Impact of a LOGO Program on Native Adults

By J.O. Michayluk

Abstract

This paper examines some of the important research related to Seymour Papert's LOGO computer program. Defined as an educational tool in its original exploratory research project involving second-year students, the LOGO program has been used with various populations, including those with learning disabilities, the physically handicapped, and delinquent children. This paper examines the LOGO program's impact on reasoning strategies and critical thinking abilities of a sample of adult students.

Introduction

The LOGO computer program has been developed by the MIT LOGO Group over the past number of years. Seymour Papert has been the most dominant force within the Group (Papert, 1972a, 1972b, 1976a, 1980; Papert & Solomon, 1972), and, in fact, is generally credited with the marriage of Planetary concepts which have led to the birth of LOGO (Green, 1976; Larivee, 1979).

LOGO was originally created by Papert for children; consequently, was regarded as an easy to learn, rich and expandable, vocabulary to reflect such key concepts as variables, names, recursion, and procedure. Having developed LOGO for children, Papert and his colleagues were then encouraged to work through the implications of LOGO with other populations. LOGO has been used with the physically handicapped, learning disabled children, and delinquent children. For example, Watt (1982) reported that LOGO subject discussions and attitude statements were more interesting than traditional therapy settings.

The interest in LOGO as a research tool was generated by the current research and development. LOGO has been used with students of all ages (including those at risk for special education) and it has also been tried with the physically handicapped, the learning disabled, and the delinquent (Watt, 1982). In educational settings, the research has ranged from a classroom environment for experimental learning of mathematics to the foundation for a new type of school based on LOGO. LOGO might be inversion specific. If the results based on objective data appear to be lacking, some of them would be functioning at Piaget's concrete or transitional stage (Birch & Michayluk, 1979). It was hoped that participation in the LOGO project would facilitate the development of new LOGO strategies. In order to monitor the potential impact of LOGO, the LOGO Reasoning Test (Burney, 1979) was administered to the students both prior to and on completion of the LOGO project. The time between tests was 11 weeks.

The LOGO Program

The LOGO computer program has been used in the establishment of an exploratory research project using second-year university students of native ancestry. Since LOGO was expected to influence students' reasoning processes, it was decided to incorporate LOGO-based component in one of the courses being taught. The impact of LOGO on the students was monitored using both personal interviews and a formal test.

As mentioned earlier, LOGO has also been used with a variety of special populations. LOGO has been used with handicapped and learning disabled students at various levels (Miller, 1980; Papert & Weir, 1978) with some encouraging results. And Austin (1977) included LOGO programming, finding in general that students who used LOGO programming were more interested in LOGO.

Another rather interesting approach utilized with LOGO was reported by Larivee. Drawing on his doctoral work with Piaget on the subject of delinquency, Larivee and his collaborators have come to the conclusion that LOGO experience, or at least the exposure to LOGO, can change five grade five mathematical skills or concepts. However, the project had an overall impact on Piaget's and cybernetic concepts which have led to the birth of LOGO.

The general conclusion reached by most of the studies was that the full potential of LOGO had not been realized and that more diverse research was needed. This articular study was conducted during the last few years the use of LOGO for research in the schools had increased dramatically. The studies have concentrated on problem solving and mathematical thinking. One general research into the effects of LOGO on mathematical skills have been disappointing.

For example, Watt (1982) reported that LOGO did not improve the students' reasoning processes. Watt (1982; Solomon & Papert, 1976) agree that if LOGO does improve a subject's reasoning and problem-solving skills. However, O'Shea, Plane (1974) reported that LOGO subject discussions and attitude statements were more interesting than traditional therapy settings.

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I might experience success with LOGO (Watt, 1982). Another positive element related to interaction has led to students themselves taking on significant roles as teachers of other students. This was evident in the native student project mentioned earlier: the students who "caught on" first, aided the others.

2) LOGO is designed to make computer programming accessible and interesting to children. For this reason, LOGO is an effective introduction to the notion of achieving computer literacy. The problem here is where does one go after attaining this program of LOGO? A pertinent question asked by the native students in this project. They exhibited some confusion as to what to do with LOGO material after successfully solving problems. A development built on the principle that technology is an anachronistic phenomenon, which has to be imposed on the population which is starving. The technology which could open roads of educational transformation in Latin America would be that which managed to establish a balance between the modernization thrust undoubtedly required by education and the system of values of the people whose lives are affected deeply by the technological world. (Penna, 1983, p. 20)

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Goldstien, L.P., & M.L. Al based personal learning environments: a case study in deindustrialized educational technology on any culture. Penna (1983) points out that in any industrialized society, educational technology has failed in Latin America is that educators did not take this impact of technology into account. He further states that the impact of technology on culture is significant. The dichotomous theme of science and technology is not a new one. Medieval historians note the concern in England of the 13th century that pollution was swallowing the city of London. The population referred to was smoke pollution from the factories and the problem which simultaneously threatened to destroy the major forces of the country.

The great exposition of 1851 in London was the ultimate technological symbol, which was in 1889 Alexander Elfieff designed the Eiffel tower as a technical marvel for the Paris Expo. This was the 1st year, now known as the Eiffel tower, and symbolizing man's ability to compete with the world through technology. Reaction set is an act of love towards education, or simply, study. The third is that this worlds which takes place in, and education in counterpoint against each other.

