
Page 2: The two sentences beginning on line 21 should read:

This effort, however, merely shifts the problem to defining what "competence" is. Unfortunately none of their discussions of the four "competencies" suggest any moral principle or idea of the kind of community or relationships one might foster in working toward a better "global society."

(Underlined position was omitted.)

Page 4: The sentence beginning on the 4th line from the bottom should read:

It must be fitting and it must not be entirely predetermined.

("Not" was omitted.)

Page 8: The diagram should appear as follows:

BASIC TEACHING STRATEGY: MAJOR STAGES

Stage 1 -- Experiencing and Interpreting

Stage 2 -- Knowing and Valuing

Stage 3 -- Choosing and Applying
Hierarchical Analysis of Learning Objectives in Economics

Students' Attitudes Towards High School Governance: Implications for Social Education

Social Studies and Motivation: High School Students' Perceptions of the Articulation of Social Studies to Work, Family, and Community

Elementary Social Studies Textbooks and Legitimating Knowledge

A Reconsideration of "Attributes and Adoption of New Social Studies Materials"

Effects of Coordinated Environmental Studies in Social Studies and Science on Student Attitudes Toward Growth and Pollution

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Table One About Here

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This replication study explores the relationship between attributes of innovative social studies materials and attitude towards and adoption of these materials. Four conceptually developed attributes (relative advantage, compatibility, observability, and trialability) were significantly related to both attitude toward materials and adoption of materials. Two factor-analyzed attributes (observable benefits and investment requirements) were also significantly related to attitude and adoption. A significant relationship between attitude toward materials and adoption of materials was discovered, and there was a difference between respondents with greater influence and respondents with lesser influence on their adoption of the materials.

71 Effects of Coordinated Environmental Studies in Social Studies and Science on Student Attitudes Toward Growth and Pollution
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FROM THE EDITORS

The process for selecting the new editor for Theory and Research in Social Education has been completed. We are happy to announce that Thomas Popkewitz of the University of Wisconsin has been named the new editor. Robert Tabachnick, also of the University of Wisconsin, will serve as Associate Editor. The selection process was begun by the Editor Search Committee composed of Paul Robinson, Chairperson; Donald Massey; Jack Nelson; Elizabeth Watson; and Jane White. After deliberating over the nominations of seven candidates, this group forwarded its recommendations to Peter Martorella, Chairperson of the C.U.F.A. Executive Committee, who, in turn, made his appointment recommendation to the Executive Committee. The confirmation of Thomas Popkewitz as new editor was unanimous.

As indicated on the inside back cover of this issue, new manuscripts should be now sent to Tom rather than to us at Indiana. We will continue to handle the routine business of the journal such as library subscriptions, individual requests and problems, etc., until the full editorial shift takes place on December 1st of this year. The December issue, Volume VI, Number 4, will be our last. Therefore, if you have material to submit for publication you should send it to Tom, who is beginning to put together his March, 1979 issue. For routine business, correspond with us until December 1, and with Tom thereafter.

Needless to say, we are very pleased that the editorship is being passed into such strong hands. Tom and Bob have very high qualifications for the editorial responsibilities, and they have an impressive group of colleagues at Wisconsin on which to depend for support, intellectual and otherwise. We are sure that they will make a strong contribution to the strength of the journal and to the profession as a whole. We offer them our sincere congratulations and best wishes.

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HIERARCHICAL ANALYSIS OF LEARNING OBJECTIVES
IN ECONOMICS

Joe Hurst
Thomas Dunn
Steven Weiss
University of Toledo

Jim Lesage
Bowling Green State University

Barbara Hurst
Kent State University

INTRODUCTION

In recent years several social and economic educators have recommended the use of a systems approach to the development of instruction (Van Metre, 1976; Petre, 1975; Gillespie & Patrick, 1975; Massialas, 1976; Johnstone & Lewis, 1976; Mackey, et al., 1977; Massialas & Hurst, 1978) and in the design of experiments in economic education (Allison, 1975; Dawson, 1976) and social education (Borg, 1970; Scriven, 1972; Weiss, 1972). Systems approaches involve several processes for the design of instruction including (1) stating the goals and objectives of instruction, (2) sequencing objectives in an order or hierarchy of skills, (3) developing instruments to measure student achievement of the objectives, (4) designing and implementing instructional materials and procedures, (5) measuring the results of instruction, (6) comparing preassessment and postassessment results to determine teaching/learning success, and (7) using these results to revise subsequent instruction (Popham & Baker, 1970; Dick & Carey, 1978). It is the orderly sequential use of these procedures to design, try out, and revise instruction that has led to the label "systems approach."

The proper application of the systems approach requires not only a precise match among goals and performance objectives, assessment instruments, teaching and learning activities, and instructional media and materials, but an orderly sequence of specific learning objectives and related instruction (Gagné & Briggs, 1974). One approach proposed for sequencing learning objectives and subsequent instruction suggests that the designer determine the "ease of learning."

The focal point of a course and the first component of course development is the list of behavioral objectives. The objectives are to be listed in the sequence most easily learned by the students (Van Metre, 1976, p. 99).
This sequencing principle (i.e., most easily learned order), while not in direct conflict with research pertaining to sequencing of instruction, may be misleading in some cases. The confusion centers around the meaning of "most easily learned." How does one determine it? Is it a function of the time it would take to learn it? Is it an estimate of the assessment item's difficulty? Perhaps the difficulty index for the assessment items? There is a need for a more theoretical basis upon which to make such sequencing decisions.

One possible solution would be to explore the feasibility of sequencing objectives and related instruction based upon research pertaining to learning hierarchies (Gagné, 1964, 1970, 1977; Gagné & Briggs, 1974). The growing emphasis on the systems approach in economic and social studies education demands attention to hierarchical analysis and sequencing of desired skills and instruction according to valid learning hierarchies.

LEARNING HIERARCHIES

Learning hierarchies are arrangements of intellectual skill objectives in a pattern of prerequisite relationships among simple and more complex cognitive processes (Gagné, 1962 and 1968; Gagné & Briggs, 1974). That is, the learning of a complex skill requires mastery of particular subordinate skills or conversely, each subskill is a prerequisite to higher level skills. Therefore, levels of skill objectives in a learning hierarchy are cumulative in nature because lower level competencies form the basis for the learning of higher level ones and contribute "positive transfer" to the learning of higher skills (Gagné, 1977).

However, "the central issue is how...prerequisites of learning are to be identified" (Phillips & Kelly, 1975, p. 353). A hierarchy of instructional objectives can be derived from an analysis of the major instructional outcome (highest level objective or terminal performance) of a unit or course.

A hierarchical analysis begins by asking the question: what must an individual learner be able to do so that with verbal instructions only he or she will be able to perform the higher level skill or achieve the superordinate objective? Such an analysis is performed on the desired superordinate skill and on its subordinate or prerequisite skills until a point is reached that identifies skill levels that are either assumed to be in the entering capabilities of one's students or are required prerequisites for entering the course or unit.

Several characteristics of learning hierarchies should be emphasized. First, the elements in a hierarchy are stated in behavioral terms. Notice that the question asks, "what must the individual be able to do...?" and not "what must the individual know." The emphasis here is very deliberate.
since it is from these behavioral statements that the performance objectives themselves are derived.

A second characteristic of a learning hierarchy is that the elements derived from the "question" stated above conform to what is known about types of intellectual skills. Briefly, these elements will indicate categories of performance other than verbalized knowledge. Such categories of performance are: problem solving, which is superordinate to rule using, which in turn is superordinate to concept learning (Gagné, 1970).

A third characteristic relates to the deterministic nature of the hierarchical structure itself. Since the analysis proceeds from a starting point at the top and works down it is often concluded that for instructional purposes one should begin at the bottom and work upward. While this is not necessarily an incorrect assumption some elaboration is needed. The result of such a deterministic analysis is best interpreted by a statement such as "all students who can perform this terminal performance objective can perform those below it in the hierarchy."

It does not necessarily follow from this statement that instruction should follow a strict sequence up the hierarchy. For example, given that "all students who can perform skill A can also perform skill B" (and not vice versa), it does not necessarily follow that all students need to reach mastery on skill B through formal instruction before instruction can begin on skill A. In other words acquisition of a "determined" prerequisite can occur without formal instruction geared specifically towards its attainment. Concerning this issue Gagné states "...the superordinate capability will be more readily learned (on the average, throughout a group of students) if the subordinate capabilities have been previously acquired and are readily available for recall..." (Gagné, 1970, p. 239). Although following the strict instructional sequence as depicted in a learning hierarchy is not absolutely necessary, research has demonstrated that instructional programs which insure the attainment of systematically derived prerequisite skills before instruction on subordinate skills have been successful (White, 1973).

While the deductive process involved in deriving a hierarchy is by its nature supposed to be all inclusive, it should be obvious from the discussion so far that a content expert should participate in this analysis to insure maximum validity of the resulting elements. A second validity check for the logic in a hierarchy would be its general adherence to what is known about the relationship among types of intellectual skills as discussed previously (i.e., problem solving superordinate to rule using, which in turn is superordinate to concept learning). Note that this is to be a check after deriving the hierarchy and not a guide during the process. For example, if an objective is at the rule using level, the hierarchical analysis should not begin with the immediate consideration of what the prerequisite concepts would be. A substantial error could be made in such a case if there were
several lower level rule using elements which should have been determined before coming down to the concept learning elements.

A third step in assessing the validity of a hierarchy is an empirical one. While Gagné himself used a method for empirically validating a hierarchy which analyzed only those element pairs which were hypothesized to have prerequisite relationships (Gagné, 1962), a more recent method, ordering theory, extends Gagné's method in that it analyzes hierarchical relationships among all possible element pairs (Airasian & Bart, 1973).

Once a prerequisite relationship has confirmed or validated, then an instructor can (1) sequence instruction in such a way that subordinate skills are mastered prior to initiating superordinate skill development, (2) identify basic skills which are required prerequisites, and (3) account for and deal with student lack of necessary prerequisites.

Most prior research in hierarchies has been done in mathematics and science (White, 1973). Little has been done in other disciplines because content is not so "tightly" organized. Subtle and complex hierarchies may exist in other subjects including economics and other social sciences, but have been heretofore difficult to identify (White & Gagné, 1974). One purpose of this study was to develop and validate a simple learning hierarchy in the field of economics education which could serve as a step to further studies in validating and using learning hierarchies in social studies education (Deming, 1976).

**ORDERING THEORY**

One method of hierarchy validation investigates prerequisite relationships among all possible objective pairs rather than just those hypothesized to have such a relationship. This method is called "ordering theory" (Airasian & Bart, 1973). Ordering theory is a deterministic model that uses learner performance patterns of specified objectives to identify both linear and nonlinear prerequisite relationships among those objectives. For instance, an objective "i" is considered prerequisite to objective "j" if the (0 1) disconfirmatory response pattern (where 0 represents incorrect performance on objective "i," and 1 represents correct performance on objective "j") does not occur, or occurs infrequently. Variations in response patterns between elements of objective pairs can be understood by constructing a 2 x 2 table showing the number of successful (1's) and unsuccessful (0's) performances on each objective. This relationship is illustrated for hypothetical objectives i and j in Table 1.
Table 1. Response Patterns Between Hypothetical Objectives

<table>
<thead>
<tr>
<th></th>
<th>Did not achieve</th>
<th>Did achieve</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did not achieve</td>
<td>0</td>
<td>40</td>
</tr>
<tr>
<td>Did achieve</td>
<td>35</td>
<td>52</td>
</tr>
</tbody>
</table>

An important point is that ordering theory can deal only with dichotomous scores. A score of "1" is assigned to any student attaining the present criterion level for a particular objective and a score of "0" is assigned to students whose performance does not meet the criterion. There are no disconfirmatory responses (0 1) for the hypothetical data in our illustration in Table 1. None of the 127 students failed to attain the criterion level for objective i while attaining objective j. The other possible response patterns (1 1, 0 0, 1 0) are considered to be confirmatory, or more accurately, nondisconfirmatory in nature. Therefore, the conclusion derived from this hypothetical data would be that objective i is prerequisite to (or is a necessary precondition for) objective j.

PROCEDURES

The subjects in this study included 103 students enrolled in the Introduction to Economics course in the Winter Quarter, 1977 at The University of Toledo. A second class in the same course in the Spring Quarter having 48 students was used as a second sample to check the validity of the first analysis.

A learning hierarchy was derived from an analysis of one performance objective pertaining to supply and demand (Objective E below). The hierarchy of learning objectives which formed the sequence of instruction for a three week period in both experimental groups is included below:
(A) Given a list of ten economic variables (e.g., income, taste, technology), the student will be able to label each as a determinant of either supply or demand, identifying eight out of ten correctly.

(B) Given a list of changes in one or more of the determinants of supply or demand, and four alternative changes in supply and demand, the student will be able to predict the direction of change in either supply or demand by selecting appropriate alternatives in eight out of ten multiple choice questions.

(C) Given an economic variable (e.g., income, taste, the state of technology, price); the definitions of a change in demand and a change in quantity demand; and the following four alternatives:

a. An increase in demand
b. A decrease in demand
c. An increase in quantity demanded
d. A decrease in quantity demanded

the student will predict the effect of a specified change in that economic variable on demand by selecting the appropriate alternative above in eight out of ten multiple choice questions.

(D) Given an economic variable (e.g., the state of technology, the number of firms, taste, and price); the definitions of a change in supply and a change in quantity supplied; and the following four alternatives:

a. An increase in supply
b. A decrease in supply
c. An increase in quantity supplied
d. A decrease in quantity supplied

the student will predict the effect of a specified change in that economic variable on supply by selecting the appropriate alternative above in eight out of ten multiple choice questions.

(E) Given one of more changes in the determinants of supply and/or demand for a good or service and a list of five possible changes, the student will be able to predict the effects on equilibrium prices and quantities in that market by selecting appropriate alternatives on six out of seven multiple choice questions.

A limited scope of content and skills was selected so that ordering theory could be tested. A greater range of content and skills might have confounded the results in this initial application of the model. The
hypothesized hierarchy included five hypothesized prerequisite relationships: Objective C prerequisite to objective E, D prerequisite to E, B prerequisite to C, B prerequisite to D, and A prerequisite to B (see Figure 1).

Equivalent preassessment and postassessment items were developed, validated and checked for reliability in one Fall-Quarter class and revised assessments were administered in the two classes. The process for validation included developing instructional goals for the desired skills, writing matching preassessment and postassessment items for each goal, writing the performance objectives describing the actual skill measured in each item, and having the items reviewed by content experts in the Department of Economics and in instructional design. A measure of the subtests' internal consistency was obtained through the use of a Kuder-Richardson reliability estimate (KR 20; Kuder and Richardson, 1937) and a related criterion-referenced estimate which uses the criterion level of the objective rather than the mean in the KR 20 (Dunn, 1976). These reliability estimates are presented in Table 2.

Instruction for the objectives included lecture-recitation, textbook readings, self-instructional activities, feedback, and class discussion. Upon completing instruction students took a posttest measuring all five objectives. If any student did not attain the stated criterion levels in the objectives, he or she was permitted one "recycling" attempt. That is, students could study the same material and remedial materials and could
meet in small groups or individually with course instructors in an attempt to achieve troublesome objectives and take an alternate form of the posttest. Only data from the first attempt were included in these analyses.

Table 2. Reliability Estimates For Assessment Instruments For the Five Objectives in the Learning Hierarchy

<table>
<thead>
<tr>
<th>Objective</th>
<th>Winter Quarter Administration (N = 100)</th>
<th>Spring Quarter Administration (N = 40)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>.977</td>
<td>.983</td>
</tr>
<tr>
<td>B</td>
<td>.952</td>
<td>.963</td>
</tr>
<tr>
<td>C</td>
<td>.959</td>
<td>.968</td>
</tr>
<tr>
<td>D</td>
<td>.887</td>
<td>.918</td>
</tr>
<tr>
<td>E</td>
<td>.572</td>
<td>.783</td>
</tr>
</tbody>
</table>

RESULTS

Two ordering theory analyses were performed, one for each of the classes. Ordering theory is not probabilistic and therefore does not have a method of dealing with random error in response patterns. For this reason a preset tolerance level is used in such analyses which sets a limit on the number of disconfirmatory response patterns (0 1) allowable before necessitating the rejection of a prerequisite relationship. In the two analyses reported here, a 5% tolerance level was used which meant that a maximum of five and two disconfirmatory response patterns was allowable in analyses 1 and 2 respectively.

The number of disconfirmatory responses occurring between all possible objective pairs is depicted in Table 3 for both analyses.
Notice that in the first analysis objective A was found to be prerequisite to objective B, D and E. That is, considering the objective in the left hand column as the first of a pair and each of the other objectives reading across as the second of a pair, then only the A C pair had more than five disconfirmatory responses. Using this procedure it can be seen that B is prerequisite to D and E. Notice also that the results of the second analysis (two disconfirmatory responses allowable) are identical to the first with regard to prerequisite relationships. The statistically validated hierarchy for both analyses is depicted in Figure 2.

