

What is PLATO?

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The Roach Organization's Local PLATO Delivery System is an instructional local area network that combines computer hardware and software into a comprehensive and flexible system. It combines instruction, management, and testing capabilities to give instructors and administrators the tools to construct and manage programs that are responsive to individual student needs.

The standard configuration includes one file server and up to 50 student workstations. The file server contains hard disks that can store more than 2000 lessons as well as records for up to 1000 students at one time. In addition, space is allocated for customer-owned DOS-based courseware and applications. The file server contains a high-performance microprocessor that controls and monitors all workstations. Workstations can operate as part of the network or as stand alone microcomputers.

One of the most powerful features of the system is called the Curriculum Manager. It allows the instructor to individualize student learning paths, providing material appropriate to individual student skill levels. While students work on the computers individually, the Curriculum Manager component of the file server records vital information on their progress. This frees the instructor to work with individual students requiring additional help.

The routing feature of the system allows access to activities including PLATO lessons, drills, and tests (pre-tests and post-tests); Curriculum Manager options; and other DOS-based lessons and applications. Routing allows instructors to specify lesson prerequisites, review lessons, and sequence lessons. They can also select scoring methods, specify completion and mastery criteria, and control student access to lessons and activities.

A wide variety of reports are available for individual students or groups of students. Report data include: completion status, score/mastery status, time on task, date and time started, date and time completed, date and time last accessed, and number of accesses.

PLATO courseware is designed for students whose learning needs range from basic skills remediation to college level. The PLATO courseware library includes: Basic Skills, High School Skills, Life Coping Skills, Job Search, High School and College Level Courses, and Technical Skills Courses. Some of the courseware was "Canadianized" in 1985-86 and is currently in revision and upgrade for release in August, 1990.

The Basic Skills Series is designed to provide students with the skills normally acquired in grades three through eight. It is ideal for students who have not reached grade level expectations in reading, math, or language arts, who have not achieved their own educational goals, and/or who need to build a foundation for further educational achievement.

The Basic Skills curricula is objective based. To reach specific competencies or skill levels, students begin with simple objectives and advance to the more complex. A student must master each objective completely before attempting the next. Each student must pass a test to demonstrate mastery of the objectives in a lesson.

In mastering each objective, students encounter a variety of learning methods: Tutorial lessons present new skills; Drill and Practice lessons reinforce the new skills; Review lessons summarize the information and test for student understanding; and Application lessons offer further practice in the new skills.

Instructors may choose either a pre-test/lesson/post-test or a lesson/post-test approach. The pre-test method is advantageous since it allows students to "test out" of objectives and move directly to unmastered materials. Students move quickly through the material, avoid frustration, and feel greater success. The lesson/post-test approach better meets the needs of students who have lower achievement levels or those who might experience frustration in a pre-test situation.

The Roach Organization's Local PLATO Delivery System can be a valuable asset in the management and delivery of high quality instruction.

PLATO - Two Sites in Saskatchewan

The use of computer-based instruction in adult education is increasing in Saskatchewan with the emergence of PLATO - The Roach Organizations instructional local area network.

The Meadow Lake Tribal Council (MLTC) is providing each of its nine remote Local Learning Centres with 2 1/2 months of PLATO-based training. The Local PLATO Delivery Systems are housed in two Mobile Learning Units (trailers).

This education project, called the New Opportunities Project, was established to promote economic development within the Council's nine bands, by meeting both the training needs of band members and labor market requirements. The project, which began full operation in the fall of 1988, is funded for three years under the Canada Employment and Immigration Commission's (CEIC) Innovations program, with additional funding from Indian and Northern Affairs Canada, the Saskatchewan Indian Institute of Technologies, the MLTC and its nine bands.

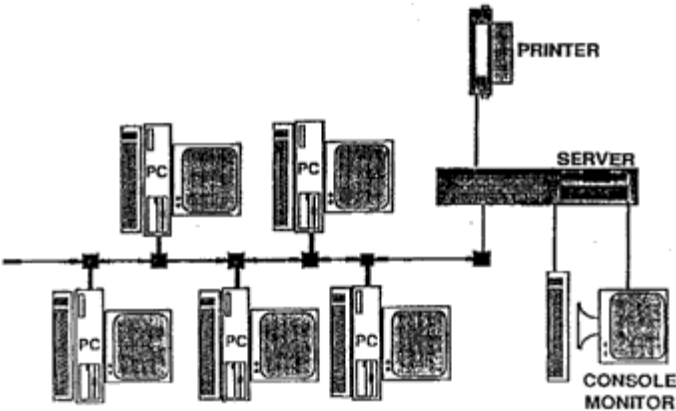
PLATO allows students to progress academically at their own pace in an individualized, open intake environment. Although the majority of students are enrolled in the Adult Basic Education programs, several Program options are offered at each centre. These include everything from basic literacy at the pre-Grade 5 level to pre-employment trades courses (available through S.I.A.S.T.) and undergraduate university courses (available through distance learning at Athabasca University, as well as through various extension and correspondence programs of the universities of Regina, Saskatchewan, and Waterloo).

