL subject it is 540 periods. Thus, according to global standards, the minimum total classroom time allocations required for the two qualifications during the respective two-year study programmes are 195 x 6 = 1170 periods and 540 x 3 = 1620 periods respectively. This means

the classroom time allocations required within one year are 1170/ 2 = 585 and 1620/2 = 810 periods respectively. Therefore, for the delivery of the two respective study programmes that lead to the two qualifications GCE OL and GCE AL, the minimum total classroom times required are a mere (585/1680) x 100 = 35% and (810/1680) x 100 = 48% of the total time available.

According to the NIE documents, the total number of periods required to cover the content of the subject syllabi in the two study programmes are ~1100 and 900 respectively during one school year. These numbers constitute (1100/1680) x 100 = 65% and (900/1680) x 100 = 54% of the total time available for the two respective programmes.

On the other hand, a circular issued by the Ministry of Education requires that schools allot 36 out of 40 periods every week, or 1512 out of 1680 periods in a school year, in the timetable for grades 10 and 11 to teach the subjects of the GCE OL examination. This is equivalent to 90% of the total periods in a school year. In case of grades 12 and 13, the requirement of allocation of periods in the timetable is 30 out of 40 every week, or 1260 out of 1680 in a school year to teach the subjects of the GCE AL examination.

The above analysis shows that to teach the curriculum and earn the GCE OL qualification, it is required to devote 85% more time than the norm requirement whereas the curriculum for the GCE AL qualification is only about 12% more time, even though the reality of the ground situation is a lot different since most of the schools devote much more time than the assigned number of periods on teaching the main subjects and training students for the GCE AL examination.

The importance of avoiding such a situation at this level of school education was recognized even in the Kannangara report[1] over 75 years ago;

> "The curricula of the schools should not, however, be determined by examinations. The present practice of directing the whole of a student's education towards Matriculation and then limiting his work to the four subjects of the London Intermediates is destructive of all educational principles. The Senior School Certificate should be so designed as to enable part of his work to be tested, but the examination should depend on the curriculum and not the curriculum on the examination. Nor should the curriculum be limited to the number of subjects prescribed for the examination."

Our study also indicates that the school timetables have provided much more than the number of periods required by the NIE approved syllabi, 1512 against 1100 and 1260 against 900, to teach the subjects of the two respective examinations in each school year.

Since there is ample time in the school timetables to deliver the syllabi of the subjects required for the two examinations, there must be some other reasons behind the claim that the students have excessive academic workload.

In determining the workload of a student in the above analysis, we only looked at the number of teaching periods assigned to a particular subject in its syllabus. However, there are several other associated factors that we need to consider, including the time that a student needs to review and reinforce what's taught in the classroom, in particular by doing any homework assigned by the

teacher, the level of difficulty of the study material, and the preparation for examinations, in ascertaining the real workload.

The revision of syllabi of subjects takes place once in every eight-year period. At the time of each successive revision, any change of subject matter is usually decided on the will of a group of experts chosen for the respective subject by the NIE. For the GCE AL subjects, these experts are mostly university academics, both current and retired. Their exposure to the classroom environment and understanding of the level of the average learner are mostly limited to communication with a few teachers. As a result, members of the expert group may not fully understand the difficulties that the teachers face when a particular subject matter is taught in the classroom, or in other terms, may not comprehend the amount of content that an average teacher can explain at a comfortable pace to an average learner. Another possible reason for curriculum overload of a subject may be the fact that the respective expert group was not able to judge the combined weight of the workload of all the sections taken together, in teaching the syllabus as a whole.

The basis for deciding the content and the level of the study material of a syllabus should be the total number of periods available for that subject in a school year, and the subject material that can be presented in a meaningful way to students in each of those 40-minute periods. The current process followed by the authorities in the country is the exact opposite of this method.

The estimated total time taken by an 'average' student to do all the above mentioned activities in order to achieve the specified learning outcomes of a subject is called the 'notional learning hours' assigned to that subject in the total curriculum. Notional learning hours for a subject is always hypothetical and not a precise measure, but it provides students with an indication of the amount

of study and level of commitment expected by the curriculum developers.

