



The International LOGO

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

Volume 1 Number 3

FORWARD 100!

May 1986 Page 1

Logoites on the Move

Logo educators travel far and wide to research, teach, and share their ideas. This issue of the International Logo Exchange finds Daniel Orey of the University of New Mexico traveling to Guatemala and Fatimata Seye Sylla traveling from Senegal to Boston to do comparative Logo studies. Michael Friendly travels nearly everywhere in his fascinating article about on-line Logo possibilities. Anne McDougall illustrates some Logo projects taking place in three different Australian states while Hillel Weintraub continues his in depth report on educational uses of Logo in Japan. Richard Noss describes some spectacular Logo projects now taking place in Israel.

Molly and Dan Watt will soon find themselves in China. Edward C. Hutchinson of Appalachian State University is also China bound in August. While in China, Professor Hutchinson will be conducting extensive Logo research over a one year period. Molly, Dan, and Edward have all promised reports for future issues of the ILX. It is hoped that a Logo Study Tour to China for Summer 1987 can be arranged for ILX subscribers.

One more Logo person traveling around the world is your ILX editor. By the time you read this, I will have officially begun my duties on the faculty of the Institute of Education in Singapore. This three year position will find me organizing their computer education program. You can bet that Logo will be well represented in any computer curriculum!

ILX will now be completely written and edited outside the United States. I will have the opportunity to visit more countries and make more Logo contacts for our readers. Please write to me at the address below, or, better yet, drop in and pay us a visit. If you have ever attended a Logo conference, you know the bond and the feeling of a family sharing their discoveries and problems. We now have ILX subscribers in 32 countries, and I am sure that any of them would welcome a fellow Logo user. You are all certainly welcome in Singapore.

I will also be visiting Japan for a week on the way to Singapore and will have an on-the-spot report in the next ILX. It is a little difficult to leave Santa Barbara and the University of California, where I have worked for seven years, but I have spent fourteen years overseas, and it is time to get back into circulation. This time I will have an additional tool to work with ... a limitless one with no ceiling.

Dr. Dennis Harper, Editor International Logo Exchange
Institute of Education, 469 Bukit Timah Road
Singapore 1025, Republic of SINGAPORE

Asia

by Hillel Weintraub
*Doshisha International High School
Tatara, Tanabe-cho, Tsuzuki-gun
Kyoto-fu, Japan 610-03*

This month's column continues to look at the Logo movement in Japan.

Logo Schools being Planned by UNY Company

A company which has great interest in Logo, and for a much longer time than Yamaha (see ILX, March 86), is the UNY Company. UNY is one of Japan's largest retail chains; it also has a special division, called Bynas, involved in creative education, robotics, information networking, and Logo.

Those who attended the WCCE 85 Logo talks were able to hear Hiroyoshi Goto, of this company. Mr. Goto has been one of the key people in developing first awareness and gradually deeper understanding of Logo amongst both the educational community and general public. Some of Mr. Goto's recent activities have been the translation of Hal Abelson's classic Logo book, and the editing of a high quality monthly Logo publication, *The Logo Journal*, which has translated key Logo articles from educational publications in other countries as well as shared the activities and ideas of Japanese activists. A third activity has been the establishment of a Logo research committee which recently developed a set of minimum standards for Japanese language Logo. This was an attempt to make the hardware and software developers aware of what the educational community considered to be the important aspects of Logo.

The most recent work of Goto and Bynas is a plan to develop Logo school franchises around Japan. In order to carry out the first part of this plan, the following steps have been undertaken:

1. Development of prototype courseware, including the following hardware and software:
 - a. summary of project activities
 - b. model of teacher's schedules for a year
 - c. teacher's manual
 - d. off-computer educational materials, such as turtle games and activities for developing keyboard or directional familiarity
 - e. teaching tools, such as demonstration charts, panels of the keyboard, important primitives, and a compass

- f. robots
 - g. application software, such as a crash-proof target game, and an instant program for beginning users.
2. The prototype materials have been developed during the past year and refined at an experimental kindergarten class during the past six months.
 3. A number of experimental schools opened in April 1986 in Tokyo and Nagoya in order to refine and develop the courseware even further.
 - Emphasis will be on involving parents and teachers as well as young children.
 - The first courseware is being developed for pre-schoolers, ages 4 - 6.
 - The next set will be for children, ages 7 - 9.
 4. A franchise chain will be established and offered throughout Japan.

Why the Companies, Not the Schools?

