

Myths and Realities about Technology in K-12 Schools

**Glenn Kleiman
EDC and Harvard University**

Four key questions about technology in the classroom

- Why use technology in the classroom?
- What does effective use look like?
- How can we know?
- How do we get there?

Five myths about technology in K-12 schools

From *The Digital Classroom: How Technology is Changing the Way We Teach and Learn*. Harvard Education Letter, 2000

- #1: Putting computers into schools will directly improve learning; more computers will result in greater improvements.
- #2: There are agreed-upon goals and "best practices" that define how computers should be used in K-12 classrooms.

Five myths about technology in K-12 schools (con't)

- #3: Once teachers learn the basics of using a computer they are ready to put the technology to effective use.
- #4: The typical district technology plan is sufficient for putting technology to effective use.
- #5: Equity can be achieved by ensuring equal student-to-computer ratios

How do we get there?

- Vision: Where are we heading?
- Effective collaborative processes.
- Essential conditions for effective technology use.

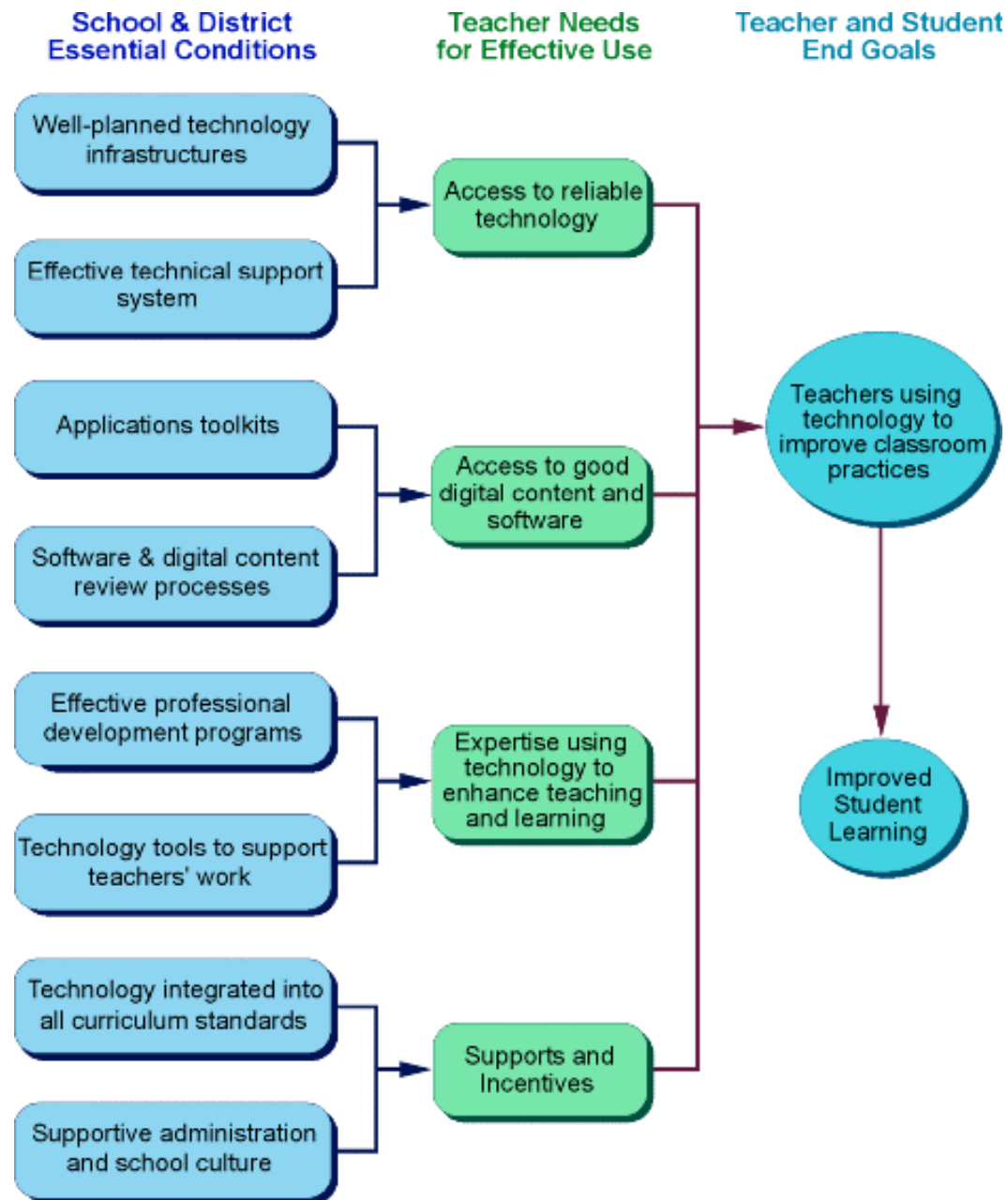


Figure 1: Essential Conditions for Effective Classroom Use of Technology

Findings of the National Teaching, Learning and Computing National Survey

- Directed by Hank Becker, UC-Irvine
- Funded by U.S. Dept of Ed and NSF
- Detailed survey of national sample of schools and teachers
- 4000+ teachers, 1100+ schools
- Very thoughtful analyses
- All reports are available at:
http://www.crito.uci.edu/tlc/html/tlc_home.html

Computers are used more frequently when:

- Teachers have more “constructivist” (vs. “transmission”) oriented approaches
- Computers are in the classroom (as opposed to labs)
- Teachers have reasonable expertise with computers themselves
- There are longer class periods
- In-depth learning of fewer topics is encouraged

