

# OECS Education Reform Strategy

## Eastern Caribbean Education Reform Project

**Information & Communications Technology (ICT)  
In the Education Systems of the OECS**

### MODEL ICT POLICY DOCUMENT FOR THE EDUCATION SYSTEM

**OECS Education Reform Unit  
JUNE 2001**

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## 1.0. Background

In October 1998, the members of the then Island Representative Committee (IRC) observed that many of the member states were proceeding to introduce computers into secondary and, in some cases, primary schools. Although, these interventions of ICT in the classroom were welcomed, there were worries, however, that these developments were occurring in the absence of a carefully thought-out plan and guiding policies and strategies. The OERU was therefore requested to assist the Ministries of Education by preparing generic guidelines, a model policy and strategy that could then be used by individual Ministries in developing their own individual policies and implementation plans.

This *Model ICT Guidelines and Strategy* document represents further refinement of (1) the *Guidelines for Development of ICT Policy and Strategy* paper submitted to the OECS Education Technical Committee (OETEC) in November 1999, and (2) the *Model ICT Policy for the Education System* document presented to OETEC in May 2000. Most importantly, this document also involves the work and comments of members (listed in Appendix B) of the ICT Education Committee, which met in July 2000 on the recommendation of OETEC.

In the final analysis, each Ministry must of course adopt its policy and strategy in this area. However, we believe that this task can be greatly expedited by the Eastern Caribbean Education Reform Project (ECERP) initiative entitled - ***Support the development of Information Technology Policies in Schools***, which was introduced in the 1999-2000 Work Plan and continues this year.

This sub-regional process has additional benefits:

- ◆ It increases the likelihood that the OECS states will pursue parallel strategies and thus facilitate long-term co-operation, cost-effectiveness, and the sharing of expertise in this emerging area;
- ◆ It contributes to harmonization of education within the sub-region;
- ◆ It can draw on external resources, expertise and experiences in other jurisdictions so that the OECS can benefit from the lessons learned in other regions over the past fifteen years.

This document reflects the general guidelines and strategies that Ministries of Educations are prepared to pursue with regard to ICT and some of the regulations that would facilitate the successful implementation of ICT in the education system of the OECS member states.

## 2.0. Introduction

Throughout the world, information and communications technology (ICT) is changing the face of education. Two fundamental and complementary factors are at work. First, ICT is changing the nature of work and the workplace, and education systems must respond to this. The so-called “knowledge revolution”, combined with economic globalization, create conditions which strongly reward those countries that focus growth on knowledge-based industries. A prerequisite for this is an educated labour force of computer-literate individuals who themselves understand and can harness the power of the ICT revolution. More generally, *every citizen in this and the next generation will need to have a high “comfort level” with technology to live in and contribute to a society increasingly part of an interdependent “wired world”*. So ICT is changing the objectives of education.

Second, *ICT provides educators with a powerful new tool to enhance the learning opportunities for students and the professional development opportunities for teachers*. Thus ICT is also changing the methodologies through which educational services are delivered.

But, like all, powerful tools, ICT can do as much harm as good. Bad pedagogy implemented on a computer may have its harmful effects multiplied many fold by the power of the technology. Educational leaders and planners thus bear a heavy responsibility to ensure that the introduction of ICT into the classroom is managed with great care so that the very real benefits are realised efficiently and effectively, while the dangers are eliminated, or at least minimised. Careful planning, in the context of a long-term educational vision, is therefore essential.

Moreover, the introduction and sustainability of ICT in the education system is expensive. The capital cost of the equipment needed to begin the process is obvious. Not so well understood is the high level of new recurrent costs that effective use of ICT requires on a continuing basis.