Three attitudes towards love are identified. The men from Navarre believe that love can be conquered and even ignored. Indeed, they determine to spend three years in study, away from the social problems. The ladies show a second attitude. They feel that love is a victory, and the third is that this world of physical love, represented by the characters of Don Armando and Costard, has been written, full of "frolicsome" women. Indeed, everyone seems to miss words. The king selects the punish- ment when each of the characters in the final scene of act one, Don Arman- do and Costard, said in "love with all the love in the world." She is over-whelmed by her apparent eradication. Act II. The princess of France and her ladies now arrive. She soon finds out that each of them is in love with one of the king's nobles: Rosaline loves Biron, Katharine loves Dumas, and Maria loves Longaville. Because of the oath that they have sworn, the king is not allowed to turn them to turn to. (Continued on page 15)

LOVE’S LABOUR’S LOST
A Primer for Educational Technologists

By Dr. Denis Hilyon, Editor, CJEC

The AMTEC 1984 conference entertain- ing students, teachers, and guests features a visit to Canada’s famous Stratford theatre to see William Shakespeare’s romantic comedy Love’s Labour’s Lost. For AMTEC members who may not have had time to “brush up” on this play before the Stratford Festival, Cole Porter, who may not have had time to “brush up” on this play before the Stratford Festival, Cole Porter, writing a foreword to the program, rhapsodizing over a steam engine once designed by a student whose name he had forgotten. The world of Shakespeare’s romantic comedy Love’s Labour’s Lost is just the right play for educational technologists, yet we can almost make just such an assertion.

A contemporary theme in educational technology today involves the relationship between the systems approach and aesthetic methodologies towards improved practice in our field. Most notably, Dave Davies has called for a "systems" approach to educational technology which he calls RT-1, a "cognitive" approach, RT-2, a "systematic" approach, and RT-3, a "synthetic" approach. The dichotomous theme of science and technology is not a new one. Medieval historians note the concern in England of the 13th century that education: some case studies. Paper presented at the Annual Meeting of the American Educational Research Association, New Orleans, February 1973.

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New Software Evaluation Instrument

The National Science Teachers Association (NSTA) has published a new Microcomputer Software Evaluation Instrument. Prepared by the NSTA Task Force on Assessing Computer-Augmented Science Instructional Materials, the new instrument is designed to be used primarily in school-level or district-level science instructional software packages.

The eight-page instrument appears in the January issue of NSTA's periodical, The Science Teacher, Science and Children and the Journal of College Science Teaching. Copies may also be obtained from NSTA, 1742 Connecticut Avenue NW, Washington, DC 20009.

For more information, contact Leopold E. Kloper, Prof. of Educ., Chair, NSTA Task Force, Unit 5, Pittsburgh, LIBR 154, Bldg. 3939 O'Hara St., Pittsburgh, PA 15260. 412/624-4821.

Free Access to On-Line Software Library Offered by Searchmart

Searchmart Corp., a South Florida firm specializing in database development and information retrieval systems, is offering a free Access Software Library that lists, describes and demonstrates tens of thousands of individual applications and programs available for software packages both online and on floppy disks.

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The unique feature is the free on-line access to the software database. "There are several services with software evaluation programs," states C. Searchmart, Director, Victor Gruneau, "but they charge substantial fees for making searches and the information is not updated to include new vendors or programs that shoppers who want to search the files on home or office terminals at their workplaces might be interested in."

Searchmart's Free Access On-Line Software Library is also available for communication capability to search the software database.

The librarians and vendors will describe their products and companies on "pages," each page a 40-character line. "They'll have the opportunity to give the potential buyer more information about the products they want -- even demonstrations -- at a very modest cost per page."

For more information, contact Mary K. Hamm, Marketing Services Director, Searchmart Corporation, 4636 U.S. Highway I, Suite 110, North Palm Beach, FL 33408. Or Call 305/845-2996.

FORMATIVE RESEARCH

Continued from page 11

mance statistics were not compiled. Furthermore, the system did not allow the direct comparison of student's performance statistics. Thus, the findings and recommendations will be useful for researchers and for educators working with Telidon or other innovative educational technology.

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DDO PROGRAM

Continued from page 6

"For women's eyes this doctrine I

They are the books, the arts, the

That show, contain, and nourish all

And more bad news arrives. The King of

To disguise themselves. Indeed, the Muscovite costume, the ladies determine, decide to make their lovers wait a full year before they will marry them. Even Costard himself is surprised when he provokes himself into thinking that he will spend three years trying to be a farmer! And so, as the play comes to an end, love has been proclaimed, but, at least a year must pass before any marriages will take place. Indeed, for the moment at least, love's labour has been lost.

We began our discussion with a look at the art/science dichotomy so often cropping up in educational technology of the 1980's. We have concluded with Shakespeare's metaphoric analysis in terms of love and study. Who wins? Shakespeare is predictably ambiguous. Perhaps we should be the same. Educational technology is more than a concept; it is a state of mind. And educational technologists will appreciate that in Love's Labour's Lost, the master playwright is: "Just possibly...speaking to us."

MEDIA NEWS

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Multimedia News

An association for multi-image in Manitoba is in the process of being formed. Brandon has already formed one, and other provinces belonging to similar organizations are invited to Affiliate with ideas which might help the fledging organization. Contact Cliff Keifer, c/o Inland AV, 1645 St. James St., Winnipeg, RMX 015.