It is important to have some understanding of why it is companies like Yamaha and UNY, rather than the educational institutions themselves, that are considering or already have a serious commitment to Logo. There are many reasons for this, but the main one is that the Ministry of Education has controlled Japanese education to such a degree that the teachers depend upon it for purpose, contents, teaching methods, and educational materials. In America and many European countries, teachers are less dependent on a central authority for support. Such support could come from a university, a Logo users group, a bulletin board system, or even a group of teachers within a school doing the same thing. In Japan, teachers do not have much experience in getting support from anything other than the Ministry of Education.

Another big reason why there is not so much Logo activity within educational institutions is that most Japanese schools don't encourage self-study and upgrading of teaching skills and ideas. Teachers generally don't have the time to study something new and, even if they were to make the time, the school would not be likely to give support for such activities.

Another reason why the schools have been slow to accept Logo is that only recently Japanese language versions have become available. Most Japanese don't feel comfortable in using English, and the idea of teaching something in English before the formal English education begins in junior high school is objectionable to most teachers and educators. Thus the development of Japanese language courseware is indispensable for a wider acceptance of Logo. That three or four Japanese language versions are now available will make a difference in official attitudes towards considering Logo as a serious educational tool.

A fourth reason for Logo's lack of official support is that basically the open / discovery attitude towards education, while receiving a lot of verbal agreement, is still viewed somewhat suspiciously. The idea of enjoying learning or learning through play seems quite frivolous to many Japanese, especially the older generation who control the key decision-making positions. To many of these people, "real" education should be difficult. Also, studying something with the mind only through memorizing is seen as a superior approach to doing

something which may utilize the studied material in an active, involving way.

These ideas about education do not disappear overnight, and, because of the above reasons, companies like UNY and Yamaha have decided to work with Logo outside of the school system in kindergartens (before the Ministry has any guidelines) or in private after-schools where the Ministry has no authority. These after-schools are not to be confused with regular private primary, secondary, and university-level institutions whose curriculum is still under the control of the Ministry.

But this doesn't mean that absolutely nothing is being done within the regular schools in Japan. On the contrary, there are some very positive developments in a number of schools. In a school in Tokyo, Ms. Suzuki has found a way to use Logo in her sixth grade classroom without departing from the Ministry of Education guidelines. There are two free periods each week in which teachers are supposed to do "enrichment activities" and Ms. Suzuki, with the cooperation of the Fujitsu Company, has been working to "enhance her children's thinking ability" through Logo activities.

The new year issue of the *Japan Educational News* (*Nippon Kyoiku Shinbun*, January 1, 1986) noted that there were between 10 and 20 Tokyo schools with some Logo activity and several in the Osaka area. And Toyama Prefecture, where two of Japan's most active Logoites are located, has also been a center for Logo activity. Junichi Yamanishi of Toyama University and Takito Totsuka of Konan Primary School have both been using Logo for a wide range of educational projects. Together, during the past two years, they have held more than 5 teacher workshops on Logo, so that the awareness of Logo is quite high amongst educators in this area.

In one particularly encouraging development this school year, the Ministry of Education has designated Mr. Totsuka's school as a model school. This means that Mr. Totsuka will be given some small budget to support his computer activities, that his work will be "authorized," and that he can use Logo in his classroom freely. In the past two years, he has been successful in finding ways to use Logo within the Ministry's curriculum, proving, along with Ms. Suzuki, that teachers *can* find ways of using Logo within the present situation if they try. This year, he has developed his own project, called "Logo Explorer," in which he will use Logo to help his fourth grade students discover some important mathematical ideas and, later, work in elementary science involving electric circuitry.

Mr. Totsuka's work represents the first official recognition given to Logo in the classroom by the Ministry of Education. He is taking this responsibility very seriously and is preparing a detailed report on his work. Various educators from around Japan (though none yet from the Ministry!) have visited his classroom to see what he is doing and, as a result of this project, plus the ground-laying work which he and Professor Yamanishi have done, a number of other teachers are now reading some of the many Logo books available in Japanese. As many as 20 elementary and 6 junior high school teachers have made serious plans to use Logo in their classrooms in the new school year which began in April, 1986.

Well, this is the Year of the Tiger in Asia. Tigers and Turtles have more than their first letters in common. So perhaps, in this Year of the Tiger, we may see some very good advancements towards "creating a creative and challenging learning environment for our children." Japanese Logo people will be working with that aim in mind.

North America
by Michael Friendly
Psychology Department
York University
Toronto, Ontario M3J 1P3, Canada

LOGO NETWORKING

Logo Networking has been on my mind a lot these days. Networking means making connections; it takes many forms, and can be enhanced by people and machines. Some people have a natural talent (or acquired skill) for getting those with common interests together. One of the wonderful things which happened to me at the Logo 84 Conference was meeting Linda Stone, a networker of the first rank. That year, and again at Logo 85, I was amazed at the number of conversations, friendships, and working relationships among people at the conference which began with Linda saying to someone, "You really must come and meet so-and-so."