The central focus of ICT in education is on the use of the computer. In this context the computer, as a piece of hardware animated by a variety of software packages, must be viewed as a multi-purpose device whose educational applications include:

- Manipulating text and numerical data (word processing, spreadsheets, statistical and mathematical software, desktop publishing)
- Manipulating graphic information (scanning and drawing software)
- Storing and analysing digitized information (databases)
- Accessing and disseminating information (world wide web, CD-ROMs)
- Communicating (e-mail, listservs, chatrooms, e-fax, real-time conferencing, etc.)
- Instructional processes (software for teaching specific skills)

These applications can be used in a variety of contexts to meet various needs as follows:

### **2.1. Computers and Students**

- a) *Computer Literacy.* The goal is to produce students who understand how to use computers with standard software such as word-processors, e-mail, and spreadsheets in order to enhance their subsequent employability. As well, the use of software such as word-processors can enhance instruction and learning in all subjects through encouraging good writing, organized work and projects, better essays, etc. Increasingly, such computer literacy is being required as a pre-requisite for entrance to many jobs in the sub-region.
- b) *Computerized instruction in a variety of subject areas.* The goal is to use the computer with suitable instructional software to improve skill acquisition, supplement classroom instruction in particular subjects, and to meet the special needs of students who would benefit from individualized or self-paced instruction. There is a wide range of options here, from Computer-Assisted Instruction (CAI) or Integrated learning Systems (ILS) packages at one extreme, to constructivist approaches such as LOGO that present the computer to the student as an environment for free experimentation and the development of creativity.

- c) *The Internet* - linking schools and students to information; schools to schools and students to students. The goal is to increase students' access to information, their ability to find, select, analyse and use information from external sources on the WWW, and increase networking and communication between students and schools both within and between countries. This can have a strong positive impact on student learning in a variety of subjects.

## **2.2. Professional Development of Educators**

- a) *Access to education information by teachers.* An incredible wealth of curriculum materials, teaching aids, sample lessons, and pedagogical ideas and tips is available on the WWW. Every teacher with web access thus has an enormous library of teaching materials immediately and freely accessible. As well there are Listservs and discussion groups through which questions may be posed, and ideas and information shared.
- b) *Distance education.* Computer-assisted instruction, either in real-time courses on the web, or asynchronous packages for self-study has tremendous potential to expand the range of professional development opportunities for educators and for reducing problems of access.
- c) *Networking educators.* The use of e-mail, Listservs, discussion groups, etc., can connect any educator who has web access with a wide variety of networks of colleagues both within the region and internationally. No educator with web access could feel isolated from the cutting edge of research and innovation in their discipline! He or she can pose questions and request information that harnesses the expertise of international networks of educators. Educators can also contribute their own ideas, experiences and teaching strategies and bring them before an international audience.
- d) *ICT in the teacher certification curriculum.* Any serious strategy for the effective use of computers in the classroom will require that all teachers should have basic skills and qualifications in ICT. In many jurisdictions, a minimal standard of computer literacy is required as an *entrance standard* for teacher training. In the short term, it should at least be an *exit standard*. As well, all teachers will need training on the educational implications of ICT and how to integrate these into the pedagogy of particular subjects.

### **2.3. The Administration of the Education System**

*Educational Management Information System (EMIS)*: A separate OERU/ECERP activity is underway to develop a standard EMIS for use by the OECS Ministries of Education. Such a system can be developed incrementally and could ultimately handle or be linked with any or all of the following:

- (i) School administration (student and staff records, budgets, etc.)
- (ii) System administration (facilities, staff, financial administration, planning and monitoring, etc.)
- (iii) Communication (networking all schools with the MOE, reducing the use of paper communications)
- (iv) Document management.



### 3.0. ICT Philosophy of the Ministry of Education

The Ministry of Education recognizes that:

- 3.1. Accessibility to and utilization of Knowledge is fundamental to the development of the Country's citizen.
- 3.2. In light of the growing impact of advanced Information and Communication Technologies (ICTs) on the economy of the Country each student should be provided with access to computer-based tools so as to make a valid contribution to society.
- 3.3. ICT must be exploited to allow students greater control over their learning and thus develop skills at their own level and speed;
- 3.4. The integration of ICT in the education system could eventually boost the economic engine of the Country since it provides a leveled "playing field" for the creation and distribution of software, information, etc by its Citizens.
- 3.5. The potential of all individuals (including the mentally and physically challenged) could be enhanced by the use of multimedia packages and other electronic learning tools i.e. ICT promotes individualized interactivity;
- 3.6. The introduction of ICT in the Education Sector necessitates the training of all teachers in the system and in essence implies the need for lifelong learning of all stakeholders;
- 3.7. The implementation and sustenance of ICT projects in the Education System will be via a partnership approach involving the community, private and public organizations, and funding agencies;
- 3.8. The utilization of computerized management tools within educational institutions could enhance the effectiveness and efficiency of the educational sector.
- 3.9. The availability of authoring packages for use by teachers in the development of their own instructional material will have positive impact on the teaching-learning process.