The analyses supported the hypothesized prerequisite relationships between C and E, B and D, and A and B but failed to support the hypothesized prerequisite relationships between B and C and D and E. Interestingly enough, the results of both analyses yielded this identical hierarchical configuration which was somewhat different than the one hypothesized in Figure 1.
DISCUSSION

The results of both analyses yielded identical hierarchical relationships. However, strictly speaking, it has not been "proven" that A is prerequisite to B, but rather that everyone who can do B can do A as well and no one who fails A is able to do B (allowing for 5% tolerance). A more rigorous experimental procedure could have been carried out but would be much too impractical. For example, a random sample of subjects could be taught "A" and a control group would not. Then both groups would be taught "B" and then tested on both A and B. If a hierarchical relationship does exist between A and B then one would expect the control group to perform very poorly on B unless they somehow learned A during instruction related to B. Such a procedure is more experimentally sound but is not practical for the teacher.

But while the analysis depicted in this paper is not a true experimental procedure it can be used to make instructional sequencing decisions. In situations where objectives are very explicit and detailed instructional procedures have been designed specifically to teach these objectives then it would certainly make sense to sequence according to a hierarchy. With regard to data depicted here, instruction related to objective A would precede that for objective B, and instruction related to objectives B and C would precede that for objectives D and E. On the other hand, with regard to the relationship between B and C the instruction need not follow any particular order, while the same could be said for D and E. While designing and validating hierarchies may seem cumbersome and time consuming for a busy teaching schedule, it actually does not take much more time than a carefully planned and comprehensive effort at developing performance objectives and checking the validity and reliability of accompanying test items.
The processes of developing and empirically validating learning hierarchies can serve several purposes in economic and social education. First, hierarchies can be used as "progress monitoring" devices that can aid the instructor and students in pinpointing learning difficulties (Demming, 1976). More importantly, learning hierarchies may focus greater attention on and provide more precision in the development of learners' intellectual skills because hierarchy development "forces the designer to think rigorously about the structure of his subject matter and the conditions for effective learning" (Deming, p. 66). Finally, careful development and validation of learning hierarchies for economic education and other areas of social education including the law, consumerism, citizenship, decision making, and career exploration, will increase the effectiveness of efforts at using the systems approach and at employing teaching innovations in the field.

It is this kind of analysis (learning hierarchies and ordering theory) that could help bring a more cohesive structure to the arrangement of content and important intellectual skills in economic education and other areas of social studies education. In addition, hierarchical analyses will aid economists, economic educators, other social scientists and social studies educators in applying the systems approach to developing effective instruction and making necessary improvements in performance objectives, teaching methods, learning activities, media and materials, and assessment instruments.

The authors recommend that additional studies be conducted in the future in an effort to develop, validate, and use learning hierarchies in instructional design and experimentation in economic and social studies education. New content areas other than the limited one in this study should be examined and hierarchies for less limited content should be developed and tested.

REFERENCES


In recent years considerable attention has been directed to the impact of school authority relations on the formation of children’s social and political attitudes. In this approach, social learning is not regarded primarily as an outcome of direct instruction, but rather as a by-product of children’s exposure to patterns of governance in the school and classroom. For example, Dreeben (1968) argues that the authority structure of the typical classroom, in which a single adult oversees the activities of approximately two dozen children, leads students to accept norms of achievement, universalism, and other standards which regulate the civic and social behaviors of adults. Similarly, Jackson (1968) believes that aspects of the class routine, such as the public evaluation of pupil performance, helps children legitimize relatively impersonal forms of adult authority. According to Bowles and Gintis (1976) traditional governance policies in the high school promote passivity and blind obedience to authority among most students. In addition, several studies have reported findings which support the contention that school authority structures influence children’s learning of social and political norms. Students’ participation in decision-making, for example, has been found to be associated with actual or anticipated political efficacy in adult life (Almond and Verba, 1963; Haller and Thorson, 1970). And according to Siegel (1977), a participatory school milieu also promotes political trust and confidence.

Although school governance patterns have been identified as a potentially important determinant of children’s social learning, relatively little is known about students’ attitudes towards school authority. One study, however, has revealed that high school pupils evaluate rules and regulations in terms of their impact on students’ civil liberties (Richards and DeCecco, 1975). In addition, the increasing frequency with which students and their parents have brought suit against school administrators for alleged violations of pupils’ civil liberties appears to indicate that there is a growing popular awareness of the political dimension of school governance policies. Furthermore, the United States Supreme Court has on several occasions stated its belief that the schools’ efforts to control students’ behavior may have a significant impact on pupils’ understanding of their future role as
adult citizens. In Tinker v. Des Moines (1969), the Supreme Court noted that the protection of students’ rights, particularly freedom of expression, may be essential for developing a citizenry which understands and supports the need for democratic institutions within the American political system.

The present research examines attitudes of high school students towards the governance of their schools. More precisely, the focus is on support for student rights, defined as the extension of individual liberties, such as those guaranteed by the Bill of Rights, to pupils attending public high schools. Since prior research indicates that a critical test of the individual’s support for democratic political processes is his or her endorsement of the application of civil liberties in concrete, realistic situations (Erskine and Siegel, 1975), it seems likely that an analysis of support for civil liberties in the high school may be helpful in understanding students’ orientations towards more fundamental issues of democratic governance. Thus, the existence of qualified or selective support for student rights may indicate that there are certain types of citizenship behaviors which pupils regard as especially desirable or undesirable. And, should such patterns be revealed, it would then be appropriate to suggest future directions to be pursued in civic and social education.

PROCEDURES

Attitudes towards school governance policies were measured by the Student Rights Questionnaire, an index consisting of twenty-one Likert-scaled items. (That is, each item offered five possible choices ranging from “strongly agree” to “strongly disagree.”) The instrument emerged in its present form after several years of pre-testing earlier, lengthier versions; items were added or deleted according to several criteria, including performance on standard statistical tests of validity and reliability. The key factor during the pilot testing, however, was student response: if subjects felt a certain item to be excessively difficult, ambiguous or irrelevant, it was amended or dropped. In its final version, the Student Rights Questionnaire was found to be a statistically sound measure of attitudes towards the application of civil liberties in matters of high school governance. Reliability, as measured by coefficient alpha (Cronbach, 1951), was found to be .72. In addition, it was determined that attitudes towards student rights were strongly related (r = .83) to acceptance of civil liberties in general, as measured by the Noble and Noble scale (1970). In short, these data support the conclusion of Richards and Dececco (1975) that high school students’ attitudes towards the governance of their schools can be regarded as political in nature, rooted in the adolescent’s understanding of his or her citizenship rights under the Constitution.
The sample consisted of 712 ninth- through twelfth-graders in nineteen high schools in a large northern state. While it is difficult to generalize on the basis of data collected within a single state, there is nevertheless considerable variety in community type, size of schools, and characteristics of the students. Random selection of subjects was possible in only four schools, while officials in the remaining schools attempted to provide a representative cross-section of their student bodies. The sample was about evenly divided between boys and girls, and minority-group representation (5 percent) reflected the proportion of non-white population in that part of the state in which the study was conducted. Participation was voluntary in all cases, and confidentiality of student responses was assured, a procedure felt to be necessary in measuring attitudes towards a sensitive topic such as student rights.

A primary statistical technique employed in this study was factor analysis, which permits the researcher to identify underlying patterns in subjects' responses to discrete items. By using factor analysis, questionnaire items may be grouped according to the degree to which they cluster together in subjects' responses. The average score for each factor, or cluster of variables, is then calculated, thereby allowing for comparisons among factors. Thus, through factor analysis we were able to determine those issues that generated substantial support for, or opposition to, student rights.

RESULTS

The identification of the underlying factor structure was accomplished in several steps. The initial analysis revealed that six factors had eigenvalues of 1.0 or greater. Then, using an orthogonal (varimax) rotation, we obtained factor loadings (the correlations of each item with each of the six factors). According to Ray (1973), data sets are characterized by more than one factor structure. In identifying the best solution, the conceptual clarity of the emergent factors should be considered. We found that by placing each item with the factor on which it loaded most highly, we were able to obtain a useful and interpretable factor structure. While this procedure required the inclusion of several items which showed low factor loadings, our analysis proceeded primarily on the basis of each factor's weighted mean (derived from the sum of the products of the mean and factor score for each item). In this way, the influence of those items with lower factor loadings was reduced. Responses were coded from 0 to 5 points, with higher scores representing greater support for student rights. The six factors are reported in Table 1. The full factor structure appears in Appendix A.
Table 1. Factors Underlying Responses to Student Rights Questionnaire

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Item</th>
<th>Mean*</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Removal of political buttons to prevent violence.</td>
<td>3.66</td>
</tr>
<tr>
<td>6</td>
<td>Removal of morally offensive books.</td>
<td>3.76</td>
</tr>
<tr>
<td>8</td>
<td>Limiting discussion to prevent excessive amount of political expression.</td>
<td>3.60</td>
</tr>
<tr>
<td>9</td>
<td>Protection of students from radical propaganda.</td>
<td>4.00</td>
</tr>
<tr>
<td>14</td>
<td>Student rights are more trouble than they are worth.</td>
<td>3.36</td>
</tr>
<tr>
<td>19**</td>
<td>Limiting opinion to protect speaker from violence.</td>
<td>3.16</td>
</tr>
</tbody>
</table>

**Factor A (Protection) mean: 3.66**

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Item</th>
<th>Mean*</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Limiting speech to teach respect for authority.</td>
<td>2.93</td>
</tr>
<tr>
<td>3</td>
<td>Limiting speech because of students' immaturity.</td>
<td>2.57</td>
</tr>
<tr>
<td>17</td>
<td>Restricting students' expression if it is &quot;dirty or morally offensive.&quot;</td>
<td>2.49</td>
</tr>
</tbody>
</table>

**Factor B (Immaturity) mean: 2.75**

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Item</th>
<th>Mean*</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>Restricting speech offensive to minorities.</td>
<td>2.99</td>
</tr>
<tr>
<td>13</td>
<td>Permitting expression of unargued opinion.</td>
<td>3.16</td>
</tr>
<tr>
<td>16</td>
<td>Limiting opinion which might cause hurt feelings.</td>
<td>2.55</td>
</tr>
<tr>
<td>21</td>
<td>Limiting opinion which might adversely affect teachers' job performance.</td>
<td>3.02</td>
</tr>
</tbody>
</table>

**Factor C (Personal Offense) mean: 2.86**

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Item</th>
<th>Mean*</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Requiring hearings before suspending students.</td>
<td>4.40</td>
</tr>
<tr>
<td>10</td>
<td>Students' right to criticize school authorities.</td>
<td>3.67</td>
</tr>
</tbody>
</table>

**Factor D (Authority Relations) mean: 4.04**

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Item</th>
<th>Mean*</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>Permitting only neutral opinion by outsiders.</td>
<td>2.84</td>
</tr>
<tr>
<td>19**</td>
<td>Limiting opinion to protect speaker from violence.</td>
<td>3.16</td>
</tr>
<tr>
<td>20</td>
<td>Permitting opinion favorable to communism.</td>
<td>3.52</td>
</tr>
</tbody>
</table>

**Factor E (Dissent) mean: 3.06**
Higher scores indicate support for student rights.

**Item 19 loaded equally high on Factors A and E and was included in both.

Results suggest that pupils are rather ambivalent about the applicability of civil liberties in the high school routine. On the one hand, there are issues in which they feel the need for freedom from administrative regulation. At the same time, there are several types of issues in which students accept a forceful role for school officials.

There appear to be two broad issues which generate substantial support for student rights. Most clearly, pupils object to administrators "pulling rank," that is, acting summarily or exaggerating claims to authority (Factor D, Authority Relations). Students overwhelmingly endorse a recent ruling of the United States Supreme Court (Goss v. Lopez, 1975) which requires the provisions of an administrative hearing before a school can suspend a student (Item 7). On the other item (#10) included in Factor D, students accept as their right the freedom to criticize the management of their schools. However, according to Berkman (1970), courts so far have often been unwilling to grant students this freedom. The second broad area of administrative behavior in which students opt for less regulation involves efforts to protect pupils from purportedly undesirable influences of a political or moral nature (Factor A, Protection). In their comments, students indicated resentment at any attempt to protect them from what they regard as "the real world" and manifest this sentiment most clearly in two items which imply "outside" influences (Items 6 and 9).

Table 1 (cont).

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Item</th>
<th>Mean*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Permitting expression which might result in violence.</td>
<td>3.02</td>
</tr>
<tr>
<td>4</td>
<td>Permitting false expression intended to cause injury.</td>
<td>2.34</td>
</tr>
<tr>
<td>12</td>
<td>Administrative censorship of student publications.</td>
<td>3.32</td>
</tr>
<tr>
<td>18</td>
<td>Permitting expression of falsehoods.</td>
<td>2.48</td>
</tr>
</tbody>
</table>

*Higher scores indicate support for student rights.

**Item 19 loaded equally high on Factors A and E and was included in both.
On the other hand, respondents endorse administrative sanctions in several key areas. In general, they appear to be greatly concerned about the personal welfare of their peers and at the same time are deeply distrustful of their schoolmates' capacity to utilize properly freedom of expression. Students' skepticism about the maturity of their peers (Factor B) leads them to accept the immaturity of the speaker as valid grounds for curtailing free speech. In Factor C, it is clear that pupils are also quite willing to permit the restriction of expression in order to protect their peers from personal injury of a psychological or emotional nature. Suspicion of peers and concern for their welfare seem to be at the heart of Factor F, which has the lowest mean score of any of the six factors (2.65). Unlike the other clusters, there was not an immediately apparent conceptual unity underlying these items. However, students' comments have indicated that articles in the school newspaper have, in the past, contained false or misleading information which resulted in damage to individuals' reputations and relationships; thus, there appears to be some interest in preventing such incidents in the future.

Finally, pupils indicated an ambivalence about the rights of speakers offering unpopular or unconventional opinions (Factor E, Dissent). The average score for this factor (3.06) closely approached both the overall test mean of 3.18 and the theoretically neutral midpoint of 3.0.

While results of the factor analysis are useful in identifying the types of administrative actions that students tend to support or oppose, it seems likely that attitudes towards school governance are also influenced by students' background and experience and perhaps by the characteristics of the schools they attend. To examine this possibility, we formulated an equation in which pupil and school characteristics were used to predict attitudes towards student rights. These variables are briefly described below in the order in which they were entered into the regression equation.

Step 1: Social trust and personal efficacy have been identified as social psychological antecedents of support for democratic governance (Goldsen, Rosenberg, Williams, and Suchman, 1960; Almond and Verba, 1963). We utilize a general measure of social trust (Goldsen et al., 1960), and for personal efficacy, a set of items assessing the extent to which students felt that they could influence teachers and events in their schools (Haller and Thorson, 1970).

Steps 2 and 3: Students' involvement in their schools was measured first by a single item assessing the degree to which students felt integrated in the social network of the school (Coleman, 1961). In the next step, students listed all membership and offices held in school extracurricular activities.

Step 4: Entered into the equation at this stage were five student background variables: race, sex, grade level, socioeconomic status and academic ability (as measured by scores on the SRA verbal form). Of these,
it would be expected that socioeconomic status would exercise an especially strong effect on attitudes towards governance. For example, according to Bowles and Gintis (1976), affluent students typically prefer more permissive patterns of administration. Also included in this stage is a school structural factor. Barker and Gump (1962) found that the population density of the high school (as measured by the ratio of extracurricular activities to enrollment) has a significant impact on socialization outcomes. Specifically, pupils in smaller schools were more likely to be involved in extracurricular activities and also reported different types of social pressures and satisfactions than pupils in larger schools. Therefore, if the nature of student involvement varies with school size, it might also be expected that the enrollment density of the high school influences attitudes toward governance.

