Kalpana

THE NEED TO ENGINEER EDUCATION

Professor Alagaiah Tharairajah

Memorial Lecture - 2004

on

Saturday 3rd July 2004

by

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University of Jaffna
Thirunelvely,
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The Need To Engineer Education

1.0 Introduction

A major issue that needs to be carefully addressed by the professionals who play key roles in engineering our education system is the objectives of education. The popular belief is that there are two main objectives for education: education for the purpose of education itself and the education for training the younger for the job market. Most people would agree that both these are valid but it is required to decide on the weightage to be given to these two objectives in the system. Is it to produce intellectuals or employers? Perhaps what we need would be employable intellectuals.

1.1 Liberal and Technological Education

The two major objectives of education identified needs two types of subject streams in the curricula. Education for education itself, which is called liberal or non-vocational education which is based on traditional, classical and philosophical subjects while job oriented education needs which are more involved in vocational and Technological

subjects and therefore termed as 'Technical and Vocational Education'.

It is necessary to go back to pre 19th century Britain, in order to trace the historical evolution of education. One can see that the choice between the liberal education and vocational and technological education has revolved mainly around the question of status in the society.

Pursuance of liberal education expects a child to acquire ability to follow logical chains of arguments, deduce, induce, draw beliefs from reasoning and form theoretical standards for critical comparisons. The subjects involved in liberal education are supposed to train the mind and cultivate the intellect rather than for the usefulness of their content.

John Henry Newman wrote in 1852..."that alone is liberal knowledge which stands on its own pretensions which is independent of sequel"

In the 19th century Britain this was possible for students with independent means who did not have to use their education for a living. This kind of education had its connections with the church, the state and the empire and

gained a prestigious independent social status in the society. Also it was believed that mind trained in abstract liberal education could apply to any other subject matter. The present education system of ours based on the British model inherited the social acceptance of the 19th century and it appears now to be a draw back.

1.2 Choice of Education

A child at the beginning of his education unaware of his potential cannot choose between the two. This fact is true to some extent even for older children after completing secondary education. It is important for one to remember the three basic factors:- the intellectual ability, the financial background, the aptitude upon which the decision of the choice should be made by a child about the two paths of education.

The children who possess high intellectual capacities in the required subject areas at primary and secondary education along with independent means and without any aptitude for vocational/ technological skills may pursue the liberal type of education. Yet, most of the children in our country do not have such independent means and may not be able to

develop the intellectual capacities due to environmental factors. Many of them may prefer to develop their natural talents for different skills and need to be introduced to vocational and technological education since early childhood.

1.3 Life Long Learning

Another important aspect that has been overlooked by our education system is the late bloomers who develop their intellectual capacities at a relatively late age. Similarly the present education system does not cater adequately for the early school leavers due to reasons such as financial constraints to re-join the education stream at a later stage when they are free from such burdens. Therefore, it is high time for us to engineer properly structured life long learning opportunities into our education system.

2.0 Development of Education in Sri Lanka: Policies and Acts

Since independence, the education sector of Sri Lanka has been subjected to continuous changes with regard to the

policies. The immediate post-independent education policies enforced resulted in

- The establishment of 54 central schools to serve the rural population.
- Year-5 Scholarship, enabling the talented rural students to have access to the central schools.
- Free education up to university or tertiary level.
- Change of medium of instruction to Sinhala and Tamil.
- Establishment of autonomous universities.

The development of a network of upgraded secondary schools resulted in increase in the education participation rates.

5-14 Age group – 57.6% (1946) to 71.7% (1953) – 74.4% (1963)

15-19 Age group – 11.1% (1953) – 36.1% (1963)

Consequently, gender equality in access to general education was achieved by 1960's.

Education policy formulation from the 1950's tended to be associated with the priorities of successive governments. They lacked continuity sometimes resulting in abrupt reversals of policy. It disrupted the delivery of service and

created problems for the most important participants in the education process, the students.

In 1990, the report of the Youth Commission identified the need for restructuring the education sector. As a result the National Education Commission was established (Act no 19 of 1991) as the apex body for policy formulation and monitoring the education sector.

Some of the other Acts relating to the statutory bodies are:

1 The National Institute of Education Act no 28 of 1985.

2 Public Examinations Act no 25 of 1968.

3 Colleges of Education Act no 30 of 1986.

4 National Authority on Teacher Education Act no 32 of 1997.

In 1993 NEC produced proposals for a more structured set of reforms with two major components in it.

a) Extending educational opportunities.
b) Quality improvement in Education in Schools, the teachers' service and educational management.