Logo Forum: In my first column (ILX, Jan. 86) I reported on the World Logo Conference ("Online to Paradise") conducted over the CompuServe Information Service, with on-line participants and "speakers" joining in from sites all over the world. The electronic conferencing was made possible through the efforts of Jim Muller, of the Young Peoples' Logo Association, who also acted as the "sysop" of LogoForum on CompuServe.

I asked Jim to describe the aims of the LogoForum. This is what he said:

"The Logo Forum is a place for sharing practical ideas on the use of computers and Logo as learning tools in the classroom and at home. The emphasis is on applications for and by children ...

"Where newsletters and magazines can more effectively relate experiences, provide tutorials, present papers, research reports, etc., a forum such as this can best serve as an on-line software, resource, and idea exchange."

The software and resources are in the data libraries, which contain a wide variety of public-domain Logo software, how-to tips, reference lists and other information, all available for downloading. These are just some of the things I found, browsing through the data libraries (DL for short):

- **DLO: Turtle News.** General information about Logo Forum, joining conferences, and uploading files.

- **DL1: Just Hatched.** For those using computers with very young children, or who want simple ways to learn about Logo.

- **DL2: Off the Computer.**

- **DL3: Logo Adventures.** Contains a collection of Logo puzzles, challenges and adventures.

- **DL4: Advanced Ideas.** Contains collections of Logo tools, discussions and demonstrations of list processing and recursion, tips and programs showing how to move Logo toward the "no-ceiling" we all hear about. A recent contribution is a collection of procedures for Object-Oriented Logo (GOLOGO) by Mark Guzdial. I have begun to submit some of the Logo files from my *Advanced Logo* book to DL4.

- **DL5: Other than Logo.** Programs in BASIC and other languages in the Logo spirit.

- **DL6: Logo Library.** A compendium of resource information I've found quite useful. Included here are cross-reference lists of Logo primitives for all the major Logo implementations, a list of worldwide Logo organizations, interest groups and newsletters, as well as lists of Logo books, publications, products, and resource material.

- **DL7: Logo and the Disabled.**

- **DL8: Teachers & Teaching.** This section contains the abstracts, papers, and comments by participants in the World Logo Conference, as well as classroom tips, Logo programs, and other material contributed by Logo teachers.

- **DL9: Kids' Corner.** A library for contributions by kids from all over the world, submitted mainly by teachers.

Muller believes that sharing of ideas can best be accomplished through on-line conferences. There are weekly conferences discussing specific topics, usually on Sunday night. For the next several months, on the 3rd Sunday of each month, there will be an on-line users group session hosted by the Monadnock Logo Users' Group from Keene, New Hampshire, and the British Columbia Logo Users' Group in Vancouver, Canada.

In addition, there is a message / bulletin board section of LogoForum, where you can post questions or comments, requests for information, etc. The message system is set up so that when you read a message, you can follow the thread of subsequent replies to that message, or search the messages by topic area.

Signing on: To join the LogoForum, you must first join CompuServe. You can buy a CompuServe Starter Kit, containing a manual and account number with about 5 hours of connect time included in the cost (about \$30 US, though I have seen mail-order ads offering it for as low as \$19). After you log on, type the command, GO LOGOFORUM, and you will be wisked away into the electronic Logo network.

CompuServe has a variety of other forums of interest to educators and educational researchers. Try the command, GO EDUCATION or GO EDU-50. There are also interest groups and data libraries oriented to specific computers.

Logo Conference Tree: The Logo Conference Tree in Claremont, California is an example of a more local form of computer networking, which ILX readers might like to set up in their own school regions. It is a computer teleconferencing system designed to support group and individual communications within educational settings, and encourage dialog among students and teachers in four principal areas:

- Using the Logo computer language
- Language arts and written expression
- Social and affective domains
- Computer telecommunications

The Logo Conference Tree project was developed under a grant from the Apple Education Foundation, and is funded jointly by the Claremont Unified School District, the Claremont Graduate School, and the Los Angeles County Teacher Education and Computer Center. The project currently involves ten school sites and several schools outside the Claremont School District. There is substantial participation by community members and students who have modem-equipped computers in their homes. Robs Muir, a columnist for the NLX, is one of the project directors.

Using a tree structured conferencing framework, the system maintains a collection of messages in a hierarchical arrangement of topic areas. Individuals participating in the Conference Tree can read these messages and add to the collection of messages at any time. The unique advantage to this system is that individuals can participate in a conference in which an unspecified number of users can each add their ideas to an ever growing dialogue. It is felt by the designers of the system that this form of computer telecommunication is well suited to use within educational institutions due to its flexible, open-ended design and its lack of rigid formats.