#### **4.0. Objectives of ICT Guidelines and Strategy Document**

The objectives of the document are to:

- 4.1. Promote the harmonization of activities, approaches and standards in the educational uses of Information and Communications Technology (ICT) within the Education Systems of member states.
- 4.2. Foster the concept of Life Long Learning among students and teachers and also within the general population of the Country.
- 4.3. Encourage the principals, teachers and students within the education system to be involved in the development of applications and to use ICT, meaningfully, to enhance the teaching-learning process.
- 4.4. Ensure that there exists equitable access to ICT resources by all students and teachers within the Education system.
- 4.5. Demonstrate the MOE's intention at providing a reasonable level of Computer Literacy to all students and teachers in the system.
- 4.6. Encourage and facilitate the use of the Internet as a research and communication tool among students, parents, teachers, principals, other MOE officials and members of the community.
- 4.7. Facilitate the implementation of an Education Management Information System (EMIS) so as to ensure the effective management of the Education system.
- 4.8. Encourage partnerships between the various stakeholders in the Education Sector.
- 4.9. Provide the avenue for increased electronic networking of educators within member states.
- 4.10. Foster greater professional development opportunities for all educators in the sub-region.

## **5.0. ICT Guidelines and Strategy Statements**

The ICT Guidelines and Strategy Statements of the Education System have been categorized into three areas as follows:

### ***5.1. Curriculum, Training and Instruction***

A large body of research shows that adequate training of teachers to use ICT effectively in the classroom is an essential prerequisite for success. Such training must achieve several distinct goals:

- (i) The teacher should be a confident computer-user who transmits positive attitudes to students. The attitude is at least as important as the level of skill, teachers and students can learn together if they are enthusiastic and believe that they will be successful. All teachers thus require computer literacy training, unless they already possess it.
- (ii) Teachers should be trained to help students acquire basic computer literacy: the skills common to the use of all software packages. A smaller number of specialized “ICT teachers” who are charged with teaching computer use and more advanced ICT as a subject will require this training in greater depth.
- (iii) Teachers of individual subjects should be trained in the pedagogical applications of ICT. Subject area specialists, curriculum officers, etc., would need such training in greater depth to take leading roles in matters such as software selection and implementation, in-service professional development, etc.

The following is proposed:

**Statement No. 1:**

The MOE will ensure that students at both Primary and Lower Secondary levels acquire, through integration of ICT into the curriculum, the following skills:

1. Composing a document using word processing (e.g. MS Word) functions namely copying, cutting, pasting, merging, saving and printing;
2. Preparing a simple spreadsheet (e.g. MS Excel);
3. Creating, querying, saving a simple database (e.g. MS Access);
4. Demonstrating an understanding the PC including the Operating System (e.g. Windows 98, MAC OS);
5. Demonstrating an understanding of Computer Programming;
6. Sending and receiving electronic mail;
7. Accessing web sites and performing searches on the Internet.
8. Making critical judgement of the validity of information on the Internet.

**Statement No. 2:**

The MOE will identify, recruit, train and deploy suitable persons for the development, management and operation of ICT systems at all levels in the education system.

**Statement No. 3:**

The MOE will implement mechanisms for attracting and retaining teachers in ICT within the education system.

**Statement No. 4:**

The MOE will provide incentives to teachers and administrators who are exceptional in effectively promoting and utilizing ICT in the classroom and in simultaneously performing other functions.

**Statement No. 5:**

The MOE will establish a group of subject specialists (in at least the core subject areas) at the primary and secondary levels. That group will liaise with and share information with the MOE's representatives on the OECS ICT Education Committee, who will co-ordinate the approach for the use of computers in the teaching of each subject area. This group will also be closely linked to/comprise the curriculum officers of the MOE.

