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Goal preference data in seven small midwestern school districts: an evaluation of the information as a step in a needs assessment process

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Goal preference data in seven small midwestern school districts: An
evaluation of the information as a step in a needs assessment process

by

Barbara Elizabeth Brittingham

A Dissertation Submitted to the
Graduate Faculty in Partial Fulfillment of
The Requirements for the Degree of
DOCTOR OF PHILOSOPHY

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CHAPTER I. INTRODUCTION

Goals are nothing new in American education. In colonial times the primary goal of the schools was to teach children to read the Bible well enough to save their souls. As the country developed, people began to expect much more from the schools. History, science, modern foreign languages as well as many other areas of study found their way into the curriculum. Recently, sex education, ecology, and self-awareness training have become more common in the schools' offerings.

From time to time along the way, individuals (such as Dewey), organizations (such as the National Education Association) or commissions (such as the White House Conference on Education, 1956) after extensive study and intensive deliberation have summarized, written, and announced goals for American education. The individuals involved in such efforts have included the nation's most respected educators. The task undertaken by the organizations, the charge given to the commissions, have been both compelling and inspiring. The efforts put forth have been commendable. And yet, though the results may be announced with great fanfare, it would be difficult indeed to point to the direct effect of the pronouncements on life in the classroom (10).

At some point in time, a second type of goal setting appeared. Local schools through the efforts of the board of education, professional educators, and/or the community in an effort to satisfy some outside group such as an accrediting agency or in an attempt to clarify their own mission, have written statements of the school philosophy and goals.

Too often the results are vague, lofty-sounding and confusing pieces of writing that, once written are promptly filed and seldom or never used (37).

Recently a third kind of goal establishment process has evolved partly as a result of two sets of demands. On the one hand, the public has come to expect more and more of the schools in the way of solving society's ills. Racial tension, drug addiction, and venereal disease are among society's problems that at least in part have been thrust upon the schools. On the other hand, the public now wants the school to be accountable, to be cost-effective, to manage itself by objectives and not to ask for an increase in funding. To accommodate itself to both sets of demands, the school needs priorities; and the accountability/cost effectiveness syndrome prescribes that those priorities be reached in a somewhat logical manner.

Accountability procedures frequently begin with some sort of needs assessment activities (52, 66). Methods for conducting a needs assessment vary. The usual first step is to generate, adopt, or modify a set of educational goals. Second, priorities are established among the goals on the basis of the perceived importance of the goal and/or the perceived or measured student achievement of the goal. In cases where the needs assessment is the initial step in an evaluation model (34) or in an accountability model (37), resources are allocated to programs aimed at priority goals, and the educational progress is evaluated in terms of the degree of attainment of these goals.

A recent survey of state education agencies (13) indicated that

needs assessment activities are being carried out in each state. Impetus for such activities was provided by Section 402, Title III of the Elementary and Secondary Education Act of 1965 as amended, which made statewide needs assessment activities requisite for states receiving federal funds for innovative or exemplary programs. Accountability requirements have made the statement of educational goals a problem of increasingly practical concern (40).

Under accountability-type procedures goals assume additional significance in terms of decisions made by local school boards and everyday activities in the classroom. There is now the very real possibility that some definite action may be taken as a result of a goal setting strategy. (One wonders just how many curricula were ever organized around Worthy Home Membership.) As long as august committees, commissions, or individuals involve themselves in weighty and lengthy discussions of the most important principles, goals, or concerns of American education, how they arrive at their answer, what they mean by their answer, or even the answer itself may not be very important as long as it has no discernible effect on what goes on in the classroom. However, a situation now exists in which textbooks may be ordered (or not), courses may be added (or dropped), teachers may be hired (or fired) on the basis of decisions made by local citizens and school people about the goals of education in their district.

When the results of a goal setting procedure may be the basis for decision making, it is important to be knowledgeable about the process itself in order that meaningful and valid conclusions may be drawn from the data.

Need for the Study

The problem of establishing educational goals will be with us for some time. Management by objectives and accountability have emphasized the importance of having a clear set of educational goals (3, 41, 54). One conclusion of a survey of State Education Agencies was that "there seems to be increasing recognition that a comprehensive set of agreed-upon goals constitutes the essential defining characteristic of any fully developed educational assessment program . . ." (13, p. xi).

Little is known, however, about the goal setting process itself (11, 59). In a study of methods of priority setting in local schools, Gooler, (17, p. 54) cited the "needs for clear delineation of goals and activities together with the reasons for setting some goals and not others." The lack of methods for studying such judgment data has been noted (61).

At the present time, educational goal setting appears to be an area in which there are far more questions than there are answers. In the conclusion of the Wisconsin Educational Needs Assessment Study conducted by the Wisconsin Department of Public Instruction (64, p. 83), the author wondered:

What historical, political, or economic factors in the larger society contribute to the priority ranking?, What demographic, social, or economic factors in the local district contribute to the rankings?, What factors in the nature and experience of the respondents contribute to the rankings

What advice can be given to a local district about to establish a

set of educational goals? After reviewing the state of educational accountability, Krystal and Henrie (37, p. 11) state, "There are few practical and concrete suggestions that can be made for the establishment of goals; it seems that each district must evolve its own process of goal setting."

Before suggestions can be made, a more definitive statement of the problem is needed. A review of the literature relating to the study of educational goals will be presented in Chapter II, with the definition of the problem and discussion of the methodology of the study appearing in Chapter III. Findings will be presented in Chapter IV and discussion and recommendations will appear in Chapter V.

CHAPTER II. REVIEW OF LITERATURE

This review of relevant literature will be divided into two major parts, the first dealing with historical and theoretical considerations for goal statements and the second dealing with research relating to the ordering of goals by their perceived importance.

Historical and Theoretical Considerations

During the course of American history, several prestigious groups of individuals have set forth statements of desirable educational goals. The Texas Subcommittee on Goals (62) studied educational goal statements and priority setting efforts from the goals of the Latin Grammar School in 1635 through the American Association of School Administrators' Commission on Imperatives in Education in 1966. The Subcommittee concluded that although the wording, categories and emphases may change, the basic goal categories have largely remained the same. The committee named six categories of universal and continuing goals for public education: 1) intellectual discipline, 2) economic independence and vocational opportunity, 3) citizenship and civic responsibility, 4) social development and human relations, 5) morals and ethical character, and 6) the objectives of self-realization. It was noted that the categories of intellectual discipline and morals and ethical character dated back the farthest in American education while the category for objectives of self realization was the newest.

Downey (9) examined the attempts of all major policy setting groups

to define educational goals beginning with the National Education Association in 1931 through the Rockefeller Report of 1958. On the basis of his findings, he outlined four dimensions of public education and placed them in the conceptual framework outlined below (9, p. 24):

DIMENSIONS OF PUBLIC EDUCATION: A CONCEPTUAL FRAMEWORK

A. Intellectual Dimensions

1. POSSESSION OF KNOWLEDGE: A fund of information. Concepts
2. COMMUNICATION OF KNOWLEDGE: Skill to acquire and transmit
3. CREATION OF KNOWLEDGE: Discrimination and imagination, a habit
4. DESIRE FOR KNOWLEDGE: A love for learning

B. Social Dimensions

5. MAN TO MAN: Cooperation in day-to-day relations
6. MAN TO STATE: Civic rights and duties
7. MAN TO COUNTRY: Loyalty to one's own country
8. MAN TO WORLD: Inter-relationships of peoples

C. Personal Dimensions

9. PHYSICAL: Bodily health and development
10. EMOTIONAL: Mental health and stability
11. ETHICAL: Moral integrity
12. AESTHETIC: Cultural and leisure pursuits

D. Products Dimensions

13. VOCATION-SELECTIVE: Information and guidance
14. VOCATION-PREPARATIVE: Training and placement
15. HOME AND FAMILY: Housekeeping, do-it-yourself, family
16. CONSUMER: Personal buying, selling, and investment

Downey (9) concluded that because of the redundancy of the policy setting groups in their statements of goals, further study in the area would not be enlightening.

The study of educational goals from an empirical point of view becomes important when the goal establishment processes will have practical implications for a school or district. The value of a useful set of educational goals has been widely recognized. Goals are an essential

first step in planning (19) and in setting priorities when desires are too much for the means available. Goals are vital in planning because one may then manipulate instructional variables to reach the desired ends. Unless the goal statement comes first, however, the danger lies in getting bogged down with methodology and worrying excessively about the means and too little about the ends (22). Goals are necessary not only in planning the program, but also in maintaining it. "Without goals, effective evaluation, feedback, and corrective action become impossible. The system tends to continue its process regardless of the quality of its output, while it gets further and further out of phase with the environment" (37, p. 10).

Goals are especially important in view of the changing and increasingly complex society (10). Important as clearly stated goals may be in dealing with change, the establishment of those goals may be especially frustrating since schools seem to reflect rather than cause societal change (56). Continuing societal change makes educational goal setting a difficult and ongoing process (19).

Previous goal setting endeavors concerned themselves with presenting a list of desired outcomes. In a needs assessment or for accountability requirements, however, listing the goals is only a first step; the process is incomplete until priorities among the goals have been established (17, 51, 54).

Greenfield (19) warned that unless school districts define their priorities they may accept responsibility for a multitude of goals even though financial and other constraints prohibit attaining or even

emphasizing sufficiently all areas. In a study of school district priorities, Gooler suggested that priorities are established on the basis of the relative importance of each desired element and the resources available to the school. He concluded that "Priorities appear to be formulated as a result of some kind of interaction among personal values and expedient or high-probability of success values in a given situation under certain constraints" (17, p. 125). Price (53) suggested that priorities are determined on the basis of the critical nature of a goal, its long range value, and its attainability.

Several processes are available for school districts in arriving at a set of priorities. Existing methods include the Delphi technique (13), charettes (47), gaming approaches (55), and methods involving the weighted averages of several participant groups (34). Some methods start with a given set of goals and the task of the group is to arrange them in an order of importance. Other groups have generated their own sets of goals. Because of the great amount of time and effort involved in generating a set of goals and because of the overwhelming similarity of such sets, the latter procedure is less common and generally is not recommended (9, 35).

Although in the past, the establishment of school goals has been mainly in the hands of professional educators, the trend is toward involving parents, students and community members as well (13, 24). The importance of getting input from all groups concerned with public education has been recognized by several recent writers (20, 37, 54, 57, 65, 66). Filep (15) has reported case studies indicating that the final

products of goal establishment groups reflect to some degree the makeup of the committees.

Differences of opinion among individuals and groups are bound to occur in trying to determine the most important school goals. There is no general agreement on the best way to deal with such differences. Some methods (16, 55) imply that the group as a whole or subgroups within the larger group should work for consensus through compromise.

When differences of opinion occur, Popham (51) suggested that there are two alternatives. The groups may either find ways to reconcile their differences, or they may decide that the opinion of one group should receive more weight in the final say than does the opinion of another group. According to Stake (61), there should be no obligation to find consensus; rather, the important thing to do is to become aware of differences in perceived importance. Greenfield (19) and Krystal and Henrie (37) have suggested that establishing school goals should be a continuous process in which a first ordering of priorities provides a starting place. Dyer (11) stated that the development of goals should be a process of successive approximations beginning with the very general goals and moving toward more specific objectives.

The degree of consensus possible or desirable is open to debate. Bell (3) cited the great similarities in curricula from schools across the country as evidence of an underlying agreement on what is important in education. On the other hand, Dyer (11, p. 19) stated that:

Any system that tries to operate on the assumption that there is one fixed set of goals to which all people must aspire is bound to be so far out of touch with the actualities of human condition that such effects as the school may have

are likely to be altogether unrelated to the needs of the pupils in them or to the society they are expected to serve.

Shane (56) told of six educational experts who met over a two-year period to arrive at a statement of goals. Their lack of agreement on what was important caused them to issue, in the end, a statement of their differences rather than their similarities. Downey (9) believed that differences in opinion should remain in the final product and that committees that seek to force consensus should be avoided in establishing school priorities.

Even among efforts beginning with a given set of goals, vast differences remain. The number of goals under consideration by various groups cited in the literature ranges from three broad aims (17) to 153 content-related goals (33). Such differences imply variation in the kinds of outcomes desired in a priority setting process. Although there is a vast amount of writing on the desirability, use, construction, and implications of educational goals, several writers, (20, 42, 43) have written extensively about goals without defining the concept they purported to study.

The California Joint Committee on Educational Goals and Evaluation (25, p. 7) adopted the following definition of a goal:

goal - a statement of broad direction or intent which is general and timeless and is not concerned with a particular achievement within a specified time period.

The discussion of goals in this study will be limited to goal statements that describe a concept to be mastered or a quality to be acquired by a specified or understood group of learners. Such goal statements,

sometimes called learner goals, describe the ends or outcomes of school rather than the means or processes by which the ends may be attained. An example of a learner goal describing an end in itself is: "Command of the Knowledge, Skills, Habits, and Attitudes Essential for Effective Learning Throughout Life" (21, p. 7). The above goal describes something that students should have as a result of their schooling. An example of a goal describing a process or means to an end would be: To reduce class size. This goal describes an administrative arrangement rather than concentrating on what students should do. Problems in discussions of educational goals are frequent when there is no differentiation between the types of goals being discussed (13).

Even when only pupil performance or outcome-type goals are considered, there is still great variation in the way goals are stated. "Some goals are stated briefly; others are not. One thing they all have in common is that they all sound important" (45, p. 10).

Several writers have listed desirable qualities of goals. Carey (5) noted that goal statements are the most general of guide statements and that they are timeless. Hadley (20) said that goal statements should represent singular concepts; they should be mutually exclusive and independent of each other so that placing a priority assignment on one goal does not dictate the priority assignment of another goal.

Problems arise when goals are stated in terms that are too general. According to Mager, as goals become more abstract, they become "fuzzier." Writing about the goal "to be a good citizen," Mager said, "This might be number one on the hit parade of fuzzies" (45, p. 26). Dyer (11)

believed that such very general goals are actually slogans. The problem with such goals is that they mean too many things to too many people (18). Although it is easy to get agreement on the importance of such extremely general goals (19, 45), they offer very little help to school people in developing or assessing their programs (11).

Krystal and Henrie warned of two common problems in stating educational goals. The first is "reductionism - the emphasis on that which can be easily measured to the exclusion of more abstract and complex (and often more important objectives" (37, p. 4). Reductionism may result from a tendency to stress that which people agree on and neglect the value-laden areas where disagreement is certain. When an attempt is made to define these value-laden goals, a second problem, known as reverse reductionism may occur:

To avoid conflict, goals are framed in the broadest and vaguest manner, eliminating all controversies and allowing each educator to interpret the goals as he sees fit. For example, a number of state education agencies have set up commissions to establish broad goals. Typical of these efforts are: 'self understanding,' 'understanding others,' 'interest in school and learning,' 'preparation for a changing world,' and so forth. These broad goals inhibit growth and movement by emphasizing that which is already established and digested by the culture. Society confronted by increasingly complex problems cannot rely on goals formulated years ago (37, p. 4).

According to Yost (68) goals should be reliable in the same sense that tests are reliable. He defines reliability in this sense as leading to the same interpretation by a number of readers. Mager (45) recommended writing down behaviors that represent attainment of the goal as a means to insure that the goal has the same or nearly the same meaning for everyone involved.

Although philosophical debates have been carried out for centuries about the most desirable educational goals, the study of goals was not considered a topic suitable for empirical research until Downey's study of The Task of Public Education (9). The following section will review empirical studies of educational goal establishment beginning with Downey's study.

Related Research

Downey

Downey outlined two major purposes of his study: "first, to identify the elements of public education and second, to determine the extent to which the public perceives those elements to be important aspects of the task of the public school" (9, p. 6). To satisfy the first purpose, Downey listed as the elements of public education the sixteen dimensions outlined in his Conceptual Framework (see page 7 above). In establishing school priorities, Downey believed it was important to specify the role of the school in the overall educational scheme.

In recent years the public school has become all things to all men. . . . Society has broadened its expectations of the school, and the school has not been reluctant to accept. The modern public school has assumed responsibility for the social, physical, moral, aesthetic, and vocational aspects of youth development; it has undertaken to indoctrinate and condition youth in a particular 'way of life'; it has presumed to teach them a preferred kind of home and family living; and in some cases it has prescribed for them a specific kind of training for placement in a specific job.

In answer to the demands of influential minorities, the public school has expanded its sphere of interest to such a degree that its task has no definite limits. Being everything to everybody has placed it in an untenable position and has caused it to become the scapegoat for most of the deficiencies in our society (9, p. 4).

Schools, then, must determine priorities, which assumes that some elements are more important than others and that some limits may be placed on the responsibility assumed by the school.

Downey worded his task dimensions in two sets: elementary and secondary. The sample of respondents included 1286 educators and 2544 noneducators for elementary tasks and the same number for secondary tasks. Subjects were drawn from the New England states, the Deep South, the Midwest, the West Coast, and the prairie provinces of Canada. Within each area, three types of communities were included: suburbs, industrial cities, and rural areas. Within communities, an effort was made to include respondents from all socioeconomic levels.

The subjects were asked to sort the tasks into a forced distribution from most important to least important as tasks for public elementary (or secondary) schools. Because of the size and importance of Downey's study, the results will be presented here in some detail. Generally speaking, the intellectual dimension emerged as being an important task as viewed by all of the respondent-types while the products dimension came out relatively low. Regional differences did exist though the middle west "assumed what might be called a middle of the road position" (9, p. 37). Differences between community types were not as pronounced as regional differences. Suburban respondents tended to place more importance on intellectual and aesthetic aspects; residents of cities tended to favor home and family. Subjects from rural areas placed a greater than average emphasis on physical and consumer dimensions.

Responses were not related to income, but occupation and amount of

formal education were found to be the best predictors of preferences among the dimensions.

The higher one's position on the occupational continuum, the greater the importance he assigned to the intellectual, the aesthetic and the world aspect. . . . Similarly, the more schooling respondents had themselves, the more they tended to emphasize the intellectual aspects and minimize the social, physical, and vocational aspects of education (9, p. 65).

Some interesting contrasts emerged between the preferences of educators and noneducators. Educators agreed more with each other as a group than did noneducators. Dimensions favored more by noneducators than by educators were, in every case, from areas other than the intellectual domain. Among educators, as the level of formal schooling increased, their emphasis on the importance of the knowledge task decreased. Interestingly, "agreement between educators and noneducators increased as the amount of schooling of noneducators increased until the graduate level was reached. At this level, agreement lessened appreciably" (9, p. 49). Among noneducators, the amount of contact they had with the school made little difference in their choices.

Downey also reported differences in perceived importance of the tasks when subjects were classified by age and sex. Respondents were divided into two age levels: those below age 45 and those 45 and older. Older respondents placed more emphasis on physical training, morality, and patriotism. Younger respondents stressed a desire to learn, world citizenship, learning skills, and a fund of knowledge. Among educators, there were no important differences in perceived importance between men and women. Among noneducators, women tended to emphasize the aesthetic dimension and social skills while men placed more emphasis on the

physical aspects and on learning skills.

A principal axis method of factor analysis was performed on the raw data:

The factor analysis identified three basically different educational philosophies or perceptions of the school's task, and three corresponding groups of respondents. The points of view were: first, a high value upon the intellectual and related components, with a corresponding low value for the productive and related elements; second, a high value upon the productive and related intellectual skills, with a corresponding low value upon the social and certain aspects of the personal; and third, a high value upon the social, particularly the civic and patriotic, and a corresponding low value upon the personal, particularly the physical and aesthetic (9, pp. 65, 66).

On the basis of his study, Downey made several recommendations for others who may wish to involve various groups in setting school priorities. Because each group attempting to build a set of goal statements arrives at a product which tends to duplicate previous efforts, Downey believed it is fruitless for each group to generate its own set of goals. The mission of the group should be to arrive at priorities, a mission which can be accomplished most efficiently when people have a framework of given goals to which they can respond.

Although the schools are operated by educators, it is the public to whom those educators are ultimately responsible. Therefore there can be great value in getting public opinion about the role of the school. Downey's goals were of the very abstract kind, however, and he warned that "If a community is led to believe that on the basis of this kind of general opinion survey, it may prescribe the specific operation of the school, the consequences can be disastrous" (9, p. 71).

In the actual process of goal establishment, Downey cautioned

against the use of committees in an attempt to define school priorities: "Arbitration and logrolling have no place in the establishment of education's task; suggested elements should be assessed on the basis of their own merits and in relation to all others," (9, p. 76). He believed that compromise would only give an appearance of consensus which in our diverse society can never be reached. The effort should be to express the differences rather than try to force all opinions into one mold.

Recognizing the need for further study in the area, Downey cited the problem of the different meanings a goal can have for different people and realized that this would affect their choices of the most important goals. He also cited the value of factor analysis as a descriptive technique in the analysis of preference data.

Since Downey's study, most research conducted in the area of goal establishment has been concerned with the description of which goals were considered most important by the total group and by subgroups, and with the amount of agreement between subgroups of subjects.

Nevada State Department of Education

The Nevada State Department of Education (12) as part of its state-wide needs assessment involved residents in ranking 100 educational needs, ten in each of ten subject matter categories, in terms of how much added emphasis should be given to that area. Participant categories included school board members, students, educators, and citizens from urban, rural, and remote rural districts. When needs from the ten subject matter categories were compared, there was generally good agreement between groups. Rank order correlations ranged from $r_s = .72$

(students and citizens) to $r_s = .96$ (school board members and educators); all correlation coefficients were significant beyond the .01 level of probability. Of the subject matter areas, reading was ranked the highest by all groups; English language arts was second for all groups except citizens, who ranked math second. The areas needing the least added emphasis were fine arts (8th out of 10 in ranking); P. E., health and safety education (9th); and foreign language (10th). The authors reported good agreement between urban, rural, and remote rural districts.

McKenzie

Using sixteen goals similar to Downey's which were sorted into three piles according to a forced distribution, McKenzie (43) studied the responses of teachers and students. Thirty teachers and sixty students were selected from each of three schools; a suburban, a rural, and an urban district were included. McKenzie found that the teachers from the different districts agreed with each other more than did students from different districts. Goals relating to aesthetic appreciation were consistently viewed as unimportant. Students and teachers alike viewed goals relating to a "sense of self value" and being "socially responsible" as being important.

