

2-1-1995

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Recommended Citation

Johnson, C. S., & Kromann-Kelly, I. (1995). Using Action Research To Assess Instruction. *Reading Horizons: A Journal of Literacy and Language Arts*, 35 (3). Retrieved from https://scholarworks.wmich.edu/reading_horizons/vol35/iss3/2

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Using Action Research To Assess Instruction

Carole Schulte Johnson
Inga Kromann-Kelly

For years teachers have used self assessment as one way to improve the learning environment in their classrooms. Such assessment, however, tended to be of a private, nonsystematic nature and often was not clearly focused on a central question. Today more and more teachers are developing and experiencing an organized approach to classroom inquiry, known as action research, a concept which has evolved over the past several years. This approach entails stepping back from the immediate concern in order to gain a broader perspective on a problem; then collecting, analyzing, and interpreting data on the basis of a defined plan, and often sharing the results with professional colleagues.

Rather than formulating complex research procedures, perhaps best left to experts, we recommend beginning action research by answering these five basic questions: 1) What is the main question I am interested in pursuing? 2) What data are relevant? 3) What specific data will be collected, and how? 4) How will the data be analyzed? 5) What interpretations or implications can be drawn from the data?

The question

Teachers often have several questions they wish to explore; however, in order to keep the research manageable you

as a teacher embarking on action research need to decide your basic or most important question. Limited questions related to what you are doing in your classroom, such as "Are my students learning from this strategy?" or "What strategies do students use most successfully in performing some particular task?" work well for action research. For example, suppose we are interested in learning more about our students' attitude toward reading. We realize that various elements of the literacy program probably affect those attitudes so our basic question could be "How do the students feel about the different methods and materials used in the literacy program?"

Collecting data

Data can be gathered from transactions/interactions, products and cued or structured responses. Figure 1, while not all inclusive, suggests various sources of data within each category.

Triangulation of data (using at least three different data sources) is recommended. The value of using triangulation is in analyzing the question from several different viewpoints. For instance, one data set could be from each of the three categories on the chart or from two of the three categories. If only three data sources are used, it is recommended that no more than one cued or structured response source be included since these data usually are collected only at specific points of time, thus limiting the information to the context of those times.

When the different data sources are congruent, the acceptance of the results is strengthened. Conflicting data raise questions such as: Should other types of data sets have been used? Should some data sources carry more weight — for example, were the cued responses too structured or answered to please the teacher? Would it be valuable to refine or do additional research on this question?

Figure 1
Data Sources

	<i>From Teacher</i>	<i>From Students</i>
Transactions/ Interactions	Field/observation/anecdotal notes Video/audio tapes	Video/audio tapes
Products		Written products Artifacts Open-ended interviews Open-ended conferences
Cued/Structured Responses	Ratings Checklists Tally of behaviors	Tests Questionnaires Attitude measures Structured interviews Structured conferences Writing/work samples Checklists Ratings Logs

We make decisions regarding the specific data to collect on the basis of its importance in seeking answers to the question and also the feasibility of collecting and analyzing it. In general, quantifiable data take less time to collect and analyze; however, meaningful data are not always readily quantifiable. While importance and feasibility are basic, other aspects are considered. Using excessive class, student and/or teacher time is avoided by collecting data from ongoing class activities such as journals and portfolios, the taping of class or small

group activities as well as from brief cued or structured responses.

Unless individual conferences are part of the ongoing program and the data to be collected a normal part of the conferences, they may not be a feasible source of information. However, if a second person is available or only a small subset of students is involved, individual conferences become a possibility.

Another consideration is that students may tell teachers what they think the teacher wants to hear when cued or structured responses are obtained face-to-face. Responses on paper may be similarly biased, but such data-gathering instruments are generally viewed as providing a degree of anonymity.

When teacher observations are used, consideration is given to how structured and systematic they will be. Ways to provide structure include using a checklist of behaviors (e.g., answering, volunteering, getting out of seat) and keeping a tally of the number of times a behavior occurs, or by describing behavior at set time intervals. Audio/videotaping of an on-going class activity is an example of an unstructured observation. Systematic observations are made on a regular basis such as daily or weekly. The data can be taped; however, if teacher notes are used, it is recommended they be written daily. Less systematic observations are those noted occasionally, when the teacher has time or when something strikes the teacher as important to note.

When writing notes, we need to remind ourselves that we see what we expect, so there is danger of bias. For example, as teachers, we know that certain of our students love to read while others do not. Thus, in examining attitudes, we are

more inclined to note student behaviors which confirm what we already believe than those which conflict with our expectations.

Each source of data requires decisions on the part of the teacher. With materials such as journals, portfolios, or tapes, you decide what data to include and then structure the class or group so it can be collected. When a checklist or questionnaire is involved, you decide its content and how students (or teacher) will respond. Among the possibilities for such instruments are open ended questions or statements, items for the respondent to check off, or some type of rating system.

If you use a rating scale, you need to decide whether it will be an even numbered scale, thus avoiding a neutral position, or an odd numbered one which includes it. A two or three point scale is simpler for students in the primary grades; a five to seven point scale is common in upper grades and has the advantage of identifying subtle differences. Common terms for labeling points on a scale are *agree/disagree*, *like most/like least*, or 1 (*very low*) to 5 (*highest*).

A simple format is helpful. Present the ratings at the top of the page; then list the items below with a blank for the number rating in front of each item. With instruments such as this, it is important to remind the students that you really want to know what they think so their opinions can be considered in making decisions about materials or procedures. From whom will student data be collected — the entire class, a small group or groups of students, individuals or some combination? For our research on student attitudes, we prefer information from the class rather than from selected representative students. The latter may well provide the

spectrum of attitudes regarding reading, but not its strength related to specific methods or materials.