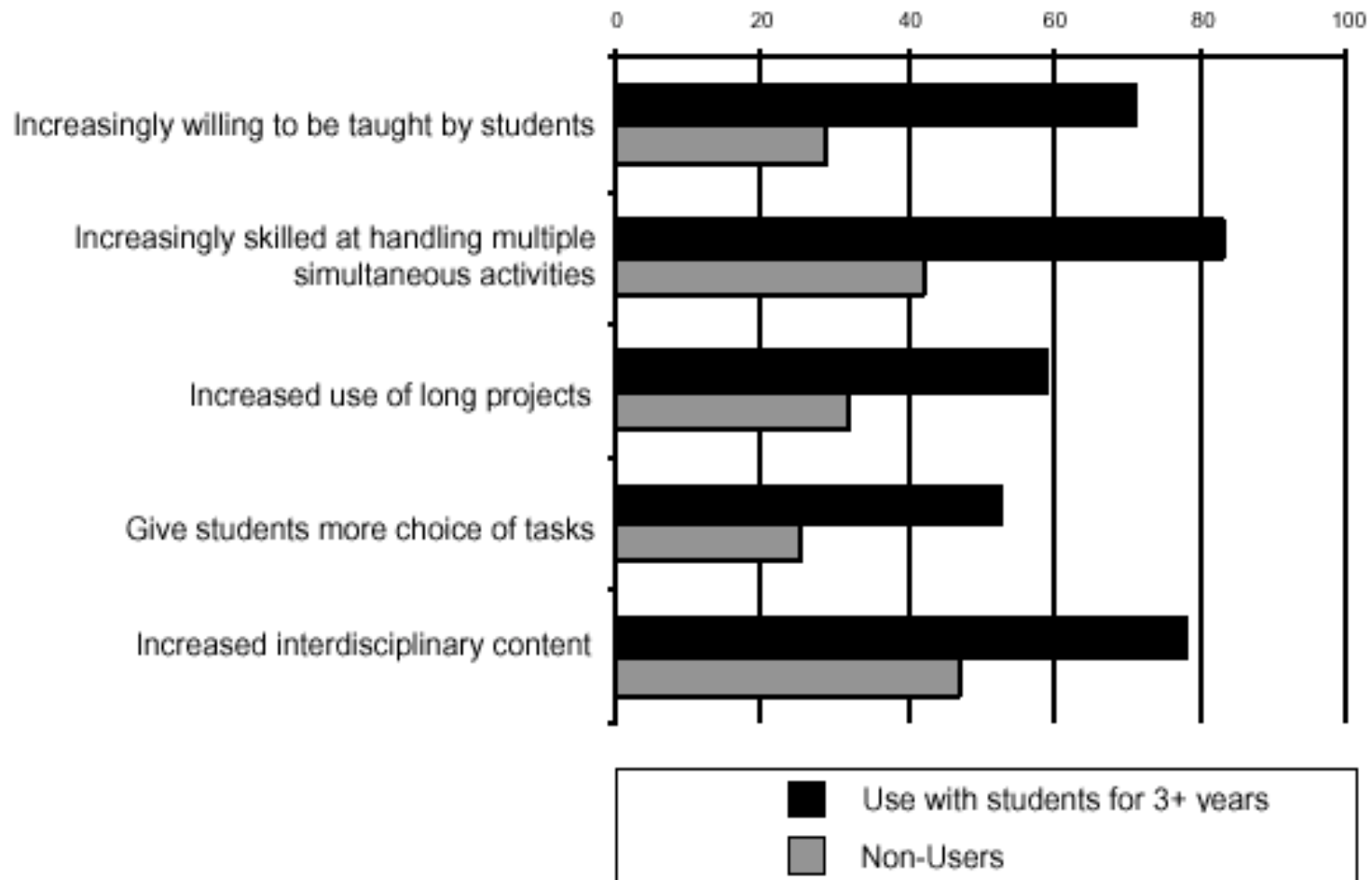
A Key Finding

- When these five conditions are met, the majority of teachers will have their students make active and regular use of computers

Teaching philosophy is linked to objectives for computer use

- Constructivist teachers objectives
 - communicating, presenting information, collaborating, getting information
- Transmission oriented teachers objectives:
 - reinforce skills and remediate skills.

Impact on teachers over time



Relates to ACOT stages of teachers' technology use

- Resistant (added to yesterday's list)
- Entry – teacher learning to use
- Adoption – begin classroom use
- Adaptation – integrate into existing practices
- Appropriation – begin to change practices
- Invention – exploring new ways of teaching and learning

Discussion Question

- Where are your teachers on these stages?
- How do you know?
- How does your support and professional development program address teachers needs at the different stages?

(See table on pp 216-217 of *The Evolution of Instruction in Technology-Rich Classrooms* article)

An Example District: Union City

- Thanks to Fred Carrigg, Executive Director for Academic Programs, Union City NJ Schools, and Union City students for the following information
- See Union City online tour [add URL]

Union City, New Jersey

- 60,000 Residents In 1.4 Square Miles
- 1990 Census - Most Densely Populated Urban Community In The U.S.
- 48 Blocks Long, 5 Avenues Wide
- One School Every 4 Blocks

Union City School District Demographics

- 9803 students
- 93% Latino, 95% Minority
 - 68% do not speak English at home
 - 32% are enrolled in bilingual/ESL programs
 - 14% have been in the country less than 3 years
- 80% receive free or reduced lunch

Union City School District Demographics

- 14 schools
 - 3 elementary schools
 - 1 Pre-K
 - 2 Pre-K - 5
 - 5 Pre-K - 8
 - 1 Middle School
 - 2 High Schools