Hadley

Hadley (20) studied responses of residents, teachers, and students in a suburban high school district. Subjects were asked to sort sixteen educational goals (similar to those used by McKenzie) into three piles according to their importance with a specified number of goals in each

pile. Goals relating to the intellectual tools for using knowledge and critical thinking were considered most important. Vocational preparation goals ranked lower among residents than among teachers or students. All three groups perceived goals relating to the family, to physical health, and to aesthetic appreciation as relatively unimportant. Among the three groups, teachers and students agreed the least.

Greenfield

In a study reported by Greenfield (19) 49 elementary school objectives were rated according to their importance by elementary teachers, secondary teachers, coordinators, members of the education council, and trustees of the board of education. Agreement between groups was strongest for objectives that came out either fairly important or fairly unimportant; disagreement occurred on objectives in the middle of the range. Arts, music, religion, foreign language, physical education, measurement, and media and technology were generally considered as unimportant. Desire for learning, reading, reasoning, and understanding of people were ranked among the most important objectives. The greatest disagreement between groups was found for objectives relating to leisure time, citizenship, history, and civics. No single program had its objectives ranked either uniformly high or uniformly low. Greenfield (19, p. 39) noted the "tendency of respondents to prefer those objectives dealing with general competencies and skills over those which concern specific learnings and activities."

Woog

As part of a study of teacher behavior, Woog (67) had teachers sort objectives into a forced distribution. He then analyzed the teacher preferences in five categories of objectives: low cognitive, high cognitive, tool-skill, affective personal, and affective interactive. The affective personal category, relating to individual personal development, came out highest among more teachers than did any other category. No teacher ranked low cognitive objectives, those relating to recognition and recall, as being the most important.

Baker

Baker (2) presented fifteen fairly specific mathematics objectives along with a sample problem for each to seventh grade students ($N = 82$), their parents ($N = 82$) and teachers ($N = 10$). Subjects were asked to rate the importance of each objective on a five-point scale. Parents' average rating for the objectives was higher than that of teachers or students. Correlations among the three groups were: parent-teacher, $r = -.15$; parent-student, $r = .36$; teacher-student, $r = -.29$. Subjects were also asked to predict student achievement on each of the objectives and results were compared to actual student achievement. It is interesting to note that although parents and students agree on their prediction of student achievement ($r = .88$), their predictions were quite inaccurate ($r = -.79$ for each group). Teacher predictions correlated $+.60$ with actual student achievement.

Doherty

Doherty (8) analyzed data on the perceived importance of the elementary school goals developed by the Center for the Study of Evaluation, University of California at Los Angeles. The data represent the preferences of parents (44 schools), teachers (47 schools), and principals (49 schools) whose districts were said to be a representative sample of national districts. Data were analyzed for each of the 106 goals and for 41 "supragoals" created by averaging two or more goals in a content area. Univariate analyses of variance of the 41 supragoals for the three categories, teachers, principal, and parents, revealed 12 calculated F values significant at the .01 level of probability and four additional F values significant at the .05 level. The multivariate F was significant at $p < .0001$. In the analysis of the 106 individual goals, 22 univariate F values were significant at the .01 level and sixteen more were significant at the .05 level. Multivariate analysis of variance was not performed on the 106 goals. Thus, there were significant differences among teachers, principals and parents in the perceived importance of specific goals. Data available for the individual schools included: 1) geographic region, 2) type of neighborhood, 3) racial-ethnic composition of the student body, 4) size of the school, and 5) professional background data on the parents. When schools were classified by size, only one univariate F value reached significance ($p < .01$). Classification by type of neighborhood produced four statistically significant F values. Creativity, memory and reading interpretation are more important in residential-suburb and inner city

neighborhoods than they are in small towns or residential-city neighborhoods. Goals relating to the scientific process score highest in residential-suburb schools (8).

Classifying schools by the racial composition of their student body did not produce any significant F values. When schools were classified according to the professional background of the parents, one F value was significant at the .01 level; goals relating to the scientific process were seen as less important by blue collar workers and unskilled laborers than by other occupational groups. Finally, schools were classified into five geographic regions. Again, only one calculated F value was significant at the .01 level; goals relating to foreign language were ranked low in all parts of the country but especially along the Eastern Seaboard.

Correlations among the mean ranking of the 41 supra goals for parents, teachers, and principals ranged from .916 (parents and principals) to .973 (teachers and principals). Teachers and principals rated affective goals as being more important than did parents. Parents valued history, civics, foreign language, and geometry more highly than did the educators. Doherty suggested that because parents are generally familiar with these traditional subject-matter areas, they may tend to value them relatively more than areas with which they are not as familiar. Doherty concludes that although there is good agreement among the groups:

. . . slight variations in the priority orders reflect certain expectable characteristics of the constituents. Principals seem to have a broad view of student outputs, while teachers appear to be motivated by the desire for well-behaved students (understandable in terms of their daytime experiences), and parents

seem to want the traditional subject matter achievements that they themselves understood and were educated for (8, p. 8).

Klein

In a study of statewide perceptions of goal importance, Klein (33) used a total of 153 objectives from four content areas: social studies, communication skills, mathematics, and science. Thirty-one high school districts in New Mexico were involved in the rating process. Within each district there were four teams, each team consisting of a student, a teacher, an administrator, and a community representative. Each of the four subject matter areas was considered separately in the following process: first, individuals sorted the objectives cards for a subject matter area into three piles representing below average, average, and above average importance; second, the team reached consensus on the five to fifteen most important objectives in the given area.

Analyses were performed on the preference data of the individuals. Klein concluded that certain districts and certain rater types were more lenient in their ratings; that is, their average importance across all goals was higher than the average of other groups. Differences between objectives were significant at $p < .001$. According to Klein (33, p. 4):

This result was very important since it indicates that some objectives were consistently rated much more important than others. Thus, the observed differences between the mean ratings of the objectives within an area are interpretable and not just due to chance fluctuations.

Although a statistically significant interaction between rater type and district was found, according to Klein the interaction was not of

substantive significance. This means that there was no important tendency for one type of rater or district to rate objectives substantially differently than did other types of raters or districts. Therefore, one can use "the overall rating for a given objective as indicative of what New Mexicans think about it without being overly concerned that a given rater type and/or district is not represented properly" (33, p. 9). Because of differences between districts, however, decisions involving individual districts should be made with those differences in mind.

In an attempt to investigate the individual vs. group consensus methods of selecting important objectives, Klein computed correlation coefficients between the average individual rating of the importance of each objective and the number of times it was selected as being one of the five to fifteen most important objectives in its area. The correlation coefficients for the four subject matter areas ranged from the high .80's to the mid .90's, indicating a strong but not perfect relationship between the objectives selected as most important by the two methods. Finally, correlation coefficients between objectives were computed to see whether any objectives could be deleted as being duplications of other objectives. Since no correlation coefficient was above $r = .55$ and most were below $r = .10$, Klein concluded that the objectives were not redundant.

Ohnmacht

The above studies have classified persons by status grouping rather than by factorial or empirically-based preference groupings. Ohnmacht (49) presented a set of ten educational objectives to twenty college

professors each of whom ranked the objectives from the most important to the least important. Spearman rank order correlations between pairs of professors ranged from $r_s = .95$ to $r_s = -.46$. A principal components factor analysis with a varimax rotation was used to group professors. Six factors were extracted with two being clearly defined. The two factors which each contained high loadings for several subjects were the Process factor and the Content factor. Ohnmacht concluded that the factor analytic method was valuable as a prelude to hypothesis formation about personal preferences for goals.

Gooler

Gooler (17) investigated short term change in the ideal importance of courses and content areas. Using eleven people enrolled in an education class and a two-week time interval, correlations for 13 content areas ranged from $r = .90$ (Afro-American studies) to $r = .19$ (social studies); the median correlation was $r = .61$. Test-retest correlations for the ideal importance of 16 educational goals over a two-week period ranged from $r = .85$ (To foster in the student emotional stability and good mental health) to $r = -.25$ (To develop in the student the skills necessary to acquire and communicate knowledge); the median correlation was $r = .67$.

Luke

Although the difficulties arising from differences between individuals in the perceived meanings of goals are great, the subject has received little attention from researchers. Luke (42) used line drawings

to illustrate goal areas and asked people to choose the picture that best illustrated their perception of the goal. Interpretation of results is difficult, but, generally speaking, subjects tended to pick illustrations with more positive than negative connotations. For example, the most frequently chosen illustrations of the goal "Respect for Authority" were representations of teacher authority, parent authority, and religious authority rather than court authority or police authority.

Summary

Most of the writing about the theoretical aspects of educational goals has been concerned with specifying which aims should be the major goals of the schools. Recently because of the increasingly practical implications of goals, several writers have begun to focus their attention on the desirable attributes of goal statements and on theoretical considerations for arriving at an ordering of goals by importance. Learner goals used for needs assessment or accountability procedures should be statements of broad aims or intents representing desirable knowledges, attitudes or qualities for a specified or implied set of young people. Care should be taken so that goals are worded at an appropriate level of generality. Goals that are too general mean too many things to too many people. While it may be easy to get people to agree that such a goal is important, such information is of no help in making decisions about a school program. On the other hand, making goals too specific may result in avoiding decisions about values, decisions which are bound to be controversial.

The value of involving parents, students and lay citizens as well as professional educators in determining goal priorities has been widely documented. It is generally thought advisable to start with an existing set of goals and arrive at priorities among them rather than to increase the difficulty of the task by generating a set of goal statements at the outset.

To date, most of the empirical research in this area has concentrated on comparing the desires of various groups categorized by various demographic characteristics. Only a relatively few studies have gone beyond these considerations in studying the goal establishment process. For example, although there is general agreement that goals should be unambiguous in their meaning, the literature is virtually devoid of attempts to study the extent to which goal statements vary in this quality.

Needs assessment and accountability procedures currently being used frequently begin with a set of educational goals ordered by their importance as perceived by local citizens. This information is being used for decision making in districts across the country. But the decisions can only be as good as the information on which they are based. Much research needs to be done in evaluating the quality of the information generated by the types of goal establishment procedures now in use.

CHAPTER III. PROBLEM AND PROCEDURE

The number of districts conducting needs assessment activities is growing rapidly; yet few studies have focused on the utility of the procedure for a local district. While the scope and amount of involvement in a needs assessment may vary, the following activities may be considered as basic to all needs assessments (36, pp. 1-2):

1. Listing the full range of possible goals (or objectives that might be involved in the needs assessment).
2. Determining the relative importance of the goals (or objectives).
3. Assessing the degree to which the important goals (or objectives) are being achieved by the program (i.e., identifying discrepancies between desired and actual performance).
4. Determining which of the discrepancies between the present and desired performance are the most important to correct.

This study focused on the kinds of information provided in step number two above, determining the relative importance of the goals.

As was noted in Chapter II, several methods have been suggested for arriving at an ordering of goals by their perceived importance. The method used in this study consisted of averaging the perceived importance of each goal by members of a particular status group. For district ratings, the status group averages were combined as a weighted linear combination with the weightings of the various status groups having been arrived at by members of the local district. This method has been suggested in the literature (34, 35, 51) and has the intuitive appeal of allowing specified subgroups to have varying amounts of input in the overall ranking while preserving their differences in points of

view for perusal and consideration where appropriate.

Rationale for the Study

The judgments made during a needs assessment serve as an information base for program planning and/or modification. A needs assessment is the first step of a five stage evaluation model which includes program planning, implementation evaluation, progress evaluation and outcome evaluation (34). The quality of the information provided by the needs assessment is vital to good decision making about program planning. In particular, a necessary (though not sufficient) characteristic of good needs assessment data is that, assuming an appropriate set of goals has been listed (as in step number one above), the information provided by the ordering of goals in step number two reflect an accurate picture of the desires of the respondents involved. Thus, the investigator submits that in order to provide information useful to a local district in decision making, an ordering of educational goals by their perceived importance under the model adopted for this study should have the following characteristics:

- 1) The ranking of goals for the subgroups participating in the goal sort should provide a reliable estimate of the ordering for the population in question. An ordering of goals that was unreliable in this sense would mean that little faith would be justified in the ranking of the goals; for example, if different students from the same population had been asked to rank the goals, the ordering would have been different. Estimating

the reliability of a subgroup involves calculating the extent to which members of that subgroup agree as to the importance of various goals.

- 2) There should be a minimal amount of short term change in subjects' perceptions of the importance of goals. While it is reasonable to expect that over a relatively long period of time (more than a year), subjects are likely to change their minds about which are the most important educational goals, short term change for the purpose of conducting a needs assessment would be undesirable. A procedure asking various groups to rank order goals according to their importance would be essentially useless if the ranking changed so quickly that the procedure had to be repeated every three months.
- 3) There should be a meaningful relationship among the desires of the subgroups of raters within and among districts. The notion of each community arriving at a ranking of educational goals for its own district is based on the idea that the desires of each district are somewhat different from the desires of every other district. If this is indeed the case, one would expect to find more congruence of desires among various status groups within a district than among the same or different status groups across districts.
- 4) Since historically the statement of educational goals has been considered a philosophical problem, a viable system of selecting important educational goals should reflect differences between

subjects who differ in their educational philosophies. In other words, given an independent measure of a subjects' educational philosophy, one might expect to be able to predict the importance he ascribes to some or all of the goals.

- 5) One requirement of a valid ordering of educational goals would be that subjects ranked the goals according to the framework outlined by the model. For example, some systems of educational goal ranking ask the respondent to rate the goal according to its importance for the school. If subjects used as their framework the importance of the goal for society in general, the results may ascribe to the school responsibilities that the subjects would not intend for it.
- 6) Finally, the meaning of the individual goals should be the same for all subjects. The importance of clearly stated goals has been discussed in Chapter II and will not be reiterated here except to point out that one cannot expect an interpretable agreement on the importance of a particular goal if subjects do not agree on the meaning of the goal.

Problem and Objectives

The problem of this study was to investigate the extent to which data generated by a specified method of goal rating would provide information useful for decision making in a needs assessment procedure. The method under consideration consisted of arriving at an ordering of goals by importance based on average ratings by specified subgroups.

Specifically, the objectives of the study were to:

- 1) estimate the reliability of the ordering of goals according to their perceived importance;
- 2) estimate the amount of short term change in the perceived importance of educational goals;
- 3) describe the relationship of the ordering of educational goals among subgroups within communities;
- 4) describe the relationship of the rating of the goals by their perceived importance and the educational philosophy of the rater;
- 5) analyze the factors reported by the subjects as influencing their selection of some goals as more important than others;
- 6) describe the factors of meaning of selected educational goals as perceived by the subjects included in the sample.

Of the types of needs assessment methodologies possible, this study is limited to the modified version of the model developed by the Center for the Study of Evaluation as described below.

Assumptions

The analysis and interpretation of the data in this study are based on the following assumptions:

- 1) The importance ascribed to various educational goals by participants was assumed to be unaffected by their knowledge that the data are a part of the study or by other measures included in the study.

- 2) The responses made by the subjects to questions asked of them were assumed to reflect their true feelings and opinions.
- 3) Insofar as the stability over time of their perceived importance of educational goals and the kinds of factors which influence their preference for some goals over others, it was assumed that participants in this study are similar to other possible participants from their district and from other similar districts.

Sources of Data

Data were gathered from respondents within each district by means of a goal sort and a printed questionnaire. The goal sort consisted of 118 printed goal cards sorted into five envelopes labeled to reflect varying degrees of importance of the goal for the school. The printed questionnaire (Appendix A.1) was divided into four parts: 1) General Information, 2) The Meaning of Goals, 3) Education Scale, and 4) Influential Factors.

Instrumentation

Goal sort materials

The information value of the rank ordering of goals is obviously dependent on beginning with a "good" set of goal statements. A good set of goals would be one that includes all areas of possible importance to the schools; has little overlap between goals; is worded in terms that are understandable to the persons involved; and includes goals that are

neither too general nor too specific. The basic set of goals selected for use in this study was the set of 106 goals included in the Elementary School Evaluation KIT developed by the Center for the Study of Evaluation at the University of California at Los Angeles. The procedure has been field tested in 79 schools from a national sample and 103 schools from a California sample (23). Results of the field test indicated that participants were generally satisfied that the goals were well organized and complete. Evidence of their satisfactory level of generality may be inferred from noting that approximately half of the field test participants expressed a preference for more specific goals while the other half said the goals should be more general. The major difficulty with the goals seemed to be that lay citizens had some difficulty understanding the goal statements. As a result of the field tests, CSE made some modifications in the goal statements (23). In addition, precautions were taken during this study to minimize the problem of subjects not understanding the goal statements.

Although the CSE goals were written for elementary school, they seemed appropriate for use in a K-12 needs assessment. Most of the goal statements reflected areas of concern in the secondary as well as the elementary school program. The goal set had previously been modified by the addition of eight goals in home economics and career education for use in a needs assessment for a secondary school. In addition, participants in this study were given the opportunity to add goal statements for an area they felt was not covered by the existing set; four goals were added and will be described below.

For purposes of the goal sort, each respondent was given a complete set of goal cards and envelopes. Each goal was printed on a 3 by 5" card; there were 114 goals in the pretest set and 118 in the other two sorts (see Procedure section, below). Respondents sorted the goal cards into five envelopes labeled as follows: 1) Unimportant, Inappropriate, Irrelevant; 2) Below Average Importance; 3) Average Importance; 4) Above Average Importance; and 5) Very Important, Critical or Essential. In rating the goals according to their importance, respondents were asked to consider "how important it is for the school to help the student attain that particular goal." (A complete set of instructions may be found in Appendix A.2). Subjects were asked to consider each goal separately and to place at least five goals in each envelope. Asking subjects to sort at least five goal cards into each envelope as specified in the CSE directions helps insure that both ends of the scale will be used without creating a forced distribution.

General information

The first section of the printed questionnaire (Appendix A.1) asked respondents to supply the following information: sex; date of birth; amount of formal schooling completed; ages of their children, if any; name of the school district; and status on the committee. In addition, subjects who completed the goal sort at other times during the study (see Procedure, below) were asked to supply their names.

The meaning of goals

The problem of variability in interpretation of goal statements across subjects has been discussed above in Chapter II. In a needs assessment the problem may be summarized as follows: in order to interpret differences between subjects and groups in their ratings of the ideal importance of a specified goal, it is necessary to assume that the goal had the same or essentially the same meaning for all concerned. Otherwise, differences in the importance ascribed to a goal may be due to the varying interpretations of the goal statement rather than conflicting desires about the desirability of including that goal among the school's most important aims.

The approach used to investigate the meanings of various goals was the semantic differential as developed by Osgood, Suci, and Tannenbaum (50). The technique has been widely researched and has proven to be a versatile method of exploring a wide range of topics (29, 48, 50, 60).

Briefly, the semantic differential is a "type of scale . . . which employs direct ratings of concepts with scales anchored on the extremes by bipolar adjectives" (48, p. 535). Typically, several concepts (the word or idea being rated by the scales) are included in a study, each concept being rated by the same series of scales. When the scales are factor analyzed, three factors generally emerge: evaluation (how good or bad the concept is perceived to be), potency (strong-weak), and activity (active-passive), with the evaluation scale typically accounting for most of the variance.

The concepts used in this study were twelve goal statements

selected from the set of 114 used in the pretest rating (described below). After the initial ranking of goals by 42 of the participants, the among-subject variance was calculated for each goal. It was deemed desirable to include in this part of the instrument those goals on which there was the largest amount of disagreement as to their importance for the school. Therefore, the twelve goals used as concepts were selected from the 25% of the goals having the largest among-subjects variance on the pretest. From that group, the goals selected to be used in the semantic differential were chosen to reflect a wide variety of content areas. Goals were included from academic disciplines, religion, career education, fine arts, and the affective and psychomotor domains.

Although some authors (61) have advocated using scales from previous studies, other authors (7, 48) have cited the desirability of selecting scales which have a consistent meaning across all concepts in the study and which have particular relevance to those concepts. In accordance with the latter recommendations, the scales used in this study were selected with the aid of a thesaurus and a dictionary of synonyms and antonyms as representing bipolar pairs of adjectives used in the literature to discuss ideas relevant to educational goals.

Education Scale

The instrument used to measure respondents' educational philosophy was the Education Scale developed by Kerlinger and Kaya (30). The instrument consists of twenty Likert-type items and two subscales, progressivism and traditionalism. Corrected split-half reliabilities average .75 for the progressivism scale and .83 for the traditionalism scale.

Several studies (28, 30, 31) have provided empirical evidence that the scales are measuring two relatively independent attitudes toward education: progressivism and traditionalism as the terms were used by Dewey to describe the two prevalent American educational philosophies.

Influential factors

The methods of goal ranking referred to in the literature typically group subjects by their status in relationship to the school; that is, students are considered to be one group, community members another, and so forth. However, to the author's knowledge there has been no attempt to determine what factors influence subjects to select some goals as more important than others, or whether the factors influencing one status group are the same as those affecting other groups. In an effort to investigate these factors the author decided on the direct method suggested by the Nevada State Department of Education (12) of asking subject the degree to which specified factors had influenced their priority ranking of the goals. Ten Likert-type items were constructed representing factors which might logically influence the subjects in their ranking. The factors included time to be devoted to the goal area, money devoted to the goal area, personal importance of the goal to the respondent, importance of the goal for all students, importance for adults, importance for the respondents' children, importance for people living forty years from now, the respondent's preference in subject matter areas, likelihood of attainment, and how much the goal was stressed in the respondent's own home.

Procedure

The seven school districts involved in this study were participants in a planning grant funded under Title III of the Elementary and Secondary Education Act of 1965 as amended. The purpose of the grant was to determine whether there were educational needs shared by the districts which might serve as a basis for an operational grant proposal. All seven districts are small; enrollments range from 187 to 484. The districts are located in an area of rich farm land and no district is more than thirty minutes by school bus from any other district. Six of the schools are public schools; one is a parochial school. Methods of data collection were presented to and approved by the superintendents of each district after the project was funded.