The Logo Conference Tree systems are available 24 hours each day at 300 baud. The phone numbers are 714-621-2310 or 818-331-4698. There is no password required. A user's guide to the project is available by writing the Claremont Unified School District, Attn: Robs Muir, 1700 Danbury Road, Claremont, California, 91711, USA. Please enclose sufficient international coupons or US stamps for a 1 oz reply.

Set Up a Local Logo Exchange

Local Area Networks (LAN) seems to be all the rage these days, particularly in business applications. A LAN connects a group of separate computers, and allows the users of one computer to communicate with, and share the resources of another computer.

Why not try to set up a LAN of *people* in your area if there is no existing one? Tom Lough has prepared a set of guidelines and suggestions for starting a Local Logo Exchange (LLX), which you can obtain by sending sufficient international coupons or US stamps for a 2 oz reply to LLX, PO Box 5341, Charlottesville, Virginia, 22905, USA.

BITNET and Other Networks

At the Logo 85 Conference, I talked with some people about the possibility of setting up a Logo interest group communication network, to keep in touch, exchange ideas, etc. Since then, I have been using BITNET, a computer network linking universities and research centers, to communicate with Logophiles around the world. There are other similar networks, such as USENET (for Unix machines), CSNET (Computer Science Net), ARPA, and MAILNET, to name a few. These are all interconnected via "gateways," so that it is possible to send mail from one network to a computer on another. I now submit my ILX columns to Dennis over BITNET, and communicate regularly with Logo people in Canada, US, England, Israel, etc. Compared to CompuServe's LogoForum, BITNET is much more powerful and easy to use. It is also much less expensive (in many cases, free), but you must have access to a computer on one of the networks, usually at a university or college.

Stay in Touch

Send your thoughts on this column, and news of Logo activities 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, or to me on CompuServe, 72777,253. Send ordinary mail to the address in the column masthead.

Let's bridge the gap! GO LOGOFORUM & FD 1000!

Latin America
by Horacio Reggini
Av. Alem 1074
1001 Buenos Aires, Argentina

This month's Latin American report features guest columnist Daniel Orey. Horacio Reggini's column will return in the next ILX.

Romancing the Turtle: Using Logo in Multicultural Environments

by Daniel C. Orey
College of Education
The University of New Mexico

Romance: a narrative depicting heroic and marvelous achievements, colorful scenes, chivalrous devotion, unusual or even supernatural experiences or other matters of a kind that appeal to the imagination (Stein, 1973, p. 1242).

The above use of the word romance was, to be honest, inspired by the film "Romancing the Stone". This definition reminded me of my experiences with Logo and kids. I must confess, however, that my supernatural experiences using Logo have been somewhat minimal, though I would have a difficult time explaining that to the children I have worked with.

Teaching experiences in Oregon, Guatemala, and New Mexico have given me the opportunity to work with various learners from a variety of age, ethnic, and cultural groups who have all been romanced by Logo. These children come from Hispanic, Anglo, Indochinese, Dukabore Russian, and Highland Maya backgrounds, as well as in lower, middle, and upper middle class contexts. I have seen these learners resolve many classroom related problems successfully, often in truly distinctive, creative, and unusual ways. Given similar learning and teaching tasks, it is my opinion that answers appear to be resolved in a universal or "international" manner. For this reason Logo seemed a good tool with which to attempt a cross cultural pilot study between distinct groups of learners.

In the summer of 1983, I traveled to Guatemala. Using a newly acquired interest in Logo, I chose two culturally distinct locations to look at Logo use by children. In so doing, I believe this was the first introduction of Logo programming language and its powerful ideas (Orey, 1983) to Highland Maya children.

I decided to introduce Logo to students at two rural bilingual schools. The first school was comprised of middle-class Guatemalan children in the town of Bananera, Izabal. The children at the Bananera school spoke Spanish and were learning English. The second site, Patzún, Chimaltenango, was part of a rural Highland Maya Indian population. The children spoke Cakchiquel and were learning Spanish.

This study used activities from the Texas Instruments Curriculum Guide. Activities chosen were selected to give kindergartners at the two sites a basic computer experience with Logo. It was the same program of introduction to Logo given by the New Mexico State University Microcomputer Van that traveled to over 150 schools in West Texas, New Mexico, and Colorado. (Ed. note: See NLX, October 1983, p 8.) The

exercises gave the teachers the opportunity to learn about Logo and witness some of its powerful ideas. As well as computer time, the children were given the opportunity to draw a picture of themselves using the computer.

For the Patzun group, I transformed the LINE, PEOPLE, and DALLAS microworlds into LINEA, GENTE, and GUATE. It was found after reviewing the data that the Bananera learners used Logo and the computer in a manner or style I will refer to as "international", being that which is a form of learning or attacking problems by children in many westernized school systems the world over, and is linked to the Newtonian-Cartesian paradigm (Norton, 1985) of education.

