

The International LOGO

E X C H A N G E
The Newsletter for Logo Users Around the World

Volume 1 Number 1

FORWARD 100!

January 1986 Page 1

Welcome to the ILX !

A small group of about 60 educators from around the world gathered late one afternoon in the Summer of 1984. The meeting was an unscheduled special interest group session held during the Logo 84 conference at MIT. Speakers from 26 countries took the stage and described Logo activities in their nation. Many spoke in broken English and some required translators (Seymour Papert for the French speakers), but the experience moved all who were in attendance and opened up their eyes to the world. It was agreed by those present that that a clearinghouse of worldwide Logo activity was necessary and that a newsletter would help educators around the globe move FD 100.

It was with this meeting in mind that the seeds of the International Logo Exchange were planted. Many phone calls, meetings, letters, and eighteen months have passed and the results of those efforts have begun to yield the fruit you see in this newsletter. The high caliber of the ILX continental field editors is evident, both in Logo experience and the quality of their columns. The editors have equally competent country and regional editors supplying them with information. However, this global network is a long way from being complete. I hope that all of you reading this newsletter will become nodes of the network and also encourage others to become nodes as well.

The ILX has big plans for the future. You can imagine that there is much more Logo information gathered than can be placed in such a small newsletter. With increased subscriptions, we will be able to expand to a bigger, more informative publication. In addition, the ILX hopes to be able to provide Logo contacts for visitors to various countries throughout the world. An international Logo bibliography is being prepared to provide ILX subscribers a list of books, research, articles, and aids along with the country and language of origin. The ILX will be investigating the possibility of translating important Logo works into other languages.

The ILX is well on its way to providing International Logo Tours for Logo educators. A 1986 tour to Iceland and the Netherlands is already finalized. See the ILXtra for more details. Dan and Molly Watt are researching for an ILX tour to China in 1987. Other tours in the works are West Africa, Australia, Argentina, Israel, Soviet Union, Mexico, Singapore / Malaysia, Japan and Bulgaria / Hungary.

Future issues of the ILX will contain feature articles on specific countries. I recently returned from a two week lecture tour of the Soviet Union and my impressions on the state

of Logo in the USSR can be found in this issue's ILXtra. It seemed only fitting that the Soviet Union be featured in the inaugural issue of the ILX since it follows so closely the Geneva summit meeting. Maybe both events can help bring the world a little closer together.

This initial issue is far from perfect and your constructive suggestions and ideas would be appreciated. Please send any correspondence to your continental director's address which appears in the masthead of each column or to me at the address on page 8.

I would like to thank all the charter subscribers who made this publication possible. The number of people who subscribed even before this first issue was mailed is a tribute to the publisher and editor of the National Logo Exchange, Tom Lough. Tom's respect among the Logo community grows by the day and his infectious enthusiasm has touched many throughout the world. Thank you Tom, and also thanks to all the Logoites around the world who helped make this dream a reality.

From the Publisher --- Welcome to *The International Logo Exchange* newsletter! We are pleased to greet you as our charter subscribers, and hope that you will find this global Logo network project as exciting as we do! Dennis Harper has assembled an outstanding group of field editors who will bring you Logo information from all parts of the world. Also, Dennis is planning many other ILX activities, including educational tours to many parts of the world, and will be publicizing them in these pages. So stay tuned!

The richness and diversity of the world's cultures have always fascinated me. When I sensed the opportunity to blend this interest with my Logo publishing (I founded *The National Logo Exchange* newsletter in 1982), I could not resist the temptation. I count it a special privilege to be involved with the establishment of an international Logo network with such unlimited potential. Thank you for sharing in this dream!

Please keep us posted on your Logo work. Send information regularly to your continental field editor. Let us know your suggestions for improvement and change. Together, we can have a positive influence on tomorrow's world. FD 100!



Latin America

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This month's Latin American Column looks at Logo activity in Uruguay and Chile.

URUGUAY - "Centro Logo" is a department for research and development of applications of computer science to education. It is a department of the "Escuela de Informatica," which has been operating for two years. The functional structure involves the development of technical research studies, complemented by observations and field experimentation. Among the objectives of "Centro Logo" are the structuralization and implementation of study plans and programs for the training of Logo teachers and the development of child-oriented working plans and progress.

Logo research with children ranging in age from 9 to 15 emphasizes methodology as well as obtaining data on the children and their development within their environment inside the family, at school, etc. "Centro Logo" works extensively with teachers and parents making appraisals of the group's work, showing projects completed by the children and encouraging the exchange of views and experiences.

An interesting result of the first year's work was the observation of a predominant fantasy regarding the "intelligence" of the machines. In order to avoid this erroneous attitude, on the second year of the experience, the group modified the work of the first classes, introducing discussions and programs in the computer that would lead the children to realize by themselves that computers "are not intelligent."

