Note from the Letters Editor

Rumbling Thoughts

NETWORKS 84, the international symposium on Data Communication and Computer Networks is round the corner. A few months back we had the international conference on Cybernetics as part of IEEE CCECE held in India. Both these conferences imply a lot of money, the exchange of knowledge that takes place at these conferences between the faculty and participants between the participants themselves will be beneficial to the participants when they go back to their workplaces and try to apply what they learn.

In our discussions with our computer friends we have a general gripe about the quality of articles and the "get-up" of the magazines. It is not as good as the level of the commercial computer magazines. We want our readers to be aware that the editor of the electronic body whose objective is not to make profit but to keep its members informed of what is going on in the computing world. A comparison of computer communications with other computer magazines is thus far fair.

The results of NISTC-III held on 15th April, 1984 were published in our last issue. Only 26 out of 66 candidates who appeared for the examination passed the test. This reflects on the one hand...

(i) The quality of programmers churned out by the various "computer institutes."
(ii) The standard of the examination is too high for an average programmer.

We are publishing in this issue the views of computer scientists and industrialists who have taken the examination. We would like to have the views of other candidates who have taken the examination (if requested) when the examination is conducted next time.

Computer Application in India

The note from the Editor regarding Computer Application in India... A C.I.P. is... India has not been... of Computer applications and their effectiveness. In the same time there is a "mushroom growth" of Computer training. Those who have targeted that C.I.P. should... national computer laboratories and their effectiveness. In the same time there is a "mushroom growth" of Computer training. Those who have targeted that C.I.P. should... national computer laboratories and their effectiveness. In the same time there is a "mushroom growth" of Computer training...

Suggestion

This has reference to your editorial note in 'Communications of July, 1984. C.S.I. is doing commendable job in Computer Education. However there is a critical shortage of Computer professional expertise in programming. In the same time there is a "mushroom growth" of Computer training. Those who have targeted that C.S.I. should... national computer laboratories and their effectiveness. In the same time there is a "mushroom growth" of Computer training...

Bye Bye, Bharat

MR. BHARAT SHAH (Hon. Co-Editor) will not be editing the future issues of C.S.I. Communications as he has gone abroad for studies. He would like to express his thanks to Bharat for his sanity and istiving efforts which got us the C.S.I. Communications on time for the last 10 months.

Best of luck, Bharat.

RAV RAMAN

C.S.I. Communications September 1984
The Experience of Educational Computing in the UK

James A. Dunn
New University of Ulster
Coleraine
Northern Ireland
U.K.

Introduction

It is important to begin by saying quite clearly that the transfer of experience from one country to another is often nearer direct or simple. Eventually India must begin to develop systems which suit her particular circumstances. It is only in this introductory period that software and other aspects of educational computing ought to be imported.

Early attempts at educational computing seldom matched the hardware's potential (the problems, difficulties and limitations)

Although the use of computers in Education is a comparatively recent phenomenon, there have been many attempts to begin the process using large or relatively large machines. Such attempts had very little success for a number of reasons.

The mainframe computer was fixed in one spot and so student or pupil work had to be brought to the machine each time it was to be used.

This "hardly" processing was very slow, tedious and often had the effect of turning students away from the use of computers.

Usually the output system was inadequate, and the turnaround time was at least one week and often longer. If there was only one small error in the student work, the whole lengthy process had to be repeated. This could mean that the small job would take months to complete.

Later, it was possible to use the telephone system, but it was expensive, and the delay—although it was only a relatively small delay—meant that it could be used by one student only at a time.

With a class of 30-40 students, time queuing became an important variable. As well as the student who was waiting, there was time to do anything. Some times there could be 'gethchas' on 'indea' on a teleprinter or in the machine's own errors. And, finally, to use the telephone system could be far more expensive.

Massive hard disk storage

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Philips

Test & Measuring Equipment Division
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Implications for Education

Immediately it was clear that these small computers had important implications for education. Among those were the following:

With a VDU it is possible to have graphics, animation, complex and detailed pictorial representations. Objects and processes which a teacher may have difficulty in explaining or representing with any accuracy, can now be shown quickly and clearly.

