

How the Teacher Collects and Uses Evidence

This article outlines a practical method for the teacher in collecting and using evidence in solving problems in the classroom.

IT IS NORMAL for problems to exist in the classroom, and their existence does not necessarily indicate that something is wrong or has been poorly done. Every teacher recognizes many problems, whether of a group or of an individual. In some cases, however, he may have difficulty defining a problem even when he recognizes that it exists. Examples of problems frequently expressed are these:

1. How can these children learn to spell accurately in their daily written work?
2. How can retarded children learn to read as well as they should for their ability?
3. How can this one child develop a number sense which he apparently lacks?
4. How can these gifted children be challenged to work up to their capacity?
5. Why is this child behaving as he does and what can be done to help him?

The classroom teacher is constantly confronted with problems related to selection of learning experiences, to organization of activities, and to methods of instructional procedures for more effective learning by children. Whether aware of it or not, the teacher is daily engaged in a kind of classroom research. He plays a leading role in evaluation, for it is impossible to separate evaluation from the total learning process. He is continually formulating tentative hypotheses based upon obser-

vation and examination, then testing these hypotheses by means of the collection and inspection of more complete data, arriving at conclusions which determine a course of action that validates or invalidates the original hypotheses.

Analysis of child growth and learning progress is continually being made by the teacher. It is important to make the analysis logical. Logical analysis of child growth and learning progress requires that the classroom teacher shall establish and follow certain definite procedures.

I. Establish criteria. Although the teacher may start by sensing a problem, it is his criteria, stated or not, which permit him to define the problem. "What skills, abilities, habits and attitudes do I expect these children to practice as a result of my teaching them?" Selection of criteria is based upon one's educational philosophy, knowledge of child development and psychology of learning, experiences with children, and community ideals. The criteria selected "imply the kinds of observations to be made and provide

Alice F. Hansen is a staff member of the Oakland Public Schools, Oakland, California.

a base for judgments" to be determined.¹

Criteria may well be defined in terms of behavior patterns which evidence certain skills, abilities, habits, attitudes and understanding desired. Behavior patterns are in operation outside the school as well as in it, and are therefore not always readily and easily discernible. Emphasis is placed upon what the child *does* do, not what he can do. These are examples of behavior patterns which may be desired:

1. The child spells accurately in daily written work. (skills, habits)

2. The child participates constructively in oral discussion. (abilities)

3. The child gets along well with others and is liked and respected by them. (attitudes, skills)

4. The child practices good health habits. (understandings, habits)

5. The child makes effective use of the library. (skills)

Each of these broadly stated patterns should be broken down into specific patterns to be looked for. Specifics for the first criterion might be:

1. The child spells correctly the most common words he has occasion to use in daily written work.

2. He makes effective use of the dictionary for the spelling of a word he does not know.

3. He is continually learning to spell new words.

4. He uses an effective method for studying the spelling of new words.

5. He regularly proofreads his written work, recognizes and corrects his own spelling errors.

Defining specific behavior patterns is of value to the teacher for these reasons:

¹ C. W. Harris, "Appraisal of a School," *Journal of Educational Research* 41:172-182; November 1947. Madison, Wisconsin: Dembar Publications.

1. This practice tends to improve the selection of learning experiences to promote the type of behavior desired.

2. It helps to organize learning situations in some kind of program to facilitate this behavior.

3. It assists the teacher in evaluating whether or not the program has succeeded in these respects.

The second major step in evaluation of pupil progress comes after the classroom teacher has asked himself these questions: "What characteristic, ability, understanding, skill, or combination thereof, do I want to note in pupils at this time? What behavior patterns clearly evidence this characteristic, ability, understanding, or skill?"² We cannot observe in general, only specifically. Trying to look in all directions at the same time merely results in a blurred picture and serves no good purpose.

