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THE UNIVERSITY OF ALBERTA

FACTOR ANALYTIC STUDY OF ELEMENTARY SCHOOL GOALS

by

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A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE

OF DOCTOR OF PHILOSOPHY

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THE UNIVERSITY OF ALBERTA

FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled Factor Analytic Study of Elementary School Goals

submitted by John O. Anderson

in partial fulfilment of the requirements for the degree of Doctor of Philosophy

J. O. Maguire
Supervisor

External Examiner

DATE July 21, 1978

This thesis is thoughtfully dedicated to

Jeanny Spoons and Quin McGee.

ABSTRACT

The purpose of this study was to investigate the structures underlying the perceptions of importance of educational goals to the elementary school. To do this, individuals were requested to estimate the importance to the elementary school each of 118 educational goals.

Teachers, citizens, and students of Camrose, Alberta and surroundings were involved in the study as respondents. In all 423 individuals rated the goals. The ratings produced were used to determine overall goal priorities and correlations between the goal statements. These correlation matrices were factor analysed by the principal axes method. The solutions were rotated to an orthogonal solution (Varimax) initially, then to a final oblique solution by Promax rotation. The final solutions of eight factors were then compared by means of the Ahmavaara matching method