Results of the regression analysis are reported in Table 2. According to these findings, attitudes towards school governance, as reflected in the overall scores on the questionnaire and in scores on each of six factors, are weakly related to most of the predictor variables. Of the student background measures, grade level and academic ability show the strongest (but quite modest) effects on support for student rights. Neither school population density nor pupils’ involvement in their schools has any significant impact on attitude formation. Moreover, personal efficacy and social trust did not show their expected effects on governance attitudes. While trust has no bearing on students’ civil libertarianism, efficacy shows a small but significant negative effect (-.12), apparently indicating that those pupils who already regard themselves as effective within the school see little need for formalized mechanisms for protecting their own interests. Finally, examination of the coefficient of determination (the R² statistic) for each of the six factors and for the overall scale score provides the clearest indication that students’ attitudes towards school governance are minimally affected by pupils’ backgrounds and school experiences.
Table 2. Effects of Student and School Variables on Attitudes towards Student Rights (Totals and Sub-scores)

<table>
<thead>
<tr>
<th>Dependent Variables (Factors):</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>All Factors:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent Variables:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protection</td>
<td>-.02</td>
<td>.04</td>
<td>-.05</td>
<td>.03</td>
<td>.00</td>
<td>.11**</td>
<td>.03</td>
</tr>
<tr>
<td>Immaturity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.08**</td>
<td>.03</td>
</tr>
<tr>
<td>Personal Offense</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.01</td>
<td>-.03</td>
<td>.16**</td>
</tr>
<tr>
<td>Authority Relations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-.03</td>
<td>.12**</td>
</tr>
<tr>
<td>Dissent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.00</td>
<td>.06</td>
<td>.00</td>
</tr>
<tr>
<td>Truthfulness</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.03</td>
<td>.06**</td>
<td>.00</td>
</tr>
<tr>
<td>Social Trust</td>
<td>.00</td>
<td>-.11**</td>
<td>-.05</td>
<td>-.08**</td>
<td>.03</td>
<td>-.16**</td>
<td>-.12**</td>
</tr>
<tr>
<td>Efficacy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-.11**</td>
<td>-.08**</td>
<td>.03</td>
</tr>
<tr>
<td>Integration</td>
<td>.00</td>
<td>.00</td>
<td>.03</td>
<td>.01</td>
<td>-.03</td>
<td>.09**</td>
<td>.03</td>
</tr>
<tr>
<td>Participation</td>
<td>-.01</td>
<td>.00</td>
<td>.00</td>
<td>.01</td>
<td>.00</td>
<td>-.11**</td>
<td>-.02</td>
</tr>
<tr>
<td>Race</td>
<td>.03</td>
<td>.05</td>
<td>-.03</td>
<td>.00</td>
<td>.00</td>
<td>-.06</td>
<td>.00</td>
</tr>
<tr>
<td>Sex</td>
<td>-.01</td>
<td>.08**</td>
<td>.10**</td>
<td>-.02</td>
<td>-.04</td>
<td>.07*</td>
<td>.06*</td>
</tr>
<tr>
<td>Ability</td>
<td>.22**</td>
<td>.14**</td>
<td>-.05</td>
<td>.09**</td>
<td>.15**</td>
<td>-.10**</td>
<td>.15**</td>
</tr>
<tr>
<td>Grade Level</td>
<td>.16**</td>
<td>.18**</td>
<td>.05</td>
<td>.02</td>
<td>.04</td>
<td>-.01</td>
<td>.15**</td>
</tr>
<tr>
<td>SES</td>
<td>.09**</td>
<td>-.03</td>
<td>-.07</td>
<td>.12**</td>
<td>.06</td>
<td>-.04</td>
<td>.00</td>
</tr>
<tr>
<td>Behavior Settings per Pupil</td>
<td>.01</td>
<td>-.06</td>
<td>-.02</td>
<td>.00</td>
<td>.01</td>
<td>-.02</td>
<td>.00</td>
</tr>
<tr>
<td>R²</td>
<td>.118**</td>
<td>.085**</td>
<td>.03</td>
<td>.03</td>
<td>.04</td>
<td>.106**</td>
<td>.07</td>
</tr>
</tbody>
</table>

*p < .05
**p < .001
CONCLUSIONS

While the factors shaping attitudes toward student rights do not appear to be consistent with the major legal or philosophical principles underlying the role of civil liberties in American government, they do lend themselves to a sociological interpretation. In particular, our findings seem to be quite consistent with the influence of the "youth culture" as described by Bronfenbrenner (1970) and by Coleman and associates (1974). In brief, frequency and intensity of interaction among individuals who have similar personal characteristics (age, race, socioeconomic status), combined with certain demographic changes (principally a larger youth cohort and increasing urbanization), have heightened the importance of peer socialization. Lying at the heart of the youth culture, according to Coleman (1974, p. 116) is

...the increasing need for close relations, for the psychic support and security of another or others very close.

Typically, these relevant others are members of the peer group.

It should not be surprising, then, that students are fairly intolerant when the interest of their peers is at stake. The bonds linking students with each other are apparently so strong that adolescents are quite willing to curtail some of their own freedom in order to prevent injury to those to whom they are closest. Similarly, students' tolerance for sexual explicitness and political deviance is consistent with the values of the youth culture and is also reflected in the content of the alternative media which are popular with teenagers and young adults.

In general respondents demand to be treated equitably by the administrators of their schools and expect also that school officials will maintain an active presence in that area of the school routine which is of paramount importance to students: peer relationships. Because of their intense interaction with their schoolmates, pupils come to know each other fairly well and are much more fearful of the injurious effects of an unkind or untrue remark by a peer than they are about the damage that might be done by politically or morally unconventional material. In this sense, these results reflect a familiar finding of civil liberties research: support for personal freedoms declines as issues become more salient to the respondent. More concisely phrased, "Intolerance is ... often a matter of whose ox is gored" (Zalkind, 1975, p. 8).

Thus, the present generation of high school students appears to be neither noticeably docile, nor remarkably rebellious when basic questions of school authority are posed. Perhaps more so than earlier cohorts, they reject the "in loco parentis" function of their schools, yet at the same time strongly endorse the view that the administration is the ultimate arbiter of peer
relations. Given the knowledge that they and their peers can safely interact in a relatively structured environment, students apparently are unwilling to ask for much more.

It should be realized that attentiveness to the interests of the peer group at the expense of more generalized principles and ideals is hardly an exclusive characteristic of high school students. Riesman (1953, p. 38) has suggested that the modern American is increasingly "other-directed," that is,

...his need for approval and direction from others ... (is his) chief source of direction and chief area of sensitivity.

If the moral authority of the peer group is replacing "inner-directedness" (the internalization during childhood of prevailing cultural patterns), then there may eventually occur a serious erosion in support for basic value patterns, including those pertaining to democratic process. Therefore, if inculcating support for basic procedural safeguards such as the Bill of Rights is to be achieved by the citizenship training conducted by American high schools, the findings of this study suggest that the influence of the peer group over students' attitudes might have to be reduced.

Unfortunately, it is difficult to offer concrete suggestions for inculcating support for democratic process among students. In the past, most attempts to promote democratic ideals through direct classroom instruction have not been successful (Langton, 1969; Jaros, 1973). Moreover, results of this study appear to suggest that the social relations of the school may not be broadly effective for democratic socialization. We found that students who perceive themselves as being influential in school settings tend to be less supportive of relatively permissive governance policies. While this finding may simply be an indication of self-interest on the part of the more influential pupils, it might also suggest that existing governance patterns in the school tend to lead some students towards acceptance of more authoritarian policies, as has been suggested by Bowles and Gintis (1976). In addition, it is often assumed that extracurricular activities promote support for democratic values by providing students with opportunities for leadership, responsibility, and cooperative effort (Roemer and Allen, 1926; Johnson, 1965). However, we have found that neither extracurricular participation nor pupils' sense of social integration in the schools has very much impact on attitudes towards governance.

What appears to be needed is the further study of various school governance policies and their effects on social learning. Some researchers have found that the application of a specific set of norms often leads to general acceptance of those standards (Breer and Locke, 1965), particularly when those norms center on patterns of governance (Sniderman, 1975). As mentioned previously, several studies have found that a similar pattern of learning occurs when a more participatory milieu prevails in the school
(Almond and Verba, 1963; Siegel, 1977). And, according to Bronfenbrenner (1970), teachers have a largely unexploited potential for exercising a positive influence on children's social learning by structuring the types of situations to which students are exposed. In concluding, therefore, we suggest that educators who are interested in promoting democratic ideals become more sensitive to the extent to which such ideals are actualized in the schools.

REFERENCES


APPENDIX A

Factor Loadings for Items in Student Rights Questionnaire (Varimax Rotation)

Factors:

<table>
<thead>
<tr>
<th>Item No.:</th>
<th>A Protection</th>
<th>B Immaturity</th>
<th>C Personal Offense</th>
<th>D Authority Relations</th>
<th>E Dissent</th>
<th>F Truthfulness</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.00</td>
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<td>.04</td>
<td>.08</td>
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<td>.72</td>
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</tr>
<tr>
<td>3</td>
<td>.18</td>
<td>.37</td>
<td>.06</td>
<td>-.01</td>
<td>.06</td>
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Teachers in the social studies, just as in other subject areas, are generally eager to hear of new ideas for motivating students. Their recognition of how important it is to enhance student interest and willingness to work at learning has led teachers to implement a long series of educational innovations, from texts with colored pictures, to games, simulations, and educational television. Yet, despite the attractive materials and engaging activities used today, student motivation remains a serious concern in the social studies. It has become apparent that more needs to be known about the curricular and instructional variables that are linked to student motivation before teachers will be able to act effectively on this problem.

One curricular variable that is often discussed is the relevance of the subject matter. While some have argued for the importance of relevance (e.g., Metcalf and Hunt, 1970), others have worked on curriculum changes designed to foster it (e.g., Kownslar, 1974). Despite all that has been written about this aspect of motivation, no standard explicit definition of relevance has yet emerged. Furthermore, there is not a clear understanding of how relevance influences student motivation. On the contrary, Madgic (1970) has identified over 10 distinct usages of the term “relevance.” This lack of an agreed upon definition has allowed an important antecedent of student motivation to be used imprecisely in research and discussion of research results. In this paper we have sought to clarify some of the relationships involved by using the term “articulation” to refer to a particular aspect of relevance: the extent to which students perceive that coursework will be helpful to some future aspect of their life. A high level of articulation means that students perceive their coursework as very helpful for some future aspect of their lives while a low level of articulation means that they perceive it as not helpful.

This concept of articulation was developed by Harris (1976) and used in a recent report on research into high school students’ perceptions of their
work in several school subjects (Fernandez, Massey, and Dornbusch, 1976). Working from a general theory of evaluation processes (Dornbusch and Scott, 1975) which hypothesized that students would consider most important those school tasks for which positive evaluations would lead to important rewards, the researchers sought to determine which future outcomes students considered important, and which school subjects were perceived as linked to these rewards. They found that career development was an outcome of schooling that students considered overwhelmingly important—almost 95% believed that careers would be very or extremely important to their future happiness. Therefore, these authors limited their analysis to the effects of student perceptions of articulation to the world of work. In this paper we will extend the concept of articulation to include links to other future activities, such as family life and community participation.

Fernandez, Massey, and Dornbusch found that students believed that learning social studies would not be as useful for their careers as math or English; the articulation between what students learn in social studies and their future careers was relatively low. Another finding from the same study was that a substantially smaller proportion of students felt that it was important to learn social studies than was the case for math or English. Arguing that career success was the outcome of schooling that was most important to students, the researchers concluded that the low importance to students of social studies in comparison to math and English courses could be attributed to its lower articulation to future careers. In other words, students' less favorable attitudes toward social studies—and presumably, their lower motivation to learn it—were due to their belief that the subject would not be helpful for future careers. Furthermore, it was reported that students felt that other people whose opinions mattered to them (parents, peers, counselors, and even teachers) shared these perceptions. These conclusions presented a gloomy picture of student motivation in the social studies.

Educators could reply that social studies is nonetheless an important subject with its own sources for student motivation: it teaches different kinds of skills and knowledge which are essential to future social and civic success, even if they are not perceived as articulated to careers. Fernandez, Massey, and Dornbusch remained skeptical about this claim, noting that they found no evidence that students perceived any special emphasis in social studies on such social skills and knowledge. Concluding that students did not believe that they were learning the social and civic basics which social studies claims to teach, or even if students were learning these basics, that they did not believe that doing so would be important to them, the researchers closed with several suggestions for ways in which teachers of social studies could address the problems of articulation and motivation.
This paper extends their analysis to deal with two issues. First we examine the assumption that students will work harder to learn subject matter that they perceive as relevant to their future goals. This assumption, though supported by common sense, is not obviously true: there are alternative sources of student effort, such as pressure from parents, accepted norms for effort, etc. In fact, one study (Williams, 1973) seemed to indicate that the "utilitarian value" of subject matter had little or no impact on student attitudes and achievement, at least for inner city students. For educators who are concerned about the amount of effort students exert in social studies classes, it will be worthwhile to test the assumption that articulation to careers or other future activities will enhance student effort.

The second theme of this paper is to explore further the concept of articulation, testing the claim of social studies that it teaches skills and knowledge that students perceive as basic to their later lives, even if not related to careers. If students were to perceive social studies as relevant to family life or some other important aspect of the future, they would presumably consider the subject matter important, even if unrelated to careers. This analysis will demonstrate some surprises—as well as some hope—for social educators.

METHODOLOGY

Our research addressed the two issues which were raised above by re-analyzing the same data which Fernandez et al. had used in their report. Their research group began with a 5% random sample of the total enrollments of eight high schools in the San Francisco Unified School District. These were diverse schools which reflected the variety of ethnic backgrounds and economic levels of the city as a whole. The students from the initial sample were then contacted and asked to participate in the study by filling out a confidential questionnaire about their perceptions of school. The researchers obtained maximum and representative participation by offering to pay students $2 for completing the questionnaire. The reluctance of some students was overcome by having research assistants from minority groups help administer the questionnaire. In some cases the assistants had to help with reading and translations. The data which resulted consisted of the questionnaire responses of 772 high school students (grades 9-12) of whom 183 were Asian-Americans, 209 were Blacks, 133 had Spanish surnames, 184 were other Whites, and 63 were not classified.

The questionnaire was rather long and comprehensive, tapping a variety of student perceptions about schools, their teachers, coursework, future plans, and the opinions of significant others. To simplify the analysis, related questionnaire items were in some cases combined into new variables. Three of these scale measures were used in the present analysis. Career
articulation, which was used as a measure of the linkage perceived by students between coursework and future careers, was developed by summing a student's responses to three questions. Students were asked to report for each of their courses (1) how important learning the subject was for getting started in careers, (2) how important getting good grades was for getting started, and (3) how important learning the subject was for career success.

A second scale called self-assessment of effort proved to be a Gutman scale, i.e. the questions all measured the same dimension. The questions were: (1) "When you find you aren't learning the subject, how hard do you try to do better?" (2) "When you get a poor grade, how hard do you try to get a good grade?" and (3) "How hard do you try to get good grades?" The coefficients of reproducibility were above .95 for each school subject; the coefficients of scalability were all above .84.

The third scale, social influence, was computed as the sum of student responses to questions which asked for their estimate of how important various significant others considered it was to learn the subject matter of different courses. The questions asked for students to judge the respective opinions of their mothers, fathers, counselors, and friends. It was assumed that students would be responsive to the opinions they perceived others as holding, regardless of whether these perceptions were accurate.

To explore the nature of the articulation perceived between social studies and future goals, relevant questionnaire items and scale measures were analyzed by computing Pearson product-moment correlations for pairs of variables. One-tailed t-tests were used for assessing the statistical significance of the correlations because the sign of the relationships had been predicted before the analysis began.

To investigate the impact of articulation on student effort we had to consider a number of causal factors. Thus, in addition to the tests for relationships between variables discussed above, we used path analysis, a multivariate method which allowed us to determine the relationships between a number of variables within a conceptual model of student motivation. This approach uses standardized regression coefficients as estimates of the power of the independent variables as causes of the dependent variables that follow them in the model. Path analysis can not prove that there is a causal relationship between the variables, but it provides evidence for evaluating the adequacy of a proposed causal model as an explanation of the variance in the data. R-square measures of the proportion of total variance which the model explained, and F-tests of the statistical significance of the relationships in the model were also computed.
IMPORTANCE AND EFFORT

According to both common sense and a sociological theory of evaluation (Dornbusch and Scott, 1975), one would predict that a participant who perceived an activity as more important would expend more effort on that activity. It was this notion which led Fernandez, Massey, and Dornbusch to predict negative consequence for the social studies from the low articulation and importance students in the San Francisco schools attributed to social studies courses. However, they did not cite data from the study to support their prediction. This section reanalyzes portions of the San Francisco data in order to address the question of importance and effort.

We began by reviewing the correlations between student perceptions of career articulation of a subject, the importance of learning a subject, and the effort students report exerting to learn the subject. The correlation between the articulation of social studies to future careers and the importance of learning social studies was .41; the correlation between the importance of learning social studies and self-assessed effort in social studies was .40. To put these numbers in context, we developed a multivariate path model involving articulation, social influence of significant others, importance to students of the subject, and student effort. The model posited that both career articulation and social influence would influence attitudes about the subject’s importance, which would in turn influence the student’s effort (see Figure 1).

![Figure 1: The conceptual model relating career articulation and social influence to importance of learning and self-assessed learning effort.](image-url)
To arrive at path coefficients for the model (i.e. coefficients which estimate the size of the change in the dependent variable which would be caused by a one-unit change in the antecedent independent variable if the effects of other variables in the model were controlled) we used ordinary least squares regression. The standardized regression coefficients are reported in Figure 2.

![Diagram showing standardized beta weights and R² for the relationships in the model (data for social studies courses).](image)

Figure 2: Standardized beta weights and R² for the relationships in the model (data for social studies courses).

As we had hypothesized, the strongest effects go from articulation to importance and from importance to effort. The effect of social influence on importance is somewhat less; the direct effects of articulation and social influence on effort are still smaller. R-square values indicate that the relationships in this model can account for about one fifth of the total variation in importance and effort. F-test values suggest that there is less than a 1% chance that the observed relationships are due to chance. There are comparable findings for students of both sexes, for students of all four ethnic groups in the study, and for high achieving as well as low achieving students. In all cases the data support the interpretation that career articulation is a fairly strong determinant of how important students believe it is to learn the subject matter, while beliefs about the importance of the subject likewise influence student effort. The opinions of others (social
influence) also affect student attitudes toward the subject, but neither social influence nor perceived career articulation appear to have substantial direct effects on student effort.