An extensive teacher training program in Logo involved two years of training that included the areas of syntax, theory, mathematics, language, preschooling and learning difficulties. One two-year cycle is now complete with 35

graduates and an equal numbers of students are now starting the second course. Many of the first graduates are being incorporated into the staff in a gradual manner.

Chile - In 1982 when Logo was available for the Apple II, an educational psychologist and educational computer consultant, Gustavo Jimenez, who had attended a conference by Seymour Papert, started using Logo with children who had learning disabilities. His experience proved so stimulating that he started a children's club to teach Logo (Club Melito).

By this time microcomputers were just starting to make an impact in Chilean homes and some schools. CAI was not ever implemented in Chile, therefore it was easier for Logo to be established and gain influence. Shortly thereafter another psychologist, Ms. Alejandra Rojo, joined Mr. Jimenez's pioneering efforts in experimenting with Logo and teaching it to children and teachers in a private setting.

When *Byte* magazine reviewed Logo in 1982, several Chilean microcomputer users became interested in Logo. The most far reaching interest came from Mr. Victor Araya, who translated the Apple Logo into Spanish (he called it MDS Apple Logo). By 1983, there were at least half a dozen university researchers (mainly engineers and math teachers) who were exploring Logo.

The first Logo Congress in Argentina in September, 1983 had a catalyzing effect for its development in Chile. Two months after the Congress, the Chileans organized a Seminar on Logo which was attended by teachers and researchers. At this seminar, it was possible to assess that Logo was largely viewed as a computer language for children, and turtle geometry was seen as its main capability. The only programs with a sophisticated use of list handling were made by Mr. Jimenez and Ms. Rojo. There has been no regular teacher training courses in Logo, but Jimenez and Rojo have occasionally taught Logo courses.

There are currently four schools in Chile teaching Logo on a regular basis: two of them in English (International Preparatory School and Santiago College) and two in Spanish using the MDS Apple version (Instituto Hebreo and Colegio Sagrados Corazones de Valparaiso). Two more schools are about to receive teacher training in Logo.

Since 1983 a regularly published newsletter entitled "ANDES" has appeared for the educational community. This publication reviews Logo topics, programs, and theory. Logo has been reviewed favorably in the Chilean computer magazines and there exists an open attitude. This last summer a public course in Logo was attended by nearly 200 people. One of the major TV channels of the Catholic University is beginning a course in Logo. This TV course is using the Spanish MDS Apple Logo and will reach the major cities comprising about 50% of the population.

Public education in Chile depends mainly on the Ministry of Education. This ministry has shown interest in Logo and it is possible that they may fund some projects at schools.

Further information on the Chilean Logo experience or MDS Apple Logo can be obtained from: ANDES, Center for Research in Education and Technology, Victoria Subcaseaux 201, Santiago 1, Chile, South America.

So much is going on in South and Central America that it will take a few issues of the International Logo Exchange just to scratch the surface; however, the above discussions on Chile and Uruguay indicate that enthusiasm and dedication are beginning to reap rewards.



Australia
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The first Australian Logo conference, "Logo in Australia: Ten Years On," was held in August 1985. The conference was arranged by the Computer Education Group of Victoria and held in Melbourne. Attendance was limited to 60, and participants included educators from pre - school to college and university levels.

The conference opened with a brief history of the use of Logo in Australia, beginning in 1976 in the small island state of Tasmania, where Sandra Wills from the Elizabeth Computer Center took into schools a robot turtle and a PDP/11 version of Logo in which the turtle left a trail of asterisks on a teletype terminal. Several local versions of turtle graphics for microcomputers were written before Seymour Papert visited in 1981, bringing MIT Logo for the Apple. Other developments included the design and manufacture of the Tasman turtle robot and production of several Logo books by Australian authors. Logo is now widely used throughout the country, with research and development work going on in many schools and colleges and in several universities.

MIT professor Hal Abelson was the keynote speaker for the conference. He worked very hard, giving four presentations in the two days. Two of these were thought-provoking papers entitled "Procedures as General Methods" and, co-authored with Gerald Sussman, "Computation: An Introduction to Engineering Design." Hal also gave a presentation on Boxer, and a delightful after-dinner reminiscence about his early days working with Logo at MIT. Meeting Hal and hearing him speak was a great experience for the participants, many of whom felt they already knew him well through his books.

The other international speaker was David Squires from the University of London. His presentation led a group of papers on microworlds. David has developed a definition for microworlds which aims to assist software designers. His paper, "Designing Computer Based Microworlds," co-authored

with Royston Sellman, described a Balance microworld designed using the definition. David demonstrated the simple Balance Turtle, and described a more complex Field Turtle microworld on which he is presently working.

A more theoretical approach to microworld definition was presented by Tony Adams in his paper, "Towards a Theory of Microworlds," and some interesting comparisons of his "essential properties of a microworld" with the Squires definition emerged. Liddy Nevile, in "Some Comments on Logo After Ten Years," emphasized the importance of metaphors in microworlds for learning, and described a microworld for "messing about with list properties and recursion."