In order to provide an opportunity for various groups within the community to have input in the needs assessment process, as specified by the planning grant, the participants in all phases of the procedure included the following from each district: the superintendent, a principal, two teachers, a student, two school board members, and five community members; a total of twelve people from each of the seven districts. In selecting the community members, an effort was made to include various segments of the population such as professionals, blue collar workers, farmers, recent graduates, parents, nonparents, housewives, and dropouts.

Approximately two weeks before the initial group activity, one-half of the 84 participants were mailed a package of materials and asked to sort the 114 enclosed goal cards into five envelopes on the basis of how important they felt the goal was to every child in the school. The

mailing was sent to the following individuals:

- 1) either the principal or the superintendent from each district;
- 2) one of the two teachers from each district who would attend the needs assessment workshop (discussed below);
- 3) from three of the districts, the board member who would attend the workshop; for the other four districts, the board member who would not attend the workshop;
- 4) from three districts, the student member of the committee and two of the five community members; from the other four districts, three of the five community members.

Thus, a total of six of the twelve participants from each district were included in the initial measurement. Within the above framework, selection of participants for this mailing was made with the use of a table of random numbers. Completed responses were received from all 42 participants selected.

The first major activity of the participants as a group was a two day workshop presenting the needs assessment procedures as developed by the Center for the Study of Evaluation. The workshop was conducted by Dr. Stephen Klein, a CSE staff member, and was held at the high school of one of the districts. The workshop was attended by the superintendent, a principal, two teachers and a board member from each of the seven districts. Readings, short presentations, group activities and simulations were used in the workshop to familiarize the participants with the needs assessment process so that they might act as resource persons for their districts.

As provided in the project proposal, six meetings were held to carry out major activities of the needs assessment. The first regular meeting was held with the above-listed 84 participants to provide an overview of the project activities, familiarize those not present at the workshop with the CSE model and to determine the weights that would be assigned to each of several groups in deciding the importance of educational goals.

The second meeting with the 84 participants was held approximately two weeks later. At this time, the overall weightings as determined at the first meeting were presented. In order to increase involvement in the project, it had been decided that for the actual goal sort (carried out within each district at meeting three), additional persons from the district would be involved as below:

STATUS	Number per district:	
	Attending all meetings	Involved in goal sort
Superintendent	1	1
Principal	1	all (1-2)
Teachers	2	all (17-33)
Board members	2	all (5-7)
Students	1	10
Community member/ parents	5	10

The twelve regular participants from each district would serve as resource persons for the entire district group during the actual goal sort. The second meeting was used to familiarize participants with the

implications of the question upon which their sort was made. It was stressed that the task was to rate the goals according to how important the goal was for the school (rather than how well the school was now functioning in that area or how important the goal was in general). Participants then worked in the same groups as during the first meeting to review the goal areas. Each participant was given a set of goal cards in number order. Participants read each goal and discussed within their group any that they did not understand. Participants were asked to suggest any goal areas they felt were important to the school but which were not included in the set of 114. On the basis of their suggestions, the following goals were added (Note: The form of the goals below reflects the general form of all of the goal statements used in this study. The number represents a content category and was used for coding purposes):

KNOWLEDGE OF AGRICULTURE

Understands agricultural procedures and processes. Understands agricultural terminology. Appreciates the importance of technology in agriculture.

45A

ATTITUDE TOWARD AGRICULTURE

Appreciates the importance of agriculture in the economy of the community, state, and country.

45B

AGRICULTURAL PRODUCTION

Understands efficient production of quality agricultural products to meet consumer demands.

45C

KNOWLEDGE AND INTERPRETATION OF MASS MEDIA

Understands propaganda devices used in radio, television, newspapers, magazines. Is able to analyze critically the various media.

46

Cards for each of the above goals, similar to those in the original set were printed and sent to the superintendents prior to the goal sorts.

The final part of the second meeting involved familiarizing the 84 participants with their role as resource persons in the actual goal sort. A general directions sheet (Appendix A.3) was distributed and discussed. Emphasis was placed on insuring that each of the persons involved in the goal sort understood each of the goals before rating their importance. A mockup questionnaire (Appendix A.4) was distributed and explained so that participants would be familiar with the kinds of demographic data needed in Part I and with how to mark a semantic differential. The goal and actual scales used in the semantic differential were different from those used in the actual questionnaire. Parts III (Educational Scale) and IV (Influential Factors) were not included in the mockup questionnaire because the format was a familiar one and the investigator did not wish to preview the kinds of questions being asked.

Participants were told that the questionnaire was designed to help study why people thought some educational goals were more important than others and why people disagreed on which goals were most important. It was stressed that there were no right or wrong answers and assurances of confidentiality of responses were given.

The third meeting was held within the individual districts. (The final three meetings of the communities concerned later stages of their needs assessment and will not be described in this study.) Each person sorting the goals was given a manila envelope containing a set of 118 goal cards, five labeled envelopes into which the cards were to be

sorted, and a questionnaire. A sheet of General Directions was stapled on the outside of the manila envelope. After making sure he understood each of the 118 goals, each person sorted the goals according to directions into the five marked envelopes, clipped the envelopes shut, completed the questionnaire, and returned the completed package to his group leader. A total of 374 persons from the seven communities completed the card sort. A complete breakdown by status and community of participants completing each section of the questionnaire may be found in Appendix B.1. The mean and variance for the importance rating of each goal along with the name of the goal appear in Appendix B.2.

The final step in the data collection was a follow-up goal sort. Approximately two months after the respondents had completed the goal sort in their communities, the forty-two subjects who did not participate in the goal sort conducted before the workshop were mailed a complete set of goal cards and asked to sort the goals a second time. A telephone follow-up was conducted after two weeks and completed responses were received from 39 of the 42 subjects.

CHAPTER IV. FINDINGS

The findings of this study based on the data analyses will be presented as outlined in the Problem and Objectives section, above.

Reliability of the Ratings

Under the model adopted for use in this study, the outcome of a goal sort consists of a complete set of goals arranged in order of importance as perceived by one or more groups of people. The order is obtained by having each subject sort goal cards into labeled envelopes according to their perceived importance. The importance value of a goal is then computed by calculating the mean rating of each goal for each group of raters on the five point scale. These mean ratings are arranged in numerical order from the most important goals to the least important goals. Schools may focus their attention on the goals selected as most important by use of one or more methods outlined by Klein, Burry, and Churchman (35).

Because the ordering of the goals as obtained by this method is of use in later stages of the needs assessment model, it is important that the ordering be a reliable one. Using people (raters) to scale stimuli (goals) is similar to using stimuli (test items) to scale people (students). In either case the results are more reliable when the order is due more to true differences between stimuli (goals) or people (students) and less to random error. According to Nunnally (48, p. 588):

When rating scales are used to scale stimuli rather than people, the major assumption is that individual differences are not important in judgments or preferences in relation to the

particular set of stimuli. If that is a safe assumption, the experimenter can average over raters to obtain a scale for the stimuli. The assumption is safe with certain classes of stimuli (e.g., patches of gray paper) and not safe with other classes of stimuli (e.g., ratings of values). Whether or not the assumption seems safe a priori, the wisdom of making the assumption can be tested after the data are in hand. The extent to which subjects can be considered replicates of one another can be determined by an inspection of correlations among subjects, or if necessary, by a factor analysis.

The reliability of the ordering of the goals was estimated for each subgroup (students, educators, and lay citizens) within each community using the formula

$$r_{kk} = \frac{n\bar{r}}{1 + (n-1)\bar{r}}$$

where r_{kk} = the estimated reliability of the ratings for a subgroup,
 \bar{r} = the average correlations among raters within a subgroup, and
 n = the number of raters within a subgroup.

The reliability estimates, average interrater correlations and minimum and maximum interrater correlations appear in Table 4.1. The reliability estimates of student ratings are generally the lowest of the three subgroups within a community, and reliability estimates for educators are generally the highest. This phenomenon is due to two factors: reliability is a function of the number of raters within a subgroup and of the average correlation between raters. Within each community the largest group of raters was the educators; the smallest group was the students. Average interrater correlation over the seven communities for students was 0.31; for educators, 0.39; and for lay citizens, 0.34. Thus, lower student reliability was due to fewer student raters being

Table 4.1. Reliability estimates of the goal sort by subgroup within community

Subgroup	Reliability (r_{kk})	Average inter- rater correla- tion (\bar{r})	Minimum inter- rater correla- tion	Maximum inter- rater cor- relation
Community 1				
Students (N=10)	.82	.31	-.03	.71
Educators (N=24)	.94	.39	-.25	.92
Lay citizens (N=12)	.89	.40	.10	.68
Community 2				
Students (N=10)	.80	.29	.04	.58
Educators (N=30)	.95	.37	-.05	.73
Lay citizens (N=15)	.90	.39	.13	.59
Community 3				
Students (N=10)	.78	.26	.01	.54
Educators (N=19)	.90	.31	-.26	.68
Lay citizens (N=14)	.86	.31	-.10	.62
Community 4				
Students (N=7)	.78	.33	.06	.60
Educators (N=30)	.95	.38	-.07	.78
Lay citizens (N=17)	.89	.31	.03	.64
Community 5				
Students (N=10)	.82	.31	.08	.51
Educators (N=37)	.96	.43	.04	.76
Lay citizens (N=17)	.88	.30	-.06	.56
Community 6				
Students (N=10)	.86	.39	.06	.61
Educators (N=26)	.95	.42	.16	.68
Lay citizens (N=15)	.89	.36	-.02	.67
Community 7				
Students (N=10)	.80	.29	.11	.58
Educators (N=36)	.96	.43	-.13	.73
Lay citizens (N=15)	.87	.31	-.01	.71

used in each community and to less agreement among students about the importance of various goals.

Inspection of the correlation matrices (Tables B.3-B.23) indicated few low or negative correlations. The lowest average interrater correlation for a subgroup was 0.26 (students from community 3). Thus, within each of the 21 subgroups considered in this study, the assumptions that people are replicates of each other and that their goal ratings may be averaged seem to be fairly safe assumptions to make.

Relationships Among Subgroups

The second objective of this study was to describe the relationship among the goal ratings for the 21 subgroups (students, educators, and lay citizens within each community). Table 4.2 below represents the correlation between the average importance for the 118 goals for every subgroup pair. Inspection of Table 4.2 reveals that the closest agreement is generally found between educators from different communities. For summary purposes, the average correlations between various categories of raters have been drawn from Table 4.2 and are presented in Table 4.3. Correlations involving students tend to be lower than other correlations whereas correlations involving educators are the highest. However, since the correlation coefficient between two variables is limited by their reliabilities, the correlations between groups have been corrected for attenuation to estimate the correlation between groups if the ratings from each group were perfectly reliable (see Table 4.3).

When the correlations are corrected for attenuation, the average relationship between all groups is quite strong, though correlations

Table 4.2. Correlations between subgroups for goal ratings^a

	S1	E1	C1	S2	E2	C2	S3	E3	C3	S4	E4	C4	S5	E5	C5	S6	E6	C6	S7	E7	C7	
Students 1 ^b	-																					
Educators 1	73	-																				
Citizens 1	70	88	-																			
Students 2	75	83	84	-																		
Educators 2	66	92	93	86	-																	
Citizens 2	73	85	89	82	90	-																
Students 3	71	81	81	78	79	77	-															
Educators 3	73	91	89	86	93	88	78	-														
Citizens 3	60	80	87	77	86	86	74	85	-													
Students 4	73	80	78	79	79	80	81	80	75	-												
Educators 4	61	89	86	77	90	81	76	89	78	75	-											
Citizens 4	63	86	88	80	88	87	76	86	86	78	84	-										
Students 5	74	85	83	76	82	84	81	81	78	77	78	80	-									
Educators 5	72	92	88	84	93	87	80	92	82	84	90	86	83	-								
Citizens 5	67	89	90	80	91	89	77	90	85	81	86	89	84	91	-							
Students 6	79	84	82	78	83	82	79	86	80	80	75	79	78	84	83	-						
Educators 6	77	91	88	83	91	87	79	92	81	83	86	82	82	94	89	90	-					
Citizens 6	75	86	87	78	88	88	78	88	85	84	81	86	83	90	91	86	90	-				
Students 7	69	81	79	79	83	77	77	82	75	80	77	76	80	88	80	78	82	80	-			
Educators 7	71	93	90	86	96	88	77	94	83	80	91	86	80	95	91	85	93	89	83	-		
Citizens 7	69	86	86	77	87	89	72	85	83	77	83	84	81	89	88	80	87	87	79	87	-	

^aDecimals omitted.

^bNumeral at the end of the subgroup label indicates community number.

Table 4.3. Average correlations between selected categories of raters

Categories of raters	Average correlation	Average correlation corrected for attenuation
Students from one community with students from another community	.77	.95
Educators from one community with educators from another community	.92	.98
Lay citizens from one community with lay citizens from another community	.87	.99
Students with educators		
Within communities	.81	.93
Across communities	.80	.92
Students with lay citizens		
Within communities	.79	.94
Across communities	.78	.92
Educators with lay citizens		
Within communities	.88	.97
Across communities	.86	.97

involving students are still slightly lower than those for the other groups. Even with the lowest average correlation, 0.92 (found between students from one community and educators or lay citizens from other communities) one may expect that on the average, 85 percent of the variance in the ratings of one group may be explained by the variance of another group. Thus, there is strong agreement as to the ordering of importance by goals between all subgroups used in this study.

Estimation of Short Term Change

Two weeks before the first formal meeting of the participants in this study and approximately two months before all subjects completed the goal sort, 42 of the subjects (Group 1) were asked to sort the goals on the basis of "HOW IMPORTANT THE GOAL IS FOR EACH STUDENT GRADUATING FROM YOUR SCHOOL." These 42 persons again sorted the goals during the time when all subjects completed the sort. At that time, the instructions were to sort the goals on the basis of "how important it is for the school to help the student achieve that particular goal."

A second group of 42 people (Group 2) also sorted the goals twice, once when all subjects completed the goal sort and again approximately two months after their original sort. Thirty-nine people from Group 1 and forty people from Group 2 returned completely usable sorts. (For the purpose of this part of the data analysis, a usable response had to be traceable to the sorter so that for each sorter the responses on the two trials could be compared.)

The estimation of short term change was carried out in two stages.

First, each person's ratings of the goals on trial 1 were correlated with his ratings of the goals on trial 2. These correlations appear in Table 4.4. The average correlation over all 79 individuals between trial 1 and trial 2 was 0.59. The average correlation for Group 1 was 0.61, slightly higher than the average for Group 2 ($\bar{r} = 0.57$). It may be noted in Table 4.4 that the average correlation between the two sorts is somewhat higher for educators than for lay citizens.

In the second stage of the estimation of short term change, the average importance of each goal was calculated for each group on each trial. As can be seen in Table 4.5, the reliability of the ratings was quite high (0.96 in each case). There were no important shifts in average interrater correlation. For each group, the average ratings of the group on trial 1 and trial 2 were correlated. In each case, the correlation was 0.96; for people within each group, the average ratings over a period of one to two months were quite stable. Finally, when the average ratings from Group 1 trial 1 were correlated with the average ratings from Group 2 trial 2, $r = 0.97$, indicating extremely good agreement between two sets of raters separated by a time span of approximately four months.

Relationship of Goal Ratings with Educational Philosophy

The fourth objective of this study was to explore the relationship between educational philosophy and the ratings by importance of educational goals. The author hypothesized that part of the disagreement between subjects about the importance of a particular goal might be due

Table 4.4. Correlations between trials for raters in Group 1 and Group 2^a

No. of rater within group	Students		Educators		Lay citizens	
	Group 1	Group 2	Group 1	Group 2	Group 1	Group 2
1	23	40	49	46	02	07
2	55	58	50	52	25	28
3	62	82	53	55	28	40
4	76		56	62	31	45
5			57	67	43	46
6			58	64	43	52
7			60	64	46	53
8			67	67	51	54
9			70	69	51	55
10			71	73	52	57
11			74	74	53	58
12			79	75	57	60
13			83	79	57	65
14			83	94	58	66
15					63	66
16					64	66
17					64	67
18					66	67
19					66	70
20					71	71
21					73	75
22					77	77
Average student correlation = 0.57			Average correlation for Group 1 = 0.61			
Average educator correlation = 0.66			Average correlation for Group 2 = 0.57			
Average lay citizen correlation = 0.54			Overall average correlation = 0.59			

^aDecimals omitted.

Table 4.5. Reliabilities and correlations between trials for Group 1 and Group 2.

Group	Reliability	Average interrater correlation	Correlation between trials
Group 1			.96
Trial 1	.96	.41	
Trial 2	.96	.39	
Group 2			.96
Trial 1	.96	.36	
Trial 2	.96	.40	

to the differing educational philosophies held by those subjects. If the relationship between educational philosophy and perceived importance of the goals were to exist, then knowing something about a person's educational philosophy would allow one to predict the importance that person might ascribe to various educational goals.

Part III of the questionnaire consisted of the Education Scale developed by Kerlinger in (58). The Education Scale yields two scores, a progressivism score and a traditionalism score. Preliminary to further analysis with subjects' scores on the two scales reliability was estimated by a standardized coefficient alpha (48). The reliability of the progressivism scale was 0.67 (Table 4.6). The average interitem correlation for the ten item scale was 0.17; corrected item-total

Table 4.6. Preliminary data for progressivism and traditionalism scales (N = 373)

Statistic	Progressivism scale	Traditionalism scale
Reliability estimate	.67	.70
Average interitem correlation	.17	.19
Minimum interitem correlation	.24	.28
Maximum interitem correlation	.40	.43
Mean of total scores	50.7	47.4
Standard deviation of total scores	7.5	8.2

correlations ranged from 0.24 to 0.40. For the traditionalism scale, the reliability estimate was 0.70. The average interitem correlation for the ten items on the scale was 0.19. Corrected item-total correlations ranged from 0.28 to 0.43. Reliability of the scales was judged by the investigator to be sufficient for purposes of this study. The means and standard deviations for the two scales were approximately equal. When scores for the progressivism and traditionalism scales were correlated, the coefficient was equal to -0.21. This correlation coefficient, though statistically significant indicated that there was not a strong relationship between scores on the two scales for the subjects in this study.

To estimate the relationship between measures of educational philosophy and perceived importance of the educational goals, scores on each scale were correlated with the rated importance of each of the goals for all subjects completing the Education Scale. Of the 236 correlation coefficients (Table B.24), five were statistically significant at $p < .01$; twenty-four others were significant at $p < .05$. Because of the relatively low magnitude of the coefficients (the largest $r^2 = .035$), only those significant at $p < .01$ will be discussed here.

Higher scores on the progressivism scale were associated with increased importance placed on goal 2B, Hostility-Friendliness. Persons who scored higher on the traditionalism scale rated goals 13A, Spelling; 13B, Punctuation; 13C, Capitalization; and 23B Understanding Health and Safety Principles as being more important than did people with lower scores on the traditionalism scale.

Due to the relatively low number of significant correlations and the low magnitude of the coefficients which were significant, the investigator concludes that knowledge of a subject's score on the progressivism and traditionalism scales is of little help in predicting his perceived importance of the educational goals used in this study.

Importance Factors

The fifth objective of this study was to analyze the factors reported by the subjects as influencing their selection of some goals as more important than others. The written instructions given to the participants at the time they completed the goal sort (Appendix A.2)

charged them to:

rate each goal in terms of how important it is for the school to help the student achieve that particular goal. In doing this task, do not consider the feasibility or practicality of measuring a performance on a goal. Base your judgments solely on how important a goal is in terms of the characteristics students should have as a result of their schooling.

The fourth section of the questionnaire asked respondents to estimate the degree to which each of ten selected factors did influence their choice of some goals as more important than others. An analysis of variance was performed to test for differences among averages of students, educators, and lay citizens on each of the ten factors. For those factors with significant F values, a Neuman-Keuls test was used for post hoc comparisons among means. Because of the unequal numbers within the three treatment groups, the harmonic mean of the treatment groups was used in calculating the statistic for the Neuman-Keuls test (14). A summary of these results appears in Table 4.7; analysis of variance tables appear in Tables B.25-B.34.

The first factor of possible influence on the goal sort was the amount of time the school should devote to a particular goal. The analysis indicated that on the basis of this self-report, the time spent on the goal was more of an influence for students than for either educators or lay citizens. Factor two, the amount of money the school should devote to the attainment of a particular goal was significantly more important for students than for educators. There were no significant differences between the three groups on factor three, the importance of a particular goal for all students. According to the self-reports, the importance of goals for adults in our society was more of an influence

Table 4.7. Summary of tests for mean differences for importance factors^a

Factor name	Mean student response	Mean educator response	Mean lay citizen response	Calculated F value	Mean differences		
					Student-educator	Student-lay citizen	Educator--lay citizen
1. School time	3.343	2.946	3.240	4.59*	.397*	.103	.294
2. School money	2.746	2.381	2.760	4.53*	.365*	.014	.379
3. Importance for all students	4.109	4.208	3.981	2.17	--	--	--
4. Importance for adults	3.343	4.010	3.731	10.48*	.667*	.388*	.279
5. Personal importance for the respondent	4.164	3.579	3.606	9.26*	.585*	.558*	.027
6. Importance for respondent's children	3.791	3.807	4.173	4.69*	.016	.382*	.366*
7. Importance for people 40 years from now	3.015	3.267	3.163	1.01	--	--	--
8. Respondent's preference in subject matter	3.552	3.455	3.500	0.26	--	--	--
9. Likelihood of school attainment	2.806	2.772	3.298	7.09*	.034	.492*	.526*
10. Stress on goal in respondent's home	3.075	3.134	3.635	7.66*	.059	.560*	.501*

^aPossible values range from 1 to 5, with 1 = little or no importance, 5 = of great importance.

