

## Building TRALEs to Literacy for Young Learners

by

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### INTRODUCTION

An ongoing priority for American education is the systemic reform of urban schools to better meet the needs of an increasingly diverse student population. One general recommendation from policymakers is that school reform efforts target the early education of young children through the design and implementation of effective, responsive curricula.

This *Spotlight* describes a new instructional program being developed under the auspices of the Laboratory for Student Success (LSS) at Temple University Center for Research in Human Development and Education (CRHDE) to address this national need.

The program, *Technology-Rich Authentic Learning Environments*, or TRALE, has the goal of developing a responsive instructional package for young, urban learners in which technology-based tools play an integral role.

### WHAT IS TRALE?

In essence, TRALE is a principled framework for designing meaningful instruction for children in grades K-3. Meaningful instruction is created through the use of authentic, problem-based learning activities. When appropriate,

technology is utilized as a tool in the activities. For example, children may learn to alphabetize by creating an inventory list for their classroom store. Once the list is made, it may become a computerized spreadsheet that is used for real inventory and accounting purposes. TRALE is put into practice as a community

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comprised of businesses, service organizations, and special interest groups. Each classroom assumes a unique role (e.g., as a store, newspaper, theater group, museum, etc.) and together the classrooms engage in the ongoing exchange of goods and services.

TRALE's approach to the teaching of reading, writing, and mathematics has its roots in cognitive science. According to this view, academic skills, like all cognitive activities, are essentially problem-solving in nature and are best

acquired in problem-based learning environments (Anderson, 1993, 1995). Like other complex cognitive skills, people develop expertise in reading, writing, and math, and the course of that development parallels, in many important ways, the development of other types of cognitive competence (Scardamalia & Bereiter, 1991). Similarly, just as experts rely on both automated and conscious skill components, expert readers, writers, and mathematicians automate some parts of those skills and retain other parts as conscious strategies.

In addition, sociocognitive and sociocultural factors appear to have a large impact on the organization and content of a person's knowledge (Langer, 1987; Vygotsky, 1987). Since an individual's thoughts and actions are the products of one's knowledge base, the social contexts that house the experiences of individuals directly shape the nature of a person's cognitions. In this sense, one's cognitions are situated within particular social contexts.

### COGNITIVE APPRENTICESHIP

One instructional application that draws heavily on many of the concepts associated with the development of expertise in situated

contexts is that of the *cognitive apprenticeship* (Brown, Collins, & Duguid, 1989). In general, cognitive apprenticeships are authentic instructional environments in which one or more students (apprentices) study under the mentorship of someone more skilled, with the stated intention of developing expertise in that particular area.

The researchers believe that the concept of a cognitive apprenticeship can be successfully applied to early childhood instruction and TRALE represents their attempt to translate the theoretical concepts underlying cognitive apprenticeships into instructional practice.

According to the researchers, at least five critical dimensions must be taken into account in designing effective learning environments for young children. In that regard, the TRALE classroom must possess these five characteristics:

1. *Goal-Directedness*—refers to the idea that human thoughts and actions are purposive and, as such, sound instructional practice requires making the goal(s) of learning explicit.
2. *Authenticity or Contextualization*—refers to the idea that a student has some meaningful prior knowledge that can aid in understanding new concepts and solving new problems. Simulating a store in a classroom is meaningful because of the children's experiences with neighborhood stores. Thus, alphabetizing a list of items for a store's inventory becomes an "authentic" task.
3. *Shared Responsibility*—refers to the social nature of the learning enterprise. In part, shared responsibility provides a motivation for learning.
4. *Multiple Modes of Expression and Representation*—For young children, one must allow literate expression to take many forms (e.g., art or acting). Simil-

arly, instruction should provide multisensory opportunities for acquiring literacy skills so that children will develop enriched representations of their world.

5. *Use of Technology*—Not only is multimedia technology an efficient delivery system for multisensory input, it also engages students for long periods of time. Further, with the increasing importance of computer literacy, young children should have as much access as possible to the tools they will be expected to master.

### PROGRAM EFFECTS

TRALE has undergone development, implementation, and evaluation in grades K-3 of one school in the District of Columbia Public Schools (DCPS) system. For the 1996-97 and 1997-98 school years, rigorous evaluations of the program have been completed (cf. Yekovich & Walker, 1998). Several important results have been observed with TRALE:

- When TRALE is implemented effectively and continually, the growth in children's achievement (as measured by standardized tests) is greater than in comparable, non-project classrooms, particularly in grades 2 and 3.
- Successful TRALE classrooms become "child centered" rather than "teacher centered."
- Teachers report increased collaboration among students and spontaneous group problem-solving.
- Teachers report greater student competence and increased ability to work independently.
- Technology use is clearly motivating for the children and is a medium with which they will engage for extended, productive periods of time.
- Students want to be legitimate, participating members of the

community and will alter their behaviors in positive ways in order to participate.

### CONCLUSION

Technology-Rich Authentic Learning Environments, or TRALE, is a promising new program for young urban learners. It engages them in authentic, problem-based learning activities by capitalizing on their *a priori* knowledge. At the same time, TRALE promotes the use of technology for real purposes.

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