Every subject syllabus approved by the NIE, has a standard format with the information presented in a table having the columns titled, Competency, Competency Level, Content, Learning outcomes, and Number of Periods. The relationship between these components is described as follows: "Pupils should achieve the competencies through competency levels and these are mentioned under each learning outcome. It also specifies the content that is needed for the pupils to achieve these competency levels. The number of periods that are needed to implement the process of Learning-Teaching and Assessment is also mentioned in the syllabus." The total sum of the last column can be considered as the size of that subject.

As far as I am aware, the 'notional learning hours' for different subjects have not been calculated by the respective teams involved in developing the syllabi. If we had this information, then by taking into account the total number of subjects for each qualification, we could make an informed decision on the current academic work load of students.

3.2 Curriculum Learning

Senior secondary and collegiate students have many demands on their time. Typical activities on a school day, expected from a student of this group include school activities, travelling (to and from school), after-school extra-curricular activities, extra reading, homework, time with family, and recommended sleep, without considering private tuition.

With the present day heavy traffic on the roads, travel time of a student to and from school can differ considerably. Engaging in

after school extra-curricular activities including bands, sports, debating, literary, acting & drama, music, and cultural activities can be greatly beneficial for students in their personal lives, wellbeing, and future job opportunities. Sustained participation in these activities also takes time. Without any doubt, we can say that extra reading, whether it is novels or the news, a science article or a poetry review, helps form perceptions, enhances the intellect, and makes thinking more dynamic in teenage students. Hence, even a small amount of time spent on extra reading on a daily basis can have a positive effect on one's life.

Even though not all educationists in the world agree, many believe that homework tasks are essential and important for students in many ways. Purposeful homework can truly engage and promote understanding of new concepts, give students a deeper understanding of content and permit them to develop skills that they can master independently. Invariably, doing regular homework can improve students' performance in examinations.

Research done in some countries show that children spending quality family time together with parents have numerous benefits, including, creating a durable bond between parents and children, allowing family members to openly express their thoughts and feelings, and higher academic performances in school.

Experts say that proper sleep for teenagers is extremely important for appropriate growth. The minimum sleep requirement of a typical teenager is 8.5-9 hours of sleep per night.

Workload of a hypothetical senior secondary student

1. Get ready and have breakfast = 30 min
2. Travel time to school = 45 min
3. School time = 6 hours
4. Extra-curricular activities = 2.5 hours
5. Travel time from school = 45 min
6. Time with family and have dinner = 1 hour
7. Review class work and do homework = 4.5 hours (30 min. each for 9 subjects)
8. Sleep time = 9 hours

Total = 25 hours

Based on the above factors, I calculated the workload of a hypothetical senior secondary student:

This shows that the total number of hours in a day is not sufficient for a senior secondary student to spend on the activities typically expected during a school day. The only way to reduce this load is to adjust the time spent on reviewing class work and doing homework, an activity that is directly proportionate to the number of subjects in the study programme.

Interestingly, the time spent on homework was an issue in the 1940s also. The special report [1] records it as;

> "Another general problem relates to home-work. The emphasis upon examinations, and the economic advantages to be obtained from passing examinations, have tended to place a heavy burden on the students of our schools. The burden of home-work may be so heavy as to impair their physiques and destroy their powers of initiative."

"The home-work time it recommends is two hours for the student of 17 or 18 on a school day and the amount to be done over the week-end should be the amount required for a single night"

3.3 Curriculum Assessment

It is interesting to observe how our students perform in the GCE AL examination compared to the students doing equivalent examinations in other countries. A study done on this aspect with UK students demonstrates the following results.

Table 1 shows the cumulative percentage achieving the given grade combination or better grades in the Biological Science stream of the 2016 GCE AL examination. Table 2 is an extract from a report from the UK-NARIC published in 2004[19] giving the cumulative distribution of achieving the respective NARIC tariff points in the UK based GCE AL examinations.