ARTICULATION TO CAREERS, MARRIAGE, AND COMMUNITY WORK

The central conclusion reported by Fernandez, Massey, and Dornbusch was reached by comparing the proportion of students whose responses indicated a high perceived articulation between coursework and future jobs, to the proportion of students who reported that learning the subject was important. Thus high articulation for math and English courses was associated with high assessed importance, while lower articulation for social studies courses was associated with lower assessed importance. Implicit in this finding is a criticism of the social studies for being irrelevant and uninteresting to students. As noted earlier, educators can legitimately respond that social studies is not designed to teach career competencies, but rather the social skills and knowledge that will enhance other aspects of students’ lives. The data from the San Francisco study offer some indirect support for this response, but it will be necessary to digress briefly in order to explain the line of reasoning which derives this support.

The earlier researchers were able to use responses to direct questions about how closely students believed their courses were connected with careers. Unfortunately, the questionnaire did not include direct questions about the relationships between coursework and other aspects of students’ lives. There are, however, questions which permit an indirect test of the effects of articulation to other aspects of future life. The findings provided by this indirect test may be considered trustworthy only if findings using the indirect measure of career articulation correspond to earlier findings using direct measures of articulation to future careers. Our first step must therefore be to validate the use of this indirect measure by applying it to careers.

The indirect test of the earlier conclusion that high career articulation caused high perceived importance of a subject was implemented by calculating the correlation between the importance to students of future careers and the importance they placed on learning the subject. That is, if the earlier conclusion is valid, it should be the case that if a certain course was perceived as having high articulation to careers, then the more important a student considered his future career, the more important that student would consider learning that subject. It was possible to run this independent check, because the questionnaire included a question which asked students “How important are these things to your future happiness: your future job?...marriage and family life?...working in the community?”
Since math and English courses had been found to be highly articulated to careers, the importance of learning these subjects should be correlated with the importance of jobs to students' future happiness. Since social studies was shown to be less articulated to careers, there should be a lower correlation between its importance and the importance of careers to students. Because our argument is indirect—it predicts on the basis of comparisons of correlations—we can expect only modest support for these hypotheses. The predictions were in fact supported, as can be seen in row 1 of Figure 3.

![Table](https://via.placeholder.com/150)

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Figure 3: Correlations between components of future happiness and the importance of learning school subjects, for males, females, and all students. (* indicates significance at .05 level)

Figure 3 shows the values of the Pearson correlations between the importance of three future activities and the importance of learning the three subjects. The finding of a value of .20 for the relationship between the importance to students of future jobs and the importance of learning math indicates a moderate correlation. The correlation for English was somewhat weaker, while that for social studies was weakest of all. The order of these
values is identical to the earlier findings on career articulation, and the lower correlation for social studies was expected, given its known low articulation to careers.

The indirect test confirmed the earlier findings, so we thought it reasonable to apply the same indirect method to related questions. By extending this approach to other aspects of future life mentioned in the questionnaire, it was possible to arrive at an indirect assessment of the articulation perceived by students between their courses and the non-career aspects of their future lives.

Rows 2 and 3 of Figure 3 summarize the correlations of the importance of learning the three subjects with the importance of “marriage and family life,” and the importance of “working in the community,” respectively. As can be seen from row 2, none of the three subjects was perceived as closely articulated to marriage and family life, although English produced statistically significant and higher correlations. Interestingly, the girls in the sample appeared to perceive stronger articulations between coursework in all subjects and their future as wives and mothers. There was only a slight tendency for boys who responded that marriage and family life was highly important to them to respond that any of these subjects were important to learn.

The contrast for the perceived articulation to “work in the community” is striking. Particularly for the boys in the sample, students who believed that work in the community was important to their future happiness were much more likely to consider learning social studies important. English was slightly less articulated, while math was only weakly articulated to work in the community. All of these correlations had a less than five percent chance of being caused by random factors.

The San Francisco data thus offer some support for the idea that social studies will be important to students if they believe that it prepares them for social and civic life. Although none of the three classes was perceived as being important for marriage and family life, social studies, along with English, was perceived as rather strongly articulated with community work. However, the question remains: if social studies can be important to students by virtue of its articulation to aspects of later life other than careers, why is it that only 46% of the students in the study felt that learning social studies was more than moderately important? (For comparison, 75% thought math, and 71% thought English was very or extremely important to learn.) A probable answer to this question can be seen in Figure 4, which shows proportions of students who felt that careers, marriage, and community work were very or extremely important to their future happiness.
Virtually all of the students reported careers as of high importance to their future happiness, while a much smaller proportion felt community work was important to their future happiness. Thus it is not surprising that math and English, with high perceived articulation to an aspect of life that was overwhelmingly important to students, were considered important subjects to learn. On the other hand, even though social studies was perceived as well articulated to work in the community, rather few students considered community work important, and social studies was therefore not considered important to learn. Furthermore, marriage and family life, which was perceived as highly important to future happiness by a sizable majority of students, was not well articulated to any of these three subjects.

DISCUSSION

This paper's findings were derived from data reported earlier by Fernandez, Massey, and Dornbusch (1976). Their study demonstrated that students perceived social studies as having low articulation with future careers, and that this was associated with student attitudes that social studies was less important to learn than other subjects. However, their study left unanswered two important questions. First, is the amount of articulation to careers which students perceive in their courses a good predictor of the amount of effort that students will exert to learn the
subject? In other words, should social studies teachers be concerned about the low career articulation and low importance of their subject because of the negative influence these may have on student motivation? The second question asks whether students consider aspects of the future other than careers when they assess the importance of learning a subject. If so, these other sources of relevance may have their own influence on student effort.

The analysis of how students’ perceptions and attitudes influence their effort in learning showed that subject matter that is relevant to careers does not automatically produce greater student effort. Although favorable attitudes toward a subject were associated with greater effort, and perceived articulation to careers made for more favorable attitudes, a number of other factors entered into and clouded this relationship. The path model described in an earlier section helped to clarify this relationship. Articulation was shown to have relatively small direct effects on student effort to learn. Favorable attitudes toward the subject acted as mediating variables: they were influenced by articulation, and in turn they influenced the level of student effort. However, this indirect effect allows for many other variables to influence student effort. Teacher expectations, the influence of parents and peers, and student concern for compiling a good overall academic record are probably all important in this regard.

Such a relationship suggests that, for most students, increases in career articulation will not necessarily increase student motivation, even though they act indirectly to increase the likelihood of student effort to learn. The fact that favorable attitudes are well correlated with greater effort would make it worthwhile for teachers to do what they can to enhance student attitudes toward social studies—and increasing student perceptions of the articulation of the subject to future careers is a relatively powerful way to do this. Further, it may well be that career articulation’s indirect effects on student effort are higher for certain types of students. For example, the effort of a student who was not concerned with compiling a strong academic record might be more responsive to articulation than would his college-bound peers. This possibility certainly makes it worthwhile for teachers of social studies to consider career articulation as an approach for motivating students, even though results are not assured.

On the other hand, our investigation and extension of the concept of articulation demonstrated that student attitudes are also influenced by articulation to future goals other than careers. Students appear to take many aspects of the future into account when assessing the importance of learning various subjects. Career articulation is clearly important, but this study showed that at least two other aspects of later life (marriage and family, and work in the community) also enter into student perceptions of the value of their subjects.
This finding entails several implications for social studies education. First, it is apparent that students are future-oriented: they assess the value of school subjects largely on the basis of how useful the subjects will be for future activities. However, students usually have only vague ideas about what skills and knowledge their future activities will require, so they must depend on others in order to evaluate the articulation of their coursework. Teachers would therefore be providing a useful service if they were to give more information about the kinds of skills required by adult roles, and the ways that schoolwork articulates with these skills.

A second implication is that students appear to accept the part of the social studies rationale which stresses the learning of social and other skills that are not clearly linked to careers. A subject may be important by virtue of perceived articulation to aspects of the future other than careers. However, this study found that social studies has apparently been taught in such a way that its pertinence to aspects of the future such as marriage and family was not clear to students. Teachers, by selecting subject matter to coincide with student concerns, and by stressing the articulation of the subject to future life, could overcome this problem.

Putting these findings together points to the following suggestions for how social educators can use the concept of articulation to influence their students' attitudes and motivation to learn social studies.

1. It is clear that students are vitally interested in preparing for future careers. Although there can be no guarantee for individual students, teachers can increase the likelihood of students considering the subject important and working harder to learn it by demonstrating linkages between the subject matter and future careers. This could be done by noting the vocational uses to which traditional social studies objectives can be put, by inviting working adults to talk about their work and their preparation for work, and by including career development objectives wherever they can be made to fit into the curriculum.

2. Students are also interested in personal aspects of their future social development such as marriage and family life. However, they do not believe that social studies (or any other) courses are helping them to prepare themselves for this aspect of the future. Since many social studies rationales make reference to teaching the social skills and knowledge that students will need in the future this seems to be a major failing of social studies. By developing the linkages of their subject matter to future personal development, teachers could increase the likelihood that students would consider the subject important, and would work harder to learn it.
3. Finally, it is apparent that students perceive their social studies courses as articulated to future work in their communities. Unfortunately, a rather small proportion of students feel that community participation will be important in their future lives. This form of articulation presently has little impact on student attitudes or effort. However, if more students were convinced that community participation is important, social studies’ articulation to work in the community would have greater potential for motivating students. This in itself seems a sufficient reason for placing greater stress in social studies on the value of community involvement.

REFERENCES

There have been a number of recent criticisms of the political content of elementary school social studies textbooks. Fox and Hess (1972) argue that the texts present a naive and unrealistic image of society by ignoring political issues and other social conflict. Harrington and Adler (1971; see also Harrington, 1976) suggest that elementary social studies texts present students with an overly positive view of the benevolence and accountability of political authority. James Shaver, in his Presidential Address to the National Council of the Social Studies in November, 1976 (Shaver, 1977), argues, as did Silberman in 1970 (Silberman, 1970) that such unfortunate aspects of the social studies can be traced to "mindlessness" and a lack of attention to educational thought and practice. In Shaver's view, the unrealistic nature of elementary social studies textbooks would illustrate thoughtlessness and failure: The books "fail" to provide students with the tools for critical thought or informed participation in democratic society—the books are, in other words, somewhat dysfunctional.

I will argue in this paper that the unrealistic, overly positive nature of elementary school social studies textbooks is not a result of inattention to critical thought, but is instead a part of the overall process of socialization which occurs in schools. In this view the unrealistic nature of elementary social studies texts has a social function. Its function is to foster in students an acceptance of the legitimacy of on-going social institutions. Thus, knowledge which "counts" as social studies knowledge will tend to be that knowledge which provides formal justification for, and legitimation of, prevailing institutional arrangements, and forms of conduct and beliefs. The intention of this paper is not to imply a "conspiracy of textbook authors," but to point to the powerful nexus of social forces in which schools operate. The hope is that by situating schools in their larger social context we may illuminate the social and political meanings which inhere in much educational thought and practice.

In order to develop the argument that elementary social studies knowledge is part of socialization to an acceptance of prevailing institutions, the concept of legitimation will be developed, and then applied in an analysis of the knowledge presented children in elementary social studies textbooks. Several content analyses done by others in the last several years will be utilized, and an analysis will be made of descriptions and definitions of political and economic institutions provided by several
recently published elementary series. A survey of the elementary social studies series used in 120 U.S. school districts was recently undertaken by this investigator, and those series which proved to be the most widely used were chosen for analysis.

The potential influence of social studies textbooks on personal thought should be noted at the outset. Social studies textbooks, while not used in all schools, are generally acknowledged to be the most common method of transmitting social studies knowledge. They are more widely used, for example, than either teacher-made materials or non-print media. Thus, social studies textbooks are very often a student’s only sustained exposure to disciplined social thought. As such, the descriptions and definitions provided by the texts—concerning political and economic arrangements, for example—may contribute significantly to the student’s sense of what institutional arrangements are legitimate. It is not unreasonable to expect that an adult’s beliefs, and choices on social issues, will fall well within the limits of what he or she perceives to be socially acceptable and legitimate. And, it is not unreasonable to expect that social studies education contributes to the establishment of intellectual boundaries of this legitimacy. The argument that the knowledge in elementary social studies texts tends to be “legitimating,” and to be indicative of the political and other social forces impinging on schools, will begin with a discussion of the idea that the institutions of society stand in need of legitimation.

THE LEGITIMATION OF SOCIAL INSTITUTIONS

The institutions of a society are the habituated patterns of action and the typified routines and social roles of daily life. Our political institutions, for example, are such things as citizen voting in elections, majority decision-making, competing for office, competing for power and money, and, more mundanely, expression of political opinion by writing letters to the editor, letters to political leaders, or perhaps by signing petitions. Putting up hand-lettered wall posters, as in China, is not a typical political practice in the U.S.

It is possible to see how institutions channel human behavior into certain routines and roles, and exclude thereby the possibility for other behaviors to become habituated. In this way institutions are coercive. As Berger and Luckmann argue:

[All] institutions...by the very fact of their existence, control human conduct by setting up predefined patterns of conduct, which channel [human behavior] in one direction as against the many other directions that would theoretically be possible. It is important to stress that this controlling character is inherent in institutionalization as such, prior to or apart from any mechanisms or sanctions specifically set up for...social control. (p. 55)
Thus, institutions are coercive. The coercive nature of the institutional behavior must be justified to the new generation and maintained in the adult members of society. The institutional roles and routines must be given meaning and, if possible, a normative status. For social institutions to continue, they must be supported and perceived as either legitimate or inevitable by the members of society—by those, that is, who participate in them. Institutional actions, however, may not have prima facie logic of their own. There is no inherent reason, for example, why writing letters to the editor is—by itself—more "logical" than putting up wall posters. Nor, to take examples from other social institutions, is there any more logic in having two spouses than one, or in owning property individually or in a group. For this reason prevailing practices of the social institutions must be integrated into a cognitive whole, and given justification. And, like patriotism, the sense of the acceptability of prevailing institutional practices must be fostered in the young and maintained in adults. Such attitudes and beliefs must be developed over time.

This development of legitimacy, or the socialization to institutional norms and expectations, is complex. It occurs in several ways: through experience within the social settings, and through the transmission of formal and other types of knowledge about the social institutions. Patterns of early experience may lead to the generation of behavior norms, and the knowledge acquired may lead to intellectual notions of what constitutes social legitimacy. The formal knowledge which describes and "explains" social institutions may predispose interpretations of social phenomena in ways which provide "logic" and coherence, and which serve to maintain the system. The family, peers, and the media all contribute to this development. And, one would argue, so does schooling. For, in the view being presented here, the schools become an important agent of socialization to institutional expectations. Through complex processes of pedagogy, curriculum and evaluation, the socially based definitions, expectations and values of the prevailing social order are transmitted to the new generation.2 The formal knowledge about society that is transmitted in social studies texts becomes part of that socialization process: the young child learns, through his or her social studies books, the accepted cultural and intellectual "explanations" and justifications for prevailing social arrangements. Thus, social studies textbooks will most likely not be objective, neutral, or without a social point of view. Rather, they may be expected to contain highly positive evaluative statements which justify and protect prevailing social arrangements.
ELEMENTARY SOCIAL STUDIES TEXTS AND FORMAL JUSTIFICATION OF POLITICAL AND ECONOMIC INSTITUTIONS

In order to support this argument an attempt will be made to show that elementary social studies textbooks do indeed describe our institutions in a manner that is not critical, neutral or without a social point of view, but in a manner that suggests a selection (from the vast store of socially available knowledge) of that information which is "legitimating." An attempt will be made to demonstrate that the social attitudes and beliefs that are implicit in the knowledge presented in the books predispose the learner to accept and support institutional coersions and constraints. Textbook treatment of both political and economic institutions will be described. The discussion will begin with an analysis of textbook treatment of U.S. political arrangements.

Political Institutions

U.S. political arrangements, while both honorable and successful, are not without systemic conflict, social apathy, and a history of often violent dissent. Do social studies textbooks provide students with information about these aspects of U.S. political arrangements? How are the arrangements of power and prestige and the daily routines of U.S. political life described? What ideas are given *prima facie* legitimacy by their inclusion, and what ideas are denied this legitimacy either by omission or by outright denigration?

In a study of 58 elementary social studies texts, drawn from a sample of texts officially adopted by eight states for grades 3, 5, and 9 in the school year 1971-72, Fox and Hess (1972) found that the U.S. political system is described as if it were overwhelmingly consensual: "People in the textbooks are pictured as easily getting together, discussing their differences and rationally arriving at decisions....[Moreover], everyone *accepts* the decisions (p. 83)" (italics added).