The Patzunos appeared to complete the Logo activities in the same international style as mentioned above. However it is possible that the perceptions of the computer and their interactions may have been profoundly different. After initial contact with TI-Logo and the computer, the children were seen to be teaching other children in the school what they were learning to do with "la macquina" (the machine).

Work by psychologist Robert Sternberg (1985) sheds light on this observed phenomenon. Sternberg describes intelligence as being constructed of three important areas. The first area includes the basic thought or mental processes, which he calls components. The second area is the synthetic ability we have. This is the ability to cope creatively with new situations and practical skills. The third area, the contextual aspect, deals with tacit or implied knowledge that enables people to succeed in everyday life. It is important here to understand that, until recently (with the exclusive use of IQ, SAT or GRE tests), we have defined intelligent behavior or activity from the componential standpoint and ignored the contextual situation or synthetic abilities a person may have.

Sternberg's discussion of intelligence refers to the *mental activity directed toward purposive adaptation to, and selection, and shaping of, real-world environments relevant to one's life* (Sternberg, 1985, p. 45)

Intelligence in Sternberg's view is trainable. Given certain kinds of experiences, it is possible then to develop intelligent mental activity in any person. His definition is an active one, and it gives many of us a very strong reason to use Logo for the development of these mental processes. We have reason to use Logo in this manner, if and only if it can be proven successful in developing these processes.

Success may depend on more than one factor. Logo microworlds can be developed that have an appropriate cultural context for the learner. Abstract or culturally inappropriate activities are useless for some children and valuable for others. For example, while using the sprite microworld of DALLAS-GUATE, the Patzunos were able to manipulate both a truck and an airplane on the monitor.

When later given the opportunity to use crayons to draw a picture of themselves at the computer, one or two children drew the sprites on the paper with bombs falling from the airplane. This is a culture whose children do not PLAY war. If I had given it more thought, I could have easily changed the plane to an animal or other figure.

Learning achieved by children using the same Sprite activities in Patuzun may be different than those done by children of the same age in New Mexico. However, the same content does not imply the same process (Norton, 1985). And, it is important to understand that different does not imply inferiority either (Hall, 1984).

Many people who have had the good fortune to travel or live in another country know the difficulty one initially faces in dealing with the little things in life. Activities needed to resolve similar problems differ from group to group, and require similar or different answers due to cultural or environmental constraints. Because we do it differently is not the same as saying that we do it better. Logo can give children from different learning traditions experiences that Seymour Papert (1980) has said help strengthen scientific weakness. At the same time it can give scientifically "macho" cultures the ability to look at non-traditional learning.

A future study of mine plans to look at the differences that exist in the mental processing of Logo activities by fourth grade students in three culturally distinct locations in Guatemala or Mexico and New Mexico. I have no doubt that children can and do manipulate Logo environments. It is interesting to me to use Logo as a tool for looking at how different groups of learners perceive this activity of "romancing" the turtle.

Hall, E.T. *The Dance of Life*. Anchor Books, 1984.

Norton, P. "Problem-solving Activities in a Computer Environment: A Different Angle of Vision." *Educational Technology*, October, 1985, p. 36-41.

Orey, D.C. "Logo Goes Guatemalan." *The Computing Teacher*, February, 1983.

Papert, S. *Mindstorms*. Basic Books, 1980.

Stein, J., and Urdang, L. *The Random House Dictionary of the English Language*. Random House, 1973.

Sternberg, R.J. *Beyond IQ: A Triarchic Theory of Human Intelligence*. Cambridge University Press, 1985.

Africa

by Fatimata Seye Sylla
Laboratoire Informatique et Education
Ecole Normale Supérieure
BP 5036 Dakar, Senegal, West Africa

Logo and Illiterate Adults

This is the second and final part of an article describing a study I conducted with a group of women in Dakar, Senegal and another group in Dorchester, a section of Boston with a considerable population of immigrants from Spanish-speaking countries in South and Central America.

I noticed similarities between the two groups which seem to me related to the fact that they are women from Third World countries where social structures favor group interactions that I was able to exploit in designing the learning experiences. Not all approaches to adult education in the Third World make use of this source of strength.

In my last column I talked at length about the Logo study in Senegal. Because of lack of space, I will only briefly describe the Hispanic counterparts and the Boston study and then discuss the comparisons between the two groups in some detail.

The group studied in Boston was composed of Hispanic women who were non-native speakers of English. I did this research to see how people from diverse cultures, even though they are from Third World Countries, react to computers.