*Significant differences at $p < .05$.

on the decisions of educators in the goal sort than for either students or lay citizens. Students consider the personal importance of the goal to them in school (factor five) as being significantly more influential on their decisions than do either of the adult groups. When considering the importance of the goal for their children (factor six), citizens are likely to weight this factor more heavily than are either of the other groups. There were no statistically significant differences between the three groups on factor seven, the importance of the goal for people living 40 years from now or on factor eight, how well the goal reflects the subject's personal preference in subject matter. For factor nine, analysis indicated that citizens were significantly more likely to report the likelihood of school attainment as a strong influence on their decisions than were either of the other two groups. Factor ten, emphasis placed on the goal in their own home was reported to be significantly more influential for lay citizens than for either students or educators.

For the ten factors, there were five significant differences between lay citizens and students, three between lay citizens and educators, and four between students and educators. Within each group, factor two, the amount of the school's money that should be devoted to a goal, had the lowest average reported influence. For students, the factor with the highest average value was factor five, the importance of the goal to them personally in school. For educators, factor three, the importance of the goal for all students had the highest average value of reported influence on their decision. Among lay citizens the factor with the highest average reported importance was factor six, the importance of the goal

for their children.

For all 373 subjects completing this section of the questionnaire, the influence ascribed to each factor was correlated with the influence ascribed to each other factor. The correlation matrix appears in Table 4.8. The relatively low magnitude of most of the correlations suggests that the ten factors of influence are relatively independent. This is, knowledge of the influence a subject reports for one of the factors is of little help in predicting the influence he reports for another factor in his rating of the goals. Inspection of the correlation matrix does, however, indicate some tendency for factors one, two, and nine, school time, money and likelihood of attainment to be associated.

In a further analysis of the ten factors, the expressed importance of each factor was correlated with scores on the traditionalism scale and with scores on the progressivism scale. Of the twenty correlations, Table 4.9, only one was significantly different from zero. People who scored lower on the traditionalism scale said that the importance of the goals for people living 40 years from now was less of an influence on their decision in the goal sort than did people who scored higher on the traditionalism scale. It should be noted that although the correlation coefficient was statistically significant, the shared variance was less than two percent ($r^2 = 0.015$). There does not seem to be any important relationship between educational philosophy as measured by the progressivism and traditionalism scales and the reported influence of the factors included.

In order to estimate whether knowledge of which factors a person

Table 4.8. Correlations between importance factors^a

Factor name	1	2	3	4	5	6	7	8	9	10
1. School time	-									
2. School money	38	-								
3. Importance for all students	04	-08	-							
4. Importance for adults	-15	-16	24	-						
5. Personal importance for the respondent	18	06	05	00	-					
6. Importance for respondent's children	11	08	15	14	28	-				
7. Importance for people 40 years from now	03	10	06	19	05	32	-			
8. Respondent's preference in subject matter	16	10	-06	-05	30	06	-01	-		
9. Likelihood of school attainment	22	33	-14	-04	09	06	09	14	-	
10. Stress on goal in respondent's home	16	21	-09	00	18	27	17	18	25	-

^aDecimals omitted.

Table 4.9. Correlation of importance factors with scores on progressivism and traditionalism scales

Importance factor	Correlation with progressivism scale	Correlation with traditionalism scale
1. School time	-.05	.01
2. School money	-.00	-.05
3. Importance for all students	.04	.03
4. Importance for adults	.05	.07
5. Personal importance for the respondent	.07	.01
6. Importance for the respondent's children	-.02	.04
7. Importance for people 40 years from now	.04	-.12**
8. Respondent's preference in subject matter	.00	-.06
9. Likelihood of school attainment	-.04	-.04
10. Stress on goal in respondent's home	-.02	-.04

** Significant at $p < .01$.

considers important in the goal sort will help predict his importance rating for individual goals, the rating of each goal was correlated with the amount of influence ascribed to each factor in the goal sort. Thus, 1180 correlation coefficients were computed (118 goals X 10 factors of influence). Two hundred twenty-nine of the coefficients, or about 19 percent were significant at $p < .05$. The calculated values of these

statistically significant coefficients may be found in Table B.24. Knowledge of the influence a person ascribes for factor four, the importance of a goal for adults in our society, will allow more significant predictions of the importance attached to individual goals than will knowledge of any of the other factors. The amount of influence a subject ascribed to this factor had significant correlations with 43 of the goal statements. The factors with the next best predictive abilities for subjects in this study were factor two, school money (33 significant correlation coefficients) and factor nine, likelihood of attainment of the goal (29 significant correlation coefficients). Factors with the fewest significant correlation coefficients were factor one, school time (11 significant correlations) and factor eight, the respondent's personal preference in subject matter (12 significant correlations).

Although a substantial number of correlation coefficients were significantly different from zero, coefficients over 0.20 were rare, and none of the coefficients exceeded 0.30, indicating that although statistically significant relationships were present, the practical importance is not great since in no case could more than 10% of the variance in subjects' ratings of a goal be accounted for by the reported influence of the factors listed.

Factors of Meaning

Twelve of the goal statements were used as concepts for semantic differential scales in an attempt to determine factors of meaning of goal statements. Eleven of the twelve goals were presented with

fifteen scales in part II of the questionnaire. For the twelfth goal, the personal-impersonal scale was inadvertently left off the questionnaire.

Averages for each scale on each concept appear in Table 4.10. The range of scale averages over all twelve goals appears in Figure 4.1. As represented in Figure 1, on the average, subjects saw relatively large differences between the twelve goals in terms of how strong, exciting, relevant, academic or vocational the goals seemed to be. However, there were relatively small differences between the goals in terms of how expensive, abstract, precise, objective, measurable, and progressive they were.

Goal 11D, Writing Fluency in a Foreign Language, which had the lowest average importance of any of the 118 goals was seen as being the weakest, most boring, most irrelevant, most difficult and most transitory of all of the goals in this group of twelve. Goal 2C, Socialization-Rebelliousness, which had the eleventh highest average importance rating of the 118 goals and the highest of any in this group was seen as being the strongest, most relevant, least expensive and highest level goal in the group. Religious Knowledge, Goal 33, which had a much higher than average variance on the importance ratings ($s^2 = 1.48$) was seen on the average as the most eternal, abstract, personal, traditional, nonvocational and subjective of the twelve goals.

Goal 4B, Interest Areas, which was approximately average in terms of overall importance, was described as the most exciting, expensive, and progressive of the goals and also the easiest. Measurement Reading

Table 4.10. Means by scale for semantic differential concepts

Scale	Concept (Goal)			
	Singing	Muscle Control (Physical Education)	Writing Fluency in a Foreign Language	Socialization- Rebelliousness
Weak-strong	3.32	5.40	2.70	6.24
Boring-exciting	3.95	5.39	3.25	5.20
Relevant-irrelevant	4.02	2.84	4.73	1.92
Expensive-inexpensive	4.96	4.22	4.16	5.05
Easy-difficult	4.42	4.53	5.88	4.87
High level-low level	4.25	3.26	3.88	2.34
Eternal-transitory	3.97	3.75	4.24	2.69
Abstract-concrete	4.18	5.06	4.60	4.48
Academic-nonacademic	4.74	4.71	2.63	4.36
Personal-impersonal	2.56	2.30	2.91	1.83
Traditional-progressive	3.77	4.18	4.17	4.45
Vocational-nonvocational	4.32	4.28	3.80	4.21
Vague-precise	4.53	5.03	4.93	4.72
Objective-subjective	4.04	3.70	3.55	4.07
Measurable-unmeasurable	3.48	2.94	2.99	3.78

^a The personal-impersonal scale was inadvertently left off the instrument for the concept "Operational Definitions in Science."

5.63	4.98	4.91	5.38	4.75	5.29	4.71	4.27	Attitude and Behavior Modification from Reading
5.32	5.12	4.57	5.79	4.66	4.48	4.78	3.99	
2.19	2.61	2.98	2.61	3.02	2.39	3.09	3.25	Career Skill
4.36	3.77	4.41	3.65	4.41	4.25	4.74	3.94	
4.19	4.83	5.47	3.90	4.69	4.53	4.75	5.32	Systematic Reasoning
2.54	3.04	2.78	2.98	3.08	2.90	3.13	3.13	
3.13	3.59	3.54	3.35	3.63	3.38	2.67	3.81	Interest Areas
4.68	5.21	4.27	4.40	4.01	5.25	3.80	4.54	
2.79	3.40	2.70	4.01	3.12	2.60	4.18	2.33	Cultural Knowledge
2.45	2.01	3.00	2.16	2.97	3.47	1.78	-- ^a	
4.68	4.52	4.61	4.70	4.41	3.99	3.38	4.32	Measurement Reading and Making
3.63	2.16	3.48	3.98	4.22	3.12	4.70	3.23	
4.87	5.13	4.94	4.36	4.16	5.41	4.25	4.99	Religious Knowledge
3.71	3.36	3.42	3.90	3.99	3.02	4.18	3.16	
3.58	3.16	3.25	3.77	3.79	2.44	4.31	2.90	Operational Definitions in Science

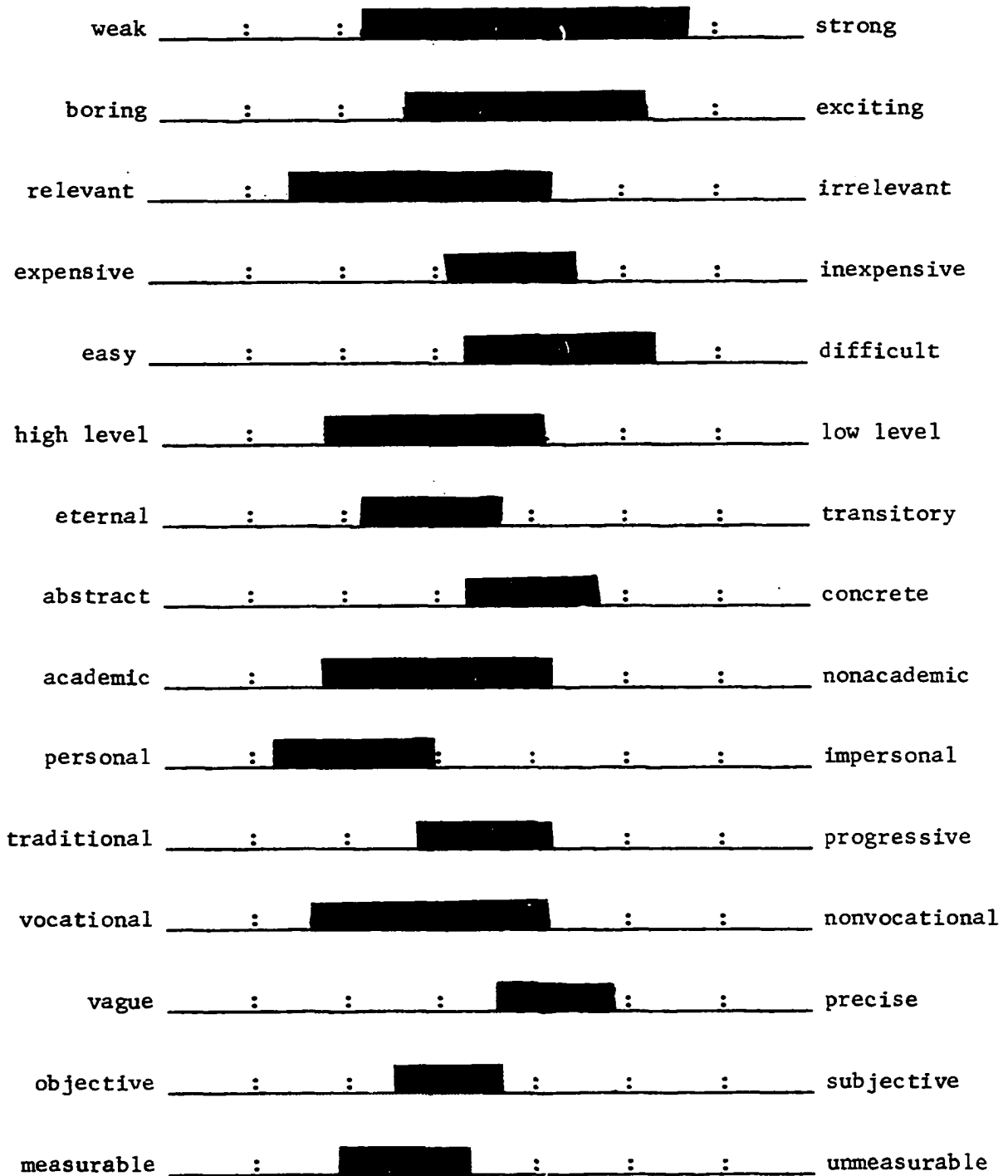


Figure 4.1. Range of scale means for the twelve goals

and Making which would call for exactness on the part of the student, was seen by the subjects as being the most concrete, impersonal, precise, objective, and measurable of the twelve goals. Singing, which had a low average importance rating was seen as being the lowest level, most nonacademic of the goals. Operational Definitions in Science, also with a relatively low overall importance rating was the most academic of the goals. The most vocational goal was Career Skill. The goal statements for Muscle Control (Physical Education), Attitude and Behavior Modification from Reading, and Systematic Reasoning did not have extreme scores on any of the scales.

In order to determine the relationship between an individual's perception of a goal's meaning and its importance, each scale for each goal was correlated with the importance rating given to the goal by the subject ($N = 358$). Multiple correlations (R) were also figured by calculating the correlation of a subject's rating of the goal's importance with all scales for that goal. Values for the zero-order and multiple correlations appear in Table 4.11. The highest average correlations with perceived goal importance are for the scales weak-strong, relevant-irrelevant, boring-exciting, and high level-low level. Values on the scales expensive-inexpensive, easy-difficult, traditional-progressive, vocational-nonvocational, and objective-subjective will, on the average for the twelve goals in this portion of the study, account for less than one percent of the variance in individual perceptions of the goal importance.

Squared multiple correlation values ranged from $R = .37$ (Socialization-Rebelliousness) to $R = .69$ (Religious Knowledge). The average

Table 4.11. Simple correlations and multiple correlations of semantic differential scales with perceived goal importance for individual raters^a

	Singing	Muscle Control (Physical Education)	Writing Fluency in a Foreign Language	Socialization- Rebelliousness
Simple correlations				
Weak-strong	58	47	41	24
Boring-exciting	46	34	35	16
Relevant-irrelevant	-36	-36	-36	-28
Expensive-inexpensive	01	-03	10	04
Easy-difficult	-16	01	-06	11
High level-low level	-43	-36	-20	-25
Eternal-transitory	-16	-24	-05	-25
Abstract-concrete	28	19	14	-01
Academic-nonacademic	-26	-27	-07	02
Personal-impersonal	-08	-08	-01	-15
Traditional-progressive	17	16	06	05
Vocational-nonvocational	-12	-19	-06	04
Vague-precise	30	25	16	08
Objective-subjective	-14	-17	-11	06
Measurable-unmeasurable	-24	-19	04	06
Multiple correlation	62	54	51	37

^aDecimals omitted.

^bThe personal-impersonal scale was inadvertently left off the instrument for the concept "Operational Definitions in Science."

31	52	33	42	44	27	62	33
22	46	23	36	40	04	39	29
-25	-43	-21	-31	-40	-35	-55	-27
-03	-03	02	-02	01	05	-02	02
06	-13	04	02	-03	-01	05	-18
-22	-45	-26	-22	-34	-20	-51	-23
-11	-30	-11	-16	-29	-09	-37	-19
-04	21	14	15	08	20	25	11
-16	-29	-10	-09	-08	-12	-29	-09 _b
-21	-04	-13	-08	-25	-06	-06	-- _b
06	06	00	-16	16	-04	12	01
06	01	-06	-02	-10	-08	-24	-08
14	26	17	20	16	11	35	16
05	-20	-10	-07	-04	-09	-17	-04
-01	-21	-23	-06	03	-16	-23	-16
40	61	40	47	51	42	69	39
Attitude and Behavior Modification from Reading							
Career Skill							
Systematic Reasoning							
Interest Areas							
Cultural Knowledge							
Measurement Reading and Making							
Religious Knowledge							
Operational Definitions in Science							

R value of .41 indicates that there are meaningful relationships between the importance ascribed by individuals to goals and their description of those goals in terms of the semantic differential scales used in this study. Knowing, for example, how strong or weak a goal statement appears to an individual will help predict how important he believes that goal to be.

The investigator originally planned to do a factor analysis on the complete 179 by 179 correlation matrix representing the correlations between every pair of scales on every concept. However, the matrix was not of full rank; that is, one or more variables in the matrix could be perfectly predicted by other variables in the matrix. In order to obtain a solution, it would have been necessary to delete variables until full rank was achieved. Due to problems of interpretation of such a solution, the investigator decided to compute scale averages and treat the data descriptively. Table 4.12 represents the correlations between scale averages over all twelve concepts. It also presents the correlation of the average importance rating of the goals with each scale.

Examination of Table 4.12 reveals two major clusters of scales. The scales weak-strong, boring-exciting, relevant-irrelevant, high level-low level and eternal-transitory are all highly correlated with each other and with perceived goal importance. These scales or very similar scales have high loadings on Osgood's potency scale and moderate loadings on his evaluation scale (50).

The other major cluster of variables in Table 4.12 is composed of

Table 4.12. Correlations among semantic differential scales and between average goal importance and each scale (N = 12 goals)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Goal importance	-														
2. Weak-strong	97	-													
3. Boring-exciting	81	87	-												
4. Relevant-irrelevant	-98	-98	-82	-											
5. Expensive-inexpensive	03	01	-17	01	-										
6. Easy-difficult	-46	-52	-72	54	03	-									
7. High level-low level	-89	-89	-65	89	05	19	-								
8. Eternal-transitory	-74	-74	-61	74	-37	38	73	-							
9. Abstract-concrete	23	24	16	-28	-47	-06	-15	22	-						
10. Academic-nonacademic	08	18	41	-08	43	-48	21	-26	-20	-					
11. Traditional-progressive	37	41	41	-40	-48	-06	-52	07	29	-34	-				
12. Vocational-nonvocational	-15	-05	04	18	61	-20	20	-25	-69	58	-44	-			
13. Vague-precise	08	07	-16	-13	-30	28	-13	26	87	-42	18	-70	-		
14. Objective-subjective	02	07	28	02	57	-35	09	-40	-70	72	-24	81	-86	-	
15. Measurable-unmeasurable	18	18	36	-14	40	-31	-16	-52	-78	46	-12	60	-88	88	-

the scales vague-precise, objective-subjective, measurable-unmeasurable and abstract-concrete. These adjectives have been used in the literature to describe desirable qualities for the statement of educational goals; well-written goal statements have been characterized by words such as precise, objective, measurable and concrete. These descriptors of the desirable wording of goals, however, were not strongly related to the perceived importance of the goal for the subjects in this study.

Discussion of these findings, implications drawn from the results, and recommendations will be presented in Chapter V.

CHAPTER V. DISCUSSION AND RECOMMENDATIONS

This chapter will be organized into two major divisions. The first division will present a discussion of the findings and implications of this study with recommendations for further research. The second major division will present recommendations to schools considering a goal-setting process similar to the one presented in this study.

Discussion

Reliability of the ratings

As discussed above in the Findings chapter, the reliability of the goal sort depends on the correlations between raters in the same group and the number of raters within a subgroup. For the subgroups considered in this study, average correlations between raters from the same subgroup were high enough to consider the raters to be replicates of each other. However, the schools involved in this study represent homogeneous, rural communities. Many of the teachers are native to their own or adjacent districts. Also, even though the benefits of selecting representative subjects for community members and student participants were discussed, administrators may have chosen representatives with higher than average favorable attitudes toward the school's present curricular offerings, thus increasing the correlations between raters within those groups.

In schools or communities where there are sectors of the public with different expectations from the schools, such internal consistency

among raters would not be the expected case. In instances in which raters within subgroups had low correlations or in which positive and negative correlations between raters were approximately balanced, preferences on the part of one group could be balanced by another group and the resulting ordering of the goals could be due primarily to random error. Decisions based upon which goals are seen as most important in such a district could therefore be based upon random fluctuations rather than upon true preferences among raters.

The investigator recommends that data from districts more heterogeneous than those involved in this study be analyzed to determine the generalizability of the findings of this study.

Relationships among subgroups

For the subgroups of students, educators and lay citizens from the seven communities involved in this study, there was a high degree of agreement on the rated importance of the educational goals. Such agreement between homogeneous communities that are very much like one another in terms of size, course offerings, socioeconomic and ethnic characteristics and geographical location provides evidence for the validity of the process; communities that seem to be alike do arrive at goal ratings that are quite similar.

Evidence of another kind of validity is also needed. Where communities differ in terms of geographical location, size, and socioeconomic and ethnic characteristics of the student body, one would expect less agreement on the importance of various goals than when communities are similar in these characteristics. The amount of research in this area

to date has been limited and the results somewhat contradictory (8, 9, 33). To the extent that all communities arrive at the same ordering of goals, the information benefits to be derived from a goal sort would be decreased and the value of such a procedure would depend on the motivational and public relations benefits to be gained from participant involvement.

Short term change

Seventy-nine subjects in this study rated the importance of the goals on two separate occasions. When the average importance for each goal was calculated for each group of raters for each trial, there were near perfect correlations between trials for the same group of raters and between groups of raters for trials separated in time by approximately four months.

These results are important for schools involved in goal rating activities. Where the above situation holds true, one may expect that if one group of people from a district rated the goals by importance in October, and a separate group of raters were to carry out the same task in February, the ordering of the goals by importance would be essentially the same. Because student assessment and curricular change aspects following a goal sort can take a school two to three years to implement, stability over time becomes essential.

Additional information about short term change would be valuable. It is unknown at this time over how long a period of time the ratings can be expected to remain stable. Also, the communities involved in this

study have stable populations and, compared with many schools in large urban areas, operate without problems of major community unrest or dissatisfactions with the schools; an additional unknown is the extent to which changing community conditions or community unrest will affect the ratings of curricular goals. Finally, the goal statements in this study were fairly specific in nature; it is possible that stability over time for goals that are very general may be lower.