Contact: Peter Mayotte, Director, New Opportunities Project, Box 1360, Meadow Lake, Saskatchewan, S0M 1V0 (306) 236-5654.

Another PLATO implementation, which began full operation on March 5, 1990, has been established in Regina by **Multicultural Enterprises Inc.** Their Adult Learning Centre provides primarily academic upgrading to CEIC- sponsored adults (ages 18 - 25) through the Canadian Jobs Strategy. Following entry testing, each of the 12 learners upgrades academic skills from entry level (minimum of Grade 5) to high school skills level, using PLATO Basic Skills and High School Skills curricula. With a 1 to 6 instructor/student ratio, the two instructor/counsellors work closely with this special client group, checking progress frequently and making program adaptations to meet learner needs. Students build confidence with academic progress and with personal development (life skills) related to employment behavior. After 25 weeks of upgrading, students options are expanded, including work placement and Grade XII and G.E.D. challenges.

Contact: Carlo Bizzarri, Manager, Multicultural Enterprises Inc., 208-1911 Park Street, Regina, Saskatchewan, S4N 2G5, (306) 522-4493.

One Example of a PLATO Delivery System



PLATO Evaluation Summary

- Site:** Industrial Cape Breton Youth Employment Opportunity
Sydney, Nova Scotia, Canada
- Student Population:** Severely employment disadvantaged youth who averaged age 20. The students had an average grade 10 equivalency and had been out of school an average of three years. One third of the students had never been employed.
- Program Description:** The Local PLATO Delivery System (LPDS) was used to provide students with academic upgrading and employment preparation. The program ran six hours per day, five days per week for approximately nine weeks. Students received PLATO computer-based instruction and individual tutoring for three hours each day, and spent the remaining three hours in life skills group activities and individual counselling. Following completion of their basic life and work skills upgrading, each student spent four weeks in intensive job search training.
- Pre/Post Academic Test:** Canadian Achievement Test (CAT)
Canadian Adult Achievement Test (CAAT)
General Educational Development (GED)
- PLATO Courseware Used:** Basic Literacy Skills: Mathematics, Reading, and Language Arts
Advanced Literacy Skills: Mathematics, Reading, Writing, Science and Social Studies
Life Coping Skills
Job Search Program
- Results:**
- 93% of those students who started the program completed the program;
 - 37% of those students who completed the program found employment;
 - 89% of those students who found employment are in the same or better job;
 - 79% of those students who took the General Educational Development (GED) examination passed;
 - and the average attendance rate over the five years of operation of the program is 97%.

Average Main Grade Equivalents

	<u>Pre-test</u>	<u>Post-test</u>	<u>Grade Level Increase</u>
Mathematics (n=224)	9.0	10.6	+1.6
Reading (n=224)	10.8	11.6	+0.8
Language Arts (n=224)	10.6	11.7	+1.1

Evaluation Period: 1984-1989

PLATO Evaluation Summary

- Site:** Kirkness Adult Learning Centre
Winnipeg, Manitoba
Canada
- Student Population:** The majority of the students were of native ancestry with multiple barriers to education for entering employment-directed training. The students ranged in age from seventeen to sixty-one years, had an average grade 8 equivalency, and had been out of school for an average of fourteen years.
- Program Description:** The Local PLATO Delivery System was used to provide adult basic education. The program ran five hours per day, five days per week for approximately three months. Students received PLATO computer-based instruction and individual tutoring for three and one-half hours each day, and spent the remaining one and one-half hours in life skills group activities and individual counselling.
- Pre/Post Academic Test:** Adult Basic Literacy Examination (ABLE)
Canadian Achievement Test (CAT)
- PLATO Courseware Used:** Basic Literacy Skills: Mathematics, Reading, and Language Arts
Advanced Literacy Skills: Mathematics, Reading, Writing, Science, and Social Studies
Life Coping Skills
- Results:**
- 62% of those students who started the program completed the program;
 - 60% of those students who completed the program obtained employment or proceed to employment-directed training;
 - 50% of the students had been involved in other academic upgrading programs with a 34% completion rate; and
 - the average attendance rate over the-five years of operation of the program is 90%.

