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Teachers College, Columbia University
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Institute for Learning Technologies

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The Institute for Learning Technologies, founded in 1986 at Teachers College, works to advance the role of technology in education, with special attention to the technologies promoting visual learning. Its program of research and development seeks to produce changes which will facilitate:

- expanding the scope of educational attainment by making extensive cultural resources of high quality readily available through electronic means in ways that enable students and teachers in ordinary educational settings to manage them effectively and work with them beneficially;
- making educative resources more productive by amplifying with artificial intelligence what the student can achieve unguided by teachers, so that teaching resources may be reserved for those crucial points where fully humane interventions can make a substantial difference; and
- expanding the visual and auditory forms of knowledge so that they cease to be merely illustrative of knowledge stored and retrieved in written form and become instead full-fledged knowledge-bases with coherent, intelligent storage and retrieval systems, subject to direct access in response to the inquisitive play of curiosity.

Funded by endowment, gifts, and grants, the Institute brings together faculty and students from a broad range of academic backgrounds for work exploring the potentials of electronic technologies, striving always to build structures which will further both excellence and equity. Functionally the Institute works both as an internal funding agency, soliciting proposals and making awards, and as a project development office, organizing and supporting efforts to win grants from external sources. Currently the Institute projects can provide researchers with well-equipped facilities for working with advanced learning technologies, especially in areas of multimedia. Its technical resources are continuously developing, and through them the Institute provides an important base for advanced work with the learning technologies at the College.

A board of senior Teachers College faculty members advises on Institute policies and programs. Members are

- Harold F. Abeles, Professor of Music Education and Director of the Division of Instruction
- John B.Black, Professor of Computing and Education and Director of the Literacy Center
- Nathan Dickmeyer, Vice President for Finance and Administration and Chair of the Teachers College Technology Committee
- Herbert P. Ginsburg, Professor of Psychology and Mathematics Education
- Robert McClintock, Director and Professor of History and Education
- Emst Z. Rothkopf, Cleveland E. Dodge Professor of Telecommunications and Education
- Margaret Jo Shepherd, Professor of Education
- Robert P. Taylor, Associate Professor of Computing and Education and Chair of the Department of Communication, Computing, and Technology

The Institute has had a variety of technology related projects funded by external sources since its inception seven years ago. Among these have been the following:

- From 1985 through 1988, a component of the Institute, the Center for Intelligent Tools in Education, directed by Robert P. Taylor, received a grant of $645,000 in funds and more than $500,000 in equipment from IBM University Relations.
- A $500,000 equipment gift from the late Dr. Ben D. Wood to extend and upgrade the LAN development environment begun with IBM University Relation's grant to start the Center for Intelligent Tools in Education.
- A $200,000 project with the Russell Sage Foundation to design and develop a networked microcomputer environment for their facilities.
- A $160,000 contract to design and do the initial development of an interactive information program called BranchOut for ESI and InsightGuide.
- The New York Youth Network, an electronic bulletin board for at risk teenagers, funded by NYNEX ($100,000), the New York Community Trust ($35,000), and the Robert Bowne Foundation ($25,000).
- A $70,000 contract from the Narcotics and Drug Research, Inc., to design a microcomputer network for their research staff.
- An $84,000 grant from the National Science Foundation for work on computer based simulation of harmonics for a high school physics course.
- A grant from the Fund for the Improvement of Post-Secondary Education to develop a model for long-term in-service training of technology teachers ($150,000 plus $23,000 in equipment from Apple, Inc.)
- A gift of $151,000 in equipment and $14,000 in funds from Apple, Inc. to equip an instructional lab.

- A $100,000 joint study contract with IBM ACAS to develop hypertext help materials for novice microcomputer users.
- A $145,000 grant from the U.S. Department of Education to explore translation of a Japanese mathematics curriculum using manipulables as the basis for instruction.
- A grant for Classroom, Inc. of upwards of $400,000 from Morgan Stanley, Inc., to develop a computer simulation for high school students to interest them in careers in the real estate and hotel industries.
- An equipment gift of $160,000 from IBM University Relations to facility efforts at integrating networked multimedia into the curriculum and life of the school.

Since 1990, the Institute and the New Laboratory for Teaching and Learning at the Dalton School have been collaborating on "The Cumulative Curriculum Project," a major effort to integrate networked multimedia technologies into the curriculum and life of the school, kindergarten through high school. Currently this project has funding of $2,000,000 for 1991-92 and 1992-93 through the New Lab. This effort address three broad domains -- to develop the infrastructure of equipment, software, and human skills needed to fully employ networked multimedia throughout the real life a working school; to create with the new technologies collaborative, constructivist educational programs, helping students develop their cultural and human capacities more effectively than they would in traditional educational settings; and to integrate into our system selected resources that will enable teachers and students to achieve a higher level of educational excellence.

Over the next few years, the Institute will maintain these lines of initiative. In addition, it will devote increasing effort to the question of how to assess the development and achievement of students working in schools that use advanced technologies intensively. Such setting do not merely extend traditional settings, doing the same things at perhaps accelerated paces. Significant changes occur in what students learn, in how students learn, and in why students learn. These changes will require the thorough redesign of student assessment.