Relationship of goal ratings with educational philosophy

In an attempt to investigate the relationship between educational philosophy and the perceived importance of educational goals, an individual's scores on the traditionalism and progressivism scale were correlated with his rating of the importance of each of the goals. The statistically significant correlations that did exist were generally in the expected direction. Increased scores on the progressivism scale were associated with increased importance ascribed to some of the affective areas and to sex education. There was also a tendency for higher scores on the traditionalism scale to be associated with increased importance for spelling, punctuation, capitalization, and usage. However, from the number and magnitude of the correlations, the investigator concludes that for the subjects in this study there was no important relationship between educational philosophy as measured by the progressivism and traditionalism scales and their perceived importance of the educational goals. The reason for the lack of relationship is not clear from the data in hand. However, the investigator speculates on the

basis of the content of the questions in the Education Scale that the differences in educational philosophy among subjects in this study may be related more to the organization, climate and instructional methods used by a school than to its curricular goals.

Importance factors

Statistically significant differences were found between subgroups of raters in the amount of influence they reported for seven of the ten importance factors. In approximately one-fifth of the cases significant correlations were found between the amount of reported influence of a factor and the perceived importance of a goal. Although the zero order correlations did not account for more than about five percent of the variance for individual ratings of the goals, the patterns of influence were somewhat interpretable. For example, subjects who reported the importance of a goal for all students as being a relatively small influence on their rating of the goals were more likely than other subjects to rate goals relating to music, art, sports and agriculture as being important. These subject matter areas are those which are generally considered to be of great importance to some but not all students. Participants who said that the importance of a goal for all students was a relatively important factor in their rating of the goals were more likely to rate as important those goals needed by virtually everyone in today's society: reasoning, memory, reading, and career goals.

Contrary to the supposition of Price (53), subjects in this study did not generally report that the likelihood of attainment or the long

range value of a goal were of great importance in their rating of the goals.

Further investigation into the area of factors influencing subjects' ratings of the goals would be valuable. One group of subjects in this study sorted the goals under two slightly different sets of directions. Their first set of directions asked them to sort the goals on the basis of their importance for each student graduating from their school. The second set of directions asked subjects to rate the goals in terms of how important it is for the school to help the student in a particular area. Thus, the first sort was theoretically carried out to determine the importance of the various goals for high school graduates, while the second sort was to take into account the responsibility of the school in the goal area. To the extent that there are skills and attributes among these goals which are important for 18 year olds to have but which are the primary responsibility of some agency or group other than the school, the results of the two sorts should differ. However, the orderings of the goals were nearly identical for the two sorts ($r = 0.96$).

Asking subjects to sort a set of goals according to differing sets of instructions or characteristics (i.e., likelihood of attainment, long range value, importance for the school) would provide further empirical evidence as to the internal criteria used by subjects asked to rate the importance of educational goals.

Factors of meaning

Fifteen bipolar adjective pairs were used as scales with twelve goal statements as concepts in a semantic differential measure of the

meanings attached to various goal areas. Although the results of the factor analysis were inclusive, the area may be of interest to future researchers. Examination of the matrix of correlations among semantic differential scales and between each scale and the average goal importance reveals that for the goals used in this section of the study, knowing how strong or how relevant a goal was perceived as being would allow almost perfect prediction of its perceived importance.

If this relationship is true for goal statements in general, further research may explore whether rewriting goal statements to make them appear stronger and more relevant will increase their average perceived importance. For example the goal "Attitude and Behavior Modification from Reading" was seen as being rather academic. Rewording the statement to read "Applies in thought and action what he learns from reading to everyday life" might make the same basic idea appear more relevant and also more important. Additional studies to determine to what extent the perceived importance of a goal area is dependent on the particular wording of the goal statement would provide valuable information. Procedures of the type used in this study are based on the assumption that the raters respond to the idea represented by a goal statement and not to nuances in its wording. To the extent that the opposite is found to be true, the outcomes of the procedure become less useful.

Recommendations to Schools

Involving students, educators and lay citizens in the determination of a district's most important goals is not a new idea. However, until recently the outcome of such procedures has been a rather vague statement of general goals that was most often filed away and promptly forgotten (37). The major benefits of such procedures were the good public relations derived from involving people in the process and possible motivational outcomes on the part of the educators involved.

Today the outcome of the procedure is likely to be used for curricular decision making or as the initial phase in an accountability or program evaluation model. Districts involved in such procedures may still hope they will lead to better public relations and increased motivation on the part of the participants. Because the results may be used as the basis for decision making, however, such benefits are no longer enough. The outcome should provide a reliable, valid estimation of what the participant groups perceive as the most important goals for the district.

Given the present state of the art, there may be more unknowns than knowns in the area of school goal setting. However, the author believes that there are practical suggestions which may be offered to schools or districts interested in procedures similar to the one used in this study for determining their most important goals. The following suggestions are offered by the author based on theoretical considerations, other research and the findings of this study.

- A. Several points discussed in some detail in the Review of Literature will be discussed here only briefly. First, because of the great amount of time and effort involved in writing a complete set of goal statements and because the resulting set will to a great extent duplicate previous efforts, it is recommended (9, 36) that an existing set of goal statements be adopted or adapted. Second, the value of involving students and divergent community groups as well as educators has been widely documented in the literature (20, 37, 55, 57, 65, 66). Third, goal statements should focus on competencies, behaviors or attitudes desirable for students. Goals relating to reducing class size or individualizing instruction, for example, are means to an end and should not be included in a set of curricular goals (13). Fourth, goals should be written to lend themselves to the same interpretation by all raters (45, 68). When an existing set of goals is adopted, it may be advisable to have raters read and discuss any goal that may be unclear to insure that raters have the same meaning attached to goals they will rate.
- B. Careful consideration should be given to the desired outcomes of the procedure in the earliest stages of its planning. When the decisions based on such a procedure involve curriculum revision, goals should be stated with sufficient specificity for educators to relate them directly to the school's curriculum. For purposes of instructional change, knowing the

importance placed on the goal "Knowledgeable about taxation" will be more helpful than knowing that "To gain a general education" is the most important goal. Where the purpose of the goal sort is to promote general philosophical discussion among participants, broader, more encompassing goals may serve the purpose better than would more specific goals.

- C. The limitations of information provided by the procedure should be made clear to those involved with the process before it is undertaken. Procedures similar to the one used in this study are designed to measure the importance ascribed to each of a set of educational goals by one or more groups of participants. Such procedures will not by themselves provide information on which basal reader to select or the desirability of hiring paraprofessional aids. Realization at the outset of the limitations of a goal setting procedure can prevent problems arising from expectation levels which are unreasonably high, given the nature of the process.
- D. Care should be taken to insure satisfaction at the outset with the set of goal statements to be used. The set of goal statements should be comprehensive enough to include all areas for which information is desired and specific enough to provide for distinctions that may be desirable at later stages in the process. For example, if a district plans to confine its curriculum revision to the language arts area for the next two years, it may be desirable to include in its goal selection

process only those goals relating directly some phase of language arts, thus allowing for greater specificity of goals within the area while preventing the district from gathering information it will not use.

Similarly if a district wants to know whether its patrons believe sex education or consumer education should be taught by the schools, then these goals should be specifically included in the set. Making inferences about a community's feelings about the desirability of teaching sex education from a goal such as "To understand and practice the skills of family living" could not be undertaken with any degree of confidence. If information about a particular area is desired, that area should be specifically included as one or more of the goal statements.

- E. Goal statements should be independent so that the rating of one goal as among the school's most important does not logically include or deny another. Although this desirable quality of goals has been stated elsewhere in the literature (20) the author has not seen an instance where this recommendation has been followed. Typically, sets of educational goals include such areas as reading, writing, speaking, listening, locating information and computational skills. Yet without minimal proficiency in these skills it is impractical to think that students can learn other areas with any facility. Similarly there are problems of interpretation involved should a goal such as "Reads for pleasure" be considered significantly more important

in a given district that a goal such as "Comprehends what he reads." It is unlikely that a student who has severe problems in understanding what he reads will read for pleasure.

One possible solution to this problem would be to exempt from the rating procedure those goals that are considered basic to other school learning. These goals could be restated as objectives by having participants establish minimum desired performance levels stated in criterion terms for each of the basic skill areas. For example, a school beginning with a goal in the area of reading comprehension might establish the following objective as a statement of minimum acceptable performance: By the end of the seventh grade, 90% of the students will be able to answer at least eight out of ten factual questions over stories they read on the front page of the newspaper where the content of the stories is familiar to them. With criterion levels in the tool subject areas as a beginning, the goal statements included in the goal sort would more nearly approximate a set of independent areas of possible school involvement. Participants might then respond in a forced-choice format to the remaining goals.

- F. Schools or districts participating in goal rating activities would be well advised to estimate the internal consistency of each group of raters. When it is computationally unfeasible to calculate correlation matrices for groups of raters, each group could be divided randomly into halves and the preferences of

the two halves correlated with each other; the resulting coefficient, corrected by the Spearman-Brown prophecy formula would estimate the reliability for that group of raters. In cases where reliability estimates were undesirably low, evidence would suggest that dividing the raters into two or more homogeneous subgroups might increase internal consistency within a subgroup. Low reliability due to low interrater correlations with few negative correlations might be due to lack of understanding of the goal statements or lack of interest in the task.

- G. For statistical reasons, it would be preferable to have raters sort goals into a forced distribution. That is, a prescribed number of goals should be sorted into each labeled category of importance with the largest number falling into categories centering around average importance and smaller numbers at the extremes. Using a forced distribution will prevent some groups of raters from spreading their ratings out more than others and thereby gaining an advantage when ratings are combined (36). Especially in cases where a relatively large number of goals (one hundred or more) are being sorted, it may be advisable to use a seven or nine point scale rather than a five point scale. Such procedures have been shown to increase reliability (48).
- H. After the combined ratings for each group have been computed, a school may wish to combine the ratings in some way to arrive at a final ordering for the school. Where subgroups are in

strong agreement with each other, a weighted average may be the best solution. In this method, weights are assigned to subgroups before the goal sort and the final rating is computed by multiplying the weighting assigned to each group by its average rating for each goal and adding across groups for each goal. Where raters within groups are in strong agreement as to the relative importance of the goals but there are marked between-group differences, Klein, Burry, and Churchman (35) have suggested several possible alternatives.

In cases where efforts have been made to include input from groups which may be expected to have somewhat divergent views, optional methods for dealing with differences between groups should be considered at the outset. The decision of whether to force a consensus or report differences between groups should be made at the local level. Factors which may influence the decision include the degree of disagreement among groups and the feasibility for the school of offering program options agreeable to various segments. For more complete discussions of this problem the reader is referred to Downey (9), Dyer (11), Popham (51), and Stake (61).

Summary

The purpose of this study was to investigate the extent to which data generated by a process of rating educational goals according to their perceived importance provides information useful for decision

making in a local school. The specific objectives of the study were to:

- 1) estimate the reliability of the ordering of goals according to their perceived importance;
- 2) estimate the amount of short term change in the perceived importance of educational goals;
- 3) describe the relationship of the ordering of educational goals among subgroups within communities;
- 4) describe the relationship of the rating of the goals by their perceived importance and the educational philosophy of the rater;
- 5) analyze the factors reported by the subjects as influencing their selection of some goals as more important than others;
- 6) describe the factors of meaning of selected educational goals as perceived by the subjects included in the sample.

Subjects included 374 students, educators and lay citizens from seven small rural school districts located within thirty minutes of each other in a midwestern state. Subjects sorted 118 learner goals into five labeled envelopes according to the perceived importance of the goal. In addition, subjects completed a questionnaire which included semantic differential measures of twelve goal statements, a measure of educational philosophy and ten Likert-type items asking subjects the degree to which various factors influenced their rating of the goals. Seventy-nine of the subjects rated the goals on two separate occasions.

Internal consistency reliability estimates for students, educators and lay citizens from the seven communities ranged from 0.78 to 0.96 with student reliability coefficients being generally the lowest and coefficients for educators being generally the highest. Correlations of average goal ratings between subgroups of students, educators,

and lay citizens from each of the communities ranged from 0.92 to 0.98 when corrected for attenuation. The amount of short term change for groups of raters was found to be minimal; average goal ratings for groups of 39 to 40 raters correlated 0.97 when ratings were separated in time by approximately four months.

The traditionalism and progressivism measures of educational philosophy used in this study were not found to be important predictors of individual ratings of goal importance. On the average, students reported that the personal importance of the goal to them in school was the most influential of the factors listed on their ratings of the goals. Educators reported that on the average the importance of a goal for all students was the most influential factor in their ratings while lay citizens gave the highest average rating to the importance of the goal for their children. The amount of school money to be devoted to a goal had the lowest average for all three groups.

Twelve of the goal statements were used as semantic differential scales in an attempt to determine factors of meaning of the goal statements. The following adjective pairs were found to be the best predictors of average goal importance: strong-weak ($r = 0.97$), relevant-irrelevant ($r = 0.98$), and high level-low level ($r = 0.89$). These adjectives along with eternal-transitory and boring-exciting formed a cluster of adjectives related to Osgood's potency and evaluation scales. A second cluster of adjectives, frequently used in the literature to describe qualities of goal statements was formed by the scales vague-precise, objective-subjective, measurable-unmeasurable, and abstract-

concrete. Values from this second cluster were not strongly related to the perceived importance of the educational goals.

There are many unanswered questions in the area of determining a useful set of curricular goals for local schools. Further study is needed to determine the generalizability of findings from this study to other districts and to other sets of educational goals and to explore further the validity of processes similar to the one used in this study.

Local schools considering the use of a process similar to the one in this study would be well advised to be aware of its limitations at the outset. Statements of the exact kinds of information desired by the school, alternative procedures for gathering such information and the current limitations of knowledge in the area should all receive careful consideration before the project is undertaken.

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APPENDIX A: QUESTIONNAIRE, INSTRUCTIONS, GENERAL DIRECTIONS, AND
MOCKUP QUESTIONNAIRE

A.1: Questionnaire

PART I: GENERAL INFORMATION

The information requested on this page and on the remainder of this questionnaire will help us to understand why people think some educational goals are more important than others and why people differ from each other in these judgments. The information you provide will remain confidential. Results will be presented in the form of group averages rather than by individual scores. Part I of the questionnaire asks for factual information. All other parts of the questionnaire ask for your opinion; for these parts there are no right or wrong answers. Please read each section carefully and answer according to your own feelings.

1. Sex: Male _____; Female _____
2. Date of Birth (year): 19 _____
3. Amount of formal schooling completed (check one):
 - _____ 1. eighth grade or less
 - _____ 2. some high school
 - _____ 3. completed high school
 - _____ 4. business school or other post high-school training
 - _____ 5. some college
 - _____ 6. bachelor's degree
 - _____ 7. some graduate work
 - _____ 8. graduate or professional degree
4. Do you have any children? Yes _____ No _____ If so, please list their ages _____
5. Name of school district _____
6. Your position on this committee (check only one):
 - _____ 1. student; grade level _____
 - _____ 2. teacher; grade(s) and subject matter area(s) _____
 - _____ 3. community member/parent
 - _____ 4. superintendent
 - _____ 5. school board member
 - _____ 6. principal; elementary _____ or secondary _____
7. If you are one of the twelve people from your district involved with other meetings for this project, may we please have your name.

PART II: THE MEANING OF GOALS

Printed below are several of the goals you previously rated. Re-read each goal. Then, in the appropriate place, mark from 0 to 99 how important you believe this goal is where 0 = completely unimportant, unessential or irrelevant and 99 = most important, critical, or essential. Your answer for each goal may be any number from 0 to 99 depending on how important you believe the goal to be.

The purpose of the next part of each item is to measure the meanings of the goals by asking you to judge the goal against a series of descriptive scales. In marking these answers, please make your judgments on the basis of what the goals mean to you. On each page you will find a different goal to be judged, a place to mark your judgment of the importance of the goal, and below, a set of scales. You are to rate the goal on each of these scales in order.

Here is how you are to use these scales:

If you feel that the goal at the top of the page is very closely related to one end of the scale, you should place your check mark as follows:

fair X : : : : : : : unfair

OR

fair : : : : : : : X unfair

If you feel that the concept is quite closely related to one or the other end of the scale (but not extremely), you should place your check-mark as follows:

strong : X : : : : : :: weak

OR

strong : : : : : X : weak

If the concept seems only slightly related to one side as opposed to the other side (but is not really neutral), then you should check as follows:

active : : X : : : : passive

OR

active : : : : X : passive

The direction toward which you check, of course, depends upon which of the two ends of the scale seem most characteristic of the goal you are judging.

If you consider the goal to be neutral on the scale, both sides of the scale equally associated with the goal, or if the scale is completely irrelevant, unrelated to the goal, then you should place your check-mark in the middle space:

good _____ : _____ : _____ : X : _____ : _____ : _____ bad

IMPORTANT: (1) Place your check-marks in the middle of the spaces, not on the boundaries:

_____ : _____ : _____ : X : _____ : X : _____ : _____
 This Not This

- (2) Be sure you check every scale for every goal - do not omit any.
- (3) Never put more than one check-mark on a single scale.

Sometimes you may feel as though you've had the same item before. This will not be the case, so do not look back and forth through the items. Do not try to remember how you checked similar items earlier. Make each item a separate and independent judgment. Work at a fairly high speed. Do not worry or puzzle over individual items. It is your first impressions, the immediate "feelings" about the items, that we want. On the other hand, please do not be careless, because we want your true impressions.

SINGING

Sings his part, stays on key, and keeps a tune.
Has a good voice and clear diction.

No. 21A

IMPORTANCE of this goal (0 to 99)

weak _____ : : : : : : _____ strong
 boring _____ : : : : : : _____ exciting
 relevant _____ : : : : : : _____ irrelevant
 expensive _____ : : : : : : _____ inexpensive
 easy _____ : : : : : : _____ difficult
 high level _____ : : : : : : _____ low level
 eternal _____ : : : : : : _____ transitory
 abstract _____ : : : : : : _____ concrete
 academic _____ : : : : : : _____ nonacademic
 personal _____ : : : : : : _____ impersonal
 traditional _____ : : : : : : _____ progressive
 vocational _____ : : : : : : _____ nonvocational
 vague _____ : : : : : : _____ precise
 objective _____ : : : : : : _____ subjective
 measurable _____ : : : : : : _____ unmeasurable

**MUSCLE CONTROL
(PHYSICAL EDUCATION)**

Has coordination, strength, endurance, vigor, flexibility, agility, balance, poise, manual dexterity, good eye-hand coordination, etc. Performs basic sport skills such as: running, jumping, kicking, throwing, aiming, gymnastics, swimming, and individual and team sports and games.

No. 24A

IMPORTANCE of this goal (0 to 99)

weak	_	:	:	:	:	:	:	_	strong
boring	_	:	:	:	:	:	:	_	exciting
relevant	_	:	:	:	:	:	:	_	irrelevant
expensive	_	:	:	:	:	:	:	_	inexpensive
easy	_	:	:	:	:	:	:	_	difficult
high level	_	:	:	:	:	:	:	_	low level
eternal	_	:	:	:	:	:	:	_	transitory
abstract	_	:	:	:	:	:	:	_	concrete
academic	_	:	:	:	:	:	:	_	nonacademic
personal	_	:	:	:	:	:	:	_	impersonal
traditional	_	:	:	:	:	:	:	_	progressive
vocational	_	:	:	:	:	:	:	_	nonvocational
vague	_	:	:	:	:	:	:	_	precise
objective	_	:	:	:	:	:	:	_	subjective
measurable	_	:	:	:	:	:	:	_	unmeasurable

WRITING FLUENCY IN A FOREIGN LANGUAGE

Writes accurately and fluently without translation
from English.

No. 11D

IMPORTANCE of this goal (0 to 99)

weak	_____ : _____ : _____ : _____ : _____ : _____	strong
boring	_____ : _____ : _____ : _____ : _____ : _____	exciting
relevant	_____ : _____ : _____ : _____ : _____ : _____	irrelevant
expensive	_____ : _____ : _____ : _____ : _____ : _____	inexpensive
easy	_____ : _____ : _____ : _____ : _____ : _____	difficult
high level	_____ : _____ : _____ : _____ : _____ : _____	low level
eternal	_____ : _____ : _____ : _____ : _____ : _____	transitory
abstract	_____ : _____ : _____ : _____ : _____ : _____	concrete
academic	_____ : _____ : _____ : _____ : _____ : _____	nonacademic
personal	_____ : _____ : _____ : _____ : _____ : _____	impersonal
traditional	_____ : _____ : _____ : _____ : _____ : _____	progressive
vocational	_____ : _____ : _____ : _____ : _____ : _____	nonvocational
vague	_____ : _____ : _____ : _____ : _____ : _____	precise
objective	_____ : _____ : _____ : _____ : _____ : _____	subjective
measurable	_____ : _____ : _____ : _____ : _____ : _____	unmeasurable

ATTITUDE AND BEHAVIOR MODIFICATION
FROM READING

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Is selective in choice of reading materials. Reads newspapers and other sources of information. Independently turns to printed materials for specific information and as aids to study. Modifies behavior and attitudes as a result of insights gained through reading.

