DOCUMENT RESUME

ED 422 226 SO 029 088

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TITLE How Might We Use Research To Inform Curriculum Development?
PUB DATE 1997-11-00
NOTE 15p.; Paper presented at the Annual Meeting of the National Council for the Social Studies (77th, Cincinnati, OH, November 20-23, 1997).
PUB TYPE Reports - Research (143) -- Speeches/Meeting Papers (150)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Action Research; *Curriculum Development; *Educational Change; *Educational Improvement; Educational Philosophy; Educational Research; Grade 2; Primary Education; Qualitative Research; *Social Studies

ABSTRACT

This study examines the use of research techniques to generate information that informs curriculum development, in order to develop more powerful social studies curricula for the primary grades. The paper describes the studies of four implementations of units, all done in self-contained second-grade classrooms in suburban schools with traditional elementary social studies curricula and materials. The study outlines the limitations of prior student knowledge and how those assumptions often guide what is taught, the lack of a clear focus of the purpose and timing of the social studies, and the lack of teacher knowledge of what the social studies is, especially at the early elementary level. One important finding has been the problem of good implementation with sufficient structuring of the teaching around the key ideas to be developed. Teacher prior knowledge limitations also were found with an over-reliance on textbooks that lacked a clear focus on key ideas. The need for a great deal of teacher structuring and scaffolding with young students limited in prior knowledge became very evident. Classroom data also allow the researchers to assess the value of children's literature sources. Parent surveys and interviews become part of the data collection and allow teachers to make modifications in the unit plans. The paper describes the study as a lot of trial and error and "bootstrapping" in order to establish a knowledge base about which social studies activities are best suited to particular grade levels and how these activities might be adapted to different grades or different student needs within a grade. (EH)

HOW MIGHT WE USE RESEARCH TO INFORM CURRICULUM DEVELOPMENT?

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Paper presented at the annual meeting of the College and University Faculty Assembly of the National Council for the Social Studies, Cincinnati, November, 1997.

In recent years, we have been using research techniques to generate information that will inform curriculum development--most immediately, our own efforts to develop more powerful social studies curricula for the primary grades (Brophy & Alleman, 1996). This has been a struggle for us, both initially in finding or inventing methods that would enable us to address the questions we wanted to address, and subsequently, in explaining what we were doing sufficiently clearly to enable others to see the logic and power of it. Social studies educators and others interested in curriculum or instructional issues often don't know what to make of this aspect of our work, because it involves asking questions that are not asked and using methods that are not used within more familiar paradigms.

Curriculum people tend to begin by asking what content is most worth teaching, and why. They address these questions using arguments that proceed from assumptions about the relative importance of different instructional purposes and outcomes. If they go on to consider the relative value of different instructional materials and methods, they usually do so by assessing the materials or methods with respect to the priorities they have established regarding instructional purposes and outcomes. Their decisions are informed primarily by value-based reasoning and analysis, with empirical data collection playing little or no role, unless the curriculum development process continues through to the stage of formative or summative evaluation of lessons or units. Curriculum people who don't carry the process to this stage (those who are accustomed to working only with value-based arguments) often are mystified by, or even hostile to, the idea of using research to inform curriculum development.

Ironically, so are some of the people who are most familiar with research methods and findings. Their research tends to focus on the psychology, sociology, or anthropology of the classroom. If they touch on curriculum and instruction, the focus is usually on comparing instructional methods, with curriculum treated as a constant and not viewed as problematic. Curriculum issues are left to the disciplines, to the developers of instructional materials, to state- or district-level curriculum guides, or to teachers.

In short, most curriculum work has been primarily philosophical and conducted without collection of empirical data, and most empirical data collection has focused on classroom processes without paying much attention to curricular issues. We view this separation as unfortunate and believe that curriculum development ought to be informed by empirical data as well as by value-based principles.

Curricular issues are especially acute in social studies because most social educators emphasize that the K-12 curriculum should prepare students for citizenship (broadly defined), not merely induct them into academic disciplines. If this idea is taken seriously, it complicates the curriculum development process enormously. Instead of being able to depend on the academic disciplines to make our content decisions for us, we must be guided by social education purposes and goals.