Complex calculations can be made out quickly and accurately, and this allows the teacher and the pupil to concentrate on the underlying ideas, processes and concepts. These are the important things and often, in the past, the need to perform complex calculations bored them out of sight completely.

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The micro-computer arrives

About ten years ago small stand-alone independent computers began to appear. These were based on the use of microprocessors and so were small enough and stable enough to be carried around and still be used as genuine computers. The early machines were called PET (produced by Commodore), APPLE (produced by the Apple Corporation) and TANGENT (produced by Radio Shack). They were all completely different in various ways, but had enough in common to be described together. All of them had the following features:

- a keyboard, rather like a typewriter. This is used to input programs and data.
- A monitor or VDU (Visual Display Unit) on which words, numbers and pictures could be made to appear. This can be called an output device.
- A tape recorder (later often replaced by a floppy-disk drive) to be used to save and recover programs and data. This is described as 'off-line' storage.
- The actual computer itself had three components (among others) which will be referred to here:
  - A CPU (Central Processing Unit). This is the microprocessor or 'brain' of the whole system. Everything else is built around it.
  - Memory, to be used by person in any programmes, etc. This is called RAM and, to begin with, most small computers had a maximum of 64 KBits.
  - Another 256 K of Memory is possible, making a total of 488 BB effective. However, on most micros this second 256 K is used by the people who design the machine to hold such things as an Operating System (OS) and a programming language—usually the language BASIC.

This means that the memory area used for direct storage by the user is called ROM (Read Only Memory) because the user can use the OS and the ROM, but cannot change them.

There are, of course, other features but these are the main ones, and between them give some impression of the make-up of a small computer.

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The response of the Government

The response of the Government was to act on two different fronts, as follows:

(a) Resources were made available to ensure that, in the first instance, a secondary school in at least one county would add a micro-computer. Later, when this task was almost complete, the plan was extended to primary schools. As a result of this, every school in the UK now owns at least one computer.

(b) A national reorganising body called MEP (Micro-electronics Education Project) was established to provide education authorities with all the aspects of the use of microelectronics in schools. The details of this are described below.

Reasons for the response

All of this activity and hence was caused by the situation where the world is moving rapidly into a computer age. Computers are now being used in all aspects of daily life. These range from small things like calculators, digital watches, computers to large enterprises like the new Air India Computer System which was officially opened in 6th June 84. In the UK and other Western countries like the USA, Germany, France and Japan, all aspects of manufacturing industry are becoming computerised, many of them using robot techniques. To commerce and service industries the process of communication, distribution, secret-keeping and business management, generally, are almost all now using computers. Even agriculture is not an exception. This...
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Hindu (17 Jun 69) reports that in Shanghain in China peasants are using a microcomputer to help them irrigate paddy fields.

Perhaps the most important lesson of all is the view that we see in the present era as the end of the era of computing in the UK. The Government of Japan is so convinced of this that it has set up a committee to re-examine the situation in the UK. The committee is expected to report in 1970. As a result, the future of the UK is likely to be decided once and for all in the next few years.

Enabling Strategies adopted by the Government
(a) First, the ministry of education and science will be set up to guide the development of information technology, and it will also be responsible for training teachers in this area.
(b) Establishment of a comprehensive curriculum for computer science education. The ministry is also likely to establish a national computer center.
(c) A new vocational training program will be set up to train teachers in the use of computers.

Aims and strategies of MEP
The aims of this program are to provide all students with the opportunity to learn computer science.

- Computer literacy for all: The program aims to ensure that all students are exposed to computer science education, to prepare them for future employment.
- Computer science education: The program aims to provide a comprehensive curriculum in computer science, to prepare students for future employment.
- Computer science research: The program aims to support research in computer science, to advance the field.

As a result of this the bid would be to say that the UK is becoming a computer-based society.

The pitfalls and the difficulties
- The most obvious difficulty has been the production of software. This has taken a very, much longer than expected and teachers have become quite frustrated waiting for it.
- Software that is written specifically for one machine may not work on any other. Even though the UK government has tried to standardize the machines that are used, this is still a real problem.