No. 32B

IMPORTANCE of this goal (0 to 99)

weak	:	:	:	:	:	:	strong
<hr style="border: 0.5px solid black;"/>							
boring	:	:	:	:	:	:	exciting
<hr style="border: 0.5px solid black;"/>							
relevant	:	:	:	:	:	:	irrelevant
<hr style="border: 0.5px solid black;"/>							
expensive	:	:	:	:	:	:	inexpensive
<hr style="border: 0.5px solid black;"/>							
easy	:	:	:	:	:	:	difficult
<hr style="border: 0.5px solid black;"/>							
high level	:	:	:	:	:	:	low level
<hr style="border: 0.5px solid black;"/>							
eternal	:	:	:	:	:	:	transitory
<hr style="border: 0.5px solid black;"/>							
abstract	:	:	:	:	:	:	concrete
<hr style="border: 0.5px solid black;"/>							
academic	:	:	:	:	:	:	nonacademic
<hr style="border: 0.5px solid black;"/>							
personal	:	:	:	:	:	:	impersonal
<hr style="border: 0.5px solid black;"/>							
traditional	:	:	:	:	:	:	progressive
<hr style="border: 0.5px solid black;"/>							
vocational	:	:	:	:	:	:	nonvocational
<hr style="border: 0.5px solid black;"/>							
vague	:	:	:	:	:	:	precise
<hr style="border: 0.5px solid black;"/>							
objective	:	:	:	:	:	:	subjective
<hr style="border: 0.5px solid black;"/>							
measurable	:	:	:	:	:	:	unmeasurable

SYSTEMATIC REASONING Produces and solves complex problems and evaluates their solutions. Analyzes situations and deduces solutions. No. 8C

_____ IMPORTANCE of this goal (0 to 99)

weak _____ : _____ : _____ : _____ : _____ : _____ : _____ strong

boring _____ : _____ : _____ : _____ : _____ : _____ : _____ exciting

relevant _____ : _____ : _____ : _____ : _____ : _____ : _____ irrelevant

expensive _____ : _____ : _____ : _____ : _____ : _____ : _____ inexpensive

easy _____ : _____ : _____ : _____ : _____ : _____ : _____ difficult

high level _____ : _____ : _____ : _____ : _____ : _____ : _____ low level

eternal _____ : _____ : _____ : _____ : _____ : _____ : _____ transitory

abstract _____ : _____ : _____ : _____ : _____ : _____ : _____ concrete

academic _____ : _____ : _____ : _____ : _____ : _____ : _____ nonacademic

personal _____ : _____ : _____ : _____ : _____ : _____ : _____ impersonal

traditional _____ : _____ : _____ : _____ : _____ : _____ : _____ progressive

vocational _____ : _____ : _____ : _____ : _____ : _____ : _____ nonvocational

vague _____ : _____ : _____ : _____ : _____ : _____ : _____ precise

objective _____ : _____ : _____ : _____ : _____ : _____ : _____ subjective

measurable _____ : _____ : _____ : _____ : _____ : _____ : _____ unmeasurable

INTEREST AREAS

Has a wide variety of interests in recreational activities, hobbies, and school subjects.

No. 4B

IMPORTANCE of this goal (0 to 99)

weak _____ : _____ : _____ : _____ : _____ : _____ : _____ strong
 boring _____ : _____ : _____ : _____ : _____ : _____ : _____ exciting
 relevant _____ : _____ : _____ : _____ : _____ : _____ : _____ irrelevant
 expensive _____ : _____ : _____ : _____ : _____ : _____ : _____ inexpensive
 easy _____ : _____ : _____ : _____ : _____ : _____ : _____ difficult
 high level _____ : _____ : _____ : _____ : _____ : _____ : _____ low level
 eternal _____ : _____ : _____ : _____ : _____ : _____ : _____ transitory
 abstract _____ : _____ : _____ : _____ : _____ : _____ : _____ concrete
 academic _____ : _____ : _____ : _____ : _____ : _____ : _____ nonacademic
 personal _____ : _____ : _____ : _____ : _____ : _____ : _____ impersonal
 traditional _____ : _____ : _____ : _____ : _____ : _____ : _____ progressive
 vocational _____ : _____ : _____ : _____ : _____ : _____ : _____ nonvocational
 vague _____ : _____ : _____ : _____ : _____ : _____ : _____ precise
 objective _____ : _____ : _____ : _____ : _____ : _____ : _____ subjective
 measurable _____ : _____ : _____ : _____ : _____ : _____ : _____ unmeasurable

MEASUREMENT READING AND MAKING

Understands the concepts of length, weight, time, area, volume, speed, the metric system, money, etc., the relationships between them, and how to measure them. Computes units of measure. Uses tools to make measurements.

No. 19A

IMPORTANCE of this goal (0 to 99)

weak	: : : : : :	strong
boring	: : : : : :	exciting
relevant	: : : : : :	irrelevant
expensive	: : : : : :	inexpensive
easy	: : : : : :	difficult
high level	: : : : : :	low level
eternal	: : : : : :	transitory
abstract	: : : : : :	concrete
academic	: : : : : :	nonacademic
personal	: : : : : :	impersonal
traditional	: : : : : :	progressive
vocational	: : : : : :	nonvocational
vague	: : : : : :	precise
objective	: : : : : :	subjective
measurable	: : : : : :	unmeasurable

RELIGIOUS KNOWLEDGE

Understands the doctrine and dogma, theory and rationale of his religion. Can logically defend his religion. Knows something about the world's major religions.

No. 33

IMPORTANCE of this goal (0 to 99)

weak _____ : : : : : : _____ strong

boring _____ : : : : : : _____ exciting

relevant _____ : : : : : : _____ irrelevant

expensive _____ : : : : : : _____ inexpensive

easy _____ : : : : : : _____ difficult

high level _____ : : : : : : _____ low level

eternal _____ : : : : : : _____ transitory

abstract _____ : : : : : : _____ concrete

academic _____ : : : : : : _____ nonacademic

personal _____ : : : : : : _____ impersonal

traditional _____ : : : : : : _____ progressive

vocational _____ : : : : : : _____ nonvocational

vague _____ : : : : : : _____ precise

objective _____ : : : : : : _____ subjective

measurable _____ : : : : : : _____ unmeasurable

OPERATIONAL DEFINITIONS IN SCIENCE

Formulates questions, definitions, and scientific problems in specific terms preparatory to devising a solution.

No. 35E

 IMPORTANCE of this goal (0 to 99)

weak _____ : _____ : _____ : _____ : _____ : _____ : _____ strong
 boring _____ : _____ : _____ : _____ : _____ : _____ : _____ exciting
 relevant _____ : _____ : _____ : _____ : _____ : _____ : _____ irrelevant
 expensive _____ : _____ : _____ : _____ : _____ : _____ : _____ inexpensive
 easy _____ : _____ : _____ : _____ : _____ : _____ : _____ difficult
 high level _____ : _____ : _____ : _____ : _____ : _____ : _____ low level
 eternal _____ : _____ : _____ : _____ : _____ : _____ : _____ transitory
 abstract _____ : _____ : _____ : _____ : _____ : _____ : _____ concrete
 academic _____ : _____ : _____ : _____ : _____ : _____ : _____ nonacademic
 traditional _____ : _____ : _____ : _____ : _____ : _____ : _____ progressive
 vocational _____ : _____ : _____ : _____ : _____ : _____ : _____ nonvocational
 vague _____ : _____ : _____ : _____ : _____ : _____ : _____ precise
 objective _____ : _____ : _____ : _____ : _____ : _____ : _____ subjective
 measurable _____ : _____ : _____ : _____ : _____ : _____ : _____ unmeasurable

PART III: EDUCATION SCALE

Directions: Given below are 20 statements on educational ideas and problems about which we all have beliefs, opinions, and attitudes. We all think differently about such matters and this scale is an attempt to let you express your beliefs and opinions. Respond to each of the items as follows:

Agree very strongly	+3	Disagree very strongly	-3
Agree strongly	+2	Disagree strongly	-2
Agree	+1	Disagree	-1

For example, if you agree very strongly with a statement, you would write +3 on the short line preceding the statement, but if you should happen to disagree with it, you would put -1 in front of it. Respond to each statement as best you can. Go rapidly but carefully. Do not spend too much time on any one statement; try to respond and then go on.

- ___ 1. The goals of education should be dictated by children's interests and needs, as well as by the larger demands of society.
- ___ 2. No subject is more important than the personalities of the pupils.
- ___ 3. Schools of today are neglecting the three R's.
- ___ 4. The pupil-teacher relationship is the relationship between a child who needs direction, guidance, and control and a teacher who is an expert supplying direction, guidance and control.
- ___ 5. Teachers, like university professors, should have academic freedom -- freedom to teach what they think is right and best.
- ___ 6. The backbone of the school curriculum is subject matter; activities are useful mainly to facilitate the learning of subject matter.
- ___ 7. Teachers should encourage pupils to study and criticize our own and other economic systems and practices.
- ___ 8. The traditional moral standards of our children should not just be accepted; they should be examined and tested in solving the present problems of students.
- ___ 9. Learning is experimental; the child should be taught to test alternatives before accepting any of them.
- ___ 10. The curriculum consists of subject matter to be learned and skills to be acquired.
- ___ 11. The true view of education is so arranging learning that the child gradually builds up a store house of knowledge that he can use in the future.
- ___ 12. One of the big difficulties with modern schools is that discipline is often sacrificed to the interests of children.
- ___ 13. The curriculum should contain an orderly arrangement of subjects that represent the best of our cultural heritage.
- ___ 14. Discipline should be governed by long-range interests and well-established standards.
- ___ 15. Education and educational institutions must be sources of new social ideas; education must be a social program undergoing continual reconstruction.
- ___ 16. Right from the very first grade, teachers must teach the child at his own level and not at the level of the grade he is in.

Agree very strongly	+3	Disagree very strongly	-3
Agree strongly	+2	Disagree strongly	-2
Agree	+1	Disagree	-1

- ___ 17. Children should be allowed more freedom than they usually get in the execution of learning activities.
- ___ 18. Children need and should have more supervision and discipline than they usually get.
- ___ 19. Learning is essentially a process of increasing one's store of information about the various fields of knowledge.
- ___ 20. In a democracy, teachers should help students understand not only the meaning of democracy but also the meaning of the ideologies of other political systems.

PART IV: INFLUENTIAL FACTORS

In deciding how important a particular educational goal should be, several factors may have influenced your decision. Listed below are some possible factors that may have helped influence your rating of the goals. Read each statement and decide how much that factor influenced your rating of the goals. Circle the appropriate letter.

1. How much of the school's time should be devoted to a particular goal
 - a. Very strong influence on my decision
 - b. Strong influence on my decision
 - c. Average influence on my decision
 - d. Below average influence on my decision
 - e. Little or no influence on my decision

2. How much of the school's money should be devoted to the attainment of a particular goal
 - a. Very strong influence on my decision
 - b. Strong influence on my decision
 - c. Average influence on my decision
 - d. Below average influence on my decision
 - e. Little or no influence on my decision

3. How important a particular goal is for all students to attain
 - a. Very strong influence on my decision
 - b. Strong influence on my decision
 - c. Average influence on my decision
 - d. Below average influence on my decision
 - e. Little or no influence on my decision

4. How important the goal is for adults in our society
 - a. Very strong influence on my decision
 - b. Strong influence on my decision
 - c. Average influence on my decision
 - d. Below average influence on my decision
 - e. Little or no influence on my decision
5. How important the goal is/was to me personally in school
 - a. Very strong influence on my decision
 - b. Strong influence on my decision
 - c. Average influence on my decision
 - d. Below average influence on my decision
 - e. Little or no influence on my decision
6. How important the goal is/would be for my children to attain
 - a. Very strong influence on my decision
 - b. Strong influence on my decision
 - c. Average influence on my decision
 - d. Below average influence on my decision
 - e. Little or no influence on my decision
7. How important the attainment of a particular goal would be for people living 40 years from now
 - a. Very strong influence on my decision
 - b. Strong influence on my decision
 - c. Average influence on my decision
 - d. Below average influence on my decision
 - e. Little or no influence on my decision
8. How well a particular goal reflects my own preference in subject matter areas
 - a. Very strong influence on my decision
 - b. Strong influence on my decision
 - c. Average influence on my decision
 - d. Below average influence on my decision
 - e. Little or no influence on my decision
9. How likely the school is to succeed in attaining a particular goal
 - a. Very strong influence on my decision
 - b. Strong influence on my decision
 - c. Average influence on my decision
 - d. Below average influence on my decision
 - e. Little or no influence on my decision

10. How much this goal is/was stressed in my own home
- a. Very strong influence on my decision
 - b. Strong influence on my decision
 - c. Average influence on my decision
 - d. Below average influence on my decision
 - e. Little or no influence on my decision

Please make sure you have answered each item on the questionnaire. Then place the completed questionnaire in the manila envelope along with your sorted goals, fasten the envelope, and return it to your group leader. Thank you for your help with this project.

A.2: Instructions

INSTRUCTIONS FOR
GOAL SORT

Introduction

This envelope contains a pack of 118 printed cards. Each card describes a goal of education. These goals differ in importance in the sense that schools should devote more time, effort, and resources to having the students achieve some of them than they should devote to others. Similarly, progress toward achieving the more important goals should be monitored more frequently than performance toward others so as to insure early detection of problems developing in these critical areas. Information about the relative importance of these goals is necessary, therefore, in helping to plan both educational programs and procedures for evaluating them.

In order to gather this information, we would like you to rate each goal in terms of how important it is for the school to help the student achieve that particular goal. In doing this task, do not consider the feasibility or practicality of measuring performance on a goal. Base your judgments solely on how important a goal is in terms of the characteristics students should have as a result of their schooling. Some goals are, of course, more appropriate for some grades than they are for others. Thus, do your ratings on the basis of what goals should be attained by the end of the 12th grade.

Rating Procedure

1. Take the set of 118 printed blue cards and the five envelopes out of the manila envelope.
2. Do not make any marks on the cards or envelopes.
3. Place the five envelopes in front of you from left to right as follows:
 1. Unimportant, Inappropriate, Irrelevant
 2. Below Average Importance
 3. Average Importance
 4. Above Average Importance
 5. Very Important, Critical or Essential
4. Look through the whole set of 114 cards briefly to find one goal for each of the five categories of importance. (The number on the bottom of each card should be ignored since it is used solely for clerical purposes in recording your judgments).
5. Sort the remaining cards into these same five piles. However, be sure to put at least 5 cards in each pile. It is important that each goal card be put in one and only one pile, and that every card should be placed in a pile.


If you are not sure into which pile a goal should be placed, put it into the one in which you feel it comes closest. Do not spend a long time deciding in which pile a particular objective belongs. If you have difficulty in evaluating a goal, put it at the back of the pack and sort it last.

There are no "right" or "wrong" answers in this task. Just rate the goals in terms of how important YOU think they are.

6. When you have sorted all the cards, check that you have put at least five cards in each pile. Then, put the cards into their envelopes. Clip each envelope shut.

Returning Materials

1. Before returning materials, please check that you have done the following:

 Put each card into one of the five envelopes.

 Put at least five cards in each envelope.

2. Please clip each envelope shut, but do not seal it.
3. Place all the materials in the large manila envelope.
4. Remove the questionnaire and fill out each section of it.
5. Return the completed questionnaire to the manila envelope, clip the envelope shut, and give it to your group leader.

A.3: General Directions

GENERAL DIRECTIONS

Please read this sheet completely before proceeding.

The attached envelope contains:

- 1) 118 educational goals, each printed on a 3 x 5" card;
- 2) Five (5) labeled envelopes into which you will sort the cards;
- 3) Instructions for sorting the cards;
- 4) A questionnaire for you to complete.

Your group will follow the procedure listed below. Please complete each step in the order listed.

- 1) Take out the instruction sheet and read through the instructions for sorting the goals so that you understand what you will be doing.
- 2) Read through each goal statement (each card) and discuss with the members of your group any that seem unclear to you. It is important to understand as clearly as possible each goal so that you will be able to rate its importance.
- 3) Discuss any aspect of the sheet of instructions that may be unclear.
- 4) Working by yourself, sort the goal cards into the five envelopes and clip the small envelopes shut when you have finished. Please note that you are to place every goal in an envelope and that each envelope must contain at least five goals. Please do not discuss the goals with anyone while you are sorting as we are interested in your opinion of each goal.
- 5) When you have completed the goal sort, return the envelopes, clipped shut, to the large manila envelope and take out the questionnaire.

Instructions for filling out each section of the questionnaire appear at the beginning of that section.

Please do not discuss the questionnaire with anyone else.

Notice that for your opinion to count on the goal sort process, we must have the information provided on the questionnaire.

If you have any questions about what you are to do in sorting the goals or filling out the questionnaire, ask the leader of your group.

Thank you for helping with this project. A copy of the results of the project will be made available through your local school.

A.4: Mockup Questionnaire

PART I: GENERAL INFORMATION

The information requested on this page and on the remainder of this questionnaire will help us to understand why people think some educational goals are more important than others and why people differ from each other in these judgments. The information you provide will remain confidential. Results will be presented in the form of group averages rather than by individual scores. Part I of the questionnaire asks for factual information. All other parts of the questionnaire ask for your opinion; for these parts there are no right or wrong answers. Please read each section carefully and answer according to your own feelings.

1. Sex: Male _____; Female _____
2. Date of Birth (year): 19____
3. Amount of formal schooling completed (check one):
 - _____ 1. eighth grade or less
 - _____ 2. some high school
 - _____ 3. completed high school
 - _____ 4. business school or other post high-school training
 - _____ 5. some college
 - _____ 6. bachelor's degree
 - _____ 7. some graduate work
 - _____ 8. graduate or professional degree
4. Do you have any children? Yes____ No____ If so, please list their ages _____
5. Name of school district _____
6. Your position on this committee (check only one):
 - _____ 1. student; grade level _____
 - _____ 2. teacher; grade(s) and subject matter area(s) _____
 - _____ 3. community member/ parent
 - _____ 4. superintendent
 - _____ 5. school board member
 - _____ 6. principal; elementary _____ or secondary _____
7. If you are one of the twelve people from your district involved with other meetings for this project, may we please have your name.

PART II: THE MEANING OF GOALS

Printed below are several of the goals you previously rated. Re-read each goal. Then, in the appropriate place, mark from 0 to 99 how important you believe this goal is where 0 = completely unimportant, unessential or irrelevant and 99 = most important, critical, or essential. Your answer for each goal may be any number from 0 to 99 depending on how important you believe the goal to be.

The purpose of the next part of each item is to measure the meanings of the goals by asking you to judge the goal against a series of descriptive scales. In marking these answers, please make your judgments on the basis of what the goals mean to you. On each page you will find a different goal to be judged, a place to mark your judgment of the importance of the goal, and below, a set of scales. You are to rate the goal on each of these scales in order.

Here is how you are to use these scales:

If you feel that the goal at the top of the page is very closely related to one end of the scale, you should place your check mark as follows:

fair X : : : : : : : unfair

OR

fair : : : : : : : X unfair

If you feel that the concept is quite closely related to one or the other end of the scale (but not extremely), you should place your check-mark as follows:

strong : X : : : : : : weak

OR

strong : : : : : X : weak

If the concept seems only slightly related to one side as opposed to the other side (but is not really neutral), then you should check as follows:

active : : X : : : : : passive

OR

active : : : : X : : passive

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REMEMBERING INFORMATION READ

Recalls main ideas, supporting details, and
events in their proper sequence.

No 30C

_____ IMPORTANCE OF THIS GOAL (0 to 99)

good	_____	bad
dull	_____	sharp
long	_____	short
passive	_____	active
thick	_____	thin
sick	_____	healthy
fair	_____	unfair
wide	_____	narrow
awful	_____	nice
fresh	_____	stale
relaxed	_____	tense

APPENDIX B: TABLES

Table B.1. Number of persons completing each section of the questionnaire and the goal sort by subgroup within community

	The meaning of goals	Education Scale	Importance factors	Goal sort
Community 1				
Students	10	10	10	10
Educators	23	24	24	24
Lay citizens	9	12	12	12
Community 2				
Students	10	10	10	10
Educators	30	30	30	30
Lay citizens	15	15	15	15
Community 3				
Students	10	10	10	10
Educators	19	19	19	19
Lay citizens	3	13	13	14
Community 4				
Students	7	6	5	7
Educators	30	30	30	30
Lay citizens	17	17	17	17
Community 5				
Students	10	10	10	10
Educators	36	37	36	37
Lay citizens	17	17	17	17
Community 6				
Students	9	10	10	10
Educators	25	26	25	26
Lay citizens	15	14	15	15
Community 7				
Students	10	10	10	10
Educators	36	36	36	36
Lay citizens	15	15	15	15

Table B.2. Goal number, name, mean rating and variance of the ratings for entire sample (N = 374)

Goal number	Goal name	Mean rating	Variance
1A	Shyness-Boldness	3.537	1.118
1B	Neuroticism-Adjustment	4.182	0.819
1C	General Activity-Lethargy	3.703	0.912
2A	Dependence-Independence	3.922	1.042
2B	Hostility-Friendliness	3.944	0.954
2C	Socialization-Rebelliousness	4.061	0.851
3A	School Orientation	3.826	0.879
3B	Self Esteem	4.029	0.962
4A	Need Achievement	4.078	0.726
4B	Interest Areas	3.329	1.219
5A	Appreciation of Arts and Crafts	2.636	1.138
5B	Involvement in Arts and Crafts	2.310	1.056
6A	Representational Skills in Arts and Crafts	1.866	0.743
6B	Expressive Skill in Arts and Crafts	2.155	0.943
7A	Arts and Crafts Appreciation	2.417	0.887
7B	Developmental Understanding of Arts and Crafts	1.749	0.677
8A	Classificatory Reasoning	2.834	1.104
8B	Relational-Implicational Reasoning	3.286	1.068
8C	Systematic Reasoning	3.348	1.080
8D	Spatial Reasoning	3.142	0.857
9A	Creative Flexibility	3.703	0.949
9B	Creative Fluency	3.230	1.116
10A	Span and Serial Memory	1.861	1.021
10B	Meaningful Memory	3.775	1.129
11A	Reading Comprehension of a Foreign Language	1.890	1.068
11B	Oral Comprehension of a Foreign Language	2.080	1.168
11C	Speaking Fluency in a Foreign Language	2.201	1.281
11D	Writing Fluency in a Foreign Language	1.719	0.867
12A	Cultural Insight Through a Foreign Language	2.479	1.130
12B	Interest in and Application of a Foreign Language	2.061	0.996

Table B.2 (Continued)