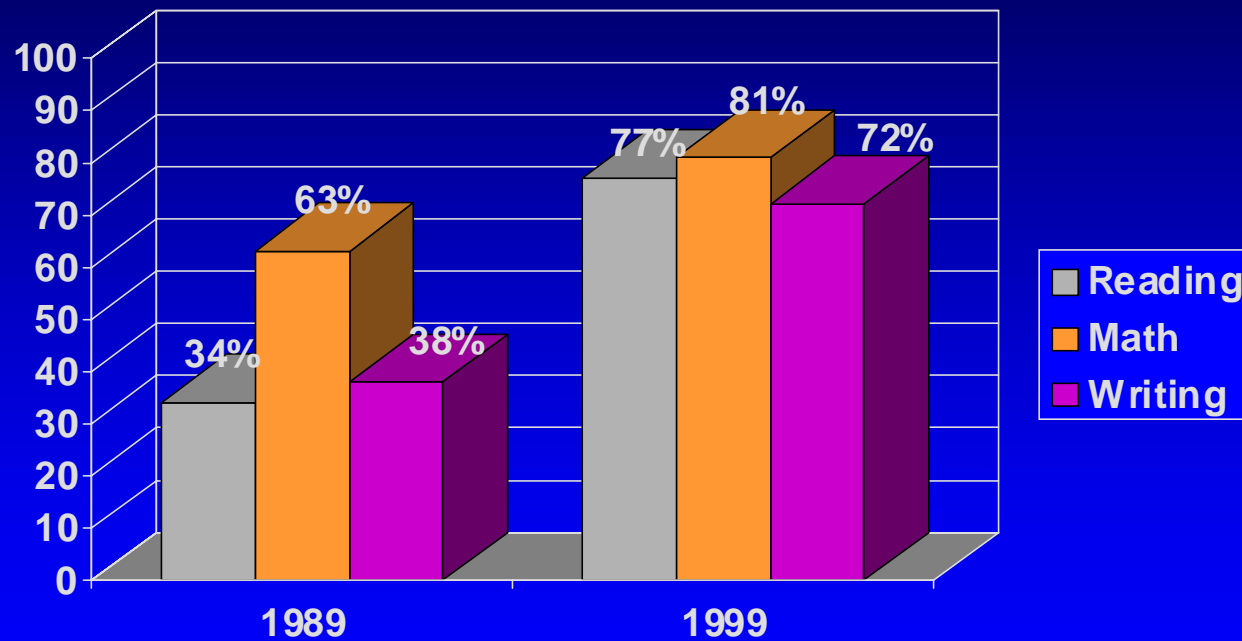
1989

- Verge of NJ state Takeover
- Failed 44 of 52 state Indicators
 - Low Test Scores
 - Poor Staff and Student Attendance
 - Inadequate Resources (textbooks, materials and supplies)
 - Little Staff Professional Development
 - Inadequate Community Participation and Support