The use of Logo in various curriculum areas was discussed. Colin Fox in his presentation on "Logo, Microcomputers and Mathematics," demonstrated programs students might write for graphing, palindromes, and other topics in conventional mathematics courses. I presented my recent work on "Teaching and Learning About Recursion." Carolyn Dowling, in a novel approach to "Logo and Language Development," discussed gaining insights into natural language by comparison with Logo as the latter is learned.

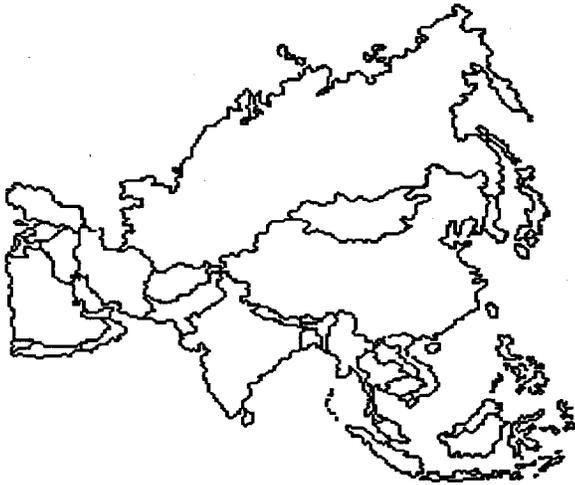
The learning of programming was considered in two papers. Val Clarke advocated a teaching approach giving students tool kits of pre-written procedures designed both to develop specific skills and to provide examples for study and exploration. In her paper, "Logo Tool Kits," she showed programs in the area of turtle graphics and language development designed to be used, examined, and modified by students. Sue Chambers in a presentation titled "Cognitive Components and Mechanisms Underlying Children's Acquisition and Transfer of Logo Programming Skills" showed statistically significant evidence that there are grounds for the claims that Logo experience promotes development of general skills as well as the skills of programming.

Logo use over a wide range of age levels was discussed. Pauline Adams described her work with 3- and 4-year-old children in "Various Computers in the Kindergarten." She dispelled myths of computers dehumanizing young children with her accounts of "active children, thinking, solving problems, talking and working together." Jeff Richardson, working on a theme of autonomy in learning, related experiences of a Grade 1 classroom and with Aboriginal children of primary-secondary transition age. At the adult level, papers by Tony Jones, "Logo in Preservice Teacher Training," and Peter Carter, "In Four Easy Lessons," outlined teacher education courses using Logo.

The conference papers can be obtained for AUS\$ 17.50 (including postage) from the Executive Officer, Computer Education Group of Victoria, P.O. Box 88, Balaclava, Victoria 3083, Australia.

Logo 86 Announced

Logo 86, the third annual international Logo conference, will be held July 9 - 11, 1986 at MIT. Activities will include major speakers, presentations, poster sessions, and special interest group meetings. Papers outlining major features for presentations (not more than 3 pages) or poster sessions (not more than 1 page) should be submitted by March 1, 1986 to Brian Harvey, Logo 86 Program Chairperson, MIT E15-309, 20 Ames Street, Cambridge, MA 02139 USA. Plan now to attend this significant Logo event!



Asia

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At the World Conference on Computers in Education (WCCE), held in Norfolk, Virginia this past summer, one full day was devoted to Logo, with one full session to Logo in Asia. For those who were not able to attend this session, I would like to use part of the WCCE material for the first few columns to review the present situation of Logo in Asia. I will begin looking at China, Hong Kong, and Taiwan.

People's Republic of China

Computer education in China seems to be just starting. The WCCE conference was viewed as an important information gathering event. About 15 educators from China attended and then traveled to different centers in the U.S. to get a wide perspective on computer uses in education. Logo was known to the members of this group and they expressed disappointment at not being able to attend Logo 85 due to scheduling difficulties.

In China, two experiments with Logo have been in progress since 1984. The first one is within the regular school system at a few selected primary and junior high schools. The second one is within the Children's Palaces. The Children's Palace concept was started in the early 1900's by Madam Sun Yat-Sen, the wife of the founder of modern China. Since that time, these palaces have been locations where children go after school to study music, art, dance, modeling, and recently science and technology in a more relaxed and playful surrounding than the formal classroom. It seems an ideal place to introduce Logo. Few experiments are taking place, but it is hoped that Logo will be introduced in more areas in the coming year. It appears that the atmosphere necessary for learning Logo is present and we hope that discovery learning will take root and spread throughout China.

Future plans for Logo in China are the development of an Association of Logo teachers, training tutors of Logo for Children's Palaces, working with high school teachers to

introduce them to Logo, and tutoring in the Teenage Computer Education Centers which are springing up. For more information contact Professor Wang Jiquing, Institute of Educational Technology, East China Normal University, Shanghai.