These policies have been accepted and continued by the governments without any reversals.

3.0 Present Scenario

Before venturing further into the subject of 'education should be engineered', one needs to carefully look at the input and the output of our education system.

3.1 Pre-School education

This sector of education is mainly handled by the private sector, without adhering even to the few polices formulated up to now. This has resulted in an ad-hoc and uncoordinated development of pre-schools and daycare centers.

The few state sector involvement so far includes: - The children's secretariat of the Ministry of Women Affairs established in 1979 which has formulated home based activity programmes and awareness programmes with UNICEF assistance, The National Institute of Education which has prepared guidelines for curricula, while the Open university, Eastern University & Sabaragamuwa University conduct different programmes for pre-school teacher training.

While the above involvement by the state sector is grossly inadequate it is observed that there are problems of quality, resources and administration in the present system.

3.2 Formal Education

Data pertaining to educational participation rates indicated that 10.6% boys and 10.5% girls in the 5-14 age group were not enrolled in the schools in 1994 (Demographic survey, 1994).

Studies have found that school dropouts are from low-income urban neighborhoods, disadvantaged and remote villages, plantations, and in recent decades, conflict affected areas. The main reason for non-attendance is poverty. Distance to schools, lack of empathy on the part of officials - principals and teachers, harsh punishments and poor quality of teaching are also attributed for poor attendance.

In 2001, the enrolment in Grade one was 1,775,700 students. Retention rates at the end of primary (Grade 5) education and at the end of junior secondary (Grade 9) education were 97.6% (96.9% boys and 98.3% girls), 83.0% {(79.1% boys and 86.3% girls) respectively.

The statistics available shows the average percentage who passes GCE (O/L) is 37% and out of them on average 56% pass the GCE (A/L) and qualifies for university admission. With only about 66,500 places currently available in the National Universities about 72% of those qualified for university entrance actually succeed in obtaining admission. This works out to be 36% of the number sitting for GCE (A/L) examination, 13.5% of the number sitting the GCE (O/L) and 2.2% of the age cohort that originally started schooling at grade one gains the university entrance.

The major primary and secondary education provider is the government. According to 2002 census, the total number of schools in the island was 9826, are categorized into;

Type 1 AB-600 (6.1%)

Type 1 C-1745 (17.8%)

Type 2 – 4246 (43.2%)

Type 3- 3235 (32.9%)

Among them only the type 1AB is classified as the schools that provide access to a wide range of opportunities in higher education and to remunerative employment.

There are three categories of schools in the non-state sector at present.

Private Fee-Levying Schools - The expenses are completely covered by the fees without Government financial assistance. However, these schools are subject to supervision by the education authorities.

Private Non-Fee Levying Schools - Government has been assisting these schools since 1980 by paying the salaries of teachers. Facilities fees are charged similar to the government schools and the schools are supervised by the educational authorities.

International Schools - The first International School established in 1958 was to cater to the educational needs of the children of the Diplomatic Community. From 1980s International Schools were started with the approval of FIAC / BOI and registered with the Registrar of the Companies under the Companies Act No. 17 of 1982. Since then the number of International Schools has expanded considerably throughout the island and the majority of children in these schools now are Sri Lankan nationals.

3.3 Non Formal Education

Non-formal education is important as a strategy to meet educational and training inadequacies of the formal education system and was perceived as a complementary or even alternate education provision in countries with very low school enrollment and literacy levels. In Sri Lanka, number of Ministries are engaged in vocational education with island wide networks of training institutes. Major training providers of such are the Department of Technical Educational (DTET), the Vocational Training Authority (VTA), the National Youth Services Council (NYSC), and the National Apprenticeship and Training Authority (NAITA). There are also a considerable number of private sector institutions, chiefly urban based, and non-governmental organizations providing such training. The Non Formal Education Division in the Ministry of Education was established in the mid 1970s, in order to offer vocational training opportunities for school leavers through the technical units located in schools.

The developments since 1998 in this sector includes 8 Activity schools in 4 provinces providing free training in income generating skills for schools dropouts and 55

Community Learning Centers offering literacy and vocational training programmes for the students over 10 years of age.