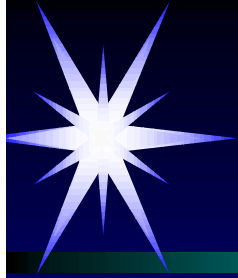
UNION CITY SCHOOL DISTRICT

1989-1999 1st Grade CAT

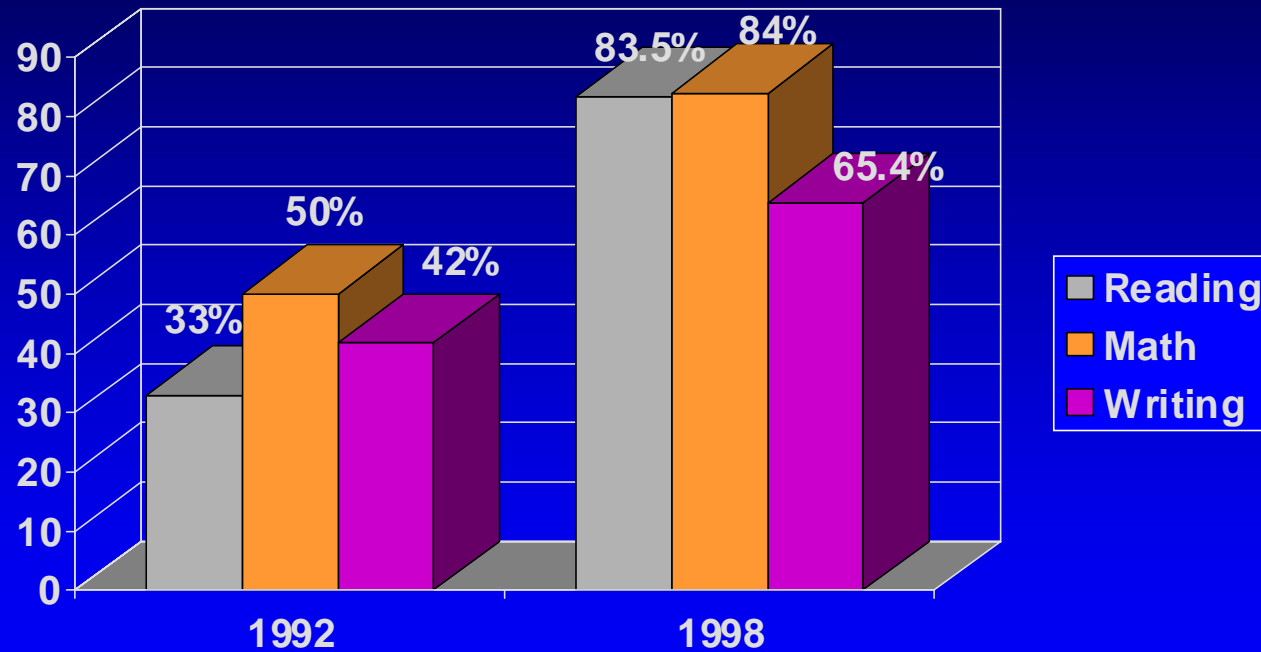
National Percentile Comparison



1989 Spring CAT before curricular/ technology reforms and 1999 after.



UNION CITY SCHOOL DISTRICT 1992-1998 8th Grade EWT comparison



**1998 was the last year this test was administered.*

1992 Spring EWT before curricular/ technology reforms and 1998 after.

Union City District Wide Restructuring

Old

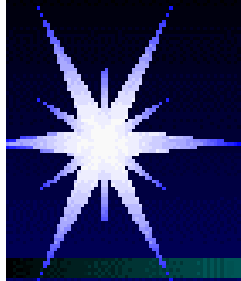
Failing District
Threatened with State
Takeover (1989)
Passing Rates for 8th
grade EWT: 30-35%

New

Urban Model
Awarded State
Certification (1995)