Hong Kong

Hong Kong probably has the most active computers in education program in Asia. A serious computer literacy program was begun in the secondary schools in 1982. However BASIC is the language which is studied in Form 4 (roughly equivalent to 3rd year high school).

Government schools are just now beginning to explore the use of computers in curriculum areas (science, math, language, and so on) and it is expected to be a few years before younger students (below high school) get to take part in computer activities.

Logo has some support in the Island School, a British school that has been teaching Logo in an elective class to students (13-14 year olds) entering secondary school. In the Hong Kong International School, however, Logo is the "major focus" of the computer program for kindergarten through eighth grade.

There are also private commercial computer schools which work with children of all ages and they have been "at the forefront of bringing Logo into the Hong Kong community."

The major question that creates action in the education area in Hong Kong is, "How can XXXX help my child be an academically successful student and later be a financially successful person?" Word processing, data handling, and telecommunications all fit into the needs felt by people; Logo and other ways of having a more playful discovery environment are usually seen as an educational frill, so it will take much education of the public to begin to change this idea.

Taiwan

In Taiwan the center of Logo activities is the Teacher Training Institute in Taipei City Junior Normal College, where four activities are taking place:

1. The Basic Concept in Computers course teaches Logo as the main language.
2. College Computer Society introduces interested members to Logo.
3. Teachers get experience doing practice teaching in Logo.
4. A teacher of this Normal College, Wand, C.D., had written a Logo book entitled *Logo and Children's Learning*.

The other activity which was reported concerned a high school physics teacher, Chang, J.F., who has put together a 22 page booklet entitled "Reflection, Reflection" to help his students understand about light. In this booklet, Mr. Chang uses his own Logo program as a tool to help his students.

I am sure there is more activity in these countries than I have reported. I want to encourage all readers in Asia to support this bi-monthly space by sending in reports of any Logo activity in your country. The ILX is a beginning effort which, like all beginnings, has the potential which can either grow into something significant or it can wither and fade into nothingness. It will only be our combined efforts that will make the difference.



Europe

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Logo Goes European

Even though Europe consists of many countries, each with its own culture, language, and education system, still, Logo in Europe is beginning to be coordinated. The European Economic Community (EEC), has funded a pilot project, with the idea mainly of allowing Logo practitioners from various European countries to meet together and share their experiences. The first meeting of the Logo group was held in September and was hosted by the University of Gent, Belgium. The two-day meeting was attended by representatives from Belgium, England, France, Holland, Ireland, Luxembourg, and Italy.

Apart from the chance to meet informally in one of Europe's most beautiful cities, the meeting provided the opportunity to take stock of the current situations around the continent. We learned, for example, that France has recently included Logo as one of the required components of its elementary school education; that Logo is officially recommended for use in Dutch primary schools, and that the UK schools 'Inspectors' have suggested that programming (in Logo - or BASIC!) should be taught in mathematics classes if it is not taught elsewhere in the curriculum. In most European countries, Logo exists thanks to a few dedicated enthusiasts. There are small seeds throughout the continent which show signs of germinating in the not-too distant future.

By far the most overwhelming problem facing us is that of teacher education. How, for example, are French teachers going to cope with the compulsory introduction of Logo into the curriculum with a five-day training session - and even that only partly devoted to Logo? One answer was suggested by

the Belgians, who are working on the production of resource packs for teachers. This is a real challenge; how do you help people to learn to teach Logo in the Logo spirit? We spent some time discussing this issue - one of the potentially most exciting outcomes of the meetings was the possibility for collaboration on this activity. Also, if the idea works out, there's a chance the EEC will finance its translation into a range of European languages.

The next meeting will be held in 1986, with additional representatives from countries who are about to join the EEC (Portugal and Spain), as well as representatives from those countries which were not represented last time.

Bridging the Divide

It looks as if Logo is managing to transcend the traditional political barriers between Eastern and Western Europe. A fascinating project has recently been started in Bulgaria. Based at the Research Group in Education (RGE) at the Bulgarian Academy of Sciences, its aim is nothing less than the reform of Bulgarian education by stating that "training in informatics should be considered as an integral part of the education process as a whole." As an example of what integration means, a new school subject, "Language and Mathematics," has been developed; for the first time a foreign language (English) and programming language (Logo) have been included as companion subjects. The prospects for the project - which at the moment is experimental - are summed up in a recent paper by the Sophia group:

"Seymour Papert states that his objective is not to improve the existing school but to create a new type of school. It might be that the school he sees in his dreams resembles the schools of the RGE system."