II. Collect data. The second major step in evaluation is an area much neglected. It consists largely of testing and observing. Too often the busy teacher relies solely upon hastily constructed paper and pencil tests which merely record behavior in a unique situation. By applying practices of good test construction it is possible for the teacher to obtain a certain type of evidence which is fairly valid, reliable and objective. It is important to collect data not only regarding pupil knowledge but also regarding pupil ability to perform in a dynamic, not a conforming, way, to apply principles, see relationships, select relevant ideas, make comparisons, determine trends, and predict outcomes. There are few commercial tests which are useful in collecting data re-

² Eugene R. Smith and Ralph W. Tyler, *Appraising and Recording Student Progress*. New York: Harper and Brothers, 1942.

garding such difficult-to-measure skills, attitudes and understandings. Moreover, each learning experience is unique, and there is considerable value to the teacher in constructing a carefully planned test in that it forces him to re-examine his purposes. "What understandings, skills, etc., should these children have at this time as a result of this learning experience?"

A test may take the form of annotated observation. In determining to what extent a child makes effective use of the library, for example, the teacher may turn pupils loose in the school library with a problem which may have arisen in social studies or science. If, after careful observation on the part of the teacher, he and the children recognize the need for further instruction in the use of library materials, future activities are planned together. Thus purposeful learning situations are produced to facilitate the kind of behavior deemed desirable by teacher and pupils. Later, similar research periods in the library may be conducted and evaluated, with related activities planned as needed, until such time as teacher and pupils feel that the criterion has been achieved. Evaluation is a continuous process which accompanies learning experiences, and much of it can be done by teacher and pupils jointly.

Various measurement devices such as teacher-made tests, standard achievement and diagnostic tests, mental and physical tests may be used. In addition to these, the teacher can employ interest inventories and sociograms. The teacher may believe he knows his pupils so well that a sociogram is unnecessary, but it is surprising what additional insight is often obtained by

means of a sociogram. Pupils should be informed why they are asked for their choices, and choices made by children should then actually be considered in some immediate planned activity.³ It is well to plot a sociogram early in the year and then again about six months later to determine what progress has been made in social adjustment after the teacher and the pupils have tried to improve conditions.

Writing of autobiographies by pupils early in the school year may reveal the language arts needs of children. It may also yield much pertinent information regarding cultural-social background and social-emotional needs. The keeping of folders containing representative work of pupils may furnish evidence that speaks for itself to teachers, pupils and parents. Periodical examination of their own work in folders is enjoyed by pupils and may assist them in evaluating their own progress. Writing of report card comments by pupils prior to issuance of cards may be an effective device for collecting evidence regarding a pupil's ability to determine his own needs and to evaluate his progress.

Observation of pupil behavior is helpful to the teacher if recorded systematically and objectively by means of anecdotal records. Providing learning activities which permit the teacher to observe pupil behavior is essential, although much information can be gleaned by means of observation on the playground and in and about the school. Casual visiting with pupils be-

³Helen Hall Jennings, "Sociometric Grouping in Relation to Child Development," in *Fostering Mental Health in Our Schools*. Association for Supervision and Curriculum Development, 1950 Yearbook. Washington, D. C.: the Association, a department of the National Education Association, 1950. p. 203.

fore and after school, although frowned upon by many administrators and sometimes not feasible, may meet a real need of pupils and teachers. In recording comments it is imperative that remarks be kept objective, be specific and extend over a period of time. Interpretation or evaluation should not enter into the recording.⁴

For children with serious or unusual problems a case study written by the teacher is most helpful. The writing of but one case study a year may well be beneficial, not only to the individual child concerned, but because it may help the teacher acquire a greater awareness of the problems of other children.

Teacher-parent conferences and teacher-pupil conferences supply much useful data if there is first established good rapport and if the teacher can refrain from doing most of the talking. Well kept cumulative records furnish another source of useful information.

III. Interpret data. After the evidence has been collected by the teacher, behavior must be compared with behavior patterns specified as desirable. Direction of behavior change is as important as the amount of change. This interpretation of data, or evaluation of pupil progress, is particularly valuable in that it provides information basic to effective guidance. Whenever possible, pupils should be permitted to share in the interpretation of data and planning of future activities. "What did our work today show us that we need to do?" It is well to remember that pupils must obtain some satisfaction in performance of activities, in

⁴ Helen Bieker, "Using Anecdotal Records to Know the Child," *ibid.* p. 184.

recognizing their needs and in planning for them.