I worked in the context of a project using computers in the learning center *Mujeres Unidas en Accion* located in Dorchester. I was in charge of training the teachers and the students. Six teachers and more than 30 women were being trained in Logo programming.

Mujeres Unidas en Accion's main objective is to teach English and Spanish to promote critical thinking, a positive self-image and self-reliance. The curriculum combines language instruction with raising people's consciousness about their lives.

Comparative Study

Unlike the Hispanic group, which is already living in a computer culture, the West African women had no idea what a computer was. The Hispanic women have bank accounts in the Boston area; therefore, they are used to interacting with the computer when they go to a teller machine. They have heard that the operations are done by computers and not by human beings. They used to believe in the power of the computer because of its unchallengeable knowledge; "I thought the computer knew everything," said one of them. Another one, a 52-year old woman, said "I don't think I am clever enough to touch a computer." Thus, their fear of the computer came from their misconceptions of it. They were treating it with the respect of a human being and power of a machine. Maria said to me that she did not like computers because they caused a lot of trouble to her husband who had found his salary cut back by a large amount of money because of taxes he had already paid. When he inquired, he was told that it was the computer's mistake. Many advertisements about computers on the television fed these misconceptions. It took me two weeks to help them to overcome these fears.

The Senegalese women do not live in the same environment. There are no such advertisements on television, nor are there interactions with computers in their daily environment. Nevertheless, they had heard jokes about machines without understanding that it was about computers: "The machine skipped me this month," would say a husband to his wife to explain that he had not been paid. They knew that a machine processed payrolls but how and what kind of machine remained a mystery. I assume that because they did not know about the computer, they did not fear their first contact with it. Thus, the Senegalese women started manipulating the computer on the first day of training.

Sharing is one of the cultural bases of Senegal; as each of the Senegalese women was working on her own project, she would eagerly share it with the others. This was inspiring for the others who would imitate or enhance projects they were shown. They were helping each other in solving a specific problem such as finding the name of a number.

However, the notion of enhancing a project was most significant. This relationship to knowledge as a changing or growing process is not customary in village life where traditional knowledge is passed from generation to generation unchanged.

The Hispanic women would work on the same project together. Each of them would add an idea in doing one or another part of drawing.

In both cultures, sharing between women is dominant. Senegalese women go to the market together, and organize celebrations together, exactly like Hispanic women. Thus, there is already a kind of commonality between each group,

settled in the culture. Therefore, sharing ideas can be a natural extension of this established behavior.

The interviews revealed that the goals for both groups were the same; they all wanted to be literate for social integration and to be able to use the machine for economic benefits. The Hispanic group wants to be able to communicate in English with Americans in order to understand them more and to make themselves understandable. They would also like to know more about their children's studies, including computer literacy, here in the USA. They know that computers represent the future in this society and knowing how to program them will give them opportunities.

The Senegalese women would like to be able to communicate with the educated people in French and to understand what their children are learning at school. For them, learning with computers allows them to know how to type with a keyboard, similar to a typewriter. This, they think, will facilitate having a job after their studies.

For the oldest Hispanic woman (52 years old), programming computers made her feel that she was still intelligent despite her age. Both she and Ines, the youngest hispanic woman (18 years old), acquired a better self-image after working with the computer. Ines gained confidence in herself when she realized that she can be "helpful" to others by teaching them how to program in Logo. The other women have a broader view of the society in which they live because they can understand it more. Now they know that "machine's mistakes" were making this society look awkward to them. Before this training, it seemed to them that there was nothing one could do against the machine. One could not even express anger towards it! Now they realize that problems can be avoided or fixed by human beings.

After the training sessions, Aida, the 52-year old Senegalese woman, said the same thing as Ines. She did not think about her age as a possible handicap to her activities. Her society never made her feel that she could be dumb. She knew she was just normal and her only handicap was her illiteracy. This age consideration seems negligible to the Senegalese, who don't fear being old as do Westerners. She was motivated to act, to teach other illiterate people. For her own business, she would like to learn Logo programming to invent new designs for her pagnas. The other women were ready to go further in their studies for better economic benefits.

Because the Hispanic women were more or less literate (they knew how to spell), they were using Logo to draw pictures, geometrical figures. In contrast, the Senegalese group had never learned how to read and write; thus, they had to start first by learning how to spell, read, and write. So, they were not programming their procedures. They were using ready-made Logo procedures allowing them to type letters and have them appear on the screen in the order they would enter them. Though they used the computer more like an intelligent and patient typewriter than a programmable machine, they saw a glimpse of a process which will unfold for them in the future. I made them understand that the computer was taught to write these characters and that, in time, they could teach the computer others. They also appreciated the precision and beauty that was possible through its use (the text they took home to their husbands and children) and the computer's potential value in their lives (the acquisition of literacy and knowledge of arithmetic).