Scots go BK 100

COMAL is to be the officially recommended programming language in Scottish secondary school computer science courses. This decision has been made by the Scottish Joint Working Party on Computing Studies, who dismiss Logo on the basis that:

- Many versions offer only fixed loops
- It does not offer a range of data structures
- It has limited numeric range

These "reasons" indicate their ignorance of Logo as a programming language. This is difficult to excuse in Scotland which, for many years, was the centre of the British Logo scene. Ken Johnson of the Artificial Intelligence Applications Institute in the University of Edinburgh has strongly attacked this decision, saying that "COMAL is obsolete, it was never at any time taken seriously in computer science departments, and everyone with a working knowledge of Logo prefers Logo". In addition, he argues that "COMAL is being rejected abroad." Unfortunately, this type of uninformed decision from a group of powerful administrators has serious implications for the use of Logo across the curriculum. Rightly or wrongly, computer science departments are still the focus of computer use in secondary schools. A generation of Scottish children will be subjected to dreary programming exercises alienating all but a few (mainly male) enthusiasts from the subject. As a worldwide Logo community, we need to push the arguments in favor of Logo in the non-Logo world. Otherwise we can only blame ourselves when powerful examination and school-boards "decide against" Logo.



North America
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 Canada

For me, the scene was set at the Logo 84 Conference. In the closing session, conference participants expressed the strong desire to reach out to the wider Logo community around the world to share ideas, experiences, and information. In some ways, the participants were quite diverse: teachers, school administrators, educational researchers, hackers, and many who could not be categorized; but most were (North) American, white, middle-class, and middle-aged.

In a sense, the ILX was born of this desire to help foster a world-wide Logo community, and so it seems particularly appropriate to report on some of the recent developments in North America which have tried to bridge the gap of space and culture.

Logo 85

Logo 85 was successful in bringing together a more international group of presenters. We heard reports on the current state of Logo activities in Australia, Brazil, England, France, Guatemala, Hungary, Israel, Japan, Mexico, The Netherlands, China, Senegal, Iceland, and Spain; there were attendees from quite a few other countries as well. Paradoxically, I felt that the group was more homogeneous in other ways: a number of the diverse elements present at Logo 84 were absent, and the proceedings were somewhat more mature, more staid. Still, it was an exciting conference, with too many high points to describe in detail. I was particularly taken by several student talks (students of Paul Goldenberg and of Tom Lough), and by the presentations of David Thornburg (Advanced Projects in Creative Design), and Paul Goldenberg (On Being Creative).

I also saw a fascinating demonstration of the Logo-Lego Project at MIT. Lego, a mechanical building set like Meccano and Fischer Technik, has motors and switches which

can be used to build all sorts of wonderful devices. A simple computer interface and a few Logo procedures allows these devices to be controlled in Logo, which opens many new possible areas of Logo exploration.

The proceedings of the Logo 85 Conference are available for US\$15. Write to: MIT Laboratory for Computer Science, Cambridge MA 02139, USA.

WCCE

Following close on the heels of Logo 85, the World Conference on Computers in Education took place July 29-August 2 in Norfolk, Virginia, USA. Of particular interest was a full day session of presentations on the theme of *Logo on the Six Continents*, organized by the ILX, NLX, and ICCE. Presentations by Isadore Ngosso Nkakey (Cameroon, Africa), John Wood (Britain), Anne McDougall (Australia), Bill Higginson (Canada), Ricardo Nemirovsky (Mexico), and Hillel Weintraub and Hiroyoshi Goto (Japan) gave the attendees an excellent opportunity to compare Logo activities taking place in different social, cultural and language communities. We talk more and more these days about the "Logo Culture," to mean the total learning environment among students and teachers in the classrooms. But this session at the WCCE brought home to many how important the larger culture is in determining how the tools of technology in general, and Logo in particular can be used in education. It was an unusual opportunity to appreciate the successes and problems of using Logo in different cultures. The session was wrapped up with presentations by Brian Harvey and Sylvia Weir on some of their new directions in Logo.

There were several other Logo sessions too. J.A.M. Howe described some interesting secondary school microworlds developed in Edinburgh, including a Logo version with interfaces to real-world devices like motors and switches, similar to the Logo - Lego project at MIT. Mike Sharples from Sussex described some interesting microworlds for language exploration.

The conference proceedings, "Computers in Education," K. Duncan & D. Harris (eds.) are published by Elsevier Science Publishers (ISBN 0444 87797 5), 52 Vanderbilt Ave., NY, NY 10017, USA or P.O. Box 1991, 1000 BZ, Amsterdam, The Netherlands.

On-Line in Paradise

By far the most ambitious and novel international conference to date was the World Logo Conference: On Line to Paradise. The WLC, organized by Gerri Sinclair and Sandy Dawson of Simon Fraser University, Vancouver, British Columbia, Canada, combined an on-line "multilog" of participants from over 30 sites in eleven countries (conducted over the CompuServe Network), with on-site presentations by a score of Logo notables.

A series of invited papers were filed in a Logo Forum on CompuServe, organized by Jim Muller. An on-line agenda gave times when remote participants could discuss each topic with the presenters. As you might imagine, the electronic traffic became slow at times and the fluency of the discussion decreased as more people had something to contribute. Still, quite a few had never tried electronic communication before, and felt a strong sense of belonging to a global community of Logo interest.