**Statement No. 6:**

The MOE will utilize the subject-specialist group to provide professional development workshops for teachers.

**Statement No. 7:**

The MOE will ensure that ICT is used in the classroom to support the mastery of numeracy, literacy and critical thinking skills.

**Statement No. 8:**

The MOE will ensure that ICT is used in the classroom to address the individual needs of students with varying abilities.

**Statement No. 9:**

The MOE will provide the opportunity for fostering the creative capacity of students and teachers in the development of hardware and multimedia software.

**Statement No. 10:**

The MOE will ensure that training of teachers in computer literacy and the educational uses of ICT will precede the introduction of equipment into the classroom.

**Statement No. 11:**

The MOE shall provide in-service training in ICT to all teachers.

**Statement No. 12:**

The MOE will liaise with the Community College and other educational institutions to ensure that subject-specific pedagogy includes adequate coverage of the integration of ICT in the classroom. If necessary, it will be advised that courses be modified or new courses be introduced to satisfy that need.

**Statement No. 13:**

The MOE will ensure that student will not have access to obscene material and undesirable Sites on the Internet.

**Statement No. 14:**

The MOE will provide appropriate facilities for stakeholders including the National ICT committee, administrators and teachers to examine/evaluate relevant software packages for integration in the curriculum.

## **5.2. Planning and Administration of ICT Initiatives**

Firstly; planning and implementation of hardware and infrastructure acquisition, installation and maintenance involves a number of issues:

- (i) Hardware has a finite life span both because it wears out and because it becomes technologically obsolete.
- (ii) Technology is evolving rapidly and improvements in performance often depend on upgraded hardware. Flexible, open and upgradeable architectures help to ensure that the maximum lifetime of hardware purchases is obtained.
- (iii) Sub-regional co-operation, sharing of technical expertise, implementation of common systems (such as an EMIS), etc., will all be simplified if Ministries agree on common standards and implementation architectures.

Secondly; software decisions fall naturally into two parts: general-purpose software and instructional software. For general purpose software (word processing, spreadsheets, databases, e-mail, browsers, graphics, etc.) choices should be guided by observing what is most widely used elsewhere. Students benefit by becoming familiar with the packages they are most likely to meet in the workplace and elsewhere.

Choosing instructional software is much more complex. The field is changing rapidly and there is a wide variety of material available (current estimates about 20,000 titles in English alone). Most educators, however, are conscious of a real shortage of high quality, educational software whose effectiveness has been adequately tested (apart from the manufacturer's own claims, which are hardly objective!). Finding good software to meet particular instructional needs is thus a major challenge. Some information is available from various web sites, although it is mainly anecdotal and based on the individual reactions and experiences of teachers who have used the software in their classes. There are also firms, consultants and Institutes involved in evaluating and selecting appropriate software for use in the school system. One of these Institutes is the Educational Products Information Exchange (EPIE) that an Educational Software Selector Database (TESS) which is available on CD and their website (<http://www.epie.org>). The MOE will work with the OERU to obtain access to the resources of that Institute.

Most software packages are developed for the North American (mainly USA) market so there are issues about content, linguistic and cognitive style and cultural appropriateness when using the packages in other countries. In addition, software packages of any complexity usually are sold under site licences that can be prohibitively costly for widespread use.

Finally; in the region there is a need for MOES to frequently monitor educational institutions to ensure that they are sustainable and that the program is meeting the needs of stakeholders. Given the limited resources available, ICT tools can facilitate the kind of monitoring that ministries need to do. Components such as academic performance and physical development are among the areas that must be assessed, and where necessary provided with support for their optimal development. As a result of assessment and monitoring, additional ICT tools can be used to enhance support services to students. These include the provision of software, and hardware systems to students who are physically and mentally challenged.



