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ABSTRACT

The research brief on community-based instruction for individuals with severe disabilities is based on a manual for practitioners titled "Designing Community-Based Instructional Programming" developed at the University of Utah. The manual stresses the importance of preparing students for community participation by providing instruction in the community environment. General case programming is recommended as a framework for identifying the range of variation across sites, thus increasing the generalizability of instruction. The method involves the following steps: (1) analyze performance demands; (2) select training sites for instruction; (3) sequence sites and tasks for instruction; (4) conduct baseline probes; (5) select a chaining strategy; (6) select an assistance strategy; (7) develop a correction procedure; and (8) organize data collection and monitor student performance. A sample data recording form is included. Includes 13 references. (DB)

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ERIC CLEARINGHOUSE ON HANDICAPPED AND GIFTED CHILDREN

ERIC/OSEP SPECIAL PROJECT ON INTERAGENCY INFORMATION DISSEMINATION

RESEARCH BRIEF FOR TEACHERS

DESIGNING COMMUNITY-BASED INSTRUCTION

BRIEF T4
DECEMBER 1990

The past decade has seen an increased emphasis on community-based instruction to prepare individuals with severe disabilities for employment and community living. To be successfully prepared for community participation, these students should be provided with instruction that takes place in the environment in which they will be expected to perform. In addition, a student should be able to generalize that instruction beyond the specific site in which he or she was taught. General case programming provides a framework for identifying the range of variation across sites, thus increasing the generalizability of instruction. The following method of designing community-based instruction relies on that framework.

To improve the efficiency and effectiveness of community-based instruction, a project at the University of Utah conducted research and developed two manuals for practitioners, *Designing Community-Based Instructional Programs* and *Designing Classroom-Based Instructional Programs*. The manuals were field-tested with teacher candidates and experienced teachers of secondary students with severe disabilities. The teachers' satisfaction with the manuals was assessed, and the instructional programs they developed were analyzed with respect to the critical elements of classroom- and community-based instruction. Results indicated that both groups successfully used the manuals to develop classroom- or community-based instructional programs. This brief provides a synopsis of the method described in *Designing Community-Based Instructional Programs*.

ANALYZE PERFORMANCE DEMANDS

For this general case analysis, identify the sites that represent all of the settings in the community where the student can perform the activity to be taught. Select specific tasks for the student to perform and list the steps the student must carry out to complete the tasks. Then identify and record the environmental cues at each site that tell the student when and how to complete each step.

An example. For a student learning to purchase snacks in a fast food restaurant, the teacher selected three tasks: (a) purchasing a soft drink and french fries, (b) purchasing a milkshake and a cookie, and (c) purchasing coffee and a sundae. The steps in the activity were (a) entering the restaurant, (b) approaching the counter, (c) ordering, (d) paying, (e) moving out of line to wait for the food, (f) picking up the food, (g) going to the table, (h) eating the food (i) disposing of trash, and (j) leaving the restaurant. There were six fast-food restaurants in the community. In one restaurant, customers placed their orders in one location and picked them up in another, while in a different restaurant, the food was ordered and received in the same location. There were also differences in other environmental cues, such as the type and location of the cash register, entrances and exits, and trash containers. The teacher recorded the sites, the steps of the activity and the variations in environmental cues on forms provided in the manual, *Designing Community-Based Instructional Programs*.

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SELECT TRAINING SITES FOR INSTRUCTION

To select training sites, determine the minimum number of sites that will allow the student to learn all variations of the activity. Begin by selecting the site closest to the school to minimize travel time, and add sites that account for the remainder of the variation in environmental cues. In the example, three of the sites represented all of the variation in environmental cues.

SEQUENCE SITES AND TASKS FOR INSTRUCTION

If it is logistically possible to present all of the sites in five consecutive sessions, use random sequencing. Random sequencing presents all sites consecutively so that the student does not learn to do the activity in a way that is unique to one site. To develop a random training sequence, specify and record the site and tasks to be presented during each session, making sure that each site is presented at least once during every five sessions, and that presentation of sites and tasks is as unpredictable as possible. Develop an instructional sequence for 20 sessions. Next, establish a performance criterion for terminating instruction: Specify *how well* the student must perform the activity and *how many times* the student must perform at that level to demonstrate competence. In the example, the student had to demonstrate 100% accuracy on all tasks for two consecutive sessions at each site. Continue training until the student can perform the activity reliably without assistance from the trainer.