Hardware development has moved a long way since the programme began. Machines now available are much more sophisticated with such things as built-in floppy disk drives, up to 1000k of RAM, hard drives capable of holding as much as 40000k, very fast storage and retrieval times, very high-resolution graphics, built-in telephone modem and so on. Eventually, it will be necessary for schools to update their hardware, and there will be problems with existing equipment.

Most of the software that is available is based on old-fashioned and out-of-date models of learning such as note-taking and a lot of drill and practice. This is also changing, but it can be a quite a problem to begin with.

If asked to sum up the difficulties I would say that, things are happening much more slowly than we anticipated.

The Future
- The new technology changes at great speed and so it is very difficult to make predictions. However, the following is likely to be true: Computer science education is of great importance for education over the next few years.

- Hardware is continually becoming cheaper and computer bills are getting more and more computer chips are being produced with more and more computer chips are being produced with more and more reasonable place.

- The interface between the machine and the human is becoming easier and easier and easier. It means that it is becoming easier for everyone to use computers.

- Information technology will become more and more important.

- Communication systems in the form of networks will become widespread and the dissemination and acquisition of all sorts of information will be possible from your office, your home and your classroom.

Conclusion
Schools have a duty to begin to prepare students for the new world. It is not enough to make sure that students are taught to think, to make them understand the human side of computers. It is important to ensure computers have a positive role to play in society. It is also important to train teachers in the use of computers. These are the key points of the argument. However, there are still many gaps in our understanding of how computers can be used effectively in education. It is important to continue to research and develop new methods of teaching computer science.
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You’ve always referred to the Computer Maintenance Corporation as CMC. But that’s not why we’re making it our official name.

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**Book Review**

**Title:** Understanding Data Base Management

**Author:** Dr. Navne Prakash

R & D Group
Computor Maintenance Corporation Ltd.
Hyderabad

**Editor:** T. R. Reddy

**Pages:** 214

The motivation for writing a book and the conclusion reached in the first presentation of Data Base Management that the author has adopted, it would not be out of place to include amongst the audience, anyone curious enough to know what Data Base Management is all about.

The first two chapters, occupying 43 pages of the text, initiate the technically innocent into the world of information modelling. This approach adopted by the author is based on the ANSI/SPARC/INFORMS Study Group's notion of the DBMS as a tool for modelling the real-world. Two views to modelling the real-world are considered, thereby bringing out the nuances of the abstractions involved. The problems of conceptual database design are then addressed. Two formalisms for specifying the conceptual scheme, one each for the 2-concept and 3-concept approaches form the basis.

Progressive normalization of the conceptual scheme from the first Normal Form (1NF) through the Fourth Normal Form (4NF) is the content of the fourth chapter. The chapter ends by bringing closer to the computer aspects of DBMS as is the end of Part I of the book.

One lesson behind Part I of the book is that the construction of a database involves a trade-off between the conceptual model and the real-world. The details of the trade-off are presented, which then form the basis for understanding the data dictionary.

Chapter II of the book initially deals with the representation in the computer of the normalized DB schema. Chapter IV by way of introduction to Part III...
Cochin
Computer and Communications
Dr. Nanda Menon of COMSAT Corporation, USA, has given an interesting talk on "Computer and Satellite Communication Systems" at a technical event held in the Physics Seminar Hall of the Cochin University on 9th July, 1984. Dr. Menon explained various aspects of data communication using satellite and highlighted the type of research work going on in this field. The meeting was well attended. Earlier the Chairman Mr. R.K. Pillai welcomed the gathering and introduced the speaker.

Talks on Computer Engineering
Computer Society of India, Cochin Chapter, Indian Institute of Industrial Engineers, Keral Kanda and Kerala State Productivity Council jointly organised a talk on "Computer Engineering" by Dr. Konda Veer, Adviser, Engineering IBM, California at the Productivity House on 13th July, 1984. The talk emphasised the scope of use of computer technology in the US and condoned how India in IT do not absorb this technology as in an appropriate way we are likely to lose in the race. He stressed that the overwhelming use of microprocessor in US during the last few years the employment opportunities that has shown manifold increase. Mr. T. Gopalakrishnan, Finance Adviser, KSPC presided and Mr. R.K. Pillai, Chairman, introduced the speaker. In spite of torrential rain more than 60 people attended the meeting.