The investigators found that one way in which the unrealistic impression of consensus is given in the texts is by the relative absence of political (and other social) conflict in regard to political (or other social) issues. In order to assess the books for political conflict, Fox and Hess set up a "Political Negotiations and Processes" category. This category included all paragraphs in the texts which contained information on the interaction between groups of people, institutions, public officials, and decisions concerning the allocation of political resources or the selection of political leaders (p. 36). The analysis of the textbooks revealed that while this category received a substantial number of paragraphs (over seven thousand in the ninth grade sample, for example) only a small percentage of the
paragraphs (less than 1%—184 paragraphs, or 0.65% of the ninth grade paragraphs) contained any reference to political conflict (p. 49).

Furthermore, Fox and Hess found that what little conflict did find its way into the books was most often described in either negative terms (p. 73) or as imminently or completely resolved or resolvable within the prevailing institutional framework. As they argue:

> It would seem from the social studies texts we analyzed that American youth are expected to believe that virtually every existing social problem is resolvable with established knowledge and practices. (p. 83)

Specific analyses by Turner (1971) and Popkewitz (1977) of the textbooks comprising the “new” social studies series—for example, the discipline centered curricula—suggest that they too include little of the reality of the political conflict that pervades a pluralistic society such as ours. Turner, for example, analyzed 49 elementary and secondary social studies projects that produced social studies materials. She found that while controversial issues are discussed more often, “social conflict” as a theme was avoided, and “resolution” as a theme appears most frequently in relation to the controversial issues.

Social studies texts use the action of citizen voting (participation in the decision-making process) as a measure of democracy. The U.S. is a democracy because we vote; the U.S.S.R. is not a democracy because they do not vote (a common but erroneous concept) or because they only have one party to choose from (Popkewitz, 1977). It is important for the purpose of the argument in this paper to point out the highly reified and selective manner in which the texts use the act of voting as an evaluative tool. The concept is never used, for example, to evaluate our economic system, where we do not vote either for leaders or on decisions that affect us. In the economic sphere—for example, in the work-place—decisions are made by a tiny minority (the supervisors, managers or owners) and handed down to the majority (the workers or employees).

One interesting study found that elementary social studies textbooks are likely to present children with highly evaluative and erroneous information concerning political power and authority. In a study of 139 elementary and junior high textbooks used in eight school districts throughout New York State, Harrington and Adler (1971; see also Harrington, 1976) found that students are likely to be told by their texts that political authorities “are never malevolent, always approachable, and almost always accountable (italics in original) (Harrington, 1976, p. 5).” Moreover, the investigators found (Harrington and Adler, 1971)—as did Litt in 1963 (Litt, 1963)—that these positively loaded messages concerning the benevolence and accountability of political authority were more likely to be found in
textbooks used in poor, minority and working-class school districts—where, it can be argued, the need for legitimation of political authority is greater than in white, or middle-class schools.

The political system thus, in the textbooks, seems consensual and harmonious; everyone has a "voice;" authorities are described as benevolent. How do the textbooks discuss the facts of present and past dissent? Fox and Hess found in 1972 that elementary texts largely ignore the concept of dissent. They argue:

For the most part, the social studies texts in our sample ignore the whole concept of dissent. The idea that dissent from majority opinions can be a morally creative course of action is absent. So is the perspective that in the long run a dissenter may be proven more correct than the majority and may have his [or her] views adopted by that majority at a later time. (p. 83).

In the newer elementary social studies texts—especially those published since the end of the Vietnam war when dissent was widespread—the concept of dissent is more likely to be legitimated by inclusion in the discussion.

The Present Study

In May, 1977, four county school districts were chosen from each state except Hawaii and Alaska. In order to select four districts from each state, a random selection was first made of two county districts in each state from all county districts in that state of population 5,000 to 20,000. Then, a random selection was made of two more districts from each state from the largest five districts in that state. A questionnaire was sent to the superintendent of each district, requesting that (s)he check, from a list of elementary social studies series in print, those that were presently in use in that district (and to check the edition). The respondent was also asked to circle the one series and edition that had been used in more schools in that district in the past five years than any other series. Of the 192 questionnaires sent out, 126 were returned, and 120 were usable.

The textbook series that were chosen for analysis were those in use in 25 or more districts, and that were also circled as used in more schools than any other series by 10 or more districts. Of the 26 series checked at least once, there were only four series that were used in enough districts—that is, with enough frequency—to fulfill these criteria. Those series are: Laidlaw's Social Science Program (in use in 42 districts and used more often than other series in 16 districts); Follett's New Revised Social Studies (in use in 38 districts and used more often than others series in 11 districts); Silver Burdett's Contemporary Social Studies, (in use in 35 districts and used more often than other series in 13 districts); and Harcourt Brace Jovanovich's
Social Science Series (in use in 29 districts and used more often than any other series in 10 districts). There was no concentrated use of any of the 26 series by district size or geographic area.

The method used to analyse the four text series involved two steps. The first step was to examine the 28 textbooks in the series to identify definitions and explicit characterizations provided by each series concerning political and economic practice and power. Each textbook was examined in detail, and it was found that a series did not contain contradictions of the definitions and explicit characterizations of political and economic institutions it offered at the various grade levels. Therefore, only several such statements from each series were chosen for analysis. All of the examination and analysis was done by the present investigator. No inter-analyst agreement checks were made, and for this reason documentation in the form of quotations and/or page numbers for each statement chosen and analysed are offered in the following sections of this report.

Definitions and descriptive statements were chosen from each series concerning the following topics: Methods of political participation and dissent; definitions of the U.S. economic system; methods of economic participation—ownership, consumption, work and decision-making; methods of seeking political and economic redress; comparisons of U.S. and competing economic systems; treatment of persons and groups with “radical” ideas.

The second step of the method was to subject the statements provided by the books to analysis in light of the concept of legitimation. Special attention was paid to what information is included, excluded, emphasized or distorted by the textbook definitions and characterizations of the above topics.

POLITICAL ARRANGEMENTS

Two of the four test series describe the concept of dissent. For example, the Silver Burdett series states that “When people do not agree with what their leaders decide to do we say they dissent (People and Ideas, Silver Burdett, p. 226).” (See also People and Ideas, pp. 225-229; and Sources of Identity, Harcourt Brace Jovanovich, pp. 280-281 and 294-298).

While these two series provide some legitimation of dissent as a course of action, they also prescribe methods of redressing grievance that are legitimating in that they assume the ability of prevailing institutions to redress grievances. Political recourse, for example, may be attempted by “exercising one’s right to vote,” “writing letters to leaders,” or peaceful discussion or demonstration. One may not engage in activities such as “burning one’s draft card,” “sitting in,” or engaging in violence of any
Thus, these series continue to impart the message found by Fox and Hess in 1972 that prevailing political practices are capable of satisfying needs for social recourse. Moreover, by constraining legitimacy to such actions as voting and letter-writing, these texts prescribe behavior to a very narrow range of activities: the actions legitimized are those that will not disrupt the basic institutional arrangements.

While it is not being argued here that social violence is to be condoned, a critical account of U.S. political institutions would discuss the fact that most social change and most successful recourse for groups such as blacks, other minorities and workers, has not occurred in the U.S. without periods of violence. A critical textbook account would point out, for instance, that such "polite" methods as writing letters very often fail to satisfy the needs of social groups seeking recourse. The series analyzed here, however, give the impression that, for such groups as blacks, women and workers in labor unions the decorous methods prescribed will be successful. One way these series give this impression is by presenting information on leaders of these groups who have not challenged fundamental institutional arrangements, and by ignoring those leaders who have advocated either revolution or fundamental social change: e.g., Martin Luther King, rather than Malcolm X; Elizabeth Cady Stanton, rather than the Socialist, Elizabeth Gurley Flynn; labor leader Samuel Gompers, rather than the more radical Big Bill Haywood. Or, a text may mention a leader who had a radical past—such as Paul Robeson or Helen Keller—but their attachment to radical political ideas will be ignored. (See the following examples: Sources of Identity, Harcourt Brace Jovanovich, pp. 314-318; Exploring with American Heroes, Sec. Ed., Follett, Entire Table of Contents; The Social Studies and Our Country, Laidlaw, pp. 387-291; People in the Americas, Silver Burdett, pp. 396-402.) Thus, these texts deny legitimacy to radical ideas largely by omission. Later, in many high school texts, such ideas are denied legitimacy not only by omission, but by more explicit denigration as well (see Anyon, 1976).

Thus, it seems reasonable to suggest that the descriptions of U.S. political arrangements and practices discussed here take a particular point of view. Rather than provide a critical account of political institutions, these four series tend to provide "legitimating knowledge:" definitions included, for example, justify prevailing methods of participation and discourage fundamental change. The prescribed behaviors and methods or social recourse tend to be those that will not disturb the prevailing arrangements of power.

The political institutions of a society are intimately connected with other institutional arrangements, such as those of the economic system. Most elementary textbooks contain descriptions and statements concerning the
U.S. economy. How are these arrangements defined? What information is provided concerning ownership, employment, the distribution of goods, services and wealth? What options for redress are provided for those who are not satisfied? How are economic systems with competing definitions or assumptions described?

ECONOMIC ARRANGEMENTS

As in the U.S. political sphere—and as in the life of most modern societies—prevailing economic arrangements in this country are not free of conflict, problems, issues, or a history of dissent.

It cannot be expected that elementary texts would provide complicated information regarding economic functioning, labor-management dispute, or the causes of poverty and wealth. However, elementary social studies texts can and do provide general statements, definitions and descriptions of such basic processes as ownership and employment. What social point of view is implicit in these statements? Which aspects of the economy is the learner’s attention directed to?

In their analysis of elementary social studies texts used in 1971-72, Fox and Hess (1972) found that less than 1% of the discussion in their sample of the highly problematic and conflict-ridden area of the distribution of wealth and services, mentioned conflict. This results, they argue, in a highly consensual and harmonious image of U.S. economic institutions (pp. 36, 50, 75).

An examination of the four series in the present study reveals that these texts provide descriptions of economic arrangements that direct the student’s attention away from potential conflict, and predispose interpretations of economic phenomena in positive, and highly legitimating, terms. For example, three of the four series define the U.S. economy in terms of the freedom of choice our system provides American working people (see, for example, The Social Studies and Our World, Laidlaw, pp. 313-320; Sources of Identity, Harcourt Brace Jovanovich, pp. 410 and 442; and Exploring Regions of the Western Hemisphere, Follett, pp. 83; see also the citations below). Work is often described by pointing to the freedom people have to work where they want, to leave a job they find unsatisfactory, and to work elsewhere (Using the Social Studies, Laidlaw, pp. 169-170, for example). Consumption is described by pointing to the freedom of choice involved in buying products from a vast store of consumer goods (The Social Sciences, Harcourt Brace Jovanovich, Purple Level, pp. 169 and Brown Level, pp. 227). The economy itself is characterized as one in which Americans have the freedom to save their money in order to buy and own their own factories and stores (see Exploring Regions of the Western Hemisphere, Follett, pp. 83). The
economy is not often called a capitalist system, but instead a free enterprise or free market system (see, example, Settings for Change, Harcourt Brace Jovanovich, p. 220; Using the Social Studies, Laidlaw, pp. 169-170 and The Social Studies and Our Country, Laidlaw, p. 330). The emphasis on freedom directs the student's attention to highly legitimating aspects of the economy.

While all of these statements concerning freedom are theoretically accurate, they are not the "whole" truth. There are significant restrictions on each of the economic freedoms described by the books. For example, the inability of the economy to provide even one job for every family is a real restriction on the mobility of the American worker, on the "freedom" to leave a job he or she is not satisfied with. Moreover, the freedom to own factories and stores is restricted by the fact that very few working people are able to accumulate enough capital to enable them to buy a factory or store. In fact, relatively few people even own stock in any quantity. In 1953, for example, 82.2% of all stock was owned by 1.6% of the population; and 50% of the entire population owned only 8.3% of the wealth (Lundberg, 1968, in Edwards, Reich and Weisskopf, 1972, pp. 169-170; see also Lampman, 1962). Another well documented but less well known example of the restriction on business ownership by the average working person is the concentration of corporate ownership in the U.S.: the 100 largest manufacturing corporations, for example, control 49% of the assets and 58% of the net capital assets—land, machines, etc.—of all U.S. manufacturing corporations (Means, 1964; in Edwards, Reich, and Weisskopf, 1972; p. 153; See also Business Week, November 14, 1977).

While the economic freedoms do not describe daily reality for the majority of Americans, these texts present them as if they were the norm, and as if they accurately described the typical routines of participation in economic institutions. Students' perceptions are selectively drawn to legitimating aspects of U.S. capitalism. The predisposition may be to interpret problematic economic phenomena according to these definitions.

The point of view taken by these four series is such that they fail to point out or discuss the real restrictions on the idealistic goals of our system, and they do not discuss the dissatisfactions that Americans often express concerning participation in our economic system (i.e., inflation, unemployment, or the difficulty of many to live on the wages they are paid). All four series do, however—significantly—either point out that people in the Soviet Union complain about their economic system, or they describe the real restrictions affecting the attainment of the goals of a socialist economy (see, for example, The Social Studies and Our World, Laidlaw, pp. 318-320; Exploring World Communities, Follett, p. 128; The Social Sciences, Brown Level, Harcourt Brace Jovanovich, pp. 242-3; 177; People and Change, Silver Burdett, pp. 246-247).
Finally, the social studies texts examined in this study do not describe the lack of freedom U.S. working people find within the work-place, where there are none of the democratic procedures or structures we expect in our political institutions, and which provides the texts' definition of democracy. Moreover, it is highly unlikely that the texts would describe the lack of democratic decision-making in the workplace or economic sphere. To do so would most probably be considered somewhat inappropriate, if not slightly heretical. This is an important point, because it highlights the argument that has been attempted here. Namely, that social studies knowledge is part of the larger social process whereby U.S. institutions are legitimated—whereby prevailing arrangements and forms of social participation are provided cognitive meaning and normative status. The social function of the texts is not, as is often argued by educators, to provide an arena for the development of critical thought on social matters, but to foster an acceptance of the legitimacy of prevailing institutions. Thus, the texts may be expected to take an evaluative stance, and to avoid the inclusion of material that might "tarnish" the image of political or economic arrangements. Therefore, as has been suggested here, one may find very little of the social conflict, problems, or harsh reality that many Americans experience in the routines and roles that characterize their daily lives.

CONCLUSION AND IMPLICATIONS

It may be true that at present the social studies as a discipline is losing ground to those subjects perceived as "basic." (See Gross, 1977) If this is the case, the social content of school textbooks affects primarily our theoretical understanding of the role of social studies education. However, it is still true that many school children read and are instructed in the truth and authority of the textbook knowledge discussed in this paper. Therefore, the content may have direct bearing on the schooling and social education of these children.

The view that has been expressed here is that the alleged naiveté, the lack of "realism" and the overly positive loading to social studies textbooks should not be traced to "mindlessness" or lack of critical attention. Rather, the knowledge has characteristics which may more accurately be explained by situating social studies education in the context of socialization and legitimation. A definitive characteristic that emerges from the texts is that the information which "counts" as elementary textbook knowledge tends to be that knowledge which sanctions and justifies prevailing institutional arrangements.

I would like to suggest that the analysis of the statements provided by the four test series leads to the following conclusion: The social "explanations"
in these textbooks are not socially neutral or apolitical. Rather, they are highly “politicized.” The information has been selected from a store of socially available knowledge and points of view; the selection involves, it seems to me, a whole range of conscious and unconscious political and ideological choices.

There are two implications of such choices. First, the textbook content expresses a point of view that may unwittingly favor the interests of certain social groups and hinder the interests of other groups. For example, to sanction the legitimacy of prevailing institutional arrangements is to give tacit approval to the arrangements of power. This tacit approval in turn legitimates the activities of the powerful groups. Support is thus provided for the interests of these groups, and validation accorded their needs and prerogatives. Textbook discussions that fail to describe the lack of democratic procedures in economic institutions such as the workplace, for example, give tacit approval and legitimation to the decision-making activities of those who have power in such institutions. And, in this process, the books tacitly withhold approval from those who might benefit from a change in the distribution of decision-making power.

A second implication of the legitimating, highly politicized perspective, is that the textbook content may tacitly sanction an attitude of social quiescence on the part of students. For example, the attribution of consensus to our political arrangements, and the focus on economic freedoms, provide the learner with cognitive categories that may foster acceptance and support of those institutions. Such definitions of social institutions do not encourage students to evaluate prevailing arrangements in order to assess how well they fulfill ideals, or to suggest alternatives if need be. Rather, such textbook descriptions encourage participation in, and therefore implicit acceptance of, institutional coercions. The role of the individual, as described in the four series discussed here, seems essentially passive: one’s main social action is to vote. Thus, one is tacitly encouraged to social quiescence, to a position of passively choosing between givens. Moreover, disagreement is channeled by these texts into “safe” political behaviors.

I would argue that an unintended consequence of this attitude is the sanction of the position of suffering of those in society who do not share equally in the distribution of political and economic power. The efforts, for example, of blacks to seek civil recourse, the efforts of all working men and women to seek economic advantage, are ultimately hindered by attitudes of quiescence.