3.4 Curriculum Reforms

Some of the main components of Primary Education reforms introduced in 1970s are

(i) A child centred approach

(ii) An integrated curriculum encompassing the first language, mathematics, religion and environmental related activities.

(iii) Oral English introduced in Grades 1 and 2 and formal English from grade 3.

The junior secondary curriculum reforms includes:

(i) Environmental Studies, replacing general science and social studies in grade 6.

(ii) "Science and Technology", to replace "Science" in grades 7-9, with the objective of making it more relevant to needs.

(iii) A new subject "Life Competencies", to replace "life skills".

(iv) Emphasis on practical work, activity based projects through Activity Rooms where students were expected to have the opportunity of "hands on" experience in handling simple tools and "learn by doing".

(v) Encouraged to study the second national language

(vi) Counseling and vocational guidance introduced, and linkages established with the vocational training system.

At senior secondary level 'Technology' was added to science and subject was renamed as 'Science and Technology.'

The reforms at GCE A/L included the following components.

(i) The number of subjects to be offered at the examination was reduced from four to three.

(ii) A common General Paper testing general awareness, problem solving, reasoning and comprehension was introduced to promote creative personal development.

(iii) Practicals in agriculture and science subjects along with projects and assignments in other subjects were made compulsory components of the course.

(iv) General English was introduced as a compulsory subject in both grades.

3.5 Technical Education

The highest level of formal technical education in the Engineering field offered by the Government sector is limited to three Diploma programmes. National Diploma in Technology (NDT) offered by the Institute of Technology of the University of Moratuwa (ITUM), The Higher National Diploma in Engineering (HNDE) offered by the Advanced Technical Institute (ATI) of the Sri Lanka Institute of Advanced Technical Education (SLIATE), and the National Diploma in Engineering Sciences (NDES) offered by the National Apprentice and Industrial Training Authority (NAITA) with an annual intake capacity of 750. The Open University of Sri Lanka offers a Diploma in Technology for the students successfully completing the fourth level of studies in the distant mode of education. There are similar mid level courses now established in the fields of management, Education, Accountancy etc.

4.0 Challenges to the Present System

Despite all the efforts taken by the education authorities in the form of curriculum reforms, teacher training, investing in equipment etc. the education system today still aims to channel every child only towards university education neither realizing the individual capabilities nor the capacities of the present university system. More than inheritance we have created a culture, a society that believes the only 'yard-stick' of successful primary and secondary education is GCE (A/L). Every one in this single-track senior secondary education system aspires to enter a university to follow an academically oriented degree programme, apart from the very few career-oriented degree programmes such as Medicine, Law and Engineering offered by some of the universities. It is very important to diagnose the root cause or causes for this situation before attempting to implement one or few of the alternative solutions one can think of.

The end result of being successful in thirteen years of school education and further three to four years of university education becomes an evident mismatch of the supply and demand for the majority of our graduates with the

employers lamenting about the non-availability of suitably qualified capable people for the existing job market.

The situation is aggravated by the large number of students who are forced to enter the world of work when found unsuccessful in pursuing the GCE (O/L) and GCE (A/L). The problem of educated unemployment is concentrated in the age group of 15 to 29 years. More than 22% of those who are unemployed happened to be in the age group of 15 to 19 and the majority being from the rural areas. There are also dropouts at different stages of schooling. This makes it necessary that there is proper counseling and channelisation of this group into different work oriented training streams.

In engineering education, has successful introduction of alternative paths been constructed for school education? The efforts to introduce subjects that are specially linked with employment such as crafts in 1950's, agriculture and work experience in the 1960's and compulsory pre-vocational subjects in the 1970's failed probably as the economy could not offer remunerative employment for those trained in these skills.

Despite the number of attempts taken by the Governments during the past three decades to introduce related subject areas as the foundation to the TVE into the school curricula it has been unable to draw the attention of the required larger number of students.

The reforms proposed in 1995 acknowledged that specific vocational instruction cannot be provided within the general education system and drew attention to the availability of provision for school leavers in the vocational training institutions in the formal sector and in non-formal training programmes.

Two studies in 2003 (Wijeytunga and Rupasinghe; Perera, Gunawardena and Wijetunga) confirmed this fact that even the popular vocational subjects offered at secondary school level, such as agriculture and home economics suffered due to the lack of resources.