Since the GCE AL results in the UK are considered relatively stable over the years, a comparison of the two systems using these two sets of data would be fairly reasonable.

In Table 2, NARIC tariff points are calculated by using the following numerical values assigned to different grades in the UK system: A = 5, B = 4, C = 3, D = 2, E = 1, U/N = 0.

SL GCE AL	
Grade Combination	Cumulative Percent(%)
AAA	1.4033
AAB	3.9250
ABB	6.2414
AAC	6.8308
BBB	8.2607
ABC	10.2848
BBC	14.2074
ACC	14.7798
BCC	19.9585
CCC	25.3327
AAS	25.3545
ABS	25.4776
BBS	26.0139
ACS	26.1660
BCS	28.8568
CCS	37.4774
ASS	37.4943
BSS	38.1368
CSS	48.5206
SSS	58.1097
FFF	100

Table1

UK GCE AL	
NARIC Tariff Points	Cumulative Distribution (%)
15	0.58085
14	2.43481
13	6.48042
12	13.39496
11	23.25652
10	35.79982
9	49.61072
8	63.26701
7	75.35651
6	84.93429
5	91.79783
4	96.0428
3	98.38670
2	99.48015
1	99.88688
0	100

Table 2

Based on the information in the two tables, we can make several observations on the achievement levels of our students in the biological science stream compared to their UK counterparts. For example, grades of 3Cs or better are achieved by just over 25% of the students in Sri Lanka, whereas in the UK, that number, equivalent to having 9 NARIC tariff points, is almost double and close to 50%.

The current practice of student assessment is best described by Dr. G. B. Gunawardena[24];

> "The capacity of the two examinations GCE (O/L) and GCE (A/L) to evaluate a student on a broader perspective had been questioned. The performance based on an examination for which a student appears at one sitting does not assess many of the worthwhile skills expected to be developed by a curriculum and this is unrewarding for many students. Furthermore, these examinations have a limiting effect on co-curricular activities developing non-cognitive skills which are linked to balanced development and also employment-related competencies."

The special report of 1943[1] addresses some defects in the then education system. Among them are the following;

> "the domination of curricula by examination, the narrowness of curricula, especially in the secondary schools, and the unsuitable nature of external examinations"

Then referring to the Senior School Certificate and the Higher School Certificate examinations practiced during that time,

> "these examinations will be useless if they become mere tests of memory and promote cramming. Therefore, examiners should be on their guard to set a sufficient number of questions involving the application of knowledge to new situations".

The special report also analyses the then assessment system;

> "We suspect that in Ceylon the relation between study and teaching is seldom understood. Indeed, the prevalence

of coaching for examinations shows that it is not understood. Coaching is the negation of education. It is an attempt to exploit the weakness of the examination system in order to confer upon the student a mark of attainment to which he is not entitled. It ignores what the student ought to know and concentrates on what the coach thinks that the examiner may want him to answer. Questions are "spotted" and facts are selected not with a view to their relevance but with a view to their assimilation and reproduction. Accuracy is subordinated to simplicity for purposes of memorization. Ideas cease to be ideas and become facts. The student is not taught to think, but to learn off by heart just enough to delude the examiner into believing that he understands."

Even though we expect education to be constantly evolving in keeping with technical and cultural advances, the typical teaching, learning and assessment processes existing in today's system are very much like those of our parents' and grandparents' generations.

4. Possible Solutions

My intention in the last part of the lecture is to present some possible solutions to the two issues raised at the beginning; general criticism of having an overloaded school curriculum causing not only academic stress, but also seriously affecting students' mental and physical health, and whether the current school curriculum provides students with a broader set of skills in order to successfully meet the demands of 21st century learners.

My expertise lies in Mathematics and not in Education. But I became interested in education issues because of the knowledge

gained by participating in activities organized by various institutions coming under both the Ministry of Education and the Ministry of Higher Education, and through the personal investigations carried out on current global trends in education. The proposals I have made on the above aspects are largely drawn from that experience. Some of these proposals may already be available in public documents.