IV. Plan course of action. Following the interpretation of data, the teacher elaborates upon the original tentative hypothesis, or projects another hypothesis, planning a course of action to bring about the desired results, thereby testing the hypothesis. Should it prove invalid, the teacher re-examines the evidence, collects new data, revises the hypothesis, and plans a different course of action.

Some problems are so difficult and of such long duration that the teacher may never arrive at a solution. Clinical help may be needed to plan a course of action, which may or may not prove successful.

Although logical analysis of child growth and learning progress is continually being conducted by the teacher, more teachers should be encouraged to experiment in the classroom with new ideas, or ideas new to them. Experimental practices should not be confined to the laboratory school. The same steps apply in trying out a different procedure in teaching. It might be well, however, to keep in mind these suggestions:

1. Enlist the cooperation of principal or supervisor before experimenting.
2. Wherever possible, include children in planning and evaluating proposed activities.
3. Do not become discouraged if results are not satisfactory or immediate, for failure often precedes success.

The following is a brief account of typical classroom research conducted in an effort to determine an effective method of teaching spelling in a class of fifth graders in an Oakland public school. It does not pretend to be lab-

oratory research but is cited as an example of the kind of modified research the classroom teacher can conduct.

1. Sensing problem, which was defined in light of criteria established. Projecting tentative hypothesis.
2. Collecting data:
 - a. Examining written work, observing habits relating to spelling. Administering *Stanford Achievement Test in Spelling, Form D*.
3. Interpreting data and elaborating upon original hypothesis:
 - a. Many children in this group have not been successful in learning to spell through use of traditional methods previously tried.
 - b. Spelling may improve if it becomes functional and individualized.
4. Planning course of action (children participating) and instituting activities:
 - a. Develop interest in spelling and "spelling consciousness."
 - b. Make learning of spelling words an individual matter, encouraging each child to study words difficult for him. Each keeps record of common words misspelled in his daily work. (Words are correctly written on child's papers, with attention given to individual differences. Good spellers consult dictionary to record words.)
 - c. Teach and emphasize proofreading.
 - d. Publish class newspaper, *entire* editing to be done by pupils.
 - e. Give special help to children having difficulty with phonetic skills in spelling and in reading.
 - f. Teach word structure and analysis.
 - g. Teach dictionary skills. Encourage "dictionary habit."
 - h. Present method of independent study but permit each child to use method most effective for him, including Fernald kinesthetic method.⁵
 - i. Encourage each child to progress as rapidly as possible. Employ word lists, e. g., Dolch list of 2000 words,
- demons for each grade, Hildreth list based on Rinsland,⁶ graded lists of words from California state test, words used in social studies-science for advanced spellers.
- j. Employ self-checking with partners.
5. Collecting new data to test hypothesis:
 - a. Repeated observation and examination of children's spelling and related habits.
 - b. Administering *Stanford Achievement Test in Spelling, Form G*.
 - (1) Results in September 1955, in spelling achievement age ranged from 7 years 8 months to 11 years 10 months. (median: 9 years 7 months)
 - (2) Results four months later ranged 8 years 8 months to 13 years 7 months. (median: 10 years 6 months)
6. Interpreting new data:
 - a. Experimental method produced desired results in spelling and improved written work in general.
 - b. Better work habits, greater independence and interest resulted.
 - c. Reading disability cases continue to require concentrated help.
7. Planning future action:
 - a. Advanced spelling for group of eight children who tested 11 years 7 months to 13 years 7 months
 - (1) Exemption from formal spelling.
 - (2) Keeping of individual composition book to include one composition a week on subject of choice and list of twenty words of pupil's choice learned each week. Compositions to be used in yearbook, scrapbook, or newspaper.
 - b. Continued use of individualized spelling method by sixteen children who tested 10 years 1 month to 11 years 7 months.
 - c. Concentrated supervised work with nine children who tested below 10 years 0 months. (All groupings flexible.)

⁵ Grace M. Fernald, *Remedial Techniques in Basic School Subjects*. Chapter 13. New York: McGraw-Hill Company, 1943.

⁶ Gertrude Hildreth, *Teaching Spelling*. New York: Henry Holt and Company, 1955.

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