Any readers who would like further information concerning this study please write to me with your questions.

Europe

by Richard Noss
London University Logo Group
Institute of Education
Dept. of Math, Statistics, & Computing
20 Bedford Way
London, England WC1 HOAL

OK, I admit it; Israel is not in Europe. But by kind permission of Uri Leron, on whose information this report is based, we have "annexed" it into Europe at least as far as ILX is concerned. Apologies to Asia!

One centre of Logo activity in Israel is based at the Technion - Israel Institute of Technology in Haifa. Here, Uri Leron and a team of colleagues are working on a variety of projects related to the general theme of Logo and Mathematics Education. One project concerns the ideas of functions and variables in Logo and mathematics, and involves a set of course units for children to study which tries to unify the ideas on functions from both a mathematical and programming perspective. An example: how does one introduce the idea of the domain and range of a function? Well, think of the idea as related to Logo's error messages. "Logo doesn't like so-and-so as input" is another way of saying that so-and-so is not in the domain of the procedure (function) which called it. These kinds of ideas have been tried out with a class of 14-year-old gifted children and found to work well, although Uri and his colleague Rina Zazkis report that the success is heavily dependent on the presence of a well-trained teacher capable of participating in an "open and investigative environment."

Another project at the Technion involves looking at the relationship between classical "standard" mathematics (the kind that is learned in the University) and Logo (turtle) math. What does it mean to say that turtle procedures are differential equations, for example? The Technion group points out that in math, statements like this are usually more precise and carefully formulated. They don't suggest teaching students (or their teachers) the formal details, but they feel that at least the Logo community should be clearer about the relationship. If you need to think about this problem more concretely, try to prove that a particular turtle geometry procedure, taken, for example, from Abelson and diSessa's *Turtle Geometry* (MIT Press, 1981), does indeed draw an ellipse.

Other work at Haifa includes research on the ways in which children perceive geometrical figures and, on the teacher-education front, the development of a year-long graduate course in the Department of Science Education covering many educational, mathematical, and computer science aspects of the Logo world. Students learn how to program in Logo and also have an opportunity to think about and discuss some of the deeper and exciting ideas behind the scenes, both mathematical and educational.

In case you think that this is not enough activity for one small university department, the Technion is acting as the location for a new Logo centre, funded jointly by the Technion and the Ministry of Education and Culture. This means that Israel will join the Dutch Logo Centre in Nijmegen in being funded by the central government. The centre will work on learning materials, teacher preparation, and "interfacing Logo and the Israeli educational system" in general. The Technion group is particularly pleased that the government has allowed them a free hand in organizing this centre. Uri tells me that no compromises will be necessary! Apart from teacher

education and producing materials. The centre also sees its role as promoting the Logo community in Israel within the international Logo scene.

The Technion is not the only place in Israel where interesting Logo work is taking place. At the School of Education at Tel Aviv University, Tamar Globerson is conducting a Logo graduate course which combines aspects of computer science, various applications, and a study of cognition. Students learn a great deal about cognitive processes, difficulties, and learning styles which are associated with children's Logo work. In the second semester, the course is planned to give students an opportunity to work on their own projects, including development of microworlds and the adaptation of learning procedures to various cognitive capabilities and styles of learners. An important aspect of the work is that university students will work on their projects together with children.

Other work at Tel Aviv by Shafee Givon includes the use of Logo as a tool in teaching the principles of computer science and of programming languages. Here, Logo is used as the main language in teaching basic computer science concepts to students in the graduate program, "Computers and Communication in Education," in the School of Education.

Just to end on a high, Uri has told me that the Ministry of Education is seriously considering his proposal for a new computer science high school curriculum based on an advanced Logo - Pascal combination; more importantly (and perhaps less controversially for Pascal-haters), BASIC seems destined to be more or less outlawed altogether.

Australia

by Anne McDougall
Faculty of Education
Monash University
Clayton, Victoria 3168

In the last issue, I wrote about Logo books written and published in Australia. This time I shall describe some other Logo resource materials which have been produced in this country.

POALL: A Journal for Logo Users is published by the Computing Education Team at the Magill Campus of the South Australian College of Advanced Education (SACAE). The team offers a Logo course as part of its Graduate Diploma in Instructional Uses of Computers, a diploma which is offered for external study. Peter Carter wrote the course materials, and edits *POALL*, partly to provide an opportunity for these external students to share ideas and inspirations. (*POALL* is supplied free of charge to all students taking the course.) The course takes students beyond turtle graphics into the more advanced parts of Logo, and this is reflected in the wide range of excellent articles, procedures and reviews which appear in the journal. The format is newsletter style, duplicated pages stapled together. *POALL* is available from:

The Editor, *POALL*
SACAE Magill
Lorne Avenue
Magill, South Australia 5072, AUSTRALIA

The cost is \$10.00 within Australia, and AUS \$15.00 (airmail) to overseas subscribers.