	<u>Average CBE Hours*</u>	<u>Average Grade Increase</u>
Mathematics (n=144)	78.6	+1.8
Reading (n=859)	37.9	+1.2
Language Arts (n=699)	29.7	+1.9

* PLATO Computer-Based Education

Evaluation Period: 1983-1989

PLATO Evaluation Summary

- Site:** Adult Learning Center
Cuyahoga Community College
Cleveland, Ohio
- Student Population:** Job Training Partnership Act (JTPA) youth and adults, age eighteen to their mid-fifties, who were economically disadvantaged. All students were high school dropouts in need of basic skills development required for achievement of a General Educational Development (GED) certificate or occupational skills training for direct job placement.
- Program Description:** The Local PLATO Delivery System, together with formalized classroom instruction and individualized tutoring, was used to offer basic skills remediation in mathematics and reading and GED preparation. Students spent two hours in the program each day with approximately one and one-half hours dedicated to PLATO computer-based instruction. Students spent an average of ten weeks in this open entry/open exit format program.
- Program Goals:**
- Successful completion of the GED examination;
 - Job placement; or
 - A minimum grade level gain of 1.0 in mathematics and reading.
- Pre/Post Academic Test:** GATES McGinty Test
Test of Adult Basic Education (TABE)
General Educational Development (GED)
- PLATO Courseware Used:** Basic Literacy Skills: Mathematics and Reading
Advanced Literacy Skills: Mathematics, Reading, Writing, Science, and Social Skills
Life Coping Skills

Results:

- Of the students who took the GED exam, 70% passed;
- 71% of the students felt very well prepared to continue their education;
- Of the 525 students enrolled in the program, 191 have gone on to continue their education at Cuyahoga Community College; and
- 80% of the Students enrolled in the program indicated they would strongly recommend it to a person seeking a GED Certificate or basic skills remediation.

	<u>Average Grade Level Increase</u>
Mathematics (n=525)	+1.9
Reading (n=525)	+1.8

Evaluation Period: April 1986 - March 1987

PLATO Evaluation Summary

- Site:** Longfellow Alternative school
Dayton Public Schools
Dayton, Ohio
- Student Population:** Students requiring remediation in mathematics, reading, and language arts. As the school year progressed, additional groups of students were enrolled, including: special education students, learning disabled students, developmentally handicapped students, and students preparing for the General Educational Development (GED) examination.
- Program Description:** Longfellow students were enrolled in the Local PLATO Delivery System (LPDS) lab on a pullout basis as an extension to their classroom instruction. The program was designed to provide basic skills remediation for "at-risk" student populations. Assignments to the lab varied from one to three days per week for one hour per day. Special programs and attendance patterns were also designed to address individual student needs.
- Program Goals:**
- To meet the individual needs of students requiring remediation; and
 - To achieve a minimum of .5 grade level increase in reading or mathematics for each 20 hours of PLATO computer-based instruction.
- Pre/Post Academic Test:** Test of Adult Basic Education (TABE)
General Educational Development (GED)
- PLATO Courseware Used:** Basic Literacy Skills: Mathematics and Reading
Advanced Literacy Skills: Mathematics, Reading, Writing, Science, and Social Studies
Algebra
Life Coping Skills

Results:

	Average Mean Grade Equivalents			
	<u>PLATO Modules Completed</u>	<u>Pre-test</u>	<u>Post-test</u>	<u>Grade Level Increase</u>
Mathematics (n=83)	32	5.5	7.2	+1.7
Reading (n=23)	71	6.0	7.6	+1.6

Note: In addition to the Longfellow student population, the LPDS lab was utilized by a special Community outreach program. In conjunction with the adult education programs provided by the Dayton Public Schools. LPDS lab time was extended after hours to members of the General Motors/Inland study groups. These adult Learners were involved in basic skills development as well as GED preparation. Approximately 100 students attended the lab three afternoons per week from October 1987 to June 1988. Success rates included over 95% of the students attaining their GED certificate.

