



“I Know *What* We’re Doing, But How Do *We* Do It?”

Action Sequences for Curriculum-Based Telecomputing

By Judi Harris

Designing curriculum-based learning experiences for and with students is like planning, building, finishing, and furnishing a home. When houses are built, spaces for living are created. When educational activities are designed, spaces for learning are established. Different rooms in the home serve different purposes, but rooms with similar purposes (such as kitchens) in different dwellings can look and function quite differently. Similarly, the same activity structures can be used to help students at different levels and with different curricula learn in differentiated ways that are best suited to their interests and needs. (More information on designing curriculum-based telecomputing using activity structures can be found in September 1998’s “Mining the Internet,” in the book *Virtual Architecture: Designing and Directing Curriculum-Based Telecomputing*, and online at <http://ccwf.cc.utexas.edu/~jbharris/Virtual-Architecture/>.)

Once an educational activity is conceptualized, however, it cannot be implemented until students’ learning-related *actions* are planned. To know that a learning activity is ready for implementation in the classroom, we must determine the component processes in which

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students will engage, their approximate sequence, and the resources needed to support learning. Analogously, designing a kitchen doesn't directly imply what we need to do to fix dinner tonight.

A house's frame and finishing help create different spaces, or rooms, with different purposes. Actions in various parts of the house differ partly based on the nature of the spaces in which they occur. Similar actions, however, can happen in different ways in different parts of the house. Analogously, once we have designed an Internet-supported educational activity (the flexible frame), how can we know how to help students participate in and with it? To assist with this more process-focused kind of planning, I have recently identified seven *action sequences* that can be combined within and across *activity structures*, which also are usually combined to create viable curriculum-based learning experiences. Activity structures help form the general plan for the learning project, while action sequences help plot the steps that students will take as they use the activity's structure to engage in active learning.

Action "C-Quences"

The seven action sequences used in Internet-supported, curriculum-based activities that I have observed to date are described below with project examples.

Correspond

Prepare a communication locally, then send it to others. They respond, and the process continues.

Journey North's Phenology Data Exchange project asks students, "Using nature's clues, can you find your partner?" Participating classes observe local natural phenomena such as number of hours of daylight, length of a meter stick's shadow at noon, temperatures, date of last snowfall, dates that tulips and tree leaves emerge and bloom, and dates when the first frog, robin, hummingbird, butterfly, or monarch egg is seen or heard. Students share these data with classes in other parts of the world,

usually by e-mail, without knowing where the other classes are located. Participants then communicate across the miles, using the data they exchanged to deduce the approximate locations of their partners' classes, as well as to compare and contrast how and when seasons arrive in different places on earth.

Compete

Register to participate, then do an activity locally. Submit completed work by a deadline, then receive feedback.

Teams of K–12 students and student-selected coaches (usually teachers) compete each year in **Advanced Network & Services' ThinkQuest**, a contest that encourages students to create educationally sound, Web-based learning environments for other students to use. Large monetary and scholarship prizes are awarded annually in several categories to participating students, coaches, and schools. More important, all ThinkQuest educational site entries remain online for learners and teachers around the world to use.

Comprehend

Locate online resources, then make primarily local use of them.

Bernie Dodge and Tom March created the *WebQuest* in 1995 at San Diego State University. Since then, this powerful illustration of the "comprehend" action sequence has spawned many rich learning activities for students and worthwhile professional development for teachers. What *is* a WebQuest?

A WebQuest is an inquiry-oriented activity in which most or all of the information used by learners is drawn from the Web. WebQuests are designed to use learners' time well, to focus [learners] on using information rather than looking for it, and to support learners' thinking at the levels of analysis, synthesis, and evaluation. (Dodge & March, <http://edweb.sdsu.edu/webquest/overview.htm>)

For more information, check **The WebQuest Page**.

Collect/Share/ Compare

Create something locally, then add it to a group of similarly created works, and combine them to form a centrally located collection.

Now in its 11th year, David Warlick's **Global Grocery List Project** helps students from all over the world collect prices for each component of a common 15-item grocery list. The list includes items such as rice, oranges, peanut butter, coffee, and premium unleaded gasoline. Participating classes use the price lists contributed by their peers and posted at the GGL Web site to discover which items are more expensive in which places. Once these patterns are identified, students can begin to research and discuss *why* there are such differences in cost; they use additional data posted by each participating class on average housing costs, average per capita income, and specific geographic location to do so.

Chain

Do an activity locally, create records of that activity, then send something on so that the next group can do something similar.

First-grade teacher Evelyn Kelley's **Backpack Buddies**, one of several **Travel Buddies** projects that have been conceptualized and supported by Lindy McKeown in Australia, are "traveling teddy bears that visit your room for one week." They arrive in backpacks, along with postcards, journal entries, and other artifacts added by classes the teddy has already visited. Suggested learning activities to be done while the bear is visiting are also included, and pictures, stories, and reports of special activities in which the bear was engaged in each classroom are displayed on the project's Web page. Once a visit is over, the bear is packed into its backpack and shipped by first-class surface mail to the next classroom in the project's sequence.