The analysis of what “counts” as school knowledge can serve to illuminate a pervasive but not immediately apparent reality of schooling—the fact that school does not exist in a “vacuum,” but operates within a set of social forces and political and economic interests which may
provide everyday educational knowledge and practice with unintended meanings and possible consequences. An attempt has been made to show here, for example, that elementary social studies knowledge can be linked to the processes of legitimation and socialization, and to the interests of powerful political and economic groups. The possible consequence of this linkage for those in society who do not have power makes it important to continue such analyses.

Thus, an important task for educational researchers ought to be to investigate school curriculum, pedagogy and pupil evaluation with the intention of illuminating the social ties and explicating possible meanings. Educators cannot rely on explanations which attribute school problems to professional "mindlessness." Such arguments do not capture the social reality of schooling and are therefore not sufficiently explanatory.

FOOTNOTES

1The concept of legitimation which is developed in this section is based in part on the work of Peter Berger and Thomas Luckmann (1967).

2For development of the argument that schools contribute to the internalization of institutional norms, see Parsons (1968) and Dreeben (1968). For recent discussions of the social basis of school knowledge, see Michael F. D. Young (1971). And, for development of the idea that the unequal distribution of school knowledge contributes to the reproduction of social inequality, see Basil Bernstein (1975) and Bourdieu and Passeron (1977).

3There was not a widespread use of any one particular edition of any of the four series, except for the Follett New Revised Social Studies. In the case of Follett, the second edition was the most popular. Thus, the second edition of Follett was used in this analysis even though its dates (1971, 1973) are somewhat less recent than the others. The latest editions of the other three Series were used. The publication years of the series analyzed are as follows: Silver Burdett Contemporary Social Science Series, 1976; Follett's New Revised Social studies, 1971, 1973; Laidlaw Social Science Program, 1974; Harcourt Brace Jovanovich Social Science Series, Second Edition, 1975 and 1977.
REFERENCES


A RECONSIDERATION OF "ATTRIBUTES AND ADOPTION OF NEW SOCIAL STUDIES MATERIALS"

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Dennis R. Falk
University of Minnesota, Duluth

Carole Hahn (1977) empirically tested attributes of innovations and their relationship to adoption by surveying social studies decision makers in four states. In the process Hahn concluded that attributes of innovations defined by Rogers and Shoemaker (1971) did not apply to adoption of social studies innovations, and she therefore developed four new factors derived from her research. This study led Hahn to the conclusion that there is a "need for further research to determine which concepts are the most useful for describing perceptions of innovation attributes" (1977, p. 32). The study reported here is an attempt to respond to this need, through replication of the Hahn study with a different group of social studies educators.

The purpose of this research is to determine factors that are operating when social studies educators consider adopting a new curriculum. Hahn, in a thorough review of the literature on innovation diffusion, found that there is "little knowledge as to why some materials (from the new social studies) were adopted by more schools than were others" even though a number of descriptive and case study research results are available. She concluded that "we need to test explanatory hypotheses to supplement the existing descriptive research base" (1977, p. 20).

Switzer (1977), in a related study, has drawn the same conclusion from his review of the literature. He points out that "little empirical research exists to substantiate the disparate claims" concerning the adoption and impact of "materials developed by the national social studies curriculum projects" (p. 66). He goes on to point out that "although there is a considerable body of literature dealing with innovation in education, little of this literature deals specifically with the adoption of innovation in social studies, and there is virtually no research on factors associated with the adoption of what has come to be called the new social studies materials." He concludes by stating that "research is needed on specific factors associated with the willingness of teachers to adopt the new curricula" (p. 66).

In responding to these statements of need, Switzer and Hahn have both selected factors to study which they considered important in adoption of new social studies curricula. Switzer emphasized factors related to
characteristics and experiences of teachers who might adopt a specific curriculum project, while Hahn chose to study factors related to the educator's perception of the innovation. In this latter study characteristics of the innovation itself rather than teacher or school characteristics become the central focus in trying to discover factors which are important in choosing to adopt a particular curriculum innovation.

The study presented in this report is a replication and extension of the Hahn study. Its first purpose is to further test the validity of the constructs of Hahn as well as Rogers and Shoemaker. Second, this study analyzes the relationship between degree of the potential adopter's perceived influence and attitudes toward, and adoption of, new social studies curricula. Third, an evaluation of the internal consistency (reliability) of all constructs as well as the questionnaire is presented. The questionnaire used in the Hahn study was given to a population of secondary school teachers and social studies department leaders who attended one of three National Science Foundation Resource Personnel Workshops (RPW) held at the University of Minnesota, Morris during the summers of 1973, 1974, and 1975. The data collected were analyzed using the same techniques reported by Hahn to make results of both studies directly comparable.

PROCEDURES

Subjects

The RPW concept was developed in the early 1970s and implemented in a number of regions of the United States with support of the National Science Foundation. This workshop model was created in response to limitations of conventional workshops and institutes for disseminating new social science curricula. Its major purpose was to train individuals to have influence in the selection of social science curriculum materials for their schools and over curriculum adoptions in their school districts and regions through development and use of multi-role change agent teams.

The RPW’s held at Morris were designed to meet this purpose. It was achieved through training of teams from the eastern half of the United States. Every team had two teachers for each of the curriculum projects presented in the workshop, two public school administrators, and one faculty member from a local college or university. The members of the team attended a three week summer training program after which each team received money to support on-going dissemination activities in the home region for the school year following the workshop. The team members and their school districts made commitments prior to the workshop to support project goals. Specifically, the school districts were required to purchase the curriculum materials in which their teachers were being trained; create
opportunities for their teachers to teach classes using the materials; and support efforts of their teachers to train other educators in use of the materials. Individual team members were responsible for directing inservice and preservice training programs and using the materials in their classes for one year.

The 101 individuals who completed the questionnaire for this study received forty hours of training in one of seven curriculum projects. These were the American Political Behavior, Anthropology Curriculum Study, Exploring Human Nature, Economics in Society, High School Geography, People and Technology, and Sociological Resources for the Social Studies curriculum projects. These are the same or similar to those used by Hahn. They were among 181 individuals (55.8% return) who received a copy of the Materials Information Questionnaire (MIQ) 15 months after the end of the summer training program. The Questionnaire was included as part of a complete followup program to the workshop that included another questionnaire and personal interviews designed to determine the impact of the workshop. Participants in this study are teachers or social studies supervisors from 16 states who represent school districts ranging in size from small rural schools to large urban and suburban districts. Respondents completed one copy of the MIQ using as their frame of reference the curriculum project in which they received their training during the workshop.

Hahn, in her study, had school principals in 1000 schools in four states “name the person or persons who had the most influence in the selection of social studies materials for (their) schools” (1977, p. 24). Hahn then sent a questionnaire to each of the individuals named and collected a total of 535 responses from the 274 individuals who were willing, or able, to complete the questionnaire (p. 24-25). While we cannot tell how many of the respondents in the Hahn study had attended a training program on the use of the new curricula, we do know that all respondents in this present study did attend a training program designed to make them knowledgeable about the curriculum materials of the new social studies and influential in their adoption.

Questionnaire

The MIQ was designed by Hahn to test attributes of innovations that are related to adoption of these innovations as described by Rogers and Shoemaker. It consists of 32 questions (see Hahn, 1977, for the complete questionnaire). Questions 1 to 28 were developed to test the Rogers and Shoemaker attributes of innovations. Questions 29 to 31 solicit information on the user’s attitude toward the materials, influence in making adoption decisions, and extent of current use of the materials.
Rogers and Shoemaker are trying to find a "standard classification scheme for describing the perceived attributes of innovations in universal terms" to avoid having "to study each innovation in order to predict its rate of adoption" (1971, p. 137). In their attempt to meet this need Rogers and Shoemaker presented five attributes which are "empirically interrelated" but "conceptually distinct" (p. 137). Definitions of the five attributes and a summary list of questions from the Hahn questionnaire (Hahn, 1974, p. 67-68) are presented to clarify the relationship between innovation characteristics and the questions asked.

(1) "Relative advantage is the degree to which an innovation is perceived as being better than the idea it supercedes" (Rogers and Shoemaker, 1971, p. 138).

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<td>requires more time and effort at first</td>
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<td>15</td>
<td>low risk on standardized tests</td>
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<td>16</td>
<td>requires more time and effort-continued</td>
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<td>17</td>
<td>not risky-lessons succeed</td>
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<td>18</td>
<td>better than previous materials</td>
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<td>low initial cost</td>
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(2) "Compatibility" is the degree to which an innovation is perceived as consistent with the existing values, past experiences and needs of the receivers" (Rogers and Shoemaker, 1971, p. 145).

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(3) "Complexity is the degree to which an innovation is perceived as relatively difficult to understand and use" (Rogers and Shoemaker, 1971, p. 154).
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<td>27</td>
<td>not easy for teachers to understand</td>
</tr>
</tbody>
</table>

(4) "Observability is the degree to which the results of an innovation are observable to others" (Rogers and Shoemaker, 1971, p. 155).

<table>
<thead>
<tr>
<th>question number</th>
<th>question focus</th>
</tr>
</thead>
</table>
| 3               | results observable to others (teachers and adminis-
|                 | trators)                                           |
| 8               | results observable to parents                       |
| 28              | learning observable to teacher                      |

(5) "Trialability is the degree to which an innovation may be experimented with on a limited basis." (Rogers and Shoemaker, 1971, 155).

<table>
<thead>
<tr>
<th>question number</th>
<th>question focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>limited experiment possible</td>
</tr>
<tr>
<td>26</td>
<td>can be tried on small scale</td>
</tr>
</tbody>
</table>

In completing the analysis of data collected from responses to the Questionnaire, Hahn discovered that the items did not cluster wholly as predicted, but instead found, through factor analysis, that they were related to four new constructs. The attributes she discovered, their definitions and summary list of questions from the questionnaire are as follows: (1977, p. 25-29)

(1) "Observable benefits” contains items “related to whether materials would be better than what they superceded” along with “items related to compatibility with one's needs and values, and with observability.”

<table>
<thead>
<tr>
<th>question number</th>
<th>question focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>increased student interest</td>
</tr>
<tr>
<td>2</td>
<td>package needed</td>
</tr>
</tbody>
</table>
| 3               | results observable to others (teachers and adminis-
|                 | trators)                                           |
| 6               | approach to methods needed                         |
| 8               | results observable to parents                       |
| 14              | student learning greater                           |
| 17              | not risky-lessons succeed                          |
| 18              | better than previous materials                     |
| 19              | content needed                                     |
| 25              | teaches valued things                              |
| 28              | learning observable to teacher                      |
(2) "Difficulty" contains items related to Roger's category of complexity along with items "which measure whether one perceives that using new material will require more time and effort initially and with continued use."

<table>
<thead>
<tr>
<th>question number</th>
<th>question focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>special skills needed</td>
</tr>
<tr>
<td>7</td>
<td>difficult for teachers to use</td>
</tr>
<tr>
<td>9</td>
<td>reading level difficult</td>
</tr>
<tr>
<td>11</td>
<td>requires more time and effort at first</td>
</tr>
<tr>
<td>16</td>
<td>requires more time and effort continued</td>
</tr>
<tr>
<td>21</td>
<td>tasks difficult for students</td>
</tr>
<tr>
<td>24</td>
<td>content difficult for students</td>
</tr>
<tr>
<td>27</td>
<td>not easy for teachers to understand</td>
</tr>
</tbody>
</table>

(3) "Investment Requirements" brings together "concerns about the risk involved in adopting an innovation and whether or not it can be tried on a small scale."

<table>
<thead>
<tr>
<th>question number</th>
<th>question focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>low risk in community</td>
</tr>
<tr>
<td>10</td>
<td>low continuing cost</td>
</tr>
<tr>
<td>12</td>
<td>limited experiment possible</td>
</tr>
<tr>
<td>22</td>
<td>low initial cost</td>
</tr>
<tr>
<td>23</td>
<td>fits a course</td>
</tr>
<tr>
<td>26</td>
<td>can be tried on small scale</td>
</tr>
</tbody>
</table>

(4) "Familiarity" brings together two factors, whether the approach, or the content has been used before.

<table>
<thead>
<tr>
<th>question number</th>
<th>question focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>content used before</td>
</tr>
<tr>
<td>20</td>
<td>approach used before</td>
</tr>
</tbody>
</table>

**HYPOTHESES**

The purpose of this study is to provide a replication and extension of a study by Hahn which tested for the relationship between attributes of innovations and adoption of new social studies curricula. To achieve this purpose the following hypotheses were tested:

(1) There is no significant correlation between Hahn's factors (observable benefits, difficulty, investment requirements, and familiarity) and potential adopters' attitudes toward, and adoption of, new social studies curriculum.

(2) There is no significant correlation between Rogers and Shoemaker's
attributes (relative advantage, compatibility, complexity, observability, and trialability) and potential adopters' attitudes toward, and adoption of, new social studies curriculum.

(3) There is no significant correlation between potential adopters' attitudes toward, and adoption of new social studies curriculum.

(4) There is no significant difference between potential adoptors reporting greater influence and those reporting lesser influence on their perceptions of Hahn's factors and Rogers and Shoemaker's attributes.

(5) There is no significant difference between potential adoptors reporting greater influence and those reporting lesser influence on their attitudes toward, and adoption of new social studies curriculum.

RESULTS

Responses to the Materials Information Questionnaires were used to compute summative scale scores for the factors which Hahn developed in her factor analyses and also for the scales Hahn developed using Rogers and Shoemaker's categories of attributes of innovations. Kendall rank correlations (tau) between the innovation attributes and (1) the respondent's attitudes and (2) the adoption of materials were computed.

Test of Hypothesis One

The results reported in Table 1 show a significant relationship between the observable benefits factor and attitude and adoption. Respondents are more likely to say they would like to use the material if they perceive it has benefits that are observable to themselves and others. In addition, those using materials as basic elements for a course are more likely to perceive the materials as having observable benefits.

A significant relationship also exists between investment requirements and both attitude toward the materials and adoption of materials. Those respondents who have a positive attitude toward the material also say the materials involve low financial costs and minimum risks. If materials are the basic elements of a course, the perceived investment requirements are less than if materials are used regularly or as supplemental materials.

No significant correlations were discovered between difficulty and familiarity and attitude toward the materials or adoption of materials. This suggests that respondents formed attitudes toward the materials without regard for difficulty (time, effort, and special skills required) and familiarity of the materials. In addition, the degree to which materials were actually used appeared to be unrelated to both difficulty and familiarity.

Hypothesis one is rejected for the observable benefits and investment requirement factors and accepted for the difficulty and familiarity factors.
Table 1. Correlation of Hahn's Factored Attributes of New Social Materials with Attitude Toward those Materials and Adoption of Materials

<table>
<thead>
<tr>
<th>Factor</th>
<th>Correlation with Attitude (N=101)</th>
<th>Correlation with Adoption (N=101)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observable benefits</td>
<td>.39**</td>
<td>.32**</td>
</tr>
<tr>
<td>Difficulty</td>
<td>.01</td>
<td>.01</td>
</tr>
<tr>
<td>Investment requirements</td>
<td>.16*</td>
<td>.25**</td>
</tr>
<tr>
<td>Familiarity</td>
<td>.06</td>
<td>.04</td>
</tr>
</tbody>
</table>

**significant at .01 level
*significant at .05 level

Test of Hypothesis Two

Relative advantage correlates significantly with both attitude toward materials and adoption of materials. When new materials are perceived as relatively advantageous when compared to other materials on criteria such as student interest and learning, cost, and risk, respondents are more likely to say they like the materials and more likely to use the materials as basic elements of their courses.

Attitude and adoption are also positively correlated with perceptions of compatibility. Respondents who say they like the new materials also report that the materials are compatible with the needs of the course and with previous materials. Basic course materials are perceived as more compatible than supplemental or less regularly used materials.

Observability is significantly related to attitude and adoption. Observability refers to the degree to which results are observable to teachers, administrators, and parents.

Trialability is also positively related to attitude and adoption. Thus, new materials are more likely to be liked and used as basic materials if they can be used on a small scale or on a limited experimental basis.

The complexity of the materials (difficulty and special skill requirements) were unrelated to attitude and adoption.

Hypothesis two is rejected for all attributes except complexity.
Table 2. Correlations of Attribute Scales Based on Rogers and Shoemaker’s Categories of Innovations with Attitude Toward Materials and Adoption of Materials

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Correlation with Attitude (N=101)</th>
<th>Correlation with Adoption (N=101)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relative advantage</td>
<td>.22**</td>
<td>.27**</td>
</tr>
<tr>
<td>Compatibility</td>
<td>.34**</td>
<td>.16*</td>
</tr>
<tr>
<td>Complexity</td>
<td>-.01</td>
<td>.00</td>
</tr>
<tr>
<td>Observability</td>
<td>.17**</td>
<td>.17*</td>
</tr>
<tr>
<td>Trialability</td>
<td>.24**</td>
<td>.17*</td>
</tr>
</tbody>
</table>

**significant at .01 level
*significant at .05 level

Test of Hypothesis Three

The correlation between attitude toward materials and adoption of materials was also computed. This Kendall rank correlation is .33 which is significant at the .01 level.