CSE Systems Analysis and Design
Chapter organised an eight week evening course on Systems Analysis and Design in the month of April/May, 1984 for the benefit of its members and was a great success and 25 participants attended.

Micro Computer Workshop
Computer Society of India, Cochin Chapter and the District Council for Child Welfare, Ernakulam, jointly organised regular "Vimpelet" appreciation and BASIC programming course for school going kids in the age group of 10 - 15 years. For this purpose a group of micro-computer based chips was set up. A graphics personal kit has been developed, so various aspects of the micro kit has been displayed and a colour TV is used. The user's own pattern recognition capability can utilise it and extract significant information from the simulation results. The user interface consisting of hierarchical command system and is both easy to learn and easy to use.

Computers in Schools
Four city schools were foremost and have bought the guidance of Computer Society of India, Cochin Chapter, for forming Computer Clubs. Cochin Chamber has formed a sub-committee to guide the activities of these teams. It is proposed to arrange computer appreciation programs, to visit computer installations, inter-school quiz competitions etc. activities of these school computer clubs with a student programme.

Student Chapter
Student branch of the Cochin Chapter is very active.

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HQ News

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NSTPC – VI (1984)

“Ashok Kumar stood 1st in the NSTPC – VI exam held in April 84.”

The NSTPC for the year 84 was a whirlwind exercise, encompassing practically, all facets of COBOL programming. It not only covered the range of all the verbs but had stress on the concepts behind the language like structuring, looping, reports etc.

Even though I had cleared the test with adequate tempo, I found it tiring and quite demanding. The objective test required a very thorough understanding of the language. Some of the multiple choices were so close to each other that I had to draw upon all my experience to make the appropriate choice.

The success rate of only 0.5% this year, has once again proved the high professional standards maintained by C.S.I. for the test.

I also felt that the response to the test was probably a little lower than probably due to lack of appropriate publicity. In order to increase the response and to attract more respondents, I feel, there should be some advertising in the local news papers and there should be some motivation scheme for people who qualify with distinctions e.g. full sponsorship to the next C.S.I. convention for such candidates. This promotional scheme should also be advertised to make the test more attractive for prospective Programme.

My preparation for the test has been my experience on the job for the last 4 years and certainly my academic background. The low success rate in the test makes it quite obvious to me that what was required was a successful application of the knowledge acquired and that the quality of experience one has, assumes great significance. Thus an inexperienced person would find it difficult to attempt.

COBOL, Programming and System Analysts have been a lucrative business of the 80’s. Many “so-called businesses” have mushroomed during the last few years making it impossible to differentiate between the good and bad. The costs of these courses are very high. This test can be made as an indicator for finding out the intrinsic value of these courses. Because if such methodology go unchallenged, then they would be clearing out mediocre talents yet another year, thus slowing down considerably the pace of Information processing in the country.

My objective of taking this test was self-appreciation and finding out where I stood in relation to others. Finally I would like to say that this test has been a very satisfying experience as far as I am concerned. I would like to take this opportunity for thanking the organizers of the test for reducing my self-confidence and also giving me chance for improvement.

ASHOK KUMAR

“CAREERS AND PROSPECTS”

Booklet from CSI

A new booklet written by Professor P.V.S. Rao, E.C.I., Education, and Awards Committee of the Society is now available for sale from the CSI Office. This booklet answers most of the common questions that are asked about job opportunities in the Computer field in India and provides a systematic and detailed checklist for people intending to take computer courses that are offered by various agencies. This booklet is expected to meet the long-held need that CSI should provide some advice to the large number of job and course — seeking youngsters and their parents who are very often misled by their ignorance by catchy advertisements. This brochure is priced at Rs. 10. (Payment by Postal Order only.)
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