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If it is not possible to present all of the sites in five consecutive sessions, or if you think that the student would be overloaded by trying to learn all of the sites at once, use cumulative sequencing. Cumulative sequencing trains the student to perform reliably at one site before moving on to the next site. Schedule the training to begin at the site closest to the school. When the student can perform all steps of the activity reliably in this setting, introduce the second site and continue there until the student can perform reliably. In the next stage, the student must perform reliably at both sites when they are presented randomly. Continue to introduce the sites one at a time for training and combining with previous sites until the student can perform reliably at all sites.

Create a cumulative sequence for the tasks using the same method: Work on one task until it is mastered, then move to the second task, then combine tasks for random presentation. Establish criteria for moving between steps and for terminating instruction using the principles described for random sequencing, above.

CONDUCT BASELINE PROBES

This stage identifies the steps of the activity that the student cannot perform and the level of assistance that the student will need. First, designate which site will be used for each probe session. Assign the easiest site to the first session and continue to assign sites in a progression from "easy" to "difficult." Assign tasks to sites randomly, and if possible, present all tasks at each site. If this is not possible, select a subset of tasks that represents the full range of difficulty for all tasks.

Begin each probe trial by providing the student with the materials needed to complete the activity. Time the probe trials and use an increasing prompt hierarchy when the student makes an error. The hierarchy is (a) an indirect verbal prompt, (b) a direct verbal prompt or gesture, (c) a model, (d) a physical prime, and (e) full physical assistance. Record the amount of assistance provided on each activity step and the time used for the probe trial (include travel time).

From these records, determine the level of assistance necessary to ensure correct responses for all tasks at all sites and identify the steps of the activity that are difficult for the student. (The student will need extra practice to master these steps.) This will allow you to estimate the time needed for training.

SELECT A CHAINING STRATEGY

Chaining builds the activity so that the student learns step by step to perform the whole activity. Effective chaining strategies for community activities include *whole-task chaining* and *backward chaining*. Whole-task chaining presents all of the steps of the activity in each instructional trial. If this strategy will not overload the student, it is preferred, as it allows the student to master the activity at his or her own rate and is more efficient than backward chaining. Since whole-task chaining presents all of the steps of the activity in their naturally occurring order, there is no need to develop program steps to control the introduction of the tasks.

In backward chaining, steps are introduced one at a time from the end of the activity to the beginning. Backward chaining avoids overloading the student and allows the teacher to provide immediate reinforcement using the natural reinforcers associated with the activity (e.g., drinking a soda or eating a cookie). First develop a series of steps beginning with the last activity step and moving sequentially to the first step. For each session, describe what the student must do during a trial and what the teacher must do during a trial.

For example, a teacher using backward chaining assisted with the first nine steps during the first instructional session, and the student performed step 10. In the second instructional session, the teacher assisted with steps 1 through 8 and the student performed steps 9 and 10. This progression continued, with the student performing additional steps in each instructional session until the student could perform all of the steps without assistance.

SELECT AN ASSISTANCE STRATEGY

There are three general assistance strategies available: the increasing-prompt hierarchy, the decreasing-prompt hierarchy, and the time-delay procedure. As described above, the increasing-prompt hierarchy allows the student to make errors and correct them, with the teacher providing increasing amounts of assistance until the student performs correctly. If the student can perform the activity most of the time or requires only minimal assistance, the increasing-prompt hierarchy should be used.

The decreasing-prompt hierarchy and the time-delay procedure are designed to prevent the student from making errors. If the student has not mastered the activity, either of these procedures may be used. A decreasing-prompt hierarchy reduces the amount of assistance provided across instructional sessions. The levels of assistance are the same as in the increasing-prompt hierarchy, but in reverse order.

In a time-delay procedure, the amount of assistance provided to the student does not change across instructional sessions. Prompts are systematically faded by increasing the time between the environmental cue and the prompt, usually in 1 second increments. To plan a time-delay sequence, first use the baseline probe information to identify the *specific prompts* that will allow

the student to complete each error step correctly on the first attempt. Develop a series of steps in which each step increases the time delay by 1 second, beginning with a "no delay" step and ending at least 1 second beyond the period that you think is reasonable for the student to initiate the step.