This significant relationship suggests that respondents liked the materials more when the materials were used as basic elements of the curriculum and supports rejection of hypothesis three.

Test of Hypothesis Four

An additional analysis was conducted to determine if those persons who reported having greater influence concerning selection of curricular materials differed from those reporting lesser influence. The results of the t-tests used to examine hypothesis four are reported in Table 3.

The results reported in Table 3 show no significant differences between respondents with greater influence and those with lesser influence on their perceptions of Hahn’s factors and Rogers and Shoemaker’s attributes. Hypothesis four is therefore accepted.
Table 3. Effects of Greater Influence and Lesser Influence on Factors, Attributes, Attitude and Adoption

<table>
<thead>
<tr>
<th>Scale</th>
<th>Mean for Potential Adopters with Greater Influence (N = 58)</th>
<th>Mean for Potential Adopters with Lesser Influence (N = 33)</th>
<th>T-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hahn's Factors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observable benefits</td>
<td>18.22</td>
<td>18.76</td>
<td>-.59</td>
</tr>
<tr>
<td>Difficulty</td>
<td>20.09</td>
<td>21.48</td>
<td>-1.65</td>
</tr>
<tr>
<td>Investment requirements</td>
<td>10.88</td>
<td>11.06</td>
<td>-.26</td>
</tr>
<tr>
<td>Familiarity</td>
<td>5.33</td>
<td>5.36</td>
<td>-.11</td>
</tr>
<tr>
<td>Rogers and Shoemaker's Attributes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relative advantage</td>
<td>19.12</td>
<td>19.18</td>
<td>-.07</td>
</tr>
<tr>
<td>Compatibility</td>
<td>13.59</td>
<td>13.67</td>
<td>-.13</td>
</tr>
<tr>
<td>Complexity</td>
<td>15.69</td>
<td>16.97</td>
<td>-1.83</td>
</tr>
<tr>
<td>Observability</td>
<td>5.17</td>
<td>5.73</td>
<td>-1.62</td>
</tr>
<tr>
<td>Trialability</td>
<td>3.43</td>
<td>3.64</td>
<td>-1.86</td>
</tr>
<tr>
<td>Attitude and Adoption</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitude</td>
<td>1.61</td>
<td>1.50</td>
<td>-.67</td>
</tr>
<tr>
<td>Adoption</td>
<td>2.12</td>
<td>1.62</td>
<td>-2.40*</td>
</tr>
</tbody>
</table>

*significant at .05 level

Hypothesis five attempted to determine if degree of influence had an effect on attitude toward and adoption of new materials. The results of the t-tests used to examine hypothesis five are reported in Table 3. These findings suggest that there is no difference between potential adopters reporting greater influence and those reporting lesser influence on attitude toward the materials. Potential adopters reporting greater influence are more likely than those reporting lesser influence to have adopted the materials. Therefore hypothesis five is accepted for attitudes toward materials and rejected for adoption of materials.
A test of internal consistency (reliability) of Hahn’s factors, Rogers and Shoemaker’s attributes, and the MIQ questions forming the constructs, was made after discovering that both the factors and attributes had predictive validity. The alpha coefficients from this test are reported in Table 4.

Table 4. Reliability of Scales and MIQ

<table>
<thead>
<tr>
<th>Scale</th>
<th>Alpha Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hahn’s Factors</td>
<td></td>
</tr>
<tr>
<td>Observable benefits</td>
<td>.80</td>
</tr>
<tr>
<td>Difficulty</td>
<td>.83</td>
</tr>
<tr>
<td>Investment required</td>
<td>.66</td>
</tr>
<tr>
<td>Familiarity *</td>
<td></td>
</tr>
<tr>
<td>Rogers and Shoemaker’s Attributes</td>
<td></td>
</tr>
<tr>
<td>Relative advantage</td>
<td>.72</td>
</tr>
<tr>
<td>Compatibility</td>
<td>.71</td>
</tr>
<tr>
<td>Complexity</td>
<td>.81</td>
</tr>
<tr>
<td>Observability</td>
<td>.59</td>
</tr>
<tr>
<td>Trialability *</td>
<td></td>
</tr>
<tr>
<td>28 Items from MIQ</td>
<td>.86</td>
</tr>
</tbody>
</table>

*Alpha coefficients cannot be computed for scales with two items

The data in Table 4 suggest that, for the current sample, Hahn’s factors, Rogers and Shoemaker’s attributes, and the MIQ as a whole all reflect similar degrees of internal consistency.
Test of MIQ Predictive Value

The analysis reported above suggested that the MIQ as a whole may be related to attitudes toward materials and adoption of materials. In Table 5 Kendall rank correlations are reported for the total score on the MIQ and attitude adoption.

Table 5. Correlation of Total MIQ Score with Attitude toward Materials and Adoption of Materials

<table>
<thead>
<tr>
<th></th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIQ with Attitude</td>
<td>.25**</td>
</tr>
<tr>
<td>MIQ with Adoption</td>
<td>.15*</td>
</tr>
</tbody>
</table>

**significant at .01 level
*significant at .05 level

The total score of the MIQ was significantly related to both attitudes toward materials and adoption of materials.

CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

The study reported here was designed to replicate and expand on an earlier study by Carole Hahn in which the relationship between attributes and innovations and adoption of new social studies curriculum was tested. The Materials Information Questionnaire developed by Hahn and used as the basis of the original study was presented to a different population of social studies educators. The data analysis was designed to make the two studies directly comparable. The results of this current study provided partial support for the hypothesis presented and demonstrated support for Hahn’s findings in some cases while differing from her results in other cases. Additional analyses shed new light on Hahn’s findings and on the MIQ and have implications for the diffusion literature.

The results of the current study supported Hahn’s conclusion that observable benefits and investment requirements are the more important attributes in relation to attitudes towards materials and adoption of
materials. The current study did, however, differ from Hahn's results on the factor of difficulty and its relationship to attitude. Hahn reported a negative correlation between perceived difficulty and attitude while no relationship between these two variables was found in the present study. This difference may have been a result of the training program which each participant in this study completed. By becoming more knowledgeable about the curriculum materials, educators may either lose their belief that the materials are too difficult to use or come to believe that difficulties in using the materials can be comfortably overcome.

The results of testing the Rogers and Shoemaker attributes lend further support to the conclusion that knowledge gained in a training program lessens concern about the difficulty of using the materials. This study discovered that four of Rogers and Shoemaker's attributes were significantly correlated with both attitude and adoption. Only one attribute, complexity, showed no correlation. Again educators who have become knowledgeable about the curriculum under consideration seem to have a more positive attitude about the difficulty of using the materials. Thus the factor of difficulty and attribute of complexity may be of greater importance to individuals with little knowledge of the materials than to individuals who understand them in looking for attributes which predict implementation of innovations.

Correlations between attitude and adoption were significant in both studies though Hahn found mixed positive and negative, though generally weak, correlations. This aspect is deserving of further analysis in order to discover the influence of variables other than attitude on adoption of curriculum materials. One approach is presented by Switzer in his analyses of the characteristics and experiences of teachers. Other factors that need to be considered are the materials purchase arrangements in the school, influence of state textbook adoption programs, and budget considerations among others.

Potential adopters who reported greater influence in making curricular decisions were more likely to have adopted the materials than those who reported lesser influence. This result might be expected because of their greater control over the decision making process. The degree of influence apparently had little effect on the perceptions of attributes of innovations and attitudes towards materials. Overall the degree of influence had little affect on the manner in which potential adopters responded to the MIQ.

Further analysis provided interesting data concerning Rogers and Shoemaker's attributes and the MIQ in general. While a factor analysis was precluded because of a limited number of respondents, it was discovered that the attributes factored by Hahn and the attributes based on Rogers and Shoemaker's categories had similar reliabilities. The 28 items of the MIQ as a whole had a higher reliability coefficient than any of the
individual attributes. The total MIQ score was also significantly correlated with both attitude and adoption.

The above results, taken together, suggest that Hahn may have been premature in rejecting Rogers and Shoemaker's description of innovation attributes. The current results suggest that Rogers and Shoemaker's attributes have both a reasonable degree of internal reliability and a degree of predictive validity. While Hahn's factors have the additional advantage of construct validity, the factored scales (including one two-item scale) may have little meaning in an instrument possessing such a high degree of internal consistency. It would perhaps be possible to build upon Hahn's work in modifying the MIQ to create an instrument which better differentiates Rogers and Shoemaker's categories of attributes.

The question of causation is paramount. In both the present study and the Hahn study, only correlational data were reported. One, therefore, cannot determine if the attribute caused adoption, the adoption caused the attribute, or if a third factor caused both adoption and perception to be related. Further work is needed in this area. If the MIQ were administered (1) after a group knew of innovative materials and before a decision to use or not use was made, (2) after the decision was made, and (3) after the materials were used for a year; some indication of causation might be obtained.

The purpose of this line of research is to find attributes of innovations that influence social studies educators' adoption of new curricula. These studies have demonstrated that certain attributes of innovative materials are significantly related to attitudes toward materials and adoption of materials. These attributes do, however, seem to explain a very small amount of the variance in attitudes and adoption (typically less than 10% in the Hahn study and the present study). It is imperative, therefore, that other attributes of innovations and other variables in general be examined as factors which determine attitudes and rates of adoption of educational innovations.

REFERENCES


Widely accepted among environmental educators is the assumption that favorable attitudes toward environmental preservation and ecological problems are necessary to the ultimate success of environmental education. In this view cognitive change is not enough; positive public response is dependent not only on knowledge but also on the commitment of significant numbers of individuals in the society. A willingness to drive a smaller car, have a smaller family, use biodegradeable soaps or reduce home energy consumption is assumed to be directly related to knowledge of the effects of these actions and a belief in the importance of these practices for personal and public well being. The model is one whereby affective change accompanies cognitive growth to achieve environmental competence.

Research results reveal, however, that the relationship between environmental knowledge and environmental attitudes is unclear. Researchers who have postulated that increased knowledge of fundamental concepts of ecology will lead to favorable attitudes towards such practices as energy conservation and birth control have found that this is not always the case. Bart (1972) found that environmental solutions which inhibit personal freedom and purchasing power produced negative attitudes which are difficult to change. Steiner (1973) reported no significant difference in attitude toward science-related social issues between science and nonscience oriented students in a population of Oregon high school seniors. Howell and Warmbrod (1974) reported that students using a lab manual designed to increase environmental knowledge in science and vocational agriculture courses did not demonstrate a significant change in attitude toward environmental issues when compared to the control group. Moyer (1975) found a significant correlation between scores on cognitive and affective tests given to high school seniors but could not determine school factors linked to environmental attitudes. He found that neither grade point average nor socio-economic status had a relationship to environmental attitude. However, science and social studies were shown to have a small
influence. Moyer concluded that the general knowledge generated by the “typical suburban high school curriculum” did not contribute significantly to environmental attitudes.

Quinn (1976) reported that the use of “value sheets” in an environmental education course produced no change in attitude. Ramsey and Rickson (1976) assessed the relationship of two types of knowledge—ecological and trade-offs knowledge—on four types of attitudes expressed by high school seniors. They found that knowledge of either type was likely to be associated with moderate rather than extreme attitudes. Although they concluded a relationship between knowledge and attitudes, it was not a straight line relationship, but a complex one which they suggested may be moderated by school educational material, mass media and other factors.

Overall, results of these recent studies, many of which were based on limited surveys of student attitudes and knowledge without experimental treatment, demonstrate inconsistency and suggest that environmental attitudes are the function of multiple variables. The authors were interested in the influence of factors related to the school curriculum and viewed experimental design as offering an optimal means to assess the effects of selected school factors.

Environmental Education for Secondary Schools, a curriculum project at the University of Georgia supported by the U.S. Office of Education in 1975-76, developed interdisciplinary instructional modules to be taught jointly in social studies and science courses of the ninth and tenth grades. The modules focused on local environmental issues, and content was coordinated across the two subject areas for each grade level. The learning activities were mainly cognitive in approach, but some value-analysis activities were contained in each module set. The rationale was that rational, analytical confrontation of environmental issues, developed cumulatively in the two subject areas most closely related to environmental problem solving, would produce interdisciplinary knowledge and skill which would generate positive affective change (Stapp, 1971; Hepburn, 1973; Hepburn and Simpson, 1975).

The Gwinnet County school district located in the metropolitan Atlanta area of Georgia, pilot tested the materials. Gwinnet County, similar to many suburban communities in the United States, has experienced rapid growth as a result of an outpouring of population from the nearby central city. The county has grown approximately 66% during the past 15 years and has had to cope with greatly increased demands for water, roads, shopping facilities, adequate waste and sewerage disposal and other services.
MATERIALS

The EESS project developed two coordinated sets of modules. One set included a social studies module developed for use in the ninth grade geography class and a coordinated science module developed for the ninth grade biology class. Both of these courses were offered to the majority of ninth graders (i.e., those considered “average”). The other set of materials was developed to meet a specific need, expressed by the teachers, for environmental education materials for courses for “below-average” or “low performing” tenth grade students. One of these modules was developed for use in the action chemistry course and the coordinated social studies module was integrated into the special American history course. The Dale-Chall readability averages for these materials was ninth grade for the ninth grade materials and seventh grade for the tenth grade materials.

Readings and activities in the modules were mainly aimed at developing environmental knowledge and skill, but some activities called for a determination of values and a comparison of value positions. The science modules examined the scientific roots of the environmental problems of the local community through readings, experiments, field studies, discussion and simulation. The social studies modules utilized case studies, readings, role play, field trips, discussion, simulation and analysis of viewpoints on alternatives for the community. Decision making activities in the social studies modules presented students with situations in which the consequences of ecological, economic and social trade-offs were considered. Hence, values came in for greater consideration in the social studies half of the joint or coordinated treatment.

Each module was designed for fifteen days of instruction. Each contained multi-media materials and was accompanied by a teacher’s guide. The same environmental issues were studied in social studies and science classes at each grade level, but in each class the module emphasized the perspectives of the specific subject area in which it was studied. The four modules contained the following content:
Grade 9

“GROWTH: HOW MUCH IS TOO MUCH?”

Social Studies

I. Getting the Feeling:
   Environmental Consciousness

II. Getting The Facts:
    Growth and Its Consequences

III. Getting Into A Problem:
     Solid Waste Disposal

IV. Getting Into The Act:
     Land Use Decisions

Science

Our Environment

Populations

The Land Use Question

A Land Use Problem

Grade 10

“WATER: HOW GOOD IS GOOD ENOUGH?”

Social Studies

I. What’s The Problem?

II. Where Does Water Come From
    and Where Does It Go?

III. Who Decides and Who is
     Responsible?

IV. What Can You Do?

Science

Where Do We Get Our Water?

Water Quality: How Do We Make
It Safe To Drink?

Sewage Treatment: How do We
Recycle Waste Water?

What We Know About Water
Makes A Difference—The Water
Game

RESEARCH DESIGN AND PROCEDURES

During the spring of 1976 the modules were integrated into the curricula of ninth and tenth grade social studies and science classes—the ninth grade materials in March and the tenth grade materials in April. Both separate
and combined treatments were evaluated. Four test groups of intact classes taught by the regular teachers were utilized at each grade level: T1) students who studied the science module only, T2) students who studied the social studies module only, T3) students who studied both the social studies and science modules during the same time period and T4) students who received no formal environmental studies (See Tables 1 and 2). The purpose of the study was to determine if in each grade there were overall significant changes in environmental attitudes in one or more of four treatment groups. Specifically, the investigators sought to determine whether there were post-treatment attitude differences toward population growth and pollution among the treatment groups in each grade.

Table 1. Research Design Ninth Grade Modules*

<table>
<thead>
<tr>
<th>Course</th>
<th>No. of Classes</th>
<th>No. of Students</th>
<th>Materials Studied (Treatment)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology</td>
<td>1</td>
<td>23</td>
<td>Science module only (T1)</td>
</tr>
<tr>
<td>Geography</td>
<td>1</td>
<td>26</td>
<td>Social Studies module only (T2)</td>
</tr>
<tr>
<td>Biology</td>
<td>1</td>
<td>16**</td>
<td>Science and Social Studies Module (T3)</td>
</tr>
<tr>
<td>Geography</td>
<td>1</td>
<td>16**</td>
<td>Science and Social Studies Module (T3)</td>
</tr>
<tr>
<td>World History</td>
<td>1</td>
<td>27</td>
<td>No environmental modules (T4) (Control)</td>
</tr>
<tr>
<td><strong>Total N</strong></td>
<td></td>
<td>92</td>
<td></td>
</tr>
</tbody>
</table>

*Students in these classes were average academic achievers.
**Students in these groups were the same and studied the social studies module and science module at the same time in the two different classes.
Table 2. Research Design Tenth Grade Modules*

<table>
<thead>
<tr>
<th>Course</th>
<th>No. of Classes</th>
<th>No. of Students</th>
<th>Materials Studied (Treatment)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry</td>
<td>2</td>
<td>27</td>
<td>Science module only (T₁)</td>
</tr>
<tr>
<td>American History</td>
<td>2</td>
<td>36</td>
<td>Social Studies Module only (T₂)</td>
</tr>
<tr>
<td>Chemistry</td>
<td>1</td>
<td>21**</td>
<td>Science and Social Studies Module (T₃)</td>
</tr>
<tr>
<td>American History</td>
<td>1</td>
<td>21**</td>
<td>Science and Social Studies Module (T₃)</td>
</tr>
<tr>
<td>Chemistry</td>
<td>1</td>
<td>20</td>
<td>No environmental modules (T₄) (Control)</td>
</tr>
</tbody>
</table>

Total N 104

*Students in these classes were below average academic achievers.