In examining student attitudes toward reading, the feelings of students constitute important and relevant data. To collect such information, we might use informal teacher observations, preferably collected on a regular basis, and student records of books and pages read daily and brief comments or reactions to what they have read. All of these items are easily obtained as a normal part of classroom activity.

Additionally, we would include a questionnaire asking students to rate what they think about each of the different literacy materials and activities used in the program. If many items are included, the questionnaire can be divided into several parts. Class discussion of the results would provide a useful source of additional information. Neither activity would take an inordinate amount of time and the findings could result in an improved curriculum. Our questionnaire requires limited teacher preparation time since it only involves developing a list of the materials and activities used, deciding their order as well as the kind of rating scale to use, and formatting the instrument.

Analyzing and interpreting data

When analyzing data, teachers may want information about the class as a whole, about individual children, or about certain subgroups. Subgroups might include students at certain achievement levels, such as above grade level, at grade level, students with special needs, boys at different achievement levels, or girls at different ones. When data are kept for each student, teachers can decide at any time what individuals or subgroups they may wish to study.

Some of the data teachers gather are quantifiable and can be analyzed without the use of statistics. Under some circumstances, statistical analyses show significance with only small differences in raw data, and such results may not be particularly useful. For example, knowing the percent of the class rating an item *very low* or *highest* may be more important for your consideration in curriculum change. Again, it is the teacher who must interpret the data and decide what is meaningful. What do the results mean in your classroom? How do they answer your original question? Were they what you expected? Any surprises? What was successful or not successful?

Our questionnaire regarding student opinion about materials and activities can best be summarized with tables for the class and for each subgroup. We would list the materials and activities in a column with the ratings listed across the top. Then for each item, the percent choosing the rating is listed.

To interpret the tables, we would consider the class or group distribution across the continuum: Were responses concentrated at one end of the continuum? Were there gross differences such as a large group at each end of the continuum, or was there a fairly even distribution across it? If the distribution is mainly at one end, we would decide what percent of the class or group to consider significant in our decision making: it might be 40 percent, 1/3, 1/4 or whatever we feel is appropriate. For example, if 40 percent of students rate something *very low* while few or no students rate it *highest*, or the reverse, that clearly is important information.

Data which are not readily quantifiable, such as that from logs, journals, informal observations, conferences or tapes of class activities, are usually reviewed by teachers so they can pull out what appear to be trends, major ideas, or

important elements related to the question at hand. If these data are collected over a period of time, or if the material is extensive, it will need to be reviewed periodically, and preferably over a time frame which allows for reflection. This is an important and valuable process because it often leads to further insights and refinements. In general, for non-quantified data, we would review all the categories and subcategories and draw conclusions related to the original question. The conclusions may be firm or tentative. In either case, it is important to consider whether data from other sources agree with it. Informal observations, anecdotal notes, and class discussion of results are used to confirm, disconfirm or raise questions about findings from the rest of the data.

In the case of our question about students' attitudes, we would review teacher observations and anecdotal notes as well as student logs for indication of feelings about reading, positive, negative, or general reactions indicating that students are or are not involved with their reading. While we would start with categories such as *positive* and *negative*, as the data collection grows we would expect subcategories to develop. For example, we might subcategorize aspects related to writing, to self-selected reading, to assigned reading, or to informational reading. Categories are flexible and can change as we continue to review the data. Which categories make sense and help answer the question? How do these data fit with the results of the questionnaire?

Finally, we would review the data as a whole. What is supported by all data sources? What is partially supported? Is anything not supported? What conclusions do you draw?

We piloted a questionnaire in a fourth grade class which used both trade books and children's literature. The results indicated that boys and girls were quite similar in their high

and low ratings, as were the readers who were mature, on-grade level or special needs readers. However, when we looked at the groups of items rated *high* or *low*, we noticed those rated *low* tended to be the type of activities associated with the basal while those rated *high* were those traditionally considered enrichment activities. In terms of materials, with the exception of the special needs readers, all rated using literature books higher than using basals. The students in the class willingly informed us why they responded as they did. In general, the special needs readers felt they could handle the grade level basal but with literature books they had trouble keeping pace with others in their groups, and in some cases with the vocabulary as well.

Since there was nothing in teacher notes or student logs to contradict this, we would use literature books as the core of the literacy program, avoiding "basalizing" them by incorporating writing and enrichment activities similar to those suggested by Yopp and Yopp (1992). In selecting and gathering books related to themes or units, we would seek to include books special needs readers would feel successful in using. Then while implementing this program, we'd probably start a new action research project concentrating on the special needs readers.

Considerations for involvement in action research

There are four important factors to consider in planning action research. First, action research requires additional planning time. However, useful and successful projects can be accomplished without consuming an inordinate amount of additional time. Second, action research is improved when teachers discuss the five questions with colleagues because the interaction provides a supportive environment which helps clarify and solidify thinking regarding the project. Sharing ideas and suggestions, whether for the same question or

different ones, can be valuable. Colleagues not involved in action research also can provide helpful insights.

Third, teachers undertaking action research should be aware that expectations affect what we see and how we interpret data. Triangulation of data is helpful as are our awareness of this effect, discussion with others as the research evolves, and an effort on our part to be open to alternative explanations as well as to surprises in the data. Finally, teachers can use the results of action research in their classrooms. Action research can improve the teaching/learning process in classrooms by reinforcing, modifying and/or changing perceptions based solely on more informal techniques such as non-systematic observations.

References

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