This sense of community was expressed by the on-site participants, also, as they enjoyed the mixture of social activities with working sessions and on-line discussions. All in all, the WLC was an exciting and very well organized event, and the organizers are to be commended. If you missed the WLC, don't despair. You will find all the material and more in the Logo Forum of CompuServe.

Stay In Touch

Conferences are exciting. You meet new people and new ideas, attach faces and personalities to names of people whose work you've read, and perhaps build a new friendship or working relationship. But these opportunities are too few and far between (not to mention too expensive). Our hope is that the ILX will help you bridge the gap and stay in touch with Logo developments around the world.

But you can help too. Send me your thoughts on this column, and on Logo activities in your neck of the woods that you think would be of interest to our readers. If you have access to any of the large computer networks (e.g., ARPA, UUCP, CSNET, BITNET, MAILNET, etc.), you can send E-mail to FRIENDLY@YORKVM1 on BITNET. I will shortly set up a CompuServe account for the same purpose.



Africa

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While gathering information about other African Logo projects, I will present the one I know the best, the Senegalese Logo research project. As director since 1982, I believe that painting the landscape of the project will help ILX readers understand some of the objectives and the results.

Senegal is a third world country located on the north-west coast of Africa with an estimated population of 6 million.

More than 80% of the population is Moslem and although French is the official language, Senegal counts different ethnic groups with their own native languages: the Wolofs, the Pulars, the Sonikes, the Sereres, the Mandings, the Diolas, the Maues, and the Lebous.

Only 10% of the population is literate. Among the young people, 44% are registered in primary schools, 10% in secondary schools, and less than 3% in colleges. This shows the large dropout rate in Senegal.

CURRENT STATUS OF COMPUTERS IN SENEGAL

In the cities, people are using technological tools such as the television, radio, video tape recorders, cars; one pushes the button and the television or the radio goes on. If the engine starts, it is fine. If not, he or she takes it to the engineer who will fix it. There is nothing wrong with this as long as the local engineers are employed. But if the foreign manufacturers don't teach the indigeneous people to understand how these tools work, there will not be any improvements on foreign tools and no means to adapt foreign technology to the needs of the Senegalese.

This problem is serious with technologies which are used passively. With a more aggressive technology like the computer, the need for cultural sensitivity is perhaps the dominant issue in determining ultimate success. Thus, in an attempt to avoid the mistakes of the industrial revolution, the Senegalese have been developing computer science projects as a research field.

The Logo research project "COMPUTERS IN EDUCATION" is one of these projects initiated by the government to focus on the use of computers in Senegal.

PRESENTATION OF THE SENEGALESE LOGO PROJECT

In December 1981, the Senegalese Ministry of Scientific & Technical Research decided to launch the project with the collaboration of the World Center of Paris and Professor Seymour Papert. The project started in March 1982 after one month training of a Senegalese team consisting of two elementary school teachers, one child psychologist, one mathematician, one sociologist, and me, as a computer scientist. This team started the research based on the following objectives:

1. Acquaintance with the use of computers to facilitate their future integration in Senegalese activities.
2. Computer mastery by teachers and students.
3. Development of children's creativity.
4. Development of an adequate learning environment, efficient for both children and adults.

To achieve these goals, we are observing how young children from elementary schools of different social backgrounds use this technological tool. We measure the influence of computer use on the children's learning in school. We will evaluate the results of the experiments in order to outline appropriate use of computers in Senegalese education.

The evaluation of the project has three aspects:

- One is sociological and should answer the question, "How do children react to computers according to their social and economic backgrounds?"
- The second is about epistemology and should clarify "What and how can Senegalese children learn with computers?"
- The third aspect is related to psychology and pedagogy, but is concerned with policy. It should give an answer to the question, "How could computers be introduced in Senegalese schools?"

FINANCIAL RESOURCES

At present, ten people work permanently for the project: the six members of the initial team and four other elementary school teachers who joined the project one year later. All the researchers are civil servants; the laboratory and the experimental schools are also supported by the government.

The United States Agency for International Development (USAID) sponsored the training of the first team at Logo Computer Systems, Inc., in New York. The World Center of Paris provided 40 computers, gave to the present Logo team more advanced training in Paris, and about \$35,000. With the support we got from these organizations, we started our experiments.

THE EXPERIMENTS

We started with the initiation of school children between the ages of 8 to 11 and from different social backgrounds. We selected them from 4 primary schools in Dakar:

- One upper middle-class school frequented half by foreign French children and half by Senegalese children. There are 30 to 40 children per classroom in this school.
- One frequented by middle-class children and in which the average number of students per classroom is 85.
- A third one of middle- and lower-classes of children with an average of 85 students per classroom.
- And a fourth one frequented by lower middle-class children and counting about 100 children per classroom.

