ICT Curriculum in Sri Lankan Schools: A Critical Review

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Abstract:

A very recent development in the school education system in Sri Lanka is the introduction of Information Communication Technology (ICT) subject for the GCE Ordinary Level examination (age cohort 14-15 years). This paper attempts to compare and contrast the Sri Lankan ICT curriculum with that of British GCE Ordinary Level ICT curriculum and to discuss merits and demerits of the Sri Lankan curriculum.

1. Introduction and background

A remarkable growth in the interest among the younger generation in Sri Lanka to embark on information technology related study programs is observed during the last decade or so. However, the introduction of information technology as a subject in the secondary school curriculum is only a very recent development. The pilot project on teaching General Information Technology (GIT) to year 12 and year 13 school children started only in 2002 while teaching GIT as a selective subject in a limited number of schools commenced in 2004. Currently there are approximately 10,000 schools in Sri Lanka and approximately 2400 out of these have G.C.E. Advanced Level classes (age cohort 17-18 years). GIT is presently being offered as a selective subject in approximately 500 schools and the first batch of students took this subject in the G.C.E. Advanced Level examination in June 2005. The Information Communication Technology as a subject in the G.C.E. Ordinary Level Examination commenced from the year 2007. Apart from the above mentioned teaching of IT, there is no other formal teaching in IT at present in the primary and secondary school system in Sri Lanka.

The Ministry of Education, Sri Lanka, according to its circular 2004/20, has identified four pre-requisites to conduct teaching GIT in a particular school namely,

(a) a minimum of four computers.
(b) one teacher with sufficient subject knowledge and training.
(c) a secure room (lab) with electricity supply.
(d) sufficient furniture.

The Government of Sri Lanka having recognized teaching GIT as a priority, formulated the National Policy on Information Technology in School Education (NPITSE) in 2001. The vision of NPITSE is “a new generation of Sri Lankans empowered with Information and Communication Technology and to facilitate the planning

1 General Certificate of Education (Advanced Level) Examination also functions as the entrance examination to Sri Lankan universities
implementation and sustenance of Information Technology education in schools to enhance students’ learning and quality of teaching”. Since the formulation of the NPITSE, the Government has initiated several programmes under four strategic themes namely, curriculum development, human resources development, physical infrastructure development and support initiatives development. Approximately 1000 teachers have so far been trained in teaching GIT, syllabuses have been formulated, computers have been provided to many schools and even physical infrastructure has been enhanced. There are plans to propagate teaching IT to even lower forms in school in the near future.

The introduction of information technology as a subject in the secondary school curriculum in Sri Lanka is only a very recent development. At present there are approximately 10,000 schools in Sri Lanka and Information Communication Technology (ICT) as a subject in the G.C.E. Ordinary Level Examination (age cohort 14-15 years) commenced from the year 2007. To the best of our knowledge, a proper scientific study on the relevance of the new ICT curriculum in Sri Lanka is yet to be done.

This paper provides a comparison of the GCE Ordinary Level Sri Lankan ICT curriculum and the British ICT curriculum. A critical review is also provided to enable education administrators and curriculum developers in Sri Lanka to enhance and improve ICT curriculum.

2. Motivation

Several research work carried out previously by distinguished academics motivated the author to do a similar study in the Sri Lankan context. Valentina Dagiene[1] presents the goals and nature of introducing IT into the school curriculum in Lithuania and Peter Micheuz [5,6] describes how the Austrian school system has responded to the needs of a growing digital economy over many years. Ewa Gurbiel et al [3] puts forward how ICT was integrated into the curriculum in the Polish Education System while Christian Doringer [2] discusses the importance of educational standards in school informatics in Austria. Standards in the Russian Education System with respect to ICT are discussed by Kuznetsov and Beshenkov [4] and recent tendencies in teaching ICT in Ukraine is given by Oleg Spirin [8]. Markus Schneider [7] discusses strategies to incorporate even abstract concepts in IT into the school curriculum in Bavarian Gymnasiums. Many other researchers have also documented their research on different aspects of teaching and learning ICT in schools and experiences in introducing ICT into the school curriculum.

Introduction of ICT into the Sri Lankan school system is only a recent development and no research has so far been done on any of the above mentioned aspects. It is in this backdrop that the author presents the foregoing comparison on the ICT curriculum between Sri Lanka and the UK.

3. Comparison of Curricula

The present summary Sri Lankan GCE Ordinary Level curriculum is as follows:

  Unit 1. Fundamentals of ICT  (Theory 10, Practical 03)
  Unit 2. Data Representation and Internal Operations of the Computer (Theory 11, Practical 02)
  Unit 3. Generic Software  (Theory 08, Practical 44)
Unit 4. Information Systems (Theory 26, Practical -)
Unit 5. Programming Concepts (Theory 17, Practical 35)
Unit 6. Web Site Development (Theory 08, Practical 18)
Unit 7. ICT and Society (Theory 13, Practical -)
Unit 8. Group Project (Theory 13, Practical -)

The Present summary Cambridge curriculum is as follows:

Section 1. Computer Systems, Communications and Software
Section 2. Practical Programming Techniques
Section 3. Systems software mechanisms, machine architecture, database theory, programming paradigms and integrated information systems.
Section 4. Computing Project.

The present summary Edexcel curriculum is as follows:

Section 1. Computer Systems
Section 2. Information Systems
Section 3. Problem Solving and the Coursework Report

4. Discussion

Since Sri Lanka is in the early stages of introducing ICT to lower grades, the present syllabus does not demand any ICT knowledge as an entry requirement. Therefore, this syllabus is intended to introduce ICT as a technical subject to be offered at the G.C.E (O/L). The main objective of this syllabus is to develop the competencies to use the ICT tools and to build a basic theoretical base for students to pursue higher studies in ICT.

MINIMUM QUALITY INPUTS

Human Resources

Teachers with following qualifications are required to teach this subject.

- University degree or diploma in Computer Science/ Information Technology
- University degree or diploma with Computer Science/ Information Technology as a subject
- Followed the training program given by the National Institute of Education or Provincial Authorities of the Ministry of Education for O/L IT
- Any other qualification recognized by the Ministry of Education for O/L IT.
Physical Resources

Capital Resources

- Laboratory with minimum of five computers with a GUI Operating system
- Word processing software
- Spreadsheet software
- Presentation software
- Database software
- Visual Programming Language
- Web design tools
- Simple software tools for Audio and Video editing
- Internet access facility (within or outside the school)
- Laboratory facility should be available outside the allocated lab/ School hours

Infrastructure Facility

- Electricity supply

ASSESSMENT AND EVALUATION

School based assessment

- Written test should be held at the end of each term according to the guideline provided by NIE
- Project work should be assessed continuously on individual basis at the end of each phase by considering the contribution of the student to the group project.

National level examination

At the end of grade eleven national level examinations should be conducted in the following manner:

- Multiple choice paper - One hour
- Structured paper - Two hours
EXPECTED EXIT BEHAVIOR / COMPETENCIES

The student will be able to

- Demonstrate knowledge and understanding of the components and functions of an information processing system
- Appreciate the potential of various ICT tools in information processing and uses these appropriately in problem solving
- Understand that ICT is a rapidly changing discipline and the necessity to keep pace with changes
- Use ICT to enhance learning
- Demonstrate an awareness of social, ethical and safety issues related to ICT
- Competent in analyzing a real world problem and provide solutions using ICT
- Demonstrate the ability to search, locate and evaluate various information sources and use that information for required purpose.
References


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