Within the context established by these purposes and goals, we look to the three traditional curriculum sources (knowledge of enduring value, the characteristics of learners, and the qualities that our society wants to see its citizens display) in deciding what content to introduce and how to develop it. We can make initial decisions about general goals and program characteristics primarily through value-based reasoning. However, as we begin to plan units and lessons for particular grade levels, our decisions about the appropriateness of proposed curricular elements increasingly incorporate certain assumptions, whether we are aware of them or not. These assumptions can, and we believe should, be made explicit and treated as empirically testable propositions. At least three sets of testable assumptions are involved in any curriculum development that proceeds to the level of building units or lessons for particular grade levels:

1. Prior knowledge assumptions. We proceed on the basis of assumptions about what the target students know (or think they know) about the topic prior to instruction. We use these assumptions to plan ways in which the instruction will build on students' valid prior knowledge and also will confront any commonly held misconceptions that may persist and distort learning if not addressed effectively.

2. Readiness assumptions. In deciding what goals and content to include, we make assumptions about what the students will be interested to learn and able to understand if taught (because they can connect it to their prior experiences). In other words, we make assumptions about the students' zones of proximal development.

3. Application assumptions. Instructional units usually are not construed as ends in themselves but as means to help students accomplish important social education goals. To the extent that we view such units as effective, we imply that they will enable students not only to meet the immediate objectives, but also to apply the learning in their current or future lives outside of school, in ways that promote realization of social education goals.

Of these three sets of assumptions, only the first--assumptions about students' prior knowledge and misconceptions--currently receives much research attention. Even here, there is some resistance. We still occasionally encounter curriculum people who say that it is not important to know what students' prior knowledge or thinking about a topic may be--just get clear on what you want them to learn and be sure to teach that effectively. However, most social educators see value in knowing about students' prior knowledge and misconceptions. If pressed, most will acknowledge that it is a good idea for curriculum developers to make sure that their assumptions about students' prior knowledge and misconceptions are valid.

The third set of assumptions--about the applicability and citizen education value of what is taught--underlies many of the most salient and controversial issues in social studies (what ought to be taught, how the curriculum ought to be organized, what standards would be appropriate as guides to instruction and criteria for assessment). Yet, these assumptions receive very little empirical attention. Developers of special programs involving moral education, discussion of controversial issues, or other aspects of critical thinking and decision making have occasionally collected data designed to determine whether what is learned in school carries over to life outside of school. For the most part, though, arguments supporting particular curricular or content positions are put forth on the basis of untested assumptions. Look, for

example, at the glowing statements made near the beginnings of various standards documents, talking about all of the important benefits that supposedly are derived from studying history, geography, civics, etc. Then look for research supporting such claims (you won't find much, if any).

The second set of assumptions--about students' readiness to learn what we would like to teach them--is of special relevance to our work because we have been focusing on the primary grades. In these grades, students have very limited prior knowledge about many of the topics addressed in the curriculum. They are also limited in the degree to which they can understand and manipulate abstract concepts, carry out various cognitive operations, and use tool skills such as reading or writing to support their learning. We have been exploring ways to use research procedures to generate data that speak to readiness assumptions and related content issues. The work involves developing and testing curriculum units for the early grades.

Our initial unit design work is guided by a general framework that we have developed as a basis for making primary-grade social studies more oriented toward social education goals and more powerful in terms of teaching for understanding, appreciation, and application of what is learned. Units focus on cultural universals (food, clothing, shelter, communication, transportation, etc.) and include four general strands: (1) how people in modern society function with respect to the cultural universal, especially people in the students' families and the local area; (2) how this functioning evolved over time in response to inventions and social developments; (3) how and why this functioning varies across geographical locations and cultures; and (4) what all of this might mean for personal, social, and civic decision making.

Working within this framework, we address numerous specifics regarding what big ideas to structure the content around, how much detail to include in developing the content, what level of language to use, how to represent the content (texts, verbal explanations, photos, children's literature, etc.), and what activities will be most useful in helping students to learn and apply the content. Because the students are so young and because so much of the

content is new to them, we often have to infer whether students understand an idea or can appreciate its significance, or to decide what explanations, analogies, examples, or activities are effective for teaching it at the grade level. Sometimes, we need to find activities that are both feasible and effective for students who do not yet read and write, or to determine whether the same basic activity can be used (as adapted) at different grade levels.