The 1997 General Education reform proposals recommended that links be developed between the school system and the vocational training system so that school leavers can move laterally and/or upwards into Vocational and Technical Education.

There is no evidence, however, that formal links have been established between schools and such institutions, even for the provision of information regarding available training in the locality for career guidance sessions in schools.

Another major challenge in the system is the quality of teaching staff. The two major areas that have to be strengthened in this are the 'teacher education' and 'remuneration'. Regrettably teacher education has been subjected to ad-hoc development as a consequence of the implementation of disjointed policies and programs. There is an urgent need for co-ordination of the teacher education programs and for re-orienting them within the framework of national and individual needs and quality assurance. The remunerations of teachers have been low and it is said that they earn on average, 85% of their living expenses through salary and the rest is by conducting tuition classes.

A major constraint faced by this alternative education route or TVE at present is the non-availability of sound tertiary education opportunities. There are no proper paths established for higher levels of education for the students choosing TVE at secondary education. The existing opportunities in the TVE are mainly filled by the students

who become unsuccessful in gaining entry to the next higher level of education, be it school leavers at Grade 9, GCE (O/L) or GCE (A/L). Students planning vocational and technological careers since the beginning of secondary education in Sri Lanka are almost zero when compared with developed countries where children plan the vocational and technical careers during their senior secondary education.

This has created a wrongful image to the effect that TVE is for the students with low intellectual levels. For the few who embark on TVE, the career development opportunities are limited, Employment is related to manual work or is in parallel with blue-collar workers, which is tabooed with low status in the society. Therefore, both parents and students have a poor image on TVE, which needs to be engineered for upliftment as early as possible.

One of the latest trends among the students of affluent families completing secondary education, GCE (O/L) or (A/L) is to seek TVE education in foreign lands. The TAFE colleges of Australia, the Polytechnics in Singapore and UK and Community colleges in the US are becoming popular as alternative higher education paths. It is very doubtful whether any such student of this group will take up an

opportunity in the existing TVE stream in our country even at the highest available diploma level. Another emerging trend with the international school culture is for the students from the upper middle class to pursue the foreign secondary education locally in institutes affiliated to foreign universities. Though the numbers may be small, one needs to be mindful about the rapid growth of international schools, institutes and the demand for this kind of education.

Another major contributory factor for this situation is the cost of TVE. Compared to the liberal education TVE is expensive and generally in the developing countries the Governments are unable to meet the full expenditure. Many resources are required for infra-structure development, teacher training and for improved management, monitoring and evaluation.

Another serious deficiency in the system is the lack of required instruments both for teaching and learning purposes. The majority of the funds available under the capital budget are used for the purpose of infrastructure construction. The larger portion of the recurrent budget in education is spent on salaries. The teaching aids required for introducing modern teaching technology and the equipment

required for the study of rapidly developing technology are not available. The budgetary allocations for the purchase of books etc. are minimal.

There are numerous constraints faced by the existing TVE institutions specially the junior and senior technical colleges for the want of funds. Most of the tertiary level TVE institutes lack properly qualified staff with higher academic achievements and the required experience in the industry. The DTET recruitment criterion for the grade instructor is as low as a pass in National Certificate in Technology (NCT). The visiting staff covers the major portion of teaching schedules in the programmes at the island wide technical colleges.

The diploma holders are directly employed at the mid level careers in the engineering industry and the demand by the industry is much higher than the present supply. The students passing with high performances from these institutes have no path for further education in the State Universities except through the Open University. The effectiveness of the distance education mode offered by the Open University largely depends upon the individual student. Others are compelled to obtain their qualifications

through the existing professional bodies, which do not confer degrees, but only an equivalent professional qualification: a path sometimes considered to be either tedious, expensive or inefficient.

5.0 Proposals in the Building

5.1 Primary and Secondary Education

It is envisaged that vocationalising the secondary education is neither feasible nor desirable. However, the general education has an important role to play in providing relevant knowledge and skills and in promoting generic skills such as initiative, decision making, problem solving, team work, responsibility, leadership, communication skills in order to equip students to function effectively as employees, employers and self employed members of the labor market.