Goal number	Goal name	Mean rating	Variance
13A	Spelling	4.056	0.847
13B	Punctuation	3.869	1.004
13C	Capitalization	3.781	1.099
13D	Grammar and Usage	3.997	0.818
13E	Penmanship	3.369	1.231
13F	Written Expression	3.751	0.858
13G	Independent Application of Writing Skills	3.529	0.861
14A	Use of Data Sources as Reference Skills	3.840	0.848
14B	Summarizing Information for Reference	3.259	0.965
15A	Comprehension of Numbers and Sets in Mathematics	3.374	1.028
15B	Comprehension of Positional Notation in Mathematics	3.455	0.967
15C	Comprehension of Equations and Inequalities	3.086	1.022
15D	Comprehension of Number Principles	2.684	1.091
16A	Operations with Integers	4.123	0.912
16B	Operations with Fractions	3.687	0.897
16C	Operations with Decimals and Percents	3.626	0.894
17A	Mathematical Problem Solving	4.059	0.887
17B	Independent Application of Mathematical Skills	3.866	1.103
18A	Geometric Facility	2.684	1.015
18B	Geometric Vocabulary	2.636	0.913
19A	Measurement Reading and Making	3.636	0.983
19B	Statistics	3.126	0.823
20A	Music Appreciation	3.043	1.130
20B	Music Interest and Enjoyment	2.794	1.027
21A	Singing	2.158	1.082
21B	Musical Instrument Playing	1.979	0.906
21C	Dance (Rhythmic Response)	2.166	1.082
22A	Aural Identification of Music	1.957	0.776
22B	Music Knowledge	2.102	0.885
23A	Practicing Health and Safety Principles	4.393	0.706
23B	Understanding Health and Safety Principles	4.299	0.596

Table B.2 (Continued)

Goal number	Goal name	Mean rating	Variance
23C	Sex Education	4.091	0.866
24A	Muscle Control (Physical Education)	3.396	0.856
24B	Physical Development and Well-Being (Physical Education)	3.727	0.907
25A	Group Activity-Sportsmanship	4.193	0.735
25B	Interest and Independent Participation in Sports and Games	3.064	0.956
26A	Understanding Rules and Strategies of Sports and Games	2.882	0.882
26B	Knowledge of Physical Education Apparatus and Equipment	2.719	0.912
27A	Listening Reaction and Response	4.179	0.619
27B	Speaking	4.040	0.612
28A	Phonetic Recognition	3.463	1.145
28B	Structural Recognition	3.134	0.942
29A	Oral Reading	3.238	0.911
29B	Silent Reading Efficiency	3.984	0.788
30A	Recognition of Word Meanings	3.840	0.741
30B	Understanding of Ideational Complexes	3.642	0.885
30C	Remembering Information Read	3.818	0.782
31A	Inference Making from Reading Selections	3.730	0.841
31B	Recognition of Literary Devices	2.465	0.909
31C	Critical Reading	3.241	1.395
32A	Attitude toward Reading	3.727	1.068
32B	Attitude and Behavior Modification from Reading	3.727	0.912
32C	Familiarity with Standard Children's Literature	2.259	1.013
33	Religious Knowledge	3.217	1.484
34	Religious Belief	3.768	1.768
35A	Observation and Description in Science	3.059	0.913
35B	Use of Numbers and Measures in Science	2.960	0.913
35C	Classification and Generalization in Science	2.674	0.955

Table B.2 (Continued)

Goal number	Goal name	Mean rating	Variance
35D	Hypothesis Formation in Science	3.040	1.159
35E	Operational Definitions in Science	2.765	1.017
35F	Experimentation in Science	2.733	1.001
35G	Formulation of Generalized Conclusions in Science	2.890	1.160
36A	Knowledge of Scientific Facts and Terminology	3.390	0.936
36B	The Nature and Purpose of Science	2.965	1.058
37A	Scientific Interest and Appreciation	3.441	1.035
37B	Application of Scientific Methods to Everyday Life	3.481	1.135
38A	Knowledge of History	3.521	1.017
38B	Knowledge of Governments	4.053	0.726
39A	Knowledge of Physical Geography	3.211	0.875
39B	Knowledge of Socio-economic Geography	3.345	0.790
40A	Cultural Knowledge	3.401	1.056
40B	Social Organization Knowledge	3.481	0.969
41A	Research Skills in Social Studies	3.497	0.958
41B	Citizenship	4.505	0.572
41C	Interest in Social Studies	2.960	0.966
42A	Developmental Understanding of Homemaking	3.594	0.982
42B	Skill in Homemaking	3.607	0.942
43A	Career Information	3.960	0.918
43B	Occupational Appreciation	4.107	0.777
44A	Career Skill	3.553	1.422
44B	Career Efficiency	3.933	1.189
44C	Occupational Flexibility	3.738	1.213
44D	Readiness for Advanced Training for Career	3.864	1.094
45A	Knowledge of Agriculture	2.888	0.953
45B	Attitude toward Agriculture	3.529	0.872
45C	Agricultural Production	2.979	1.024
46	Knowledge and Interpretation of Mass Media	3.885	1.056

Table B.3. Interrater correlations: Students from community 1^a

	1	2	3	4	5	6	7	8	9	10
1	--									
2	23	--								
3	42	22	--							
4	61	25	59	--						
5	33	14	41	41	--					
6	03	71	14	10	04	--				
7	36	09	41	47	07	-04	--			
8	32	17	39	47	36	-04	38	--		
9	51	28	50	61	41	09	42	43	--	
10	36	26	37	35	34	27	26	23	40	--

^aDecimals omitted.Table B.4. Interrater correlations: Students from community 2^a

	1	2	3	4	5	6	7	8	9	10
1	--									
2	25	--								
3	47	48	--							
4	42	49	58	--						
5	31	38	48	45	--					
6	19	25	21	27	24	--				
7	20	21	25	32	19	10	--			
8	17	28	24	25	30	26	32	--		
9	28	31	51	37	24	26	17	15	--	
10	16	30	35	35	44	04	07	07	17	--

^aDecimals omitted.

Table B.5. Interrater correlations: Students from community 3^a

	1	2	3	4	5	6	7	8	9	10
1	--									
2	31	--								
3	54	07	--							
4	40	20	35	--						
5	14	36	01	20	--					
6	14	18	06	07	45	--				
7	42	26	34	35	26	23	--			
8	39	28	31	34	43	18	43	--		
9	48	33	27	24	41	21	39	48	--	
10	06	08	06	21	31	11	11	18	25	--

^a Decimals omitted.

Table B.6. Interrater correlations: Students from community 4^a

	1	2	3	4	5	6	7
1	--						
2	60	--					
3	49	47	--				
4	32	36	07	--			
5	41	33	43	12	--		
6	26	27	27	14	31	--	
7	47	35	34	28	32	36	--

^a Decimals omitted.

Table B.7. Interrater correlations: Students from community 5^a

	1	2	3	4	5	6	7	8	9	10
1	--									
2	15	--								
3	46	30	--							
4	39	10	11	--						
5	43	14	31	43	--					
6	38	25	32	27	51	--				
7	16	34	25	08	20	29	--			
8	39	17	36	47	43	28	22	--		
9	46	16	39	51	37	37	11	48	--	
10	24	27	35	27	36	39	24	36	36	--

^aDecimals omitted.Table B.8. Interrater correlations: Students from community 6^a

	1	2	3	4	5	6	7	8	9	10
1	--									
2	31	--								
3	51	30	--							
4	51	43	61	--						
5	40	41	41	48	--					
6	47	23	54	51	51	--				
7	40	25	46	49	55	45	--			
8	21	06	33	37	06	33	09	--		
9	47	36	61	53	42	46	45	14	--	
10	41	38	49	46	35	35	31	31	45	--

^aDecimals omitted.Table B.9. Interrater correlations: Students from community 7^a

	1	2	3	4	5	6	7	8	9	10
1	--									
2	40	--								
3	28	40	--							
4	22	24	25	--						
5	39	46	47	27	--					
6	23	23	32	33	45	--				
7	23	18	17	16	12	22	--			
8	19	34	38	20	46	58	13	--		
9	28	31	27	26	42	45	24	41	--	
10	22	16	26	20	36	21	11	25	19	--

^aDecimals omitted.

Table B.10. Interrater correlations: Educators from community 1^a

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1	--																								
2	-10	--																							
3	-17	46	--																						
4	-15	50	54	--																					
5	-17	26	47	48	--																				
6	-25	40	53	37	33	--																			
7	-10	37	40	53	46	43	--																		
8	08	31	38	44	33	31	43	--																	
9	-22	43	37	64	45	34	45	43	--																
10	-12	50	54	67	58	35	57	43	49	--															
11	-03	25	35	54	41	22	34	35	40	47	--														
12	-14	23	40	51	51	27	37	47	48	57	51	--													
13	-09	60	60	59	52	50	56	39	42	61	32	29	--												
14	-17	48	61	63	54	47	41	40	50	55	44	46	64	--											
15	-11	53	58	59	52	41	40	30	46	61	41	54	61	58	--										
16	-08	34	37	51	44	24	40	39	46	54	53	44	35	50	47	--									
17	-09	56	66	63	47	44	34	43	48	61	44	38	66	66	61	59	--								
18	-25	44	46	63	50	35	49	26	50	63	46	47	50	50	51	54	45	--							
19	-07	48	57	55	35	42	37	29	37	59	36	40	55	45	59	20	49	32	--						
20	-12	37	49	46	44	52	36	43	32	42	32	33	60	57	48	35	61	27	40	--					
21	03	28	23	13	08	13	26	08	16	27	-04	02	28	06	21	-13	06	02	42	05	--				
22	-08	28	41	49	32	20	28	36	50	54	54	45	35	44	40	40	47	38	40	34	06	--			
23	-11	45	52	69	54	34	56	45	52	92	51	58	58	57	58	51	57	62	56	40	23	54	--		
24	07	28	33	55	43	27	38	34	53	53	44	36	44	43	51	51	47	38	46	36	24	42	53	--	

^aDecimals omitted.

Table B.11. Interrater correlations: Educators from community 2^a

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	--														
2	40	--													
3	27	37	--												
4	56	36	43	--											
5	25	43	38	20	--										
6	25	22	24	26	35	--									
7	28	46	30	34	39	24	--								
8	42	50	26	40	28	18	47	--							
9	32	54	48	48	38	17	51	52	--						
10	35	54	43	40	49	31	57	37	48	--					
11	43	36	27	51	22	19	39	38	45	33	--				
12	43	50	41	55	29	25	40	46	58	54	45	--			
13	27	45	32	38	22	11	44	43	65	29	44	47	--		
14	28	41	53	40	28	17	23	25	43	34	30	40	41	--	
15	31	45	20	32	13	00	30	35	48	48	22	41	40	20	--
16	44	44	32	46	31	19	32	38	50	39	41	65	38	27	32
17	37	49	38	50	36	26	44	41	58	54	30	40	32	36	31
18	40	46	41	37	27	-05	41	41	56	32	35	37	56	46	27
19	24	43	54	37	27	34	43	40	53	52	18	46	37	38	28
20	38	55	45	54	34	28	44	39	52	61	43	67	34	38	34
21	22	40	23	43	27	35	33	34	41	55	39	59	33	23	25
22	33	49	33	28	32	38	47	41	48	60	21	49	30	30	42
23	35	47	32	43	33	30	39	37	51	54	32	66	34	30	31
24	33	47	27	42	32	25	37	29	39	43	42	48	35	50	19
25	28	73	36	16	46	35	46	29	45	59	27	40	32	33	36
26	24	40	21	30	25	11	42	46	42	37	36	30	37	23	30
27	16	17	32	29	32	05	20	05	28	29	20	32	26	41	-01
28	28	34	24	39	05	20	39	26	29	36	31	45	29	19	30
29	46	56	42	38	53	36	51	49	56	60	42	57	48	38	36
30	19	35	31	15	30	28	46	23	48	55	14	36	34	30	48

^aDecimals omitted.

16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

--														
31	--													
38	33	--												
30	39	37	--											
65	44	32	48	--										
46	36	18	41	55	--									
36	48	26	49	38	45	--								
54	35	23	40	56	62	39	--							
44	36	31	25	60	41	30	47	--						
24	42	27	44	46	34	52	47	47	--					
22	32	33	18	29	32	31	29	36	35	--				
32	23	36	18	46	20	08	25	44	15	08	--			
48	16	29	36	52	43	21	40	36	24	21	09	--		
52	48	49	51	56	50	60	61	45	56	36	26	34	--	
20	33	20	39	36	38	55	34	24	54	25	22	19	52	--

Table B.12. Interrater correlations: Educators from community 3^a

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
1	--																			
2	38	--																		
3	29	29	--																	
4	26	26	44	--																
5	32	43	33	30	--															
6	19	44	33	23	37	--														
7	35	42	37	32	25	21	--													
8	31	40	36	31	55	34	21	--												
9	29	54	49	12	49	28	27	48	--											
10	43	41	44	25	47	29	28	56	53	--										
11	40	49	34	31	45	29	28	49	47	43	--									
12	20	34	22	34	26	-01	12	33	35	25	35	--								
13	42	52	54	24	52	34	33	55	62	54	50	32	--							
14	41	34	12	17	47	27	17	58	34	49	43	15	44	--						
15	34	50	41	26	51	44	26	54	68	57	43	35	54	50	--					
16	-04	04	06	-06	06	14	11	06	-10	-05	-06	-12	00	-00	-03	--				
17	46	42	31	29	37	05	26	49	52	54	46	42	49	46	40	-26	--			
18	30	46	47	31	39	22	25	44	48	41	43	27	48	31	46	-01	32	--		
19	03	25	11	33	09	14	13	25	10	19	09	26	14	12	22	-02	14	24	--	

^aDecimals omitted.

Table B.13 Interrater correlations: Educators from community 4^a

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	--														
2	20	--													
3	40	27	--												
4	43	31	27	--											
5	38	37	53	42	--										
6	53	28	43	40	36	--									
7	33	47	35	34	39	51	--								
8	52	49	35	40	44	58	68	--							
9	48	22	27	27	34	49	27	48	--						
10	19	32	28	21	28	25	27	29	28	--					
11	50	44	47	41	53	68	59	63	55	41	--				
12	53	59	27	42	48	50	53	69	32	28	59	--			
13	47	32	40	34	24	61	48	56	30	13	53	49	--		
14	53	43	41	43	45	55	64	78	44	27	60	58	54	--	
15	42	36	43	34	42	53	43	50	34	09	51	48	42	52	--
16	53	26	37	25	33	49	33	49	37	11	39	50	40	44	34
17	-07	28	14	23	20	10	21	11	16	44	31	12	10	15	14
18	55	40	44	46	48	62	51	63	52	30	60	58	55	58	61
19	56	43	50	38	58	55	53	66	45	40	71	66	51	63	46
20	71	21	50	36	40	54	41	58	39	18	49	53	38	49	34
21	21	14	22	25	22	35	31	33	25	09	41	27	33	33	23
22	37	35	46	35	35	47	39	52	32	25	51	50	61	54	25
23	13	36	35	30	40	40	33	36	86	51	55	33	22	34	30
24	40	16	28	24	35	46	40	47	54	32	52	30	42	50	31
25	33	24	24	29	26	39	28	43	44	32	51	44	44	47	34
26	47	28	38	33	46	58	36	48	57	33	56	46	32	52	44
27	17	29	26	36	31	17	37	30	-03	09	21	35	29	36	32
28	31	31	31	37	38	40	38	55	33	25	51	46	48	51	37
29	40	30	27	42	41	42	32	47	45	22	45	47	39	47	37
30	19	15	21	16	38	38	28	34	44	36	44	24	24	36	32

^aDecimals omitted.

16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
--														
-01	--													
49	16	--												
54	32	62	--											
53	-05	55	50	--										
28	07	43	35	15	--									
51	13	43	64	45	41	--								
18	51	37	49	14	23	24	--							
42	30	43	55	27	30	40	45	--						
37	23	38	56	25	37	48	37	48	--					
41	15	60	57	36	26	43	48	46	44	--				
23	16	42	27	19	21	22	13	04	04	09	--			
38	28	46	64	22	40	53	40	45	50	52	22	--		
43	12	51	54	27	30	45	18	42	45	54	23	49	--	
21	34	34	45	09	36	31	48	50	50	53	00	58	43	--

Table B.14. Interrater correlations: Educators from community 5^a

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	--																	
2	35	--																
3	39	47	--															
4	44	51	56	--														
5	45	34	47	41	--													
6	39	23	29	34	34	--												
7	36	62	52	55	40	45	--											
8	47	25	57	45	51	26	27	--										
9	50	44	52	44	63	28	52	64	--									
10	21	25	27	31	37	16	36	33	52	--								
11	42	47	48	58	32	40	42	44	38	16	--							
12	45	48	52	45	53	28	46	34	49	28	29	--						
13	48	30	47	48	50	47	40	46	54	39	52	44	--					
14	37	45	48	45	55	36	46	43	57	39	36	50	34	--				
15	54	47	53	46	57	34	51	48	53	15	37	48	34	51	--			
16	55	58	60	67	53	29	54	58	61	41	46	53	45	55	58	--		
17	25	42	49	35	49	22	53	40	56	32	35	40	29	49	45	53	--	
18	41	36	29	49	36	28	40	40	36	19	43	36	41	41	41	45	27	--
19	41	54	44	54	29	43	47	28	31	11	44	46	37	38	37	44	26	39
20	22	42	37	39	51	24	32	27	39	20	49	39	36	45	37	49	43	38
21	25	08	36	31	35	15	17	37	43	32	40	18	33	32	14	35	29	30
22	50	53	63	45	60	23	50	59	64	30	38	56	43	52	56	62	48	27
23	43	62	54	49	49	16	55	47	58	26	36	44	33	48	58	58	47	41
24	39	55	48	50	38	22	48	34	53	27	38	58	45	45	48	60	50	46
25	38	56	53	51	40	35	57	38	57	35	45	59	56	49	46	57	48	48
26	25	42	50	49	32	13	30	25	29	20	50	41	35	38	43	46	32	43
27	32	36	47	46	51	19	43	54	60	43	39	45	40	55	50	53	63	40
28	45	50	64	45	61	20	51	57	58	31	48	56	46	62	54	67	48	47
29	32	29	32	29	43	26	29	44	43	37	31	43	42	43	44	41	41	41
30	39	29	39	34	04	18	31	36	28	28	40	31	45	19	24	40	09	32
31	31	38	49	51	33	40	52	41	43	41	44	40	45	38	38	55	43	43
32	41	49	45	41	45	32	51	39	53	32	43	45	44	42	50	43	40	30
33	42	47	53	38	51	23	46	50	67	37	33	47	43	55	59	57	52	26
34	53	59	63	49	58	27	53	53	58	15	44	61	40	52	73	66	49	44
35	45	43	51	44	53	41	49	35	43	15	52	56	46	49	53	53	44	45
36	41	50	54	45	63	26	46	31	45	24	44	63	43	54	48	53	49	30
37	42	57	50	57	33	26	44	34	41	34	48	57	42	48	45	63	44	46

^aDecimals omitted.

19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
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--																			
27	--																		
18	37	--																	
43	36	19	--																
42	25	16	61	--															
55	40	17	44	54	--														
46	42	25	54	51	76	--													
47	54	32	33	29	44	51	--												
32	42	36	50	49	48	49	44	--											
35	59	37	63	57	54	60	55	63	--										
26	49	25	37	28	34	46	32	45	49	--									
24	13	09	28	29	40	46	24	22	44	24	--								
34	36	33	36	32	51	58	39	47	50	35	38	--							
37	36	14	52	43	46	58	37	46	47	38	27	39	--						
30	29	20	64	58	50	52	32	56	61	32	31	40	44	--					
50	51	25	65	61	64	59	52	52	67	49	25	42	57	60	--				
41	54	26	45	48	42	48	47	40	58	39	29	41	45	34	59	--			
38	60	34	51	45	55	56	44	40	63	35	13	47	47	38	60	64	--		
48	47	32	49	42	61	64	58	46	52	37	43	48	42	43	61	55	55	--	

Table B.15. Interrater correlations: Educators from community 6^a

	1	2	3	4	5	6	7	8	9	10	11	12
1	--											
2	38	--										
3	47	37	--									
4	51	35	51	--								
5	44	29	41	54	--							
6	52	55	46	46	47	--						
7	17	30	31	62	43	30	--					
8	57	36	36	33	30	48	18	--				
9	37	23	43	58	40	35	42	31	--			
10	45	40	61	58	53	49	54	36	47	--		
11	65	49	51	66	50	62	45	52	63	60	--	
12	41	30	53	48	40	44	31	41	50	58	54	--
13	52	34	38	48	41	48	38	48	26	48	36	38
14	42	29	43	51	32	48	48	37	56	53	54	36
15	46	38	41	50	43	52	37	34	45	46	52	42
16	36	34	36	40	36	52	28	40	35	44	42	34
17	26	37	22	45	40	42	46	18	27	41	50	28
18	47	43	38	41	50	55	17	43	28	42	53	29
19	53	31	44	41	47	41	22	45	44	38	47	32
20	67	23	46	47	32	43	21	57	48	41	56	50
21	35	35	34	47	41	56	42	26	32	48	46	31
22	61	30	48	49	32	42	35	32	53	45	55	39
23	38	33	35	52	47	48	48	45	54	44	54	42
24	57	49	48	55	45	62	29	53	38	54	68	43
25	56	33	63	44	43	51	22	55	41	55	59	57
26	55	46	40	50	44	46	36	41	42	57	55	53

^a Decimals omitted.