Alan Biggs and John Skewes, two teachers at Coburn Primary School in Melton, Victoria, have prepared a booklet called *Logo for Primary and Post Primary Schools*. This sixty-page spiral bound volume contains dozens of turtle graphics projects for students. The booklet was designed to help and support Logo teachers who are themselves new to the language, so the format is essentially a series of one-page lesson plans, each introducing a new Logo command. Each page shows a drawing to be done, procedure(s) which will produce it, a brief lesson outline, hands-on tasks for students, and brief teacher's notes for the lesson. The activities suggested range from very simple graphics to animated drawings.

Logo for Primary and Post Primary Schools is available from:

John Skewes
Western Applied Computers
Victoria Street
Footscray, Victoria 3011 AUSTRALIA

The cost is \$19.00 within Australia or AUS \$25.00 (airmail) to overseas.

Activities in Problem Solving and Spatial Knowledge Based on Logo is a resource unit developed by the Independent Learning Support Group attached to the Queensland Division of Primary Education. This group has as its specific task the development of courseware packages for use by independent learners, whether these be isolated children or children in primary schools.

The kit comes in a strong plastic cover, containing a spiral-bound Teacher's Guide and four Student Guides. The Student Guide consists of a series of ten activities ranging from directing blindfolded student "turtles" on journeys, through computer-based maze puzzles and drawing and navigational tasks, to simple procedures for regular polygons. The Teacher's Guide includes notes on classroom organization, problem solving processes and skills for primary age children, individualizing instruction, and suggests teaching strategies for the student activities.

Ordering details for this new package were not available at the time of writing, but readers interested in finding out more should write to:

The Director, Division of Primary Education
P.O. Box 33
North Quay
Brisbane, Queensland 4000, AUSTRALIA

ILX Notes of Interest

The British Logo User Group (BLUG) announces its annual conference, scheduled for August 29 - 31, 1986, at Birmingham University, located near Birmingham, England. The conference promises to be a major European Logo gathering, as is usual. It will offer a national and international forum for teachers, researchers, and Logo enthusiasts to exchange experiences and reflect upon issues and recent developments in the use of Logo and computers in education. The closing date for registration is July 22, 1986. For more information, write to BLUG 86, PO Box 79, Walsall, England, WS5 3RW.

Academia de la Investigacion Cientifica announces the III International Symposium on Computers and Children's Education, to be held October 25 - 31, in Puebla, Mexico. At last year's symposium, a number of the presentations were on Logo. For North and South American readers, the symposium presents an opportunity to learn about Logo from another cultural perspective without the expense of east - west overseas travel.

For symposium information, write to Academia de la Investigacion Cientifica, Insurgentes Sur #949-9, Mexico, D. F. 03810.

Copies of the proceedings of last year's symposium are available for 3000 pesos from Dr. Jorge Bustamente at the above address.

For North American readers, Daniel Orey is maintaining a mailing list of Logo users who are interested in attending, and will be working on a group discount for travel and accommodations. Write to: Daniel Orey, CIIMTE - COE, The University of New Mexico, Albuquerque, NM 87131 USA.

Are you interested in other computer languages? What do you know about COMAL? This language, available at low cost for the Commodore 64 computer, has gained quite a bit of popularity in Scandinavia and parts of the United Kingdom. At first glance, it appears to resemble BASIC. But, upon closer examination, one learns that the line numbers are optional, and that the language is procedural, just like Logo. COMAL also contains a set of turtle graphics commands. For information on COMAL, write to Len Lindsay, COMAL Users Group, 6041 Monona Drive, Madison, WI 53716 USA.

The International Council for Computers in Education (ICCE) has announced the formation of a special interest group for computer science (SIGCS) to open communications between computer science teachers. For more information, write to Zab Warren, Phillips Academy, Andover, MD 01810 USA.

The International Logo Exchange, copyright © 1986 by Posy Publications, a part of The Posy Collection, all rights reserved. Published bimonthly, January through November, \$19.50 (US) per year mailed first class from Charlottesville, VA. \$5 (US) additional per year for air mail to addresses outside the United States, Canada, and Mexico. The opinions expressed by the authors are not necessarily those of The International Logo Exchange. Address editorial correspondence to The International Logo Exchange, Attn: Dr. Dennis Harper, Institute of Education, 469 Bukit Timah Road, Singapore 1025, Republic of Singapore, and subscription related correspondence to The International Logo Exchange, PO Box 5686, Charlottesville, VA 22905. ISSN 0883-1505.

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