In the example, the student's baseline probe data indicated that he needed a verbal prompt and a gesture before approaching the counter at the fast-food restaurant. This is the prompt for the first step throughout the training. The teacher felt that the student should initiate this step within 3 seconds of entering the restaurant. The sequence started with "no delay"--the teacher provided the prompt as soon as the student entered the restaurant. Once the student approached the counter reliably, the teacher delayed the prompt for 1 second. When the student went to the counter within 1 second, the teacher provided verbal reinforcement. When the student did not approach the counter within 1 second, the teacher provided the designated prompt.

The time-delay procedure also requires that criteria be established for moving through the steps of the time-delay sequence. The criterion for each step must demonstrate that the student can perform reliably, but should not require "overtraining" on any step. In the example, the criterion was that the student approached the counter immediately when given the prompt on five consecutive trials. The teacher then moved to giving the prompt after a 1-second delay. It is recommended that the student be tested occasionally to see if he or she can complete the step at the last delay level.

DEVELOP A CORRECTION PROCEDURE

Although the decreasing-prompt and time-delay procedures are designed to elicit correct responses, the student may make errors. When this occurs, a correction procedure is needed. The correction procedure should be structured to ensure that the student makes a correct response. It should include three elements: (a) providing immediate feedback, (b) requiring the student to reinitiate and complete the step, and (c) providing the level of assistance needed to ensure that the student completes the step correctly.

In the example, the student moved toward the line at the counter, but did not go to the end of the line. The teacher provided feedback by saying, "No, you must go to the end of the line." Then he backed up to the previous step in the chain by returning with the student to the door. There, he provided the prompt for the step by saying, "Go to the end of the line" and pointing to the correct location.

ORGANIZE DATA COLLECTION AND MONITOR STUDENT PERFORMANCE

The organization of the data varies with the assistance strategy selected for the student. If you are using a decreasing-prompt hierarchy, keep records of the prompts planned and actually used for each activity step during each session. One way to do this is to list the cues, activity steps, and prompts in three columns on a page and mark off small columns across the rest of the page for the instructional sessions. At the top of each column, put the date of the session. List the prompt you intend to use in half of the space; during the session, mark the student's performance with a "+" (student performs the activity step without assistance), a check (student performs the activity step when given the prompt), or a "-" (student does not perform the step correctly or requires assistance). An example is provided in Figure 1.

If you are using whole-task chaining, this will provide a record for each activity step. If you are using backward chaining, mark out the steps not addressed during each session, and record the student's performance only for the steps taught.

If you are using a time-delay assistance strategy, list the prompt and time-delay periods in the column for prompts, and mark the student's performance with a "+", check, or "-" as described above. Forms for tracking and summarizing the data are found in *Designing Community-Based Instruction*. Training should continue until the student can perform the activity independently, without assistance from the trainer. If desired, the training strategies described here can be embedded within a self-control training program. For more information on self-control strategies, see *Using Cognitive Strategies in the Acquisition of Employment Skills*, by Rusch, Hughes, and Wilson (in press).

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FIGURE 1
Example of a Data Recording Form from *Designing Community-Based Instructional Programs*

Student Bob
Activity Using Fast-Food Restaurants
Chaining Strategy: Whole task
Correction Procedure. "No" Back up 2 steps and repeat step with assistance.

Cue	*Activity Step*	*Trainer's Prompt*	*Student Date Site & Task Step Chain Step* Bob 2 29 1	Comments
1. a. Door	1. Enter the restaurant			
2. a. Counter b. Cash register c. Order sign	2. Approach counter	1. "Go to the register end of the line" and point 2. "Go to the register end of line" 3 "Okay, what do you do?"	1 ✓	
3 a. Verbal request	3 Order	1. "Show them your book & touch wrist 2. "Show them your book & touch elbow 3 Show them your book 4 Okay, what do you do?	1 ✓	

(Form continues through all activity steps.)

This brief was abstracted from *The Improving Community-Based Instruction Project Final Report,* (1988), by John McDonnell, available from the School and Community Integration Project, Department of Special Education, Utah State University, Salt Lake City, UT 84112. *Designing Community-Based Instructional Programs* and *Designing Classroom-Based Instructional Programs* are included in the report and are available from the same address. The report will be available approximately March 1991, from the ERIC Document Reproduction Service, 3900 Wheeler Ave., Alexandria, VA 22304 (1-800-227-3742). Contact EDRS for the price per copy in microfiche or paper copy. EC number is 232 413

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ERIC CLEARINGHOUSE ON HANDICAPPED AND GIFTED CHILDREN
THE COUNCIL FOR EXCEPTIONAL CHILDREN
1920 ASSOCIATION DRIVE, RESTON, VA 22091