The following is proposed:

**Statement No. 15:**

The MOE shall ensure that ICT in the education system serves several purposes, all of which will contribute to the establishment of a knowledge-based economy. These purposes will include:

1. Supporting student mastery of numeracy and literacy skills at the primary level;
2. Providing remediation to students where necessary;
3. Facilitating the implementation of Integrated Learning Systems (ILS);
4. Improving the general quality of and access to learning throughout the curriculum;
5. Students and teachers developing education related multimedia applications using software Authoring tools;
6. Fostering the creative capacity of students and teachers;
7. Facilitating the dissemination and sharing of ideas between the various stakeholders in the education sector;
8. Improving the efficiency of administration of educational institutions;
9. Facilitating the timely and accurate flow of data and information between educational institutions, the MOE, the OERU and other relevant organizations;
10. Providing strong support for technical/vocational programmes at all educational institutions.

**Statement No. 16:**

The MOE will work with stakeholder groups to develop strategies to deal with licensing, intellectual property rights, use of software, disposal of used computer equipment, security and information dissemination associated with ICT in the Education System.

**Statement No. 17:**

The MOE will facilitate the establishment of appropriate organizational structure to facilitate the integration of ICT into the education system of the Country.

**Statement No. 18:**

The MOE will ensure the establishment of the necessary infrastructure to facilitate the adoption of ICT within the education system.

**Statement No. 19:**

The MOE will work with stakeholder groups to establish procurement guidelines and procedures for the acquisition and security of ICT equipment, peripherals and accessories.

**Statement No. 20:**

The MOE will ensure the establishment of protocols for the identification, evaluation and selection of appropriate software for use in computers at all levels of the Education system.

**Statement No. 21:**

The MOE will ensure that before instructional software is deployed in any classroom:

1. It would have been evaluated and approved by the National ICT Committee.
2. There would have been adequate training of the classroom-teacher in the use of the software.

**Statement No. 22:**

The MOE will establish mechanisms that foster collaboration in the implementation ICT between the private sector and educational institutions.

**Statement No. 23:**

The MOE will make necessary budgetary provisions (in collaboration with other stakeholders) associated with the capital and operational costs of sustaining ICT systems.

**Statement No. 24:**

The MOE will work with stakeholder groups to establish rules and procedures for the acceptable use of ICT in the education system.

**Statement No. 25:**

The MOE will adopt a common set of standards for hardware and system architecture for use in the Education System.

**Statement No. 26:**

The MOE will adopt an explicit strategy for technical support, with staff and budget adequate to service the needs of all users and computers in the Education System.

**Statement No. 27:**

The MOE will establish an IT Team comprising an IT Co-ordinator and System Administrator(s) to support the integration of the technology into the curriculum of schools and will make provision for the continuous training of that team.

**Statement No. 28:**

The MOE will ensure that all educational institutions are linked together in a secure network for administrative (EMIS) purposes, with access to the Internet for instructional and professional development (e.g. electronic research and communication).

**Statement No. 29:**

The MOE will assist every school (Primary and Secondary) to develop a Technology Plan, which would act as a guide for that school's integration of ICT into its curriculum.

**Statement No. 30:**

The MOE is cognizant of the potential of bodily harm that students may be exposed to after the prolonged use of desktop computers and as a consequence will ensure that standard ergonomic principles are adhered to, including the proper design of computer workstations. A recommended workstation specification is detailed in appendix C.

**Statement No. 31:**

The MOE, through its nominee on the *OECS ICT Education Committee* will periodically (at least every year) review Hardware and General-Software Standards and recommend changes/upgrades as needed.

**Statement No. 32:**

The MOE will ensure that its nominee on *The OECS ICT Education Committee* provides advice on the choice of instructional software to be used by educational institutions. The OERU will assist in the co-ordination of that committee and provide members with access to external expertise and information databases so that choices are made on the basis of full review of the prior experiences in other jurisdictions and organizations.

**Statement No. 33:**

The MOE will work with educational institutions to make available the facilities, equipment and personnel to permit equitable access to ICT for ALL students.

**Statement No. 34:**

The MOE will adopt a standard suite of productivity tools as the generic software package for all computers used in the education system.

**Statement No. 35:**

Principals of Educational Institutions will ensure that the guidelines for acceptable use of ICT in education have been incorporated into the School Rules.

**Statement No. 36:**

Principals of Educational Institutions will keep a record of all software and software upgrades acquired by their institutions and ensure that their institutions have the appropriate licences for the use of such software.