This is not research as traditionally construed. Nor is it a linear process. We view it as working at the intersection of the three traditional curriculum sources (important knowledge, learner characteristics, and society's needs) as they relate to social education goals, as well as working at the intersection of the curriculum components of content, instruction (including activities), and assessment. In doing so, we "bootstrap" or "triangulate" conclusions about what content is worth including. Tryouts usually do not yield simple "yes" or "no" answers, but instead suggest that certain aspects of a topic seem worth including and others do not. The best content meets criteria drawn from all three curriculum sources: It is structured around powerful ideas, the students are ready and able to learn it, and it has significant potential for application in their lives outside of school.

We use a lot of thick-description data collection, including pre- and post-unit interviewing of students, collection and analysis of tapes and field notes from class sessions, and debriefing of teachers and parents. However, this is not ethnographic research: We want to answer particular curricular questions, not just to describe the culture of the classroom.

Nor is this conventional teacher research. In the first place, we are able to devote many more resources (time, interviewing of students, taking field notes, studying tape transcripts) to the enterprise than an individual teacher is able to. Also, we have the advantage of drawing comparisons across different teachers, classes, and even grade levels, so we have broader input to draw on than an individual teacher working alone. Finally, our interest is not just in what works in a particular classroom, but also in larger issues of curriculum and instruction in elementary social studies.

For the latter reason, the work also is not simply formative and summative evaluation as traditionally construed. Besides assessing the relative effectiveness of planned lessons and activities, we ask what the data suggest about the appropriateness of their content bases: Which aspects of the unit's topic appear to be worth developing given the social education goals and the ages and backgrounds of the students? Which information sources, modes of explanation, questions, or learning activities are likely to be effective for developing these aspects? We are mainly trying to assess the appropriateness of general curricular goals and content clusters, not to field test particular instructional materials.

Perhaps the best way to communicate the nature of the work is to draw specific examples from it. We will do so in the rest of this presentation, identifying the kinds of questions that we address through the work and illustrating the kinds of findings that it yields. We will exemplify ways in which our data can be used not just for assessment but for research and development purposes. The data inform our decisions about what content is worth teaching and how this content might be developed effectively.

So far, we have studied four implementations of two of our units, all done in self-contained second-grade classrooms in suburban schools with traditional elementary social studies curricula and materials. This year we will be studying implementations of two additional units in a first-grade classroom, as well as gathering information about other implementations in second-grade classrooms. Janet Alleman served as the teacher in one of our prior implementations; in the other cases the units were taught by teachers who agreed to work from our unit plans and allow us to collect data in their classrooms.

One important finding was that high-fidelity implementations of planned units are needed to generate data that speak to content issues. We learn some useful things from any implementation, even if the teacher fails to implement unit plans as intended. Ultimately, though, in order to assess those plans validly, we need good implementation. We didn't get this in early attempts with two teachers, partly because their teaching lacked sufficient structuring of the teaching around the key ideas that we wanted them to highlight and elaborate.

Lessons and activities need to be implemented as planned, particularly with respect to emphasis on key ideas. Otherwise, content elements intended as vehicles for helping students to accomplish social education goals will simply disappear into a parade of facts. For example, our shelter unit plans emphasize that modern homes go beyond meeting basic needs by creating comfortable environments that offer easy access to heat, light, and water, due to inventions that have had enormous effects on how people live their daily lives. Instead of elaborating on this idea by using more appropriate examples, one teacher went into detail about water softeners and about the different forms of siding and shingles used in modern housing. She explained these clearly, brought samples to class, and connected the material with the students' own homes. However, we have not incorporated this content into our unit plans. It is loosely related to the theme of improvements over time in housing construction, but it is too far removed from the social education goals that we wish to emphasize.

We also encountered teacher prior knowledge limitations. Elementary teachers, and especially primary-grade teachers, typically do not have a clear notion of social studies as a school subject with coherent purposes and goals. Instead, they tend to see only clusters of content, whatever is taught at their grade. Also, the textbook series used in these grades don't help the teachers very much, because they contain so little content and because much of what they do contain is not structured around key ideas. Consequently, in developing unit and lesson plans, we have found that we need to spell out all of the key ideas that we would like the teachers to teach. We might not have to spell out so much if we were working at higher grade levels where the textbooks incorporate much more content and the teachers are already familiar with it.