Passing rates for 8th
grade 8 EWT: 80%+

Key Components of Systemic Reform to Create a Technology Friendly Environment

- Organizational Changes
 - Curricular and Methodological
 - Time and Space
 - Cooperative and Collaborative Environment
- Staff Development
 - Systematic
 - Individualized
 - Long Term
- Technology resources



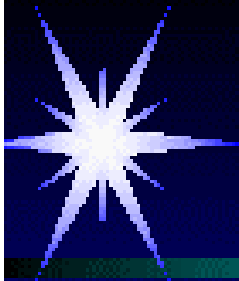
Union City District Wide Restructuring

Old

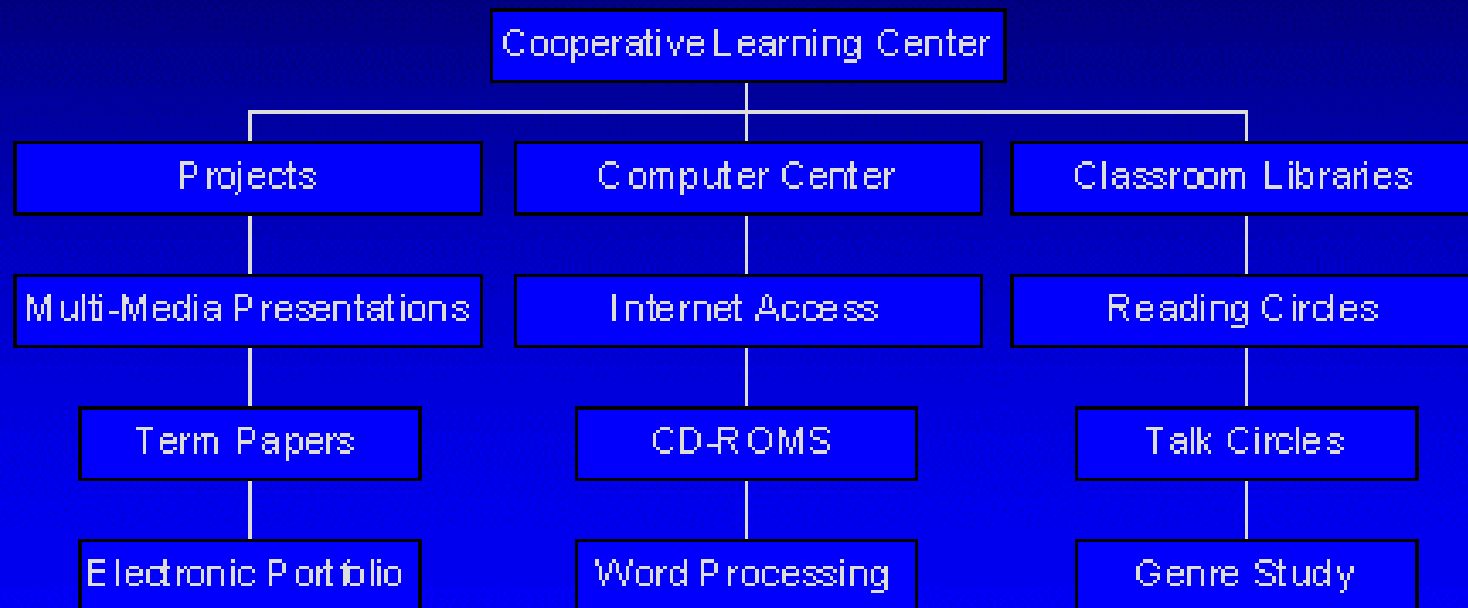
- Traditional Curriculum based on texts / rote
- Traditional Periods
- School Labs with a separate curriculum
- Vertical Teaching
- Central Management
- Limited Professional Development
- Limited Parent Involvement