The following are some of the proposals made by the National Education Commission (NEC 2003) facilitating and engineering the diversion of students to the world of work.

a) The Technical Skills component of the core curriculum in the Junior Secondary Grades 6-9,

comprising graphic arts, computer literacy, elementary technology, agriculture and food preparation, should provide training in relevant multi skills and 'hands on' experience, awareness of the changing needs of the economy, and at least minimum competence in basic skills in Information and Communication Technologies.

b) The Technical Studies/Design and Technology component of the compulsory curriculum of the GCE O/L grades with it's provision of eight alternative vocational courses should initiate students into specific occupations in the agriculture, industry and services sectors of the economy. This component should be developed and conducted with the assistance of relevant employment agencies.

c) The six options offered in the new subject, Technology, developed for the GCE AL grades, and existing courses such as Agriculture and Business Studies, should have a practical component/assignment organized in collaboration with employment establishments.

d) The vocational guidance component of the Counseling and Guidance programmse in secondary schools should provide information on vocational training programmes and labor market trends and opportunities from employment agencies including Chambers of Industry and Commerce.

e) There should be formal links between schools and vocational training institutions or programmes in the district/zone to facilitate co-operation of staff and student visits and use of facilities in vocational institutions, to assist school leavers to enroll in courses in these institutions.

f) The Tertiary and Vocational Education Commission and the Ministry of Tertiary Education and Training should be requested to re-organize vocational training opportunities for school leavers and to prepare a handbook to be sent to all secondary schools.

The private sector should assist in provision of equipment and facilities for technical teachers and students.

A plan to organize a Technology stream geared to agriculture, industry and information science was abandoned in the face of resource constraints. Instead a new subject, Technology with a core and six options – Civil Technology, Mechanical Technology, Electric, Electronic and Information Technology, Bio Resource Technology, Food Technology and Agriculture Technology – was developed to be introduced in 2004.

5.2 National Vocational qualifications (NVQ)

A National Vocational Qualification system has been proposed in order to issue and recognize "National Competence Based Qualifications" in the TVET sector at seven identified levels. The system is planned initially to cover all technical and vocational training agencies and institutions in the country.

The framework is already planned with the competencies required at each level, which are specified in the "National Skills Standards". While providing a laddering opportunity, levels 1 to 4 will award certificates and levels 5,6 & 7 will

award diploma, higher diploma and associate degree or equivalent qualifications respectively.

The qualifications thus awarded by the nationally accredited institutions and the national body (TVEC) will enable the certificate holders to further their education locally or overseas. Locally it is being proposed that a University of Vocational Technology would pave the way as one of its functions to award associate degrees for successful completion at the top rung of the ladder.

6.0 Engineering the Future Needs

6.1 Pre-School education

An overall co-ordination is necessary for which the authority may be the Ministry of Education. The teacher education providers, central & provincial administrators and the pre-schools need to be coordinated in order to achieve the required quality in teaching, to implement a curricula focused for primary education at school and to provide the basic resources requirements

In order to control and ensure adherence to national polices the pre-schools and the day care centers should be registered with a suitable agency such as the childern's secretariate or the provincial authority. The state needs to enforce the minimum physical and academic standard of such schools. This should entail establishing quality standards and norms and giving wide publicity for appropriate curricula and teaching methods.

6.2 Primary and Secondary education

Achieving Basic Education (Grade 1-9) – The formal primary and secondary education needs to be promoted by mobilizing local communities to achieve the global satisfactory levels. The schools system should be made more attractive by providing student – friendly environment at school. The non-formal education programmes should be strengthened as an alternative path of education. Among other possible initiative, specification of curricula, learning outcomes and monitoring and evaluating the system would be very useful steps.

6.3 Developments in Conflict Affected Areas

In the Year 2003 the World Bank has assessed the reconstruction, rehabilitation and Development costs of the conflict affected areas to be US$ 140 million. The much-required technical capacity for the construction work has to be supplied and the long-term support for the education system in these areas requires considerable capacity building activities. In the rehabilitation process there is much to be built up in the education system for effective rehabilitation.

6.4 Engineering towards the world of work

Traditional system is fairly satisfactory in preparing secondary school children for GCE (O/L) and GCE (A/L) examinations. What needs to be achieved is the orientation of students towards the working world. In spite of the many initiatives that have already taken as discussed earlier, it has been reported that technical subjects are a failure. Furthermore major corrective measure should take place to make all the teachers and principals aware of the expected learning outcomes, the competencies and the skills so that the capacity of the teaching staff will be strengthened.