Our first implementations were done using relatively sketchy lesson plans. The teachers who worked from them often developed the content in ways that focused on side issues or trivia instead of key ideas, or failed to bring out key ideas clearly. This led us to clarify and elaborate the plans. The revised plans not only bring out key ideas more clearly and

explain them in more detail; they eliminate references to trivial content that might cue excursions into topics that we would rather skip.

Even with the revised plans, though, teachers introduce their own variations from our image of each lesson. Some of these involve alternative constructions of the content--constructions that we view as undesirable. However, many of the teachers' contributions involve infusing props, photos, examples, or activities as supplements or alternatives to what we had planned, and these modifications often strike us as valuable and become incorporated into our revisions.

Sometimes poor implementations involve distorting the intended process rather than the intended content. For example, one teacher turned what we had intended to be an engaging presentation and discussion of life in log cabins into what amounted to an oral quiz over a disconnected parade of facts. This led us to elaborate both our general introductions to units and our guidelines for teaching certain lessons so as to emphasize structuring discourse around connected key ideas, while minimizing the kind of questioning that does not stimulate connected discourse.

Our unit studies indicate the need for a great deal of teacher structuring and scaffolding with these students who are both young and limited in prior knowledge. Relatively direct teaching methods are especially needed when introducing key ideas and when summarizing or reviewing (less direct methods can be used at other times). This became obvious when a teacher tried to use a primarily inductive approach, seeking to elicit target concepts and explanations through questioning. This often failed, and even when it succeeded to some degree, the target idea usually was phrased vaguely, incompletely, or only after several students had expressed various misconceptions. This reduced the salience and clarity of explanations of the key ideas we wanted to emphasize. Consequently, most of our lesson plans call for an initial presentation of information which is then followed by questions, rather than attempting to use KWL techniques or other questioning about prior knowledge as a way to introduce a topic or trying to rely heavily on Socratic teaching as a way to develop it.

Prior to starting the unit, we interview students to probe their knowledge and thinking about key ideas. Our purpose is not merely to assess how many of the students already possess the target ideas, but to probe their implicit assumptions and ways of thinking about these ideas. This allows us to adapt instruction to connect with students' prior knowledge and address their misconceptions. It also helps us to understand the thinking that underlies some of the questions and comments that are made in class and preserved in the transcripts and field notes. Even with such foreknowledge, however, we have encountered stubbornly persistent misconceptions, akin to those reported in mathematics and science learning. For example, even when mortgage loans were explained at length in one lesson and reviewed in briefer fashion near the end of the unit, certain students stated on postunit interviews that a family could not buy a house until it had accumulated the full purchase price.

Experiences with certain topics suggest that some aspects are worth developing but others are not. Concerning home mortgages, for example, we believe that social education goals are promoted by helping students to (1) understand the motivations of the parties involved (banks are businesses and make money by requiring families to pay interest in addition to the amount of money borrowed; families agree to do this because it allows them to move into a house now rather than having to wait until they accumulate the full price) and (2) develop a sense of efficacy for future decision making and action (When I grow up, I will be able to borrow money to buy a house if I want to, because I will be able to pay off the loan over a period of years while I live in the house). However, we do not see much social education value in more complete coverage that might include loan structures, payment schedules, interest rates, and their interactions. Even if this content seemed worth developing for other reasons, it probably would not be cost effective for these primary-grade students (i.e., it would be too difficult and time-consuming to teach successfully).

Classroom data also allow us to assess the value of children's literature sources, both as content vehicles and as ways to connect with students' interests and emotions. Here again, variations on our plans introduced by teachers have helped us to sharpen our criteria

for deciding whether and how certain children's literature sources might be used. We find that nonfictional children's literature is often useful in teaching about how and why things work as they do and how and why they vary across cultures, although these sources need to be selected carefully for a focus on big ideas and minimum potential for sidetracking lessons into trivia. Fictional sources are more useful for reaching children's emotions, as in reading and discussion of stories about homeless people or about a child who accompanies an adult relative who works at a soup kitchen.