I believe that the proposed reforms for the existing system in this lecture are incremental and not radical, but the cumulative effect would enable significant progress in further improving the education outcomes of our young children as anticipated by the NEC[2];

> "By the time a child leaves school he/she should be able and motivated to develop through experiential learning, to be a team member, to share and care, to be tolerant and respectful of the rights of others, sensitive, unbiased, friendly and compassionate; practically and technically skilled in the broadest sense; able to use theory to understand situations, and to think critically, logically, inductively, deductively, analytically and holistically; and be healthy both mentally and physically,"

and also as conceived by Dr. Kannangara[1];

> "We have probably given sufficient emphasis to our view that education does not consist only in the acquisition of the elements of "academic" and "practical" knowledge. The child is not being trained only to secure employment, and still less to pass an examination. The purpose of the school is to teach him to live a full life as a man and as a citizen. He has to be formed, by the joint action of the home and school, into a social being."

> "We accept the view that post-primary education may be described as education conducted in view of the special life that has to be lived with the expressed purpose of forming a person fit to live it."

4.1 Proposal: Redefining the whole curriculum of the senior secondary level and collegiate level

There is no disagreement that the basis of school education should go further than learning only the traditional subjects. As I showed earlier, the national curricula at the senior secondary level and collegiate level, by design, consist almost entirely of the subjects tested in the examinations at the end of the respective study programmes that lead to the GCE OL and GCE AL qualifications. In other words, the national curriculum at these levels is very large and the delivery of it occupies almost 100% of the school timetable. The repercussions of such a system were described by Dr. Kannangara[1] as follows;

> "Throughout life, mind and body react upon each other, and a training that concentrates exclusively on "academic" subjects produces partial and one-sided development."

In most countries, the national curriculum is only a subset of the entirety of the school curriculum, called the whole curriculum. In addition to the national curriculum, a range of cross-curricular elements and extra-curricular activities are included in the whole curriculum in order to allow children to be equipped with an integrated personality.

Thus, the whole curriculum for both the senior secondary level and the collegiate level should contain a core and an optional component, which together contribute to the development of a citizen who can function proactively in the increasingly complex

and dynamic society of the future. In such a structure, the core component would be the subject requirements necessary for the GCE OL and GCE AL qualifications, while the other component would provide learning opportunities for pupils to acquire skills, which are not possible through the traditional subjects, such as communication, decision-making, creativity, productive thinking, leadership, and interpersonal and intrapersonal skills. Furthermore, a whole curriculum of this nature would facilitate the learners to achieve the twelve learning outcomes of the SLQF and the seven basic competencies of the NEC, since the mostly teacher centered, classroom based learning environment prevailing for the subjects tested in the GCE OL and AL examinations does not support the cultivation of generic skills. The responsibility of successfully implementing, monitoring, and certifying the optional component may be given to the Provincial Level Ministries of Educations.

In the proposed structure, under the optional component, students are encouraged to learn topics in Aesthetic Studies, Technological Studies and other Languages in line with their liking. In addition, they will be provided with opportunities to learn the Second Language, Health & Physical Education and ICT in Grades 10 & 11. Learning of these subjects would be primarily assessed through portfolios via SBA, and they will not be considered as a part of the GCE OL qualification.

This type of curriculum reform at the senior secondary level would help reduce the academic burden on students and, at the same time, increase the quality of learning while safeguarding the global recognition of the GCE OL qualification. Also, it will contribute to the development of a citizen who can function proactively in the increasingly complex and dynamic society of the future as proposed in the report[20] "New Education Act for General Education in Sri Lanka"

Proposed Structure for the Senior Secondary Cycle: Grades 10 and 11[21]