New

- ◆ *Inquiry based/authentic materials*
- ◆ *Block Scheduling*
- ◆ *Classrooms with Integrated Technology*
- ◆ *Horizontal Teaching*
- ◆ *School-based Management*
- ◆ *Continuous Professional Development*
- ◆ *Increased Parental Involvement*



Changes in the Classroom Language Arts Model



Middle School Course of Study - Seventh & Eighth Grades

- 15 Periods - Whole Language uninterrupted instruction
- 10 Periods - Developmental, uninterrupted math instruction
- 5 Periods - Health / Science
- 3 Periods - Supplemental Science or Social Studies
- 5 Periods - Social Studies
- 7 Periods - Specials (Varies by school)
- 45 Periods total

True Elements of Life

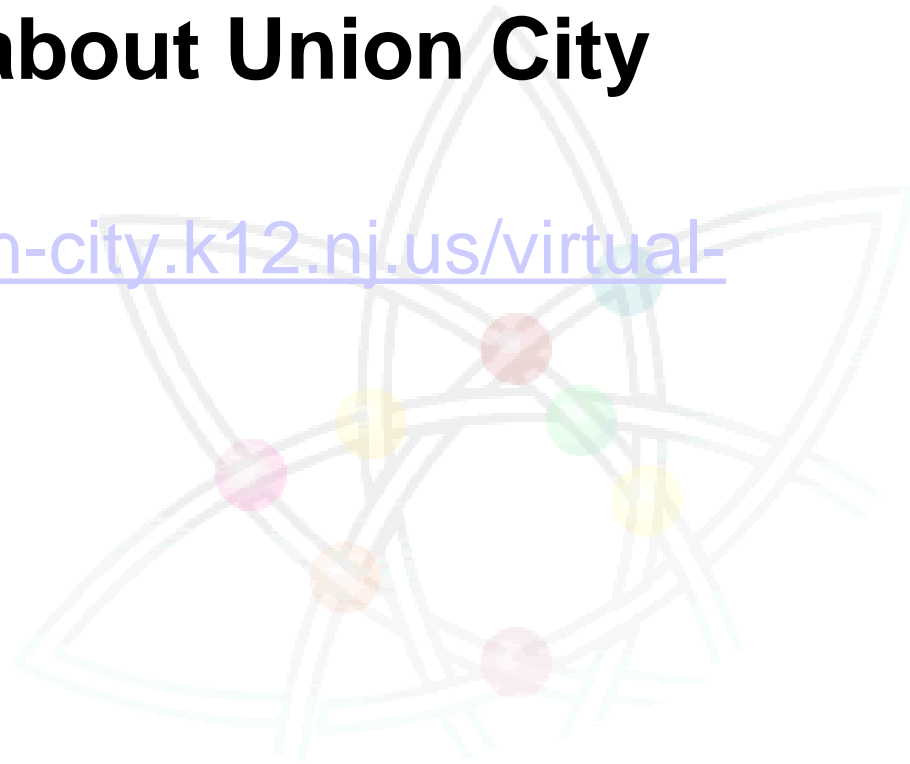
- Mastering Content Knowledge
- Gathering and Utilizing Information
- Working in Collaboration with Others
- Individual Accountability
- Group Effort
- Peer Editing
- Organizational Skills

Factors for Success in Union City

- Key parties working together
- Strong base of teacher support
- Teachers at the center of curriculum revision
- Sufficient funding from a variety of sources
- Commitment to school-based decision making
- A close connection between curriculum and technology

More about Union City

- <http://www.union-city.k12.nj.us/virtual-tour/main.html>



Seven Dimensions of Progress Evaluation Framework

- (See “at a glance” pp 34-5)
- Learners
- Learning Environments
- Professional Competency
- System Capacity
- Community Connections
- Technology Capacity
- Accountability