Come Along

Shadow others as they travel either physically or cognitively, perhaps communicating briefly in the process.

Many rich telefieldtrip experiences are available on the Web. For example, **GlobaLearn's** spring 1999 **Eastern Mediterranean Expedition** allows us to shadow a team of adult and student explorers as they travel through countries bordering the eastern areas of the Mediterranean Sea. In the process, virtual travelers can learn much about the history, current conditions, cultures, and people—especially children—in this important area of the world. The expedition's route is described at the Web site in this way: "The GLoBaLearn expedition team will begin in Alexandria, Egypt, and travel through many of the countries that border the eastern Mediterranean, including Israel, Lebanon, Turkey, Greece, Italy, and Tunisia. Visit the ruins of Athens and learn about the Ottoman Empire, while meeting local children living today in these historically significant countries." (www.globalearn.com/expeditions/eme.html)

Collaborate

Work with remotely located others to realize a common goal.

On April 1, 1999, Canada will have a new territory called Nunavut (noo-navoot), an Inuktitut word that means "our land." Canadian students have been participating in teacher Bill Belsey's **Countdown to Nunavut Project**, learning much about the new territory and collaboratively designing aspects of the new government that will serve the people of Nunavut. Student teams' suggestions have been submitted as reports to the Nunavut Implementation Commission, the governmental officials who are creating the territory's infrastructure and policies.

Structures + Sequences = Project

These seven sequences for students' actions are usually combined within a particular curriculum-based project. Activity

structures often work together to form the project's overall structure. In any telecollaborative and/or teleresearch project, therefore, there are one or more activity structures and action sequences working together that describe the plan and its implementation.

For example, Nick Nacks' "What's News? Current Events Challenge" is a tri-weekly Jeopardy-like parallel problem solving activity in which teams of students create questions directly related to a current events topic (such as the "crisis in Iraq") for which answers (such as "U.N. inspectors" and "Baghdad") are posted in advance on a Challenge Answer Board. Students use information gleaned partly from recommended online resources, the links for which are supplied by the project's coordinator, to learn about the topic and create their questions. Near the end of each three-week period, participants can engage in a real-time, text-based game show version of the challenge using Internet Relay Chat at the TalkCityWeb site. In this one project, parallel problem-solving, information search, and question-and-answer activity structures frame comprehension and competition action sequences.

Designs into Actions

As teachers who guide students' learning, we know that true knowing comes from doing. (Teaching and learning are inextricably intertwined; as learners ourselves, we often must take action before real professional development can occur.) This is why it is important to include action sequences in our plans for curriculum-based learning activities. The most engagingly structured educational project serves nobody unless it is operationalized appropriately. Such action must proceed from careful thought (hence including action sequences in project planning), because, as Georges Bernanos once wrote, "A thought which does not result in an action is nothing much, and an action which does not proceed from a thought is nothing at all" (Tripp, 1970, p. 5).

Using "wetware" (thinking tools) such as activity structures and action sequences can help us—and help us assist our students—create effective and engaging spaces for, and feats of, Internet-supported learning. ■

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Reference

Tripp, R. T. (1970). *The international thesaurus of quotations*. New York: Thomas Y. Crowell.

Resources

Action Sequences: Sample Curriculum-Based Projects: www.tapr.org/~jbharris/action-sequences.html
 Advanced Network & Services: www.advanced.org/index.html
 Backpack Buddies: <http://scott.net/~ekelley/bkpkbuddies/>
 Countdown to Nunavut Project: www.arctic.ca/LUS/Nunavut.html
 GLoBaLearn: www.globalearn.org/
 GLoBaLearn's Eastern Mediterranean Expedition: www.globalearn.com/expeditions/eme.html
 Global Grocery List Project: <http://landmark-project.com/ggl.html>
 Journey North: www.learner.org/jnorth/current.html
 Journey North's Phenology Data Exchange: www.learner.org/jnorth/pde/PhenDataExchange.html
 Nick Nacks Telecollaborate! <http://home.talkcity.com/academydr/nicknacks/>
 Spring Phenology Checklist: www.learner.org/jnorth/pde/SpringPhenDataChecklist.html
 TalkCity: <http://www.talkcity.com/>
 ThinkQuest: www.thinkquest.org/
 Travel Buddies: <http://rite.ed.qut.edu.au/oz-teachernet/projects/travel-buddies/travel-buddies.html>
 The WebQuest Page: <http://edweb.sdsu.edu/webquest/webquest.html>
 What's News? Challenge Answer Board: <http://www1.minn.net:80/~schubert/WNboard.html>
 What's News? Current Events Challenge <http://www1.minn.net:80/~schubert/WNplan.html>