Some children's literature can be rejected a priori on the grounds that it is inaccurate, biased, or otherwise inappropriate in its content. However, other children's literature that initially looked promising has proven to be ineffective in classroom tryouts because, for example, the illustrations are too dated or otherwise misleading, the illustrations are vague or too small for students to see clearly, the language is too difficult or fanciful, or something in the text or the illustrations tends to derail the class from big ideas into side issues. Where such problems arise, we sometimes recommend that the books be kept in the classroom library for students to read on their own as enrichment, but we do not recommend that they be used as content bases for group lessons. Some nonfictional selections can still be used as content bases for lessons by focusing on the most useful parts and omitting or skipping quickly through the rest. However, this cannot be done with fictional selections, which usually have to be either read all the way through or omitted entirely.

Sometimes our work produces data that suggest how certain content might be developed effectively. For example, we have found that certain children's literature selections are useful for developing certain content, that thermos bottles and insulated lunch bags are useful for illustrating the concept of insulation (and thus helping students to understand the function of insulation in the walls of their homes), that mention of the "whoosh" or "whump" sound that you hear when the furnace "starts up" helps students to understand that the furnace contains a fire that heats air (most students do not understand this, even if they know that the furnace is somehow responsible for heating their house), and that the use of accompanying

arm motions helps children remember that a premium of space in the cities causes housing construction to emphasize building "up" (hold arms over head) instead of "out" (extend arms out horizontally).

Sometimes, a content segment or activity goes so well or so poorly that we can make retain or drop decisions based on what we see in the classroom. For example, our original plans for the shelter unit included turning out the lights in the classroom and lighting candles to simulate the lighting in a log cabin after nightfall. This idea could not be implemented very effectively because the classrooms could not be made dark enough to create a very realistic simulation, and in any case, this simulation idea did not seem to hold much interest or value for second graders. Consequently, we dropped it as not cost effective.

We also reduced our emphasis on portable shelters by downgrading this topic from a lesson in itself to just a part of a lesson. We think it is important for students to understand that there were and still are some nomadic societies (as well as a few individuals and families who practice itinerant occupations) that require portable shelters and live in them as their only homes, whereas most people use portable shelters just briefly for recreational purposes. However, there does not seem to be much social education value in going on at length about contemporary recreational vehicles, illustrating and defining the different types (trailers, campers, etc.), telling stories about vacations or camping experiences using these vehicles, and so on. On the other hand, observation of what occurred in classrooms during instruction about plank houses led us to increase our emphasis on this form of shelter, because the content provoked student comments and questions that suggested worthwhile insights and interests.

Analysis of transcripts of classroom discourse also identifies additional misconceptions not revealed in the interviews, and some of these have implications for adjusting our lesson plans. The same is true of student questions or comments that come up in class and not only create "teachable moments" at the time but suggest useful modifications to our plans.

Our units feature home assignments that we think complement the in-school activities in important ways (see Alleman & Brophy, 1997). This has led us to include parent surveys and

interviews as part of our data collection, and some of the comments made by parents have led to modifications in our unit plans. Along with more mundane modifications (e.g., shortening assignments that were too long or clarifying instructions that were vague or ambiguous), these comments have encouraged us to place more emphasis on content that appears to be especially powerful as a basis for application outside of school, as well as on activities that create desirable forms of interaction among family members and help learners develop efficacy as critical thinkers and decision makers.

In conclusion, the unit development work that we do is partly research, if research is defined as systematically seeking answers to empirical questions. It involves a lot of trial and error and bootstrapping because we are asking early and relatively ill-formed questions about what worthwhile content can be taught cost effectively at the grade level, how to introduce and develop big ideas, whether suggested content vehicles or activities are helpful in achieving this, and so on. Such questions are primarily curricular questions, logically prior to the kinds of method questions typically posed by researchers. However, they ought to be addressed with a researcher's orientation. If this begins to happen more consistently, we may begin to see clearer specification of the assumptions that underlie curricular recommendations, as well as empirical testing of the validity of these assumptions. Ultimately, such work will establish a knowledge base about which social studies activities are best suited to particular grade levels, how these activities might be adapted to different grades or different student needs within a grade, and so on.

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Date: January 13, 1998