Evaluation Period: 1987 - 1988 academic year

PLATO Evaluation Summary

- Site:** Mesa Vo Tech
Mesa Unified School District #4
Mesa, Arizona
- Student Population:** Students who were ranked in do lowest 25th percentile within the school district with a portion identified as special education.
- Program Description:** The Local PLATO Delivery System was used to provide basic literacy skills development in reading and mathematics. Each participant received one to two hours of computer-based instruction per week during a period of one to two semesters. During the 1989-88 school year. 257 students were enrolled in the PLATO reading curriculum and 312 students were enrolled in the PLATO mathematics curriculum.
- Program Goals:** To improve the overall reading and mathematics grade levels of each participant.
- Pre/Post Academic Test:** Stanford Achievement Test
- PLATO Courseware Used:** Basic Literacy Skills. Mathematics. Reading. and Language Arts
Advanced Literacy Skills: Mathematics, Reading, Writing, Science, Social Studies and Computer Awareness

Results:

	<u>PLATO Modules Completed*</u>	<u>Pre-test</u>	<u>Post-test</u>	<u>Grade Level Increase</u>
Grade Equivalents				
Mathematics (n=309)				
average	30	2.4	6.4	+4.0
minimum	2	0.0	2.0	+1.0
maximum	153	8.0	10.0	+8.0
Reading (n=165)				
average	17	4.2	6.6	+2.4
minimum	2	2.0	3.0	+1.0 (minimum)
maximum	119	9.0	10.0	+7.0 (maximum)
Language Arts (n=61)				
average	14	4.2	8.5	+4.3
minimum	2	4.0	6.0	+2.0 (minimum)
maximum	70	8.0	10.0	+7.0 (maximum)
* Each module contains pre/post tests, tutorial, drill, and, in many cases, application lessons.				

Evaluation Period: 1987 - 1989 academic year

PLATO Evaluation Summary

- Site:** Mon Community college
Flint, Michigan
- Student Population:** Students in need of remediation prior to enrollment in credited courses at the college.
- Program Description:** The Local PLATO Delivery System in conjunction with classroom instruction was used to provide basic skills remediation in reading, English and mathematics. The program was simultaneously designed to compare the achievements of students enrolled in a control group who received traditional teacher-led classroom instruction with students enrolled in a parallel section each course supplemented with PLATO computer-based instruction.
- Program Goals:**
- To meet the individual requirements of students in need of remediation; and
 - To determine the effectiveness of computer-assisted instruction
- Pre/Post Academic Test:** Test of Adult Basic Education (TABE)
- PLATO Courseware Used:** Basic Literacy Skills: Mathematics, Reading, and Language Arts
Advanced Literacy Skills: Mathematics, Reading, and Writing
Algebra

Results:

Average Mean Grade Equivalents				
	<u>Hours of CBE*</u>	<u>Pre-test</u>	<u>Post-test</u>	<u>Grade Level Increase</u>
Reading 020				
Control Group (n=14)	0	9.5	10.5	+1.0
Experimental (n=13)	12.1	5.3	7.2	+1.9
English 024				
Control Group (n=12)	0	6.2	9.3	+3.1
Experimental (n=19)	9.5	6.7	10.0	+3.3
Mathematics 021				
Control Group (n=18)	0	8.0	9.1	+1.1
Experimental (n=19)	16.4	8.5	10.4	+1.9
Mathematics 101				
Control Group (n=13)	0	10.5	11.3	+0.8
Experimental (n=16)	14.0	11.1	11.8	+0.7
* PLATO Computer-Based Education				

Evaluation Period: January - May 1989

PLATO Evaluation Summary

Site:	North Lake College Dallas County Community College District Dallas, Texas
Student Population:	Job Training Partnership Act (JTPA) eligible youth and adults who had dropped out of school or who were potential dropouts.
Program Description:	The Local PLATO Delivery System was used to provide each participant with 180 hours of instruction over a twelve week period. Emphasis was placed on basic skills development, General Educational Development (GED) exam preparation, and life coping and job skills awareness.
Program Goals:	<ul style="list-style-type: none">• To improve the reading, mathematics, and writing skills of each participant by one or more grade levels;• To move students forward toward the achievement a high school diploma or GED certificate;• To provide basic skills instruction to high school students as they prepared for the Texas Educational Assessment of Minimum Skills (TEAMS) examination; and• To increase each participants awareness of life coping and job skills
Pre/Post Academic Test:	Texas Educational Assessment of Minimum Skills (TEAMS) General Educational Development (GED)
PLATO Courseware Used:	Basic Literacy Skills: Reading and Mathematics Advanced Literacy Skills: Reading, Mathematics, and Writing Life Coping Skills

Results:

- 88% of the students were considered positive completions by improving one or more grade levels in one or more basic skill areas;
- 82% of the group considered "at-risk" were enrolled in high school the next academic year;
- 15% of the dropout group returned to high school;
- 23% returned to North Lakes program for GED preparation; and
- 15% continued with North Lake's remediation program.