	Subject	Number of Periods per week	Remarks
1	Religion and Value Education	5	GCE OL Qualification consists of these 6 common subjects
2	First Language	5	
3	Math	5	
4	Science	5	
5	English	5	
6	History and Social Studies	5	
Other Subjects/Activities	Aesthetic Studies/ Other Languages (Group I)	10	These are not part of the GCE OL qualification and are assessed primarily through portfolios via the SBA system
	Technological Studies (Group II)		
	Second Language		
	Health & Physical Education		
	ICT		
	Extra-Curricular		
Total Periods		40	

Group I: Music (Oriental/ Western/ Carnatic), Art, Dancing (Oriental/ Bharatha), Drama and Theatre (Sinhala/ Tamil/ English), Appreciation of English Literary Texts, Appreciation of Sinhala Literary Texts, Appreciation of Tamil Literary Texts, Appreciation of Arabic Literary Texts, Languages, Second National Language/Health and Physical Education

Group II: Agriculture and Food Technology, Fisheries and Food Technology, Design and Technology, Arts and Crafts, Home Economic Science, Business and Accounting Studies, Entrepreneurship and Basic Economics, Information and Communication Technology, Communication and Media Studies[2] [NEC2016]

Proposed Structure for the Collegiate Cycle: Grades 12 and 13 (GCE AL Stream)

	Subject	Number of Periods per week	Remarks
1	Main Subject 1	10	GCE AL Qualification consists of these 3 subjects
2	Main Subject 2	10	
3	Main Subject 3	10	
Other Modules/Activities	First Language	10	This consists of the General Component of the Vocational Steam Structure and they are assessed primarily through portfolios via the SBA system
	Business English and Communication Skills		
	Literary Appreciation though Aesthetic activities		
	ICT Skills		
	Skills related to Citizenry		
	Health and Life Skills for Social Well-being		
	Entrepreneurship Skills		
	Extra-Curricular		
Total Periods		40	

As we saw earlier, the selection of three subjects in some streams is extremely rigid with no real choice for students. Two studies of NEC; "National Policy Document" in 2003[14] and "Study on Curriculum Development in General Education in Sri Lanka" in 2014[22] recognize the importance of increasing students' freedom of choosing three AL subjects and recommend that a maximum of two subjects from the selected areas of specializations may be stipulated by a Faculty of a University but the third subject could be selected from the full range of subjects available.

The introduction of this recommendation and the General Component which consists of First Language, Business English

and Communication Skills, Literary Appreciation though Aesthetic activities, ICT Skills, Skills related to Citizenry, Health and Life Skills for Social Well-being, Entrepreneurship Skills, and Extra-Curricular would help students to leave the system after 13 years of schooling equipped with the knowledge and skills they need to be successful in the 21st century.

4.2   Proposal: Addressing the curriculum overload

It appears that the current syllabi of GCE AL subjects are developed with an emphasis on the small percentage of students who are capable of gaining admission to the universities and as a result, a majority of the students in collegiate level classes find learning very challenging. Furthermore, the teachers find it difficult to deliver the syllabi completely on time in schools, despite having 40% more periods allocated for each subject in the school timetable, than the stipulated number in the official syllabus.

Therefore, curriculum overload of the present syllabi, if any, must be addressed after carefully reviewing their content by taking into account the time available to deliver the subject, so that an average learner can achieve the intended learning outcomes stated in the syllabus. This shows that the preparation of a meaningful syllabus can be time consuming and is a serious professional activity, not a part-time commitment

4.3   Proposal: Alignment of question papers with learning outcomes

Aligning question papers with the intended learning outcomes stated in the syllabi is crucial to the assessment of student learning since the learning outcomes prescribe *what* students are expected to demonstrate they have learned, and the assessment design validates *how* students would demonstrate their learning.

The current practice in the country is that a panel of setters appointed by the Department of Examination for each subject prepares the question papers to assess the students on the expected learning outcomes stated in the syllabus prepared by the NIE.

Introduction of a new quality control mechanism by the NIE to independently verify whether the question papers have assessed the expected learning outcomes to an appropriate level can be considered a best practice. Furthermore, this activity can be formalized by the Director General of NIE by submitting an annual report to the Commissioner General of Examinations evaluating the alignment of the question papers in the GCE OL and AL examinations with the expected learning outcomes. Integration of such a mechanism into the examination process would enhance the quality of the question papers over a period of time.