**Statement No.37:**

Principals will be responsible for all ICT resources on the premises of their institutions.

### **5.3. Assessment, Support and Sustainability of ICT Initiatives**

Introduction and sustainability of educational ICT could be expensive. Given the resource base of OECS countries, choices and priorities will be essential. While the long-term goal may be to have computers in every school, accessible to every student at every level, this will in most instances take many years to achieve.

A World Bank study (Potashnik & Adams 1995) provided the following cost estimates for implementing a computer laboratory of 15 machines in a Jamaica school:

- Initial investment cost: US\$ 44,119
- Additional recurrent costs: US \$16,224

Under rather generous assumptions about amortization (for example, a 5 year useful life of computers and peripherals) and interest rates, this means that the system could be established and maintained indefinitely for an annual charge of about US\$ 27,000 per year. It should be noted, however, that school systems in other jurisdictions have found that a three-year amortization period is more realistic, for several reasons (technological obsolescence of hardware and software, hard usage and abuse of machines by students, loss, damage and theft). A three-year period would significantly increase these estimates of recurrent costs.

Even where it is not possible to put computers into a school immediately, it is important to provide computer access to teachers so that they can become familiar with the technology; use it for their professional development and as a source of educational materials, and to pave the way for its later introduction into the classroom. Thus, training of teachers in ICT is considered an essential prerequisite for the successful introduction of computers into the classroom.

Internet access for teachers and students is essential, but needs careful management. This can, in most instances, be best provided in school libraries, where teachers and students can integrate the Internet as a powerful new information source for use. Linking networked computer labs to the Internet could pose certain problems (cost, dangers of inappropriate use, exposure viruses, distortion of usage patterns away from primary purposes).

The following is proposed:

**Statement No. 38:**

The MOE will encourage Educational Institutions to make ICT facilities available to the Community and will use the proceeds from the sale of these services to upgrade and sustain the facilities and programmes. However, these activities will not compromise access and quality of services of the students.

**Statement No. 39:**

The MOE will collaborate with Educational Institutions to examine the utilisation of optimal configuration of classroom/library/lab, , hardware and software (with focus on access and quality).

**Statement No. 40:**

The MOE will establish appropriate mechanisms for the involvement of all stakeholders in determining the relevance and future use of ICT within the education system.

**Statement No. 41:**

The MOE will explore all possible options of procuring computer systems given due consideration to the upgrading, maintenance and eventual replacement of these systems.

**Statement No. 42:**

The MOE acknowledges that there are requirements of recurrent costs to support ICT in the Education System and will make the necessary annual budgetary allocation based on but not limited to the following items:

1. Training of teachers and technical personnel;
2. Salary & support: technical support personnel (Ministry based);
3. Salary & support: Computer Lab Co-ordinator and Instructor (School based);
4. Equipment upgrades, maintenance and repair;
5. Software licenses and upgrades;
6. Insurance of equipment;
7. Supplies (paper, toner, diskettes, etc.);
8. Utilities and line charges (electricity, telephone, Internet, etc.);
9. Participation in conferences.

**Statement No. 43:**

The MOE will adopt a partnership approach to the financing of ICT in the education sector.

Possible partners could include:

1. Other Government departments;
2. Private and Public Sector Organizations;
3. Telecommunication Companies (incl. ISPs)
4. Individuals, Groups and Organizations from the local or international Community;
5. The educational institutions through revenue-generating activities;
6. Cost-sharing mechanisms with parents;
7. Local and International funding Agencies.

**Statement No. 44:**

The MOE will establish appropriate mechanism for educators to undertake research and to assess the impact of ICT in the education system.

## 6.0. References

1. *Draft IT Policy*, Ministry of Education & Culture Kingston, Jamaica, December 1998.
2. *IT2000- A Vision of an Intelligent Island*, Singapore National Computer Board, November 1997.
3. *Seven Steps to Responsible Software Selection*, ERIC DIGEST-Clearinghouse on IT.
4. *The Millennium Project Proposal- The Incorporation of IT in the Education System*, Ministry of Education, Human Resource Development Youth & Sports, St. Lucia, February 1999.
5. *Student and Staff Access to Online Information Resources*, The Winnipeg School Division No.1.
6. *Implementing the Executive Order on Computer Software Piracy-Federal Software Management Program Model Guidelines*, USA Federal CIO Outreach Committee, March 1999.
7. *Draft Education Policy*, Ministry of Education, Culture and Women's Affairs, St. Vincent and the Grenadines, December 1995.