13	14	15	16	17	18	19	20	21	22	23	24	25	26
----	----	----	----	----	----	----	----	----	----	----	----	----	----

--													
40	--												
46	40	--											
26	37	31	--										
24	42	34	35	--									
38	37	35	43	46	--								
44	32	46	51	17	48	--							
37	63	40	33	24	37	40	--						
48	40	43	38	43	43	31	23	--					
33	64	38	32	32	40	36	58	38	--				
36	43	39	34	31	34	36	46	29	38	--			
49	37	47	44	37	50	48	49	47	39	47	--		
43	33	42	42	20	42	47	44	31	36	35	62	--	
40	51	48	37	38	40	44	56	41	41	37	57	48	--

Table B.16. Interrater correlations: Educators from community 7^a

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	--																
2	44	--															
3	53	33	--														
4	52	40	39	--													
5	53	52	43	48	--												
6	53	49	33	47	40	--											
7	50	62	29	36	47	48	--										
8	28	35	20	23	45	19	29	--									
9	32	13	23	10	27	17	20	27	--								
10	47	39	27	48	46	34	43	15	01	--							
11	39	36	38	36	67	29	29	53	45	35	--						
12	47	45	40	51	43	46	46	25	18	32	36	--					
13	73	52	46	46	48	42	60	41	29	37	40	59	--				
14	51	55	50	47	51	41	56	34	16	44	42	43	50	--			
15	29	48	22	40	45	41	44	29	16	22	40	35	34	34	--		
16	30	48	12	36	35	41	40	15	10	26	31	17	27	31	24	--	
17	59	49	37	37	57	32	54	42	24	44	40	37	58	50	27	27	--
18	42	51	30	47	63	35	53	50	23	44	53	36	46	50	40	39	53
19	60	68	47	60	64	50	58	46	29	47	50	61	63	60	44	36	60
20	55	45	40	47	55	48	40	38	27	29	42	47	58	49	37	23	56
21	61	56	33	53	53	54	55	49	34	39	49	57	61	48	39	27	54
22	10	12	20	30	24	35	20	-08	09	03	18	22	19	14	38	22	06
23	55	61	35	45	56	37	59	40	26	32	40	48	54	60	36	27	53
24	35	40	22	35	42	23	48	41	16	45	21	42	48	37	36	23	43
25	48	60	34	52	58	45	61	26	27	39	50	49	53	60	44	43	45
26	56	61	52	59	51	47	51	32	18	40	37	58	59	52	49	41	46
27	64	51	43	43	59	44	55	39	20	39	41	50	64	56	39	26	56
28	56	51	56	55	61	43	54	36	38	46	54	61	58	62	39	35	56
29	58	29	53	39	46	30	41	13	19	46	26	36	40	49	25	04	46
30	39	51	25	46	58	32	45	49	23	42	49	50	38	48	42	26	48
31	57	56	46	32	58	40	46	30	19	38	43	30	54	40	44	22	53
32	53	45	30	44	57	42	38	34	22	46	38	44	53	39	37	22	48
33	51	42	27	35	57	39	48	48	28	54	51	36	50	48	32	36	55
34	43	56	25	39	52	45	59	42	13	42	40	43	44	49	39	40	40
35	44	53	38	52	52	36	40	60	14	37	45	49	53	44	48	26	43
36	58	51	30	38	59	45	57	45	18	48	49	30	51	54	38	34	49

^a Decimals omitted.

18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

--																			
61	--																		
46	58	--																	
56	71	59	--																
15	04	16	05	--															
54	70	43	62	02	--														
43	45	26	40	08	42	--													
56	66	47	51	31	60	50	--												
54	60	56	58	34	59	39	57	--											
45	66	63	54	-02	60	43	65	54	--										
57	66	61	62	23	58	40	64	65	61	--									
28	45	36	40	07	44	35	38	44	46	45	--								
55	67	49	57	-13	61	43	57	42	60	56	31	--							
47	61	49	47	04	58	35	46	51	53	46	45	42	--						
48	57	56	49	14	51	39	47	52	63	45	46	48	51	--					
57	51	53	49	13	38	42	43	47	52	58	37	42	40	48	--				
43	51	33	48	14	50	47	58	44	52	47	28	49	31	44	47	--			
51	56	58	63	17	51	50	38	60	43	56	32	47	43	46	49	40	--		
49	59	44	48	16	52	39	55	41	54	47	44	48	53	48	62	47	46	--	

Table B.17. Interrater correlations: Lay citizens from community 1^a

	1	2	3	4	5	6	7	8	9	10	11	12
1	--											
2	45	--										
3	31	27	--									
4	40	31	49	--								
5	51	38	39	44	--							
6	47	47	37	46	59	--						
7	58	30	26	46	48	49	--					
8	34	10	13	21	48	33	32	--				
9	59	43	37	44	50	53	31	25	--			
10	57	40	40	42	35	41	37	18	45	--		
11	37	28	40	50	54	54	45	29	36	31	--	
12	50	29	39	50	55	52	57	35	39	39	68	--

^a Decimals omitted.

Table B.18. Interrater correlations: Lay citizens from community 2^a

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	--														
2	39	--													
3	38	31	--												
4	37	48	45	--											
5	37	43	38	44	--										
6	43	47	47	54	52	--									
7	36	35	20	30	48	38	--								
8	41	46	39	34	54	48	47	--							
9	35	46	48	44	46	41	36	39	--						
10	25	31	27	42	38	39	19	42	39	--					
11	27	45	21	34	35	33	36	42	35	33	--				
12	21	45	55	57	50	47	30	35	49	28	24	--			
13	42	23	40	36	30	41	27	13	37	21	22	27	--		
14	35	51	50	40	59	51	50	58	49	36	32	47	29	--	
15	35	36	34	50	50	49	38	44	37	31	27	48	30	38	--

^a Decimals omitted.

Table B.19. Interrater correlations: Lay citizens from community 3^a

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	--													
2	19	--												
3	54	29	--											
4	35	37	53	--										
5	48	43	62	58	--									
6	-10	21	02	10	09	--								
7	25	25	31	42	37	-00	--							
8	18	34	28	37	32	10	22	--						
9	37	33	37	49	49	-03	32	25	--					
10	10	45	44	60	41	17	34	29	34	--				
11	09	48	26	39	33	-01	20	26	46	35	--			
12	36	38	36	51	37	-05	38	16	50	44	35	--		
13	18	42	34	50	45	10	33	16	35	46	38	41	--	
14	27	36	22	29	29	11	29	25	39	26	26	37	33	--

^aDecimals omitted.Table B.20. Interrater correlations: Lay citizens from community 4^a

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	--																
2	41	--															
3	40	46	--														
4	38	21	26	--													
5	64	54	40	38	--												
6	38	28	23	49	46	--											
7	38	20	22	28	36	14	--										
8	38	27	38	37	35	28	29	--									
9	47	29	25	43	42	48	18	34	--								
10	12	10	23	28	09	17	25	16	23	--							
11	56	22	27	39	57	48	29	31	56	25	--						
12	51	53	49	30	54	37	44	29	38	26	40	--					
13	35	10	20	27	26	25	37	26	23	16	37	30	--				
14	43	49	38	24	52	40	27	28	28	15	31	41	22	--			
15	39	12	24	37	39	43	23	31	29	08	41	33	42	11	--		
16	28	16	27	41	38	55	16	20	39	31	40	31	27	38	37	--	
17	28	03	28	17	37	31	26	13	17	20	31	28	26	22	24	31	--

^aDecimals omitted.

Table B.21. Interrater correlations: Lay citizens from community 5^a

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	--																
2	22	--															
3	12	32	--														
4	48	41	36	--													
5	13	17	29	33	--												
6	31	31	10	39	08	--											
7	28	32	30	44	30	38	--										
8	32	32	36	41	33	21	25	--									
9	25	44	24	39	28	37	39	40	--								
10	13	36	34	35	25	17	35	23	39	--							
11	05	25	18	25	23	27	36	31	35	18	--						
12	34	30	17	46	52	16	32	40	40	23	32	--					
13	43	44	25	51	41	37	44	25	41	36	24	49	--				
14	31	28	30	41	18	19	27	24	19	38	-06	33	30	--			
15	08	41	30	29	36	32	39	13	36	34	12	16	31	31	--		
16	13	29	43	33	25	27	34	30	27	33	28	26	25	16	25	--	
17	33	38	25	48	53	30	43	35	43	26	30	56	52	27	25	32	--

^aDecimals omitted.

Table B.22. Interrater correlations: Lay citizens from community 6^a

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	--														
2	45	--													
3	15	15	--												
4	67	41	21	--											
5	61	38	13	59	--										
6	53	34	30	53	45	--									
7	61	35	21	57	51	50	--								
8	47	40	08	38	24	45	36	--							
9	36	15	29	31	36	43	45	32	--						
10	16	13	11	23	17	18	22	06	29	--					
11	33	-02	-01	27	45	39	29	04	42	19	--				
12	60	14	10	53	59	58	62	34	45	20	47	--			
13	39	31	24	43	36	40	37	30	26	27	16	43	--		
14	60	32	28	61	63	59	60	34	52	08	47	60	37	--	
15	47	24	11	49	49	57	46	36	26	14	39	48	39	51	--

^aDecimals omitted.Table B.23. Interrater correlations: Lay citizens from community 7^a

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	--														
2	16	--													
3	29	19	--												
4	24	34	36	--											
5	21	27	26	46	--										
6	21	31	34	50	29	--									
7	-01	11	33	22	13	17	--								
8	17	23	39	47	45	39	26	--							
9	11	19	36	49	45	27	21	59	--						
10	15	15	35	16	06	29	10	06	06	--					
11	14	32	25	53	43	54	29	46	36	16	--				
12	23	34	48	36	15	41	31	32	30	29	33	--			
13	31	26	36	51	27	44	17	41	43	19	38	44	--		
14	08	35	12	53	47	36	16	40	48	04	40	20	35	--	
15	11	33	37	71	59	44	23	54	59	05	53	33	49	57	--

^aDecimals omitted.

Table B.24. Statistically significant correlations of individual ratings of goal importance with individual ratings of ten importance factors and with two subscales from the Education Scale^a

Goal number	Importance factors ^b										Subscales from Education Scale	
	1	2	3	4	5	6	7	8	9	10	P ^c	T ^d
1A	--	--	--	--	--	--	--	10*	--	--	--	--
1B	--	--	--	12**	-09*	--	--	--	--	--	--	--
1C	--	--	--	--	--	--	--	--	--	--	09*	--
2A	--	--	09*	15**	--	--	14**	--	-12*	--	09*	--
2B	--	-11*	--	--	--	--	--	--	--	--	14**	--
2C	-10*	-13**	--	20**	--	--	--	--	--	--	--	--
3A	--	--	--	--	--	--	--	--	19**	15**	--	--
3B	--	-10*	09*	12**	-10*	--	--	--	--	--	--	--
4A	--	--	10*	--	--	--	--	--	--	--	--	10*
4B	--	--	--	--	--	--	--	--	--	--	--	--
5A	--	--	--	12*	--	--	--	--	--	--	--	--
5B	--	--	--	--	--	-09*	--	--	--	--	--	--
6A	--	--	--	-09*	--	--	--	--	--	--	--	--
6B	--	--	-11*	--	--	--	--	--	--	--	--	--
7A	--	--	--	11*	-16**	-13**	--	--	--	-12**	--	--

^aDecimals omitted.

^bFactor names appear in Table 4.7.

^cProgressivism scale.

^dTraditionalism scale.

*Significant at $p < .05$.

**Significant at $p < .01$.

Table B.24 (Continued)

Goal number	Importance factors ^b										Subscales from Education Scale	
	1	2	3	4	5	6	7	8	9	10	P ^c	T ^d
7B	--	--	--	--	--	--	--	--	--	--	--	--
8A	--	--	--	--	--	--	--	--	--	--	--	-10*
8B	--	-14**	09*	--	--	--	--	--	-18**	--	--	--
8C	--	--	--	11*	--	--	09*	--	--	--	--	--
8D	--	--	--	--	11*	--	--	--	--	--	--	--
9A	--	-12*	--	09*	--	--	--	--	-15**	--	--	--
9B	--	--	--	--	--	11*	12**	--	--	--	--	--
10A	11*	12**	--	-12*	--	10*	--	--	--	--	--	--
10B	--	--	09*	--	--	--	-12*	--	--	-11*	--	--
10C	--	--	--	--	16**	09*	--	--	--	--	--	--
11A	--	--	--	--	--	--	--	--	--	--	--	--
11B	--	--	--	--	--	--	--	--	--	--	--	--
11C	--	--	--	--	--	--	-10*	--	--	--	--	--
11D	--	--	--	--	--	--	-09*	--	--	--	--	--
12A	--	--	--	--	--	--	--	--	--	--	--	--
12B	--	12*	--	--	--	--	--	--	--	--	--	--
13A	--	--	--	--	--	--	--	09*	--	--	--	15**
13B	--	09*	--	--	--	--	-09*	--	--	12**	--	19**
13C	--	--	--	--	--	--	--	--	--	10*	--	16**
13D	--	--	--	--	--	--	--	--	--	--	--	11*
13E	15**	12**	--	--	--	--	--	14**	19**	--	--	--
13F	--	--	--	18**	--	--	--	--	-09*	--	--	--
13G	--	--	--	--	--	--	--	--	--	--	--	--
14A	--	-14**	--	14**	--	--	-14**	--	--	--	--	10*
14B	--	--	--	--	--	--	--	09*	--	--	--	--
15A	09*	10*	--	--	--	--	-11*	--	--	--	--	--
15B	--	--	--	--	--	--	-10*	--	--	--	--	--
15C	--	--	--	--	--	--	--	--	-09*	--	--	--
15D	--	--	--	--	--	--	--	--	--	--	--	--

Table B.24 (Continued)

Goal number	Importance factors ^b										Subscales from Education Scale	
	1	2	3	4	5	6	7	8	9	10	P ^c	T ^d
16A	--	--	--	09*	--	--	--	--	-17**	--	--	--
16B	--	--	--	10*	--	--	--	10*	--	09*	--	--
16C	--	--	--	--	--	--	--	--	-12*	--	09*	10*
17A	--	-10*	--	--	--	--	-11*	--	-13**	--	--	--
17B	--	-10*	--	--	--	09*	--	--	24**	--	--	--
18A	--	--	--	--	--	--	--	--	--	--	--	--
18B	--	--	--	--	--	--	--	--	--	--	--	--
19A	--	-09*	--	13**	--	--	--	--	--	--	--	--
19B	--	--	--	--	--	--	--	--	-10*	--	11*	--
20A	-12*	-09*	--	--	--	--	--	--	--	--	--	--
20B	--	--	--	--	--	--	--	--	--	--	--	--
21A	--	--	--	--	--	--	--	10*	17**	12**	--	--
21B	--	--	--	--	09*	--	--	--	10*	09*	--	--
21C	-15*	--	--	--	--	--	--	--	--	--	--	--
22A	--	--	-15**	--	--	-12*	--	--	--	--	--	--
22B	-13**	-09*	--	--	--	--	--	-10*	--	--	--	--
23A	--	--	--	--	--	--	-09*	--	--	--	--	--
23B	--	--	--	--	--	--	-12*	--	--	--	--	14**
23C	--	--	11*	--	09*	10*	--	--	--	--	11*	--
24A	--	12**	--	-10*	--	--	--	10*	--	--	--	--
24B	--	--	--	--	--	--	-10*	--	--	--	--	--
25A	--	--	-09*	--	--	--	--	--	--	12*	--	--
25B	--	--	-09*	-11*	--	--	--	--	--	10*	--	--
26A	12*	10*	-10*	-12*	--	--	--	--	10*	--	--	--
26B	--	--	--	--	13**	--	--	--	12*	--	--	--
27A	--	-14**	--	12*	--	--	--	--	--	--	--	--
27B	--	-13**	--	09*	--	--	10*	--	--	--	--	09*
28A	--	--	--	--	--	--	--	--	10*	12**	--	--
28B	--	--	--	--	--	--	--	--	--	--	--	--

Table B.24 (Continued)

Goal number	Importance factors ^b										Subscales from Education Scale	
	1	2	3	4	5	6	7	8	9	10	pc	T ^d
29A	--	--	--	--	--	--	--	--	--	--	--	09*
29B	--	-13**	16**	16**	--	--	--	--	-10*	--	--	--
30A	--	-12**	10*	09*	09*	--	--	--	-09*	--	--	--
30B	--	-15**	--	15**	--	--	--	--	-15**	--	-09*	--
30C	--	--	--	--	11*	17**	--	--	--	--	--	--
31A	09*	--	18**	14**	--	12*	--	11*	--	--	-09*	--
31B	--	--	--	--	--	--	--	--	--	--	11*	--
31C	--	--	09*	10*	--	--	--	--	--	--	--	--
32A	--	-10*	--	15**	--	--	--	--	--	12*	--	--
32B	--	-19**	--	21**	--	--	--	--	--	--	--	--
32C	--	--	--	--	--	--	--	--	--	--	--	--
33	--	10*	--	--	--	--	--	--	12*	17**	--	--
34	--	--	--	--	--	--	11*	--	--	16**	--	--
35A	--	--	09*	09*	--	--	--	--	--	--	--	--
35B	--	--	--	--	--	--	--	--	--	--	--	--
35C	--	--	--	--	--	--	--	--	--	--	--	--
35D	--	--	14**	09*	--	--	--	--	-10*	--	--	--
35E	--	--	--	--	--	--	--	--	--	--	--	--
35F	--	--	--	--	--	--	--	--	-09*	--	--	--
35G	--	--	11*	12*	--	--	--	--	--	--	--	--
36A	--	--	--	--	--	--	-10*	--	--	--	--	09*
36B	--	--	--	--	--	--	--	--	--	--	--	-11*
37A	-10*	-14**	--	16**	--	--	--	--	--	--	--	--
37B	--	--	13**	16**	--	--	--	--	-11*	--	--	--
38A	--	--	--	--	--	--	--	--	--	11*	-11*	10*
38B	--	--	16**	--	--	--	--	--	--	--	--	--
39A	--	--	--	09*	--	11*	--	--	--	14**	09*	10*
39B	--	--	--	15**	--	--	--	--	--	11*	09*	--

Table B.24 (Continued)

Goal number	Importance factors ^b										Subscales from Education Scale	
	1	2	3	4	5	6	7	8	9	10	P ^c	T ^d
40A	--	-10*	12*	19**	--	--	--	--	--	--	--	--
40B	--	-11*	--	20**	-10*	--	--	--	--	--	--	--
41A	--	--	--	--	--	--	--	--	--	13**	--	11*
41B	--	-11*	09*	--	--	--	--	--	-09*	10*	--	--
41C	--	--	--	--	--	--	13**	--	13**	17**	--	--
42A	--	--	--	11*	--	--	--	09*	09*	--	--	--
42B	--	--	--	12*	--	--	--	09*	--	--	--	--
43A	--	--	--	--	--	--	--	--	--	--	--	--
43B	--	--	11*	19**	--	--	--	--	--	--	--	--
44A	--	12*	--	--	22***	16**	--	15**	10*	12**	--	--
44B	09*	--	--	--	14***	24**	--	--	--	09*	--	--
44C	--	--	--	09*	15***	18**	09*	--	--	--	--	--
44D	--	--	12*	10*	11*	18**	--	--	--	--	--	--
45A	--	09*	-12**	--	--	09*	--	--	--	14**	11*	--
45B	--	--	-12**	--	--	10*	--	--	--	11*	--	--
45C	--	--	--	--	--	--	--	--	--	09*	--	--
46	--	-10*	16**	16**	--	--	--	--	09*	--	--	--

Table B.25. Analysis of variance testing for mean differences among students, educators, and lay citizens for importance factor 1: School time

Source	Degrees of freedom	Sums of squares	Mean squares	F - value
Between groups	2	10.8357	5.4178	4.5925*
Within groups	370	436.4961		
Total (corrected)	372	447.3318		

*P < .05.

Table B.26. Analysis of variance testing for mean differences among students, educators, and lay citizens for importance factor 2: School money

Source	Degrees of freedom	Sums of squares	Mean squares	F - value
Between groups	2	12.9084	6.4542	4.5286*
Within groups	370	527.3259	1.4252	
Total (corrected)	372	540.2344		

*P < .05.

Table B.27. Analysis of variance testing for mean differences among students, educators, and lay citizens for importance factor 3: Importance for all students

Source	Degrees of freedom	Sums of squares	Mean squares	F - value
Between groups	2	3.6372	1.8186	2.1658
Within groups	370	310.6917	0.8397	
Total (corrected)	372	314.3289		

Table B.28. Analysis of variance testing for mean differences among students, educators, and lay citizens for importance factor 4: Importance for adults

Source	Degrees of freedom	Sums of squares	Mean squares	F - value
Between groups	2	23.3184	11.6592	10.4822**
Within groups	370	411.5464	1.1123	
Total (corrected)	372	434.8647		

**P < .01.

Table B.29. Analysis of variance testing for mean differences among students, educators, and lay citizens for importance factor 5: Personal importance for the respondent

Source	Degrees of freedom	Sums of squares	Mean squares	F - value
Between groups	2	18,2820	9.1410	9.2595**
Within groups	370	365.2634	0.9872	
Total (corrected)	372	383.5454		

**P < .01.

Table B.30. Analysis of variance testing for mean differences among students, educators, and lay citizens for importance factor 6: Importance for the respondent's children

Source	Degrees of freedom	Sums of squares	Mean squares	F - value
Between groups	2	10.2874	5.1437	4.6942*
Within groups	370	405.2999	1.0958	
Total (corrected)	372	417.7173		

*P < .05.

Table B.31. Analysis of variance testing for mean differences among students, educators, and lay citizens for importance factor 7: Importance for people 40 years from now

Source	Degrees of freedom	Sums of squares	Mean squares	F - value
Between groups	2	3.3333	1.6666	1.0129
Within groups	370	608.7708	1.6453	
Total (corrected)	372	612.1040		

Table B.32. Analysis of variance testing for mean differences among students, educators, and lay citizens for importance factor 8: Respondent's preference in subject matter

Source	Degrees of freedom	Sums of squares	Mean squares	F - value
Between groups	2	0.5039	.2520	.2585
Within groups	370	360.6665	.9748	
Total (corrected)	372	361.1704		

Table B.33. Analysis of variance testing for mean differences among students, educators, and lay citizens for importance factor 9: Likelihood of attainment

Source	Degrees of freedom	Sums of squares	Mean squares	F - value
Between groups	2	20.1372	10.0686	7.0857**
Within groups	370	525.7625	1.4210	
Total (corrected)	372	545.8997		

**p < .01.

Table B.34. Analysis of variance testing for mean differences among students, educators, and lay citizens for importance factor 10: Stress on goals in respondent's home

Source	Degrees of freedom	Sums of squares	Mean squares	F - value
Between groups	2	20.1201	10.0601	7.6568**
Within groups	370	486.1335	1.3139	
Total (corrected)	372	506.2537		

**p < .01.

Table B.35. Neuman-Keuls values for factors with statistically significant F - values

Factor number	Neuman-Keuls values at $p < .05$	
	w_2^a	w_3^b
1	.299	.357
2	.329	.392
4	.291	.348
5	.273	.326
6	.288	.344
9	.329	.392
10	.316	.377

^aThe smallest significant difference at the .05 level between two adjacent means.

^bThe smallest significant difference at the .05 level between two nonadjacent means.