4.4 Proposal: Introduction of a transformed Common General Test at both the senior secondary level and the collegiate level

With the objective of measuring the potential and capacity of a student to benefit from university education, the Common General Test (CGT) was introduced for collegiate level students in 2000. CGT comprises of four components as recommended by a national workshop report in December 1997. The four components are: *General Awareness, Reasoning Ability, Problem Solving Ability,* and *Comprehension and Communication*.

The 2016 report of NEC[2] recommends that it be restructured, claiming that the present CGT has not served its purpose. The NEC proposed restructured CGT would have two parts: part 1 – Language component to test the ability to understand and to write an essay or a report; part 2 – General aptitude component to test the analytical ability, awareness of the living environment, and social and non-verbal skills.

In order to make the CGT more meaningful, both the above parts, in general should consist of a component which tests the minimum competencies and another component which tests higher cognitive abilities. Such a test, introduced at both the senior secondary level and the collegiate level will become the mechanism that will assess whether the schools play their basic role in ensuring that the children move up in learning, by providing them with the minimum competencies.

4.5 Proposal - A new method of recording students results and school assessments

It is no secret that school leavers are entering the workplace on the strength of their GCE OL or AL results, lacking even the most basic skills such as punctuality, manners and the ability to hold conversations, according to employers. Many believe that as a result, teenagers struggle to adjust to the most basic entry level jobs because of the incompetence to perform even the easiest of tasks.

It is hoped that with the introduction of the changes proposed to the whole curriculum of both the senior secondary level and the collegiate level, the situation would change. Then it would be necessary to create a respected, official 'School Leaving Certificate'[23] that provides evidence of the breadth of a student's achievement across a wide range of activities and competencies, including details of extra-curricular participation and achievement, as well as their attainment of the employability skills and attributes, in grades 10 to 13. Such certification of skills, including all the practical and soft skills sought by employers, will be much more beneficial than the general measure of academic ability provided by GCE OL and AL grades.

The two award names, "Senior Secondary School Certificate" and "Advanced Senior Secondary School Certificate", which are in compliance with the SLQF naming convention of Levels 1 & 2, may be used as the respective school leaving certificates for those who complete the education only up to grade 11, and up to grade 13. The components of these two qualifications would be:

Award	Components
Senior Secondary School Certificate	**CGT** – Grade 11
	Grades of six GCE OL subjects and SBA Marks; Religion and Value Education, First Language, Mathematics, Science, English, and History and Social Studies
	Achievement of Other Subjects/Activities; Aesthetic Studies/ Other Languages (Group I), Technological Studies (Group II), Second Language, Physical Education, and ICT

Award	Components
Advanced Senior Secondary School Certificate	**CGT** – Grade 11
	CGT – Grade 13
	Grades of six GCE OL subjects and SBA Marks; Religion and Value Education, First Language, Mathematics, Science, English, and History and Social Studies
	Achievement of Other Subjects/Activities; Aesthetic Studies/ Other Languages (Group I), Technological Studies (Group II), Second Language, Physical Education, and ICT
	Grades of three GCE AL subjects and SBA Marks
	Achievement of Other Subjects/Activities; First Language, Business English and Communication Skills, Literary Appreciation though Aesthetic activities, ICT Skills, Skills related to Citizenry, Health and Life Skills for Social Well-being, Entrepreneurship Skills, and Extra-Curricular

The overall objective of giving all pupils such a certificate is to provide future employers, and further and higher education institutions with a comprehensive profile of the knowledge, skills and competencies of the young generation of school leavers. Furthermore, since the certificate recognizes many other achievements during the respective cycles of senior secondary and collegiate education than only the traditional GCE OL and

GCE AL grades, the motivation to make the most out of school education will be increased among pupils.