**Students in these groups were the same and studied the social studies module and science module at the same time in the two different classes.

Random assignment of students to treatment groups was not possible. The assistant principal, department heads and teachers assisted in scheduling intact classes to treatments. The criteria for the selection were: four or more classes at each grade level available for participation in the study with one class at each grade level consisting of students taking both the designated science course and social studies course. All of the available population was used in the study. Because of existing course schedules only one class group was available in each grade for the combined social studies and science treatment. These students (T₃) were not apparently different from others at their grade level involved in the experiment except that they were scheduled to take both the experimental science and the experimental social studies courses in that particular quarter of the school year. Assignment of intact classes for treatments T₁, T₂ and T₄ was made
randomly among the remaining classes in each grade. In each grade the same teacher taught the T₁, T₂, and T₃ sections of the same subject. For the comparisons including these groups, therefore, possible teacher effects have been controlled by the design.

A Likert-type scale designed to measure student attitudes toward growth and pollution was administered both before and after the instructional treatment period. (The pretests for each grade were administered on the same day. Instruction with each module was scheduled for 15 class days. Posttests were then administered on the same day for each grade.) Items on the attitude instrument were largely drawn from earlier work by the investigators (Simpson, et al., 1976) in which 144 items were used to evaluate student attitudes toward science-related issues in six areas: religion, overpopulation, pollution, politics, behavior, and prejudice. This instrument was validated by a five-person panel of experts and revised after pilot testing with a random sample of 75 tenth and eleventh grade students. Items from the overpopulation and pollution subtests of this earlier instrument were used to develop the scale used in this study. The resulting attitude instrument was validated through review and revision by the five-member curriculum development team.

The instrument was comprised of 28 items, 14 of which were designed to measure attitudes related to growth (i.e. family planning, community population) and 14 of which were designed to measure attitudes toward pollution-related factors (i.e. energy consumption, air and water regulation, conservation). Half of the items in each subtest were written in a positive posture to elicit agree-type responses, and half were negative statements seeking disagree-type responses. Student scores on items written to elicit agree responses were tabulated by awarding 5 points for a “strongly agree” answer, 4 points for “agree,” 3 points for “undecided,” 2 points for “disagree,” and 1 point for “strongly disagree.” Point values were reversed for items written to elicit disagree responses.

Pretest and posttest responses from 93 ninth graders and 104 tenth graders were tabulated by grade, subtest and treatment group. Means and adjusted means were calculated. The reliability coefficients for the pretest and posttest were determined using the Cronbach coefficient alpha. Analysis of covariance was applied to group scores for each grade (with the pretest score as covariate) to determine the significance of the difference among groups on each of the subtests. Items were factor analyzed and rotated using the Varimax procedure to determine if there was a significant difference between negative and positive response items between pollution and growth items.
RESULTS

The Cronbach coefficients for test reliability were .75 for the ninth grade and .69 for the tenth grade on the pretest. On the posttest the alpha coefficients were even higher with .83 for the ninth grade and .76 for the tenth grade. Factor analysis indicated that items did not cluster according to the positive or negative posture of the statements on the test. Hence, stating an attitude negatively did not provoke student responses which were significantly different from their responses to positive attitude statements. When the 28 statements of the test were rotated for four and five factors, a clustering according to growth and pollution designations occurred. Hence the validity of the two subtests was supported.

On the total 28-item attitude scale in each grade the treatment group which studied both the science and social studies modules (T3) scored the highest adjusted posttest mean. However, on the subtest for attitudes toward growth, only the tenth grade T3 group scored the highest adjusted posttest score, while in the ninth grade the group studying only the science module scored highest. On the subtest for pollution attitudes this pattern was reversed; the group studying both modules (T3) scored the highest adjusted posttest mean in the ninth grade, but in the tenth grade the group studying only the science module (T1) scored higher. (See Table 3.)

For the ninth grade, the analyses of covariance summarized in Table 4 showed the pretest to be a highly significant covariate indicating that it provides an effective adjustment of initial individual differences arising from ability or experiential background. Posttest mean scores were adjusted for the pretest. On the pollution subtest there was no significant difference on the posttest among the four treatment groups. However, on the growth subtest an F value, significant at the .01 level, was found. Post hoc analysis of adjusted treatment groups means, using the Duncan multiple range test, revealed that T1 (science only) and T3 (social studies and science) had attitude scores significantly different from T4 (control). The range of difference from T2 (social studies only) was not significant (see Table 6).

Analysis of covariance of tenth grade posttest scores, like the ninth grade analysis, showed the pretest to be a highly significant covariate. Table 3 shows the adjusted posttest means. Again on the pollution subtest there was no significant difference among groups. However, similar to the ninth grade results, there was a significant difference among groups on the growth subtest as shown in Table 5. To determine the source of this difference among the tenth grade groups, the Duncan multiple range test was used (See Table 6). It revealed that on the growth subtest T1 (science only) and T3 (social studies and science) were significantly different from T2 (social studies only) but not significantly different from T4 (control).
### Table 3. Mean Scores

<table>
<thead>
<tr>
<th>Treatment Group</th>
<th>N</th>
<th>Total Test Scores</th>
<th>Pollution Subtest</th>
<th>Growth Subtest</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Pretest</td>
<td>Posttest</td>
<td>Adjusted Posttest</td>
</tr>
<tr>
<td>Ninth Grade (N = 92)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T₁, Science only</td>
<td>23</td>
<td>102.34</td>
<td>107.44</td>
<td>105.16</td>
</tr>
<tr>
<td>T₂, Social Studies only</td>
<td>26</td>
<td>93.62</td>
<td>99.27</td>
<td>103.23</td>
</tr>
<tr>
<td>T₃, Science and Social Studies</td>
<td>16</td>
<td>100.88</td>
<td>107.06</td>
<td>105.84</td>
</tr>
<tr>
<td>T₄, Control</td>
<td>27</td>
<td>100.77</td>
<td>99.89</td>
<td>98.74</td>
</tr>
<tr>
<td>Tenth Grade (N = 104)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T₁, Science only</td>
<td>27</td>
<td>96.11</td>
<td>98.00</td>
<td>96.56</td>
</tr>
<tr>
<td>T₂, Social Studies only</td>
<td>36</td>
<td>91.13</td>
<td>90.33</td>
<td>92.58</td>
</tr>
<tr>
<td>T₃, Science and Social Studies</td>
<td>21</td>
<td>95.19</td>
<td>97.99</td>
<td>97.19</td>
</tr>
<tr>
<td>T₄, Control</td>
<td>20</td>
<td>95.90</td>
<td>96.20</td>
<td>94.91</td>
</tr>
</tbody>
</table>
Table 4. Analysis of Covariance of Posttests for Ninth Grade Treatment Groups by Subtests

### Pollution Items

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>SS</th>
<th>MS</th>
<th>F Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariate (Pretest)</td>
<td>1</td>
<td>1358.778</td>
<td>1358.778</td>
<td>51.49**</td>
</tr>
<tr>
<td>Main Effects</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Treatment Groups)</td>
<td>3</td>
<td>118.168</td>
<td>39.389</td>
<td>1.49</td>
</tr>
<tr>
<td>Residual</td>
<td>87</td>
<td>2295.772</td>
<td>26.388</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>91</td>
<td>3772.718</td>
<td>41.458</td>
<td></td>
</tr>
</tbody>
</table>

### Growth Items

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>SS</th>
<th>MS</th>
<th>F Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariate (Pretest)</td>
<td>1</td>
<td>1728.584</td>
<td>1728.584</td>
<td>59.695**</td>
</tr>
<tr>
<td>Main Effects</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Treatment Groups)</td>
<td>3</td>
<td>330.226</td>
<td>110.075</td>
<td>3.801*</td>
</tr>
<tr>
<td>Residual</td>
<td>87</td>
<td>2519.268</td>
<td>28.957</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>91</td>
<td>4578.078</td>
<td>50.309</td>
<td></td>
</tr>
</tbody>
</table>

*p< .01  
**p< .001
Table 5. Analysis of Covariance of Posttests for Tenth Grade Treatment Groups by Subtests

**Pollution Items**

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>SS</th>
<th>MS</th>
<th>F Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariate (Pretest)</td>
<td>1</td>
<td>1361.909</td>
<td>1361.909</td>
<td>68.516**</td>
</tr>
<tr>
<td>Main Effects</td>
<td>3</td>
<td>57.774</td>
<td>19.258</td>
<td>0.969</td>
</tr>
<tr>
<td>(Treatment Groups)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residual</td>
<td>99</td>
<td>1967.843</td>
<td>19.877</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>103</td>
<td>3387.527</td>
<td>32.889</td>
<td></td>
</tr>
</tbody>
</table>

**Growth Items**

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>SS</th>
<th>MS</th>
<th>F Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariate (Pretest)</td>
<td>1</td>
<td>1697.130</td>
<td>1697.130</td>
<td>105.814**</td>
</tr>
<tr>
<td>Main Effects</td>
<td>3</td>
<td>208.245</td>
<td>69.415</td>
<td>4.328*</td>
</tr>
<tr>
<td>(Treatment Groups)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residual</td>
<td>99</td>
<td>1587.835</td>
<td>16.039</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>103</td>
<td>3493.209</td>
<td>33.915</td>
<td></td>
</tr>
</tbody>
</table>

*p < .01

**p < .001
Table 6. Duncan Multiple Range Tests on Adjusted Posttest Means for Growth Items

**Ninth Grade**

<table>
<thead>
<tr>
<th>T4</th>
<th>T2</th>
<th>T3</th>
<th>T1</th>
<th>r</th>
<th>q.95r √ ms e/n</th>
</tr>
</thead>
<tbody>
<tr>
<td>45.39</td>
<td>47.63</td>
<td>49.06</td>
<td>50.34</td>
<td>2.24</td>
<td>3.67*</td>
</tr>
<tr>
<td>4.95*</td>
<td>1.43</td>
<td>2.71</td>
<td>3</td>
<td>3.42</td>
<td></td>
</tr>
<tr>
<td>1.28</td>
<td>2</td>
<td>3.24</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Tenth Grade**

<table>
<thead>
<tr>
<th>T2</th>
<th>T4</th>
<th>T1</th>
<th>T3</th>
<th>r</th>
</tr>
</thead>
<tbody>
<tr>
<td>42.57</td>
<td>44.38</td>
<td>45.10</td>
<td>46.37</td>
<td></td>
</tr>
<tr>
<td>1.81</td>
<td>2.53*</td>
<td>3.80*</td>
<td>4</td>
<td>2.44</td>
</tr>
<tr>
<td>0.72</td>
<td>1.99</td>
<td>3</td>
<td>2.36</td>
<td></td>
</tr>
<tr>
<td>1.27</td>
<td>2</td>
<td>2.24</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05

**DISCUSSION**

Instruction from coordinated environmental education modules in both science and social studies classes produced the highest overall mean posttest scores and the greatest overall improvement in attitudes for ninth and tenth graders when compared to three other treatment groups (i.e. science only, social studies only and no formal instruction on environment).

When attitude scores were broken down by grade and by subtests for pollution attitudes and attitudes toward growth, some important differences from the overall results were revealed. On the pollution subtest the posttest scores of the three treatment groups in each grade were not significantly different from the control (no treatment) group. It should be noted, however, that pretest means on the pollution subtest were higher than on the growth subtest in both grades and there was less change overall in pollution attitudes when compared to growth attitudes. This may have
been attributable to public expressions of concern over air and water pollution in the community in the months preceding the pretest. County newspapers carried a number of feature stories on local pollution in this period.

On the growth subtest the ninth grade classes (all considered to be "average" for the grade level) showed significant gains in the joint treatment group (T3) and in the group which studied the science module only (T1) when compared to the control group. The science-only group scored the highest posttest mean. The group studying only the social studies module showed some improvement but it was not statistically significant.

The tenth grade classes, which were all below average groups, made more modest gains in their attitudes toward population growth than did the ninth graders. The joint treatment group made the highest adjusted mean score on the growth subtest of the posttest. However, the group studying both modules and the group studying only the science module scored significantly higher than the social studies group but not significantly higher than the control group. Attitudes of the tenth grade students studying only the social studies modules showed a slight insignificant gain but the mean score was below even that of the control group.

Thus with both average and below-average students the social studies module appears to have had relatively less influence than did the science module on the formation of positive attitudes towards the control of population and community growth. Some of this difference may have arisen from the consideration of a range of viewpoints and values regarding local growth problems as they were discussed in the social studies classes. The examination of trade-offs was common in the social studies classes where alternative actions were evaluated for ecological, economic, political and social consequences. As a result, the social studies activities probably were less directive and less powerful in generating short-run attitude change, and in some cases may have caused students to question environmental commitment. Particularly among the slower learners it seems likely that the concrete learning activities of the science modules with their explicit ecological implications would more effectively promote unwavering environmental commitments.

Reflecting on the differing subject approaches of social studies and science, it may be that these two components provided what Ramsey and Rickson (1976) argue are two different types of knowledge—knowledge which stems from environmental principles and knowledge which stems from trade-off costs—which have different effects on attitudes. The likelihood of differing effects lends reinforcement to Hungerford’s (1975) caveat that the relatively value-free science of ecology must not be considered synonymous with environmental education, because environmental education must attend to the study of value-laden environmental issues.
In general, the ninth grade students in the study exhibited a greater degree of attitude change than did the tenth grade students. In comparison to the control group significant attitude changes resulted not only in ninth grade classes which studied both modules, but also in some classes which studied just one of the modules. This may be explained in part by the fact that the ninth grade biology and geography courses tend to deal with basic environmental issues more directly than the tenth grade chemistry and American history. Perhaps of more importance is the fact that the ninth grade students were notably higher academic achievers than the tenth grade students. Of interest to those who would design environmental education curriculum for disadvantaged or slow learners was the finding from these posttest scores that for the tenth graders coordinated studies in both science and social studies appeared to provide the most effective treatment.

SUMMARY

Results of this study support the notion that environmental knowledge does influence environmental attitudes. Specifically these results indicate that interdisciplinary instruction which is coordinated across social studies and science and which is mainly cognitive in approach, can promote positive attitude change. Both the average ninth grade students and the below-average tenth grade students showed the greatest increase of favorable attitudes in the classes which studied the coordinated combination of science and social studies modules. This suggests that environmental education should be part of both the science and social studies curricula of high schools. It appears that positive attitudes toward the environment are best developed by the combined effects of the study of scientific principles and observations of the physical world and the study of issues, choices and consequences in the social world.

Investigation of the comparative effects of “half-treatment” (or the study of just one of the modules—science or social studies) suggests that environmental knowledge learned in the science context is more influential in promoting positive environmental attitudes than the knowledge learned in the context of social studies. These findings lend support to Ramsey and Rickson’s thesis that not all environmental knowledge will lead to favorable attitudes, and that to better investigate the attitudinal effects of environmental knowledge it must be categorized. Different types of knowledge appear operative in the knowledge of basic ecological principles stressed in the modules and the knowledge of social, economic and political effects stressed in the social studies modules by EESS. Yet, both types of knowledge are important to our understanding of the many issues of growth and population and both are requisite for making informed choices at every level of public policy.
Results of the study also suggest that student performance level or "ability group" is a significant factor in the development of environmental attitudes. The knowledge of social, economic and political trade-offs may have a greater importance to students grouped as "below-average." It seems likely that students in below average class groups will feel that certain economic factors have more immediacy in their lives. Many of these students hold part-time jobs while in high school and many would consider employment in the local area as a goal of the near future.

Three cautions seem to be in order. First, the permanence of attitude change after the relatively brief treatment has not been demonstrated. A more extended followup design would be necessary to accomplish this. Second, the finding that the combined treatment groups (T₃) outgained other groups can be explained in more than one way. Simple time spent on the subject might be the explaining factor, rather than an interaction across subject matter, as suggested above. Third, although comparisons involving T₁, T₂ and T₃ have controlled the teacher effect, those comparisons involving T₄, the control (no treatment) group, do not. Therefore, the treatment of different materials is confounded with a second variable—the teacher—for the T₄ comparisons.

In conclusion, there is a need to gain further understanding of the ways in which attitudes are influenced by the subject frameworks of science and of social studies. Additional research with larger samples and in various school settings and class groupings is needed to verify the combined and comparative influence of environmental studies taught in social studies and in science classes of the high schools.

REFERENCES


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