## 7.0. Appendices

### **Appendix A: Regulatory Statements**

#### *(I) Software Acquisition, Use, Installation and Distribution Procedures*

1. All requests for software and software upgrades shall be submitted to the School's Principal, where possible.
2. All software and software upgrades not procured by the Principal shall be documented and reported to the Principal, who will verify that the School has an appropriate license for the use of such bundled software.
3. All software acquisitions that are bundled with hardware shall be documented and identified to the Principal, who will verify that the School has an appropriate license for the use of such bundled software.
4. The Principal shall store in a secure, central location all original software licenses, diskettes, CD-ROMs, and documentation upon receipt of all new software.
5. No staff member shall install software on the School's computers without being authorized to do so by the Principal.
6. No staff member or students shall install, use or distribute software for which the School lacks appropriate license.
7. No staff member shall install any software upgrade on a computer that does not already have resident on it the original version of the software.
8. The Principal or designated staff member shall destroy all copies of software that are obsolete or for which the school lacks the appropriate license. Alternatively the Principal may obtain the license(s) necessary to maintain such software on the School's computers.
9. The School shall conduct an inventory and review of all its hardware and installed software on a periodic (at least annually) and random basis.
10. The School shall establish and maintain a record keeping system (preferably computerized) for software licenses, hardware, original CD-ROMs and diskettes, user information and assessment information.
11. No staff member may use or distribute personally owned software (excluding freewares and sharewares) on the School's computers or networks.

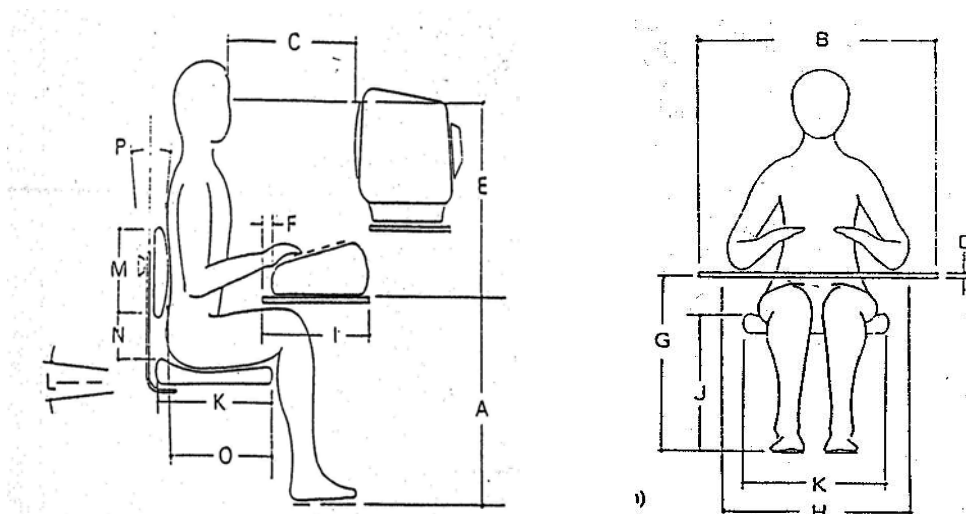
*(II) Acceptable Use of On-Line Information Resources Guidelines*