5. Conclusion

The present day education system in our country has come a long way since the Donoughmore and Soulbury periods, primarily thanks to the pioneering efforts of Dr. Kannangara.

But it still has a long way to go before we properly prepare an education system for the country's next generation to succeed in the 21st century. We may even need to move towards a more transformational model through innovative changes in the not-too-distant future. To do this, we must systematically plan our strategies and then align the evolution of changes in all aspects of our education system in support of students, to prepare them to learn, work, and live in today's and tomorrow's worlds.

Any such future transformational process may be based on the steady incremental changes proposed to the current system of education at the two cycles, senior secondary and collegiate, in this lecture. Hopefully, the cumulative effect of these proposals, if implemented, will eventually transform and steadily lead our education system to the next era.

An ancient Chinese proverb says,

> "The best time to plant a tree is twenty years ago; the second best time is today."

We have failed to plant that tree many decades ago, so we need to start planting that tree now without wasting even one moment.

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Acknowledgments

About the Speaker

Dr. Upali Mampitiya is currently a Senior Lecturer (Grade I) at the Department of Mathematics, Faculty of Natural Sciences of the Open University of Sri Lanka. He joined the OUSL after an illustrious career of over 25 years at the Department of Mathematics, Faculty of Science of the University of Kelaniya where he was groomed to be an academic.

Having completed his primary and secondary education at Richmond College, Galle Dr. Mampitiya joined the University of Kelaniya and graduated with BSc (Special) degree in Mathematics – First Class Honours. He then joined the University of Ottawa in Canada to achieve excellence in academics and obtained the degrees of MSc and PhD in Mathematics.

Dr. Mampitiya's contribution is not limited to the university system as an academic. He is currently one of the most sought - after experts in Education in Sri Lanka. At present he provides an immense contribution to the school education and higher education activities of the country through the membership of the following national bodies:

- Standing Committee on Quality Assurance/University Grants Commission
- Standing Committee on General Education/National Education Commission (NEC)
- Standing Committee on Higher Education/ National Education Commission (NEC)
- Governing Council of the Sri Lanka Accreditation Board (SLAB)
- National Education Research and Evaluation Centre (NEREC)
- External Member of the Faculty Board, Faculty of Education, University of Colombo

During the period 2015-2018 he held the following positions:

- Chairman - Academic Affairs Board/National Institute of Education (NIE)

· Member - Standing Committee on Accreditation and Quality Assurance (SCAQA)/Ministry of Higher Education

In addition, he served as a member of the UNESCO Asia-Pacific Steering Committee on developing the National Qualifications Frameworks during the period August 2015 - December 2016.

In July 2015 UNESCO Bangkok office invited him to attend and make presentations at the Expert Meeting on Developing Regional Guidelines on National Qualifications Framework that took place in Bangkok, Thailand and in 2016 at the ERI-Net Annual Meeting: Case Studies on NQF for Asia-Pacific that was held in Tokyo, Japan. He has also contributed to the UNESCO publication titled "Guidelines on Developing and Strengthening Qualifications Frameworks in Asia and the Pacific: Building a Culture of Shared Responsibility" published in 2018.

Further to these, he worked as the editor of "Updated Sri Lanka Qualifications Framework" published in December 2015 by the Ministry of Higher Education.

In 2014, he assisted the National Education Commission as a member of the research team to conduct the "Study on Curriculum Development in General Education in Sri Lanka" a component of the proposals for a National Policy on General Education in Sri Lanka for the next decade. Apart from that in the same year, he delivered the 24th Annual J E Jayasuriya Memorial Lecture on the topic "Mathematics Education – Past, Present and Future.

It is with great pleasure and pride the National Institute of Education invites Dr. Upali Mampitiya, a true product of Kannangara vision to deliver the 30th C.W.W.Kannangara memorial lecture.

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Free Education

"I reiterate it as a precious stone. Sell everything you have to buy it for the good of the entire nation. We are able to claim that we could discover education which was a property of the rich and made it an inheritance of the poor...."

- Dr. C.W.W. Kannangara -

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