Average Mean Grade Equivalents	
	<u>Average Grade Level Increase</u>
Mathematics (n=24)	+1.8
Reading (n=24)	+1.7

Evaluation Period: 1988 academic year - second semester

PLATO Evaluation Summary

- Site:** Riverside County JTPA
Riverside, California
- Student Population:** Job Training Partnership Act (JTPA) eligible summer youth who had dropped out of high school.
- Program Description:** The Local PLATO Delivery System was to provide basic skills upgrading and life coping and job skills awareness during a twelve week General Educational Development (GED) preparation program. Students spent 20 hours per day in the program for in average of 8.5 weeks.
- Program Goals:**
- To improve the reading, mathematics, and writing skills of each participant; and
 - To move students toward the achievement of a high school diploma or GED certificate.
- Pre/Post Academic Test:** Test of Adult Basic Education (TABE)
General Educational Development (GED)
- PLATO Courseware Used:** Basic Literacy Skills: Mathematics and Reading
Advanced Literacy Skills: Mathematics, Reading, Writing, Science, Social Studies and Computer Awareness
Life Coping Skills
Job Search Program
- Results:**
- Students obtained an average 2.5 grade level gain in mathematics after spending an average of 4.2 weeks in the program;
 - Students obtained an average 10 grade level gain in reading after spending an average of 2.9 weeks in the program; and
 - 99% of the students enrolled in the program completed the program.

Average Mean Grade Equivalents

	<u>Hours of CBE*</u>	<u>Pre-test</u>	<u>Post-test</u>	<u>Average Grade Level Increase</u>
Mathematics (n=28)				
average	91	7.2	9.9	+2.7
minimum	40	4.9	7.5	+1.1
maximum	140	8.9	12.9+	+4.5
Reading				
average	61	7.9	11.1	+3.2
minimum	20	5.1	8.9	+1.2 (minimum)
maximum	160	9.9	12.9+	+5.5 (maximum)
* PLATO Computer-based Education				

Evaluation Period: Summer of 1988

PLATO Evaluation Summary

- Site:** Tom Skinner Associates Learning Center
Newark, New Jersey
- Student Population:** Inner-city, low-income students age eight through adult. Students were held accountable for the educational opportunity being offered to them by signing a partnership contract with the center, agreeing to meet certain educational standards within the course of their eighteen month "contract".
- Program Description:** The Local PLATO Delivery System, together with a combination of traditional teaching methods and video technology, was used to provide basic skills development in reading, writing and mathematics, coping skills, employability skills; leadership skills; and moral excellence skills. Students were required to spend at least 10 hours per week at the center.
- Program Goals:**
- To develop a future with a moral conscience; to raise a new generation of leaders from among the poor who are technically, educationally, and morally excellent;
 - That all school age students develop reading and mathematics skills at or above grade level;
 - That students preparing for college score at least 1100 on the Scholastic Aptitude Test (SAT), representing the top 20 percent of the nation; and
 - That more than 75 percent of the students enrolled in the Employability Skills program are employed within six months of completing the program.
- Pre/Post Academic Test:** California Test of Basic Skills (CTBS)
General Educational Development (GED)
Scholastic Aptitude Test (SAT)

PLATO Courseware Used: Basic Literacy Skills: Mathematics and Reading
Advanced Literacy Skills: Mathematics, Reading, Writing, Science, Social Studies, and Computer Awareness
Life Coping Skills

Results: On average, the reading level of students increased 1.5 grade levels for every 30 hours of work and the mathematics level increased 1.5 grade levels for every 40-50 hours of work.

Average Mean Grade Equivalents	
	<u>Average Grade Level Increase</u>
Mathematics (n=28)	
(n=100)	+1.5
(n=50)	+1.0
Reading	
(n=100)	+1.5
(n=50)	+0.5

Evaluation Period: December 1987 - August 1988