1. All use of school Local Area Networks (LANs) and Wide Area Networks (WANs) including access to the Internet must be consistent with the educational mandate of the School.
2. Any use of the Internet by students and teachers for commercial purposes, without authorization by the Principal, is prohibited.
3. Network accounts are to be used only by the authorized owner of the account. The sharing of passwords is prohibited.
4. All network/Internet users shall not seek information on obtaining copies or modified files, data or passwords belonging to other users, or misrepresent other users on the network/Internet.
5. All information accessible on the Internet shall be assumed to be private property. All copyright issues regarding software information and copyrights must be respected. The unauthorized copying or transferring of copyrighted materials may result in a loss of network privileges.
6. Malicious use of the network to develop programs that harass other users; infiltrate a computer or computer system and/or damage the software components of the computer or computer system (locally or on the Internet) is prohibited.
7. Hate mail, harassment, discriminatory remarks and other anti-social behaviours are prohibited on the network/Internet. All users of the school network shall use language appropriate for school situations.
8. All programmes and files brought on the premises (downloaded or otherwise) must be examined for viruses before being used on any computer.
9. The access or downloading of inappropriate materials or files unsafe to the integrity of the Local Area Network is forbidden.
10. No student addresses, phone numbers or individual photographs linked to student names may be published under any circumstances.

***Appendix B: Members of ICT Education Committee***

<b><i>Country</i></b>	<b><i>Nominees</i></b>	<b><i>Title</i></b>
Anguilla	Mrs. Dawn Reid	Head IT Dept
	Mrs. Marville Richardson	Teacher (Primary School)
Antigua & Barbuda	Mrs. Anne Jonas	Admin. Assistant
	Mrs. Doristeen Etinoff	Deputy Education Planning Officer
British Virgin Islands	Ms. Bernadine Louis	Assistant Secretary, MOE
	Dr. Thomas Alexander	Educational Psychologist
Dominica	Mr. Abraham Durand	Planning Officer - ICT
	Mr. Ted Serrant	Education Officer - Planning
Grenada	Mr. Leo Cato	Education Officer - IT
	Mr. Brian Lendore	IT Teacher (Secondary)
Montserrat	Ms. Cheverlyn Williams	IT Teacher (Secondary)
St. Kitts & Nevis	Mr. Nigel Carty	Director, MIS (MOE)
	Mrs. Myrna James-Hanley	Teacher, MOE
St. Lucia	Ms. Maria Plummer	I.T. Manager, MOE
	Ms. Claudia Louis	Software Engineer, MOE
St. Vincent & the Grenadines	Mr. Cools Van Loo	Senior Education Planner
	Ms. Nicola Daize	Asst. Lecturer, Tech. College
(OERU)	Mr. Mark Ernest	Information Specialist

**Appendix C: Recommended Specifications for Computer Workstations<sup>1</sup>**



- A - Height of work surface: adjustable 23 to 28 inches (584 to 711 mm)
- B - Width of work surface: 30 inches (760 mm)
- C - Viewing distance: minimum 12 Inches (305 mm); hard copy distance 12 to 16 inches (305 to 406 mm); typical eye to keyboard distance 18 to 20 inches (457 to 508 mm)
- D - Thickness of work surface: 1 inch (25 mm)
- E - Height of screen: Top of screen at approximately eye level (maximum 0 deg. to horizontal, or 0 deg. to – 60 deg.)
- F - Palm rest: 11/2 inches (40 mm)
- G - Knee room height: minimum of 26.2 inches (665 mm) non-adjustable surface; 20.2 inches (513 mm) adjustable surface
- H - Knee room width: 20 inches (510 mm) minimum
- I - Knee room depth: minimum of 15.0 inches (381 mm) knee level; 23.5 inches (597 mm) toe level
- J - Seat height: adjustable 16 to 20.5 Inches (400 to 521 mm)
- K - Seat size: 15 to 17 Inches (381 to 432 mm) depth, 17.7 Inches (450 mm) width, "waterfall" front edge
- L - Seat slope: adjustable 0 deg. to 10 deg. backward slope
- M - Backrest size: 7 Inches high (180 mm), 13 Inches wide (330 mm)
- N - Backrest height: adjustable 3 to 6 Inches (80 to 150 mm) above seat
- O - Backrest depth: adjustable 14 to 17 Inches (350 to 430 mm)
- P - Backrest tilt: adjustable  $\pm 15$  deg.
- Other - Angles between back rest and seat 90 deg. to 105 deg.; between seat and lower leg 60 deg. to 100 deg.; between upper arm and forearm 70 deg. to 135 deg.

<sup>1</sup> Source (TBD)