Another initiative possible to consider is to enroll higher level (at least Diploma) TVE qualified personnel at the National Colleges of Education for required pedagogical training in place of only A/L qualified teachers.

Apart from the curriculum development in vocational subjects the system needs to give priority to develop IT and language skills as these are the major skills requirements in the world of work The system also needs to pay more attention to enhance generic skills such as teamwork, decision making, initiative, problem solving, responsibility, leadership and communication among students.

An area requiring overall networking and serious efforts is career guidance and counselling. It is very important to train staff in career guidance and counselling and to open centers in all schools providing secondary education and tertiary education institutions.

6.5 Vocational &Technological Education

The attraction of students to the technical stream at different levels of education will be only possible if the system meets the two most important factors:

a) Cleary defined path for upward mobility leading to degree status in technological studies.
b) Higher remuneration and service conditions to the technical personnel in order to establish the much-needed social recognition.

In spite of the number of attempts made in the past, a properly established technical education with lateral and upward mobility is the missing link in the present day education system of Sri Lanka. It needs to be elevated and bridged with the mainstream education as an alternative path to university education in a form acceptable to the general public and employers. The conventional universities cannot be considered for this purpose in the near future due to their traditional nature and conservatism.

Therefore the expansion of the technological and professional education to have more avenues and opportunities has to be considered giving high priority. The existing and proposed paths of Technical and Vocational Education should be linked with each other enabling smooth lateral and upward movements in the system through a University specially for vocational technology outside the

UGC conventional system. This subject has been discussed for nearly two decades and it has now become essential.

The upward mobility paths should encompass the multiple entry and exit points in order to facilitate the students who posses Certificate and Diploma qualification in technical education to enter at the appropriate level and to pursue up to the degree level or further. Also it is important to have the flexibility with multiple exit points so that any student who wishes to employ himself will be able to obtain an appropriate qualification: a Certificate or Diploma and to resume the education later.

The already documented NVQ path needs to be implemented as an important step towards unifying national system of skills development. It needs the completion of a number of processes in the near future, such as legal enactments, accreditation and strict evaluation procedures together with the development of an institute to award the final qualifications such as an Associate degree. Since this involves a large number of stakeholders, a properly planned system is required to educate and convince them about the value and merit of the system.

This situation demands the urgent need of a high level tertiary institute devoted for technological studies or the much-awaited University for Vocational Technology. The Technological University should be of high standards with international linkages. It is possible to model this proposed technological university on a well-recognized international technological institutes. The examples from India, Thailand, Korea or Germany will be useful in forming this alternative path of tertiary education.

However, the unhindered development of such an institute depends mainly on four factors: The teachers, the equipment, the accreditation and more importantly the funds available.

An important fact to note is that despite of the number of Teacher Training Colleges functions at present none of them are devoted for technical teacher training. In addition to the schools offering technological subjects, the tertiary education institutes engaged in Technical education including the Technical colleges island wide, experience severe shortage of qualified, pedagogically trained staff with practical experience. It is an essential requirement to offer at least one programme to award Bachelor of Technical

Education - B. Ed (Tech.) in the proposed Technological University.

In the Sri Lankan society accreditation of study 'programmes', plays a key role in higher education. The parents and the students are keen to select programmes with proper accreditation. A number of higher education programmes commenced without prior arrangement for accreditations are found to be facing severe problems of sustainability. One good example is the 'Sagara University', which was established outside the UGC where students' protests were launched to get accreditation from the UGC. In this context it is of utmost importance to establish an accreditation body in the long run. The qualifications offered by the existing technical colleges and higher technical education institutes needs to be evaluated in one scale and accredited by such a body to formulate a credit awarding system. The credits should be transferable between formal university path and the TVE and National Vocational Qualification paths.

7.0 CONCLUSIONS

In concluding it is essential to point out that much has to be engineered to meet the challenges of improving and developing education from pre-school right up to the Post Graduate Studies. Strict adherence to academic standards would have to be maintained, upliftment of the social recognition has to be engineered, and the diversion into various avenues of further education has to be engineered.

Finally, since a developing country such as Sri Lanka cannot make heavy financial investments only to produce intellectuals, the education systems would have to be engineered on solid foundation of pre-school and primary education, then re-construct, re-habilitate, divert, up lift, consolidate and link-up Secondary, Vocational Technical and University education for gainful employment of the youth in the world of work and to be useful citizens of mother Lanka.