For these experiments, we selected ten children from each of the four schools, with as many girls as boys of various grades. One-third of them were judged excellent in their school system, one-third average, and one-third poor.

In the first step, we observed these children using Logo for a full school year in the laboratory. The results we found motivated us to do further research using new parameters such as implementing the computers in these four schools.

Results of the study indicated the following:

- Girls succeeded as well as or even better than boys in manipulating Logo and the computer.
- In the long run, the differences between social backgrounds did not affect the children's success in the use of Logo. During the first two weeks, children from upper middle-classes who were used to electronic toys had an easy first contact with the computers, whereas the others were intimidated by this new sophisticated tool. However, these latter children, once they got accustomed to Logo, succeeded as well as, or sometimes better than, the former ones.
- The Logo environment promoted sharing among children and this sharing improved the communication between them.
- Children were happy whenever they rediscovered mathematical concepts they had learned in their schools and showed better understanding of them.
- More than 80% of the children became more active in their school classes, asking more questions of their teachers when it was necessary. Unfortunately, sometimes, some of them were so active in class that they would give a hard time to the teacher.

I will be glad to talk about more focused research on the use of Logo by Senegalese people, such as research on gender differences and on women's literacy.

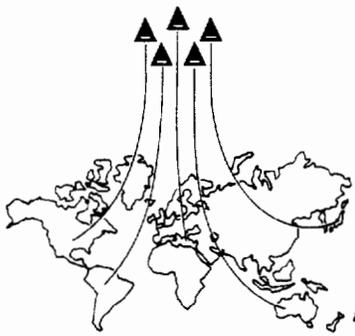
And the project is still going on with new research topics!

Logo Materials Available from England

Celia Hoyles, of the London University Logo Group, announces the availability of the following publications on Logo. All prices are listed in English pounds. *The Interim Report on the Logo Mathematics Project 1983-84*, £8.50 plus postage and packing (£7.06 for air mail or £2.10 for surface mail). *Proceedings of the Logo and Mathematics Education Conference, March 1985*, £5.00 plus postage and packing (£7.06 for air mail or £2.10 for surface mail). *Creating a Mathematical Environment through Programming: A Study of Young Children Learning Logo*, by Richard Noss, £10.00 plus postage and packing (£10.00 for air mail or £5.00 for surface mail). Celia Hoyles, University of London Institute of Education, Department of Mathematics, Statistics, and Computing, 20 Bedford Way, London, England WC1 HOAL.

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Editor..... Dennis Harper
 Publisher..... Tom Lough



ILXtra

A Supplement to the International Logo Exchange Newsletter

January 1986

FORWARD 100!

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BK to the USSR *by Dennis Harper*

This past August and September I led a group of American educators on a four-city tour to the Soviet Union. While there I gave six lectures on computer education and two on Soviet-American sport comparisons. The group visited schools, universities, and teachers' colleges. The giant Soviet Exhibition of Economic Achievement in Moscow had a huge Education Pavilion of which half was taken over by a computer education display. Computer education experts at the Pavilion took great delight at showing us teenagers working at remote terminals hooked up to Moscow University's mainframe. When I asked the director whether he had heard of Logo, he said no.

The best part of the trip was when my wife and I were on our own and would drop into schools unannounced. The faculty and staff were very friendly and eager to talk to us, but the idea of actually having even one computer in their school seemed only a dream. On the first day of school, Pravda had a cover story about kids returning to school and a large picture of two elementary school kids sitting in front of a computer. The article pointed out that computer education textbooks have been produced and 70,000 secondary teachers had been given computer training. The article went on to say that two microcomputers, the DVK and Agat, were being produced by the "thousands." However, while in Minsk, I saw one paper which pointed out that there would probably be only one computer for five schools by the year 1990.

The director of a teacher's college in Leningrad stated that a priority of Soviet education is now computer education. All student teachers were now going to be required to take a computer education course to gain their certificate. When I asked her who was going to teach the teachers or train the trainers, she replied, military engineers are scheduled to teach the courses. What computers would the teachers use? "While awaiting adequate supplies of computers, books and films will provide a theoretical basis of study."

The leading computer educator in the Soviet Union is academician Andrei Ershov. I had the privilege of first meeting Professor Ershov in Geneva in 1981. During our discussion, he continually praised the work of Seymour Papert and hoped for the day that many Soviet children were using Logo. Since that time he has developed a Russian version of Logo and has researched its use by primary school children. He has been a leader in the new awareness of the necessity of computer education. But even Dr. Ershov admits that the cost of implementing computer training and education in the schools would be "colossal"; millions of computers are needed.

Money is not the only problem. Communication about technological innovations is difficult, both internationally and within the USSR itself. A lack of competition does not foster a rapid increase in the quality of hardware and software. Little foreign currency is available for Soviet researchers to attend foreign schools or attend conferences. Many western countries are wary of giving Soviets AI languages such as Logo and Lisp (some make it illegal). What to do with the thousands of workers who will be replaced by a massive influx of computers will be a major sociological problem. How many people should have access to printers and modems?

The Soviet Union is beginning to grapple with these problems at the highest levels. The director of international cultural and educational exchanges told me he is more than eager to arrange exchanges between American and Soviet educators. They are happy to support an American teacher in the USSR if a university or school district will support a Soviet teacher here. After the recent Geneva Summit, this possibility is even greater. If any of our readers are interested in such an exchange, drop me a letter.

My overwhelming impression of the visit was that Soviet society and schools could surely use computers and Logo. How the computer revolution will affect the "revolutionary society" will be very interesting indeed. Stay tuned!

Dennis Harper has a graduate degree in international education and has observed or taught in schools in more than 100 countries. He is the editor of the ILX.



ILX Announces 1986 Iceland - Netherlands Tour

During the past year, numerous international Logo users have expressed an interest in hosting groups of Logo educators from the United States and Canada. The reasons vary from having speakers available at national conferences to showing visitors what they are doing and gaining feedback to just being able to talk Logo with experienced users. At least one tour (to Iceland and Holland) is definitely on for 1986, with another now at the probable level (see the next ILX). We feel that starting off slow is the best policy. If things go well, then we can expand to other countries in 1987.

The Iceland / Netherlands tour will be led by ILX editor Dennis Harper and will be directed by Anna Kristjansdottir in Iceland and Harry Pinxteren in Holland. Anna and Harry are two outstanding Logo educators who have planned an extraordinary tour which will include gala receptions, workshops and presentations, school site visits, dinners with educators, teacher training center visits, lectures, and of course, tours of the Icelandic and Dutch country side. This space can't begin to describe all the activities planned during this two-week tour.

All participants on the tour must be Logo educators (at any level) and be prepared to deliver one workshop or paper on Logo to our Icelandic or Dutch colleagues.

The educational tour will begin on August 11 and return on August 25. The full price for a New York departure (arrangements can easily be made for other cities) is \$1589, and includes all air fares, transfers, tours, hotels, 2 meals per day, and all educational activities. This price also includes an \$80 fee for three quarter units of graduate credit through the University of California Santa Barbara Extension. The tour is conducted through the auspices of Educational Spectrum, Inc. The bad news is that there is only room for 40 participants and some spaces have already been filled.

For more information please contact:

Educational Spectrum
188 Summerfield Street
Scarsdale, NY 10583
(914) 723-2242 (call collect if you wish)

This 'n' That

from the editor

I have received so much information from around the world regarding the international Logo community that I can only pass on some of it here...

- Ahmed Bu-Zebar attends the University of Oregon where he is studying for his Ph.D. He informed me that an Arab version of Logo will "soon" be ready. It is being produced by LCSJ and Al-Alamiah of Kuwait. Ahmed is from Kuwait and hopes to establish the Logo language as well as a Logo culture when he returns. He would like to encourage any reader interested in Arabic Logo to contact him at 1333 Oak Patch Road #77, Eugene, Oregon, 97402.

- *Learning Ukrainian with Logo* is a software development in Sprite Logo by Ihor Charischak. If you are interested in participating or would like more information, send for a free brochure. Ihor Charischak, Logo Computer Systems, Inc., 555 West 57th Street, Suite 1236, New York, NY 10019. (212) 765-4780.

- The West Coast Logo Conference was held on November 21-23. Seymour Papert gave a luncheon talk on his way to a Japanese conference (see the next ILX for a report). Professor Papert also recounted his experiences with Logo users in remote areas of Pakistan. Michael Brown from Melbourne, Australia, was in attendance and was very enlightening. I had the pleasure of hosting Michael in Santa Barbara for two days. He took to driving on the right side of the road very quickly. Do Logo users change sides of the road quicker and with better results than non-Logo users?

- Dan and Molly Watt's April trip to China sounds very exciting. They have agreed to write about the details in a future issue of the ILX.

- David Thornburg is planning on a three-month world-wide "vacation" starting next August. An opportunity exists for Logo enthusiasts throughout the world to hear Dr. Thornburg speak. If any reader is interested in having this outstanding Logo and computer educator speak in their country, please contact the ILX editorial offices as soon as possible.

- ILX Latin American Editor, Horacio Reggini, has recently published a book entitled *Ideas and Forms: Exploring Space with Logo*. It is written in Spanish and includes procedures for drawing and exploring in three-dimensional space. It will be reviewed in the next ILX.

- Gerry Eddy, our roving Logo reporter, is traveling around the world on a bicycle gathering Logo contacts and writing news for the ILX. She is having a great time, according to her postcards, and her first column will appear in the next ILX.

- Remember to send any Logo information to your continental editor for inclusion in the ILX. Tell your Logo colleagues about the ILX and encourage them to contribute as well.