Several studies have been conducted on ICT and its use and impact on education, some of which are included below.

A. Survey of information and communications technology in schools 2001 in England

This survey on the information and communications technology (ICT) provisions in schools in England was carried out in April 2001, the findings of which were compared to similar surveys conducted in 1998, 1999 and 2000. The surveys collected information on the number and type of computers available in schools, expenditure in schools, the extent and benefit of the use of ICT across curriculum subjects, the use of internet and other electronic network communication links, and teacher usage of computers and their confidence in the use of ICT in the curriculum. It is a sample survey and the sample is chosen to be representative of different types of schools throughout the country. Some of the findings as categorised are the following:

a. Computers in schools
   - average number of computers per school increased steadily in all types of schools between 1998 and 2001; the increase was noted to be great between 2000 and 2001
b. Internet usage and other external electronic communication services
   - between 1998 and 2001, there was a considerable increase in the percentage of schools connected to the internet
c. Use of ICT in teaching and teacher confidence
   - in each type of school there was an increase in the percentage of teachers reported to feel confident in the use of ICT in 2001
d. Expenditure on ICT
   - the average expenditure on computers per school increased steadily in all school types between 1998 and 2001

Source: Statistics of Education:
Survey of Information and Communications Technology in Schools 2001
National Statistics Bulletin
Department for Education and Skills
Issue No. 09/01
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B. The Network Readiness Index: Measuring the preparedness of nations for the networked world

The Center for International Development (CID) at Harvard University conducted a research which came up with the Network Readiness Index (NRI), a major international assessment of countries’ capacity to exploit the opportunities offered by ICTs. In the development of the NRI, data sources fall under two general categories. First, a variety of measures, mainly “hard” variables and also “soft” ones from sources such as the World Bank, the International Telecommunications Union, Freedom House, and the Business Software Alliance were used. Second, data collected from the questionnaire responses of more than 4,500 business and government leaders surveyed in 75 countries by the Global Competitiveness Report’s 2001 Global Executive Opinion Survey conducted by Harvard University and the World Economic Forum were heavily relied upon.

The Network Readiness Index is an assessment of a country’s capacity to make use of ICT resources. It shows how nations are performing with regards to their participation in the Networked World. Seventy-five countries were computed NRI's
and the United States of America tops the NRI ranking making it the most highly developed ICT network and it has the greatest potential to exploit network's capacity. Iceland, Finland, Sweden, Norway and Netherlands follow USA. Another Northern European country, Denmark, ranks 7th, followed by Singapore in 8th, Austria in 9th and the United Kingdom in the 10th place. Among the countries in the region which were included are Korea, rank number 20 followed by Japan in the 21st place, Malaysia in number 26, Thailand, number 43, India, number 54, Philippines, number 58 followed by Indonesia in number 59, Sri Lanka in number 62, China in 64, Bangladesh in 73 and Viet Nam in 74.

Two components were taken into consideration in the computation of the NRI. These are network use and enabling factors. Network use is defined as the measure of the extent of increase in the use of ICT in a specific country. This is still narrowed down to five more categories: Internet users per hundred inhabitants, cellular subscribers per hundred inhabitants, internet users per host, percentage of computers connected to the internnect and availability of public access to the internet.

Enabling factors is made up of four sub-indices: network access, network policy, networked society and networked economy. Network access includes variables related to the information infrastructure, hardware, software and support. It measures the extent and quality of the network infrastructure and the existence of equipment, programmes, and support services that enable ICT use. Network policy refers to the information and communications policy environment, and the business and economic climate. It also deals with the levels of competition in the telecommunications and ICT sectors. Networked society measures the quality and extent of use of ICT facilities in the learning process and networked economy assesses the extent of public and private sectors participation and e-government are considered in this sub-index.


C. Profile on the capabilities of elementary and secondary schools in the Philippines, 2000-2001

This is a national population survey of public and private elementary and secondary schools conducted by SEAMEO INNOTECH in the Philippines under Project TAO CARES last March 2001. Its main objective was to determine the ICT capabilities of schools. A total of 45,811 schools were given questionnaires with the school heads as respondent of which 79.37 per cent responded. The survey questionnaire consisted of 42 items, mostly focused on the readiness of schools in terms of infrastructure, hardware, software and manpower capabilities on ICT. Outputs of the survey were sixteen regional profiles on the ICT-preparedness of schools which included data on the availability of electricity, access of schools to communication facilities, presence of computers, computer peripherals and other multi-media equipment in schools, sources of funds to maintain ICT-related operations, proficiency of school staff in the use of computers, training received on ICT, computer courses being offered in schools and other ICT-related information.

Some of the major findings of the survey at the national level are the following:
- Only 66.07 per cent of schools have electrical connections
- Only 13.30 per cent have landline telephones, 2.90 per cent have fax machines, and 2.00 per cent have internet connections
- 5,217 schools only or 14.28 per cent have computers with the National Capital Region having the highest percentage at 87.30 per cent
- Only 18.24 per cent of schools have staff proficient in the use of computers

78.62 per cent of schools get funding to maintain ICT related operations from the PTCA

Only very few schools (13.13 per cent) have school heads who have received ICT training in the past five years

64.36 per cent of school heads need training on basic computer literacy

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D. The 1996 national survey on computer education in the Philippines

This study was conducted by the New Educational Technologies Foundation, Inc. a non-profit organisation composed of schools that believe in the capacity of IT to improve the quality of student learning and efficiency of teaching. A total of 794 schools participated in the survey with school heads in the public and private schools as respondents. The questionnaire was divided into two parts, the first part asked about perceptions, level of awareness and attitudes regarding the value of computer education and was answered by users and non-users of computers. The second part which dealt with the actual use of computers was answered by users only. Among the findings are the following:

- The number of computers owned by a private schools is twice as much as what a public school can afford
- Computers available in schools are mostly the models AT486
- Most computer units in the public elementary schools were acquired through donations, in the secondary and tertiary schools, most computers were acquired through purchase
- Computers are mostly used to teach different application programmes


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E. Use of multiple assessment tools

In a primary school in Sunnyside Elementary School, Pullman, Washington, students are using e-mails, web sites, videos and video conferencing technology tools to develop their learning skills. Through these mediums, the students alongside their global peers identify and share their cultures with one another in new ways. Traditionally, students learn about the world through books, but new technology allows the students to get in depth information about different cultures through writing, reading and communicating with their global peers. The following are the assessment tools used: Assessment rubrics designed for specific projects, lesson, and/or classroom experiences; standard assessment tools (i.e., DRA and Wright Group Reading Assessments); teacher anecdotal notes; children’s own metacognitive voices in the process of learning; in conference with the teacher, and in self-reflection of work and presentations; parents’ reports of student learning progress.

Teaching in non-traditional ways can sometimes be a risky business - with all eyes upon the class to see if learning is taking place. It has been shown that students form teams to read, write, and communicate using technology at rates that meet and exceed standards for primary classes. But along the way, the added value of technology contributes in areas such as thinking skills, social skills, engagement in learning, motivation, teaching, and collaborating as the class sees what is essential to learn in the context of the real world.

Source: http://www.ncrel.org/engauge/framework/efp/align/efpalsu.htm
F. Technology: A major catalyst for increasing learning

by Jody C. Isernhagen, University of Nebraska-Lincoln

Technology Horizons in Education, Journal Online August 1999 - Feature

A rural public school in Nebraska composed of 1,400 students applied for a three-year competitive Excellence in Education Grant in late 1995. Six school administrators and 18 staff members designed a plan to restructure their school and classrooms. The staff members defined the major skills needed by students are comprehension, reasoning, composition and experimentation. A computer was placed in each classroom (80 classrooms) and 27 computers were located in the elementary Integrated Learning Lab with Computer Curriculum Corporation Success Maker Software. This software automatically diagnoses and places students on the appropriate skill level while using the computer. The computer lab was used by 314 students and 13 teachers in grades 1-3 from January 1996 through May 1998. Teachers were trained on the use of ClarisWorks, Microsoft Word, E-mail, Internet, Presentation Stations and the integration technology as a tool in teaching and learning. Activities of the students involved computer building; designing of web pages to help maintain the school's web pages; digitizing video to present to the community; creating panoramic views and interactive virtual reality scenes; preparing letters of application, resumes and cover letters and to search the web for jobs. With all the activities the teacher served as guides, figuring out with the students how to arrive at a productive presentation.

The CAT scores in reading and math for students using an Integrated Learning Lab for 2.5 years showed a significant difference between the means. The scores of students testing below the 50th percentile at grades 1-3 in reading and math increased significantly over time. These findings suggest that using an Integrated Learning Lab with rural primary age children daily over an extended period of time may positively impact achievement for students, particularly those students functioning below the 50th percentile.


G. The impact of ICT on literacy learning in English

This report is the result of a literature review conducted, first, to identify a number of studies that might shed light on the major impact of ICT on literacy learning in English for 5 to 16 year olds, and the second, to undertake an in-depth review of the papers that were identified as being on the impact of networked ICT on literacy learning in English for ages 5 to 16. There were 1,871 studies screened following a criteria to identify relevant reports. 188 studies were found that met the criteria in the protocol. These studies were then keyworded, or indexed and the results filed on an electronic database.

Of the 188 studies relevant to the mapping study, 16 pertained to the topic of the impact of networked ICT on literacy learning. Data were extracted from these 16 studies and were used as basis for an in-depth review. Of these, half were outcome evaluations (evaluations of the results of an experiment or innovation), seven were process evaluations (evaluations on how an intervention was delivered, rather than whether it worked or not) and one was a needs assessment.

Results show that as far as the in-depth study on networked ICT goes, results are inconclusive. Concerning policy and practice, the recommendations of this review are highly tentative and take the form of implications or pointers. With regard to policy, they are to focus research funding for large-scale studies; to give consideration to the balance of study type expertise in research teams; and to give consideration
to the fact that the provision of computer hardware and software to schools, and the application of ICT in teaching and learning, need to be informed by research and evaluation.

Source:  http://eppi.ioe.ac.uk/EPPEWeb/home.aspx?page=/reel/review_group.../review_one_abstract.ht

H. Education Research Fund Effective Integration of IT in Singapore Schools: Pedagogical and Policy Implications

This is a report on the key findings of a questionnaire survey aimed at identifying the degree of information technology (IT) integration among Singapore schools. The survey is the first part (Phase One) of a larger study funded by the Ministry of Education of Singapore aimed to examine and analyze where and how IT is integrated in Singapore schools to develop pupils' higher order thinking skills. A total of 328 schools responded to the survey of which 168 are primary schools, 144 secondary schools and 16 junior colleges/centralized institutes (J C/Cs).

Major findings of the questionnaire survey include:

- Phase I schools in the IT Masterplan have significantly higher pupil and teacher use of IT, greater opportunities for staff development of teachers, and more conducive IT culture than Phase III schools
- Independent-autonomous schools have significantly better management of IT resources, higher teacher and pupils use of IT, greater opportunities for staff development for teachers and more conducive IT culture than government schools
- There are no significant differences among the primary schools, secondary schools and J C/Cs in terms of the management of IT resources, pupil and teacher use of IT, staff development and school IT culture
- The correlations among management of IT resources, pupil use of IT, teacher use of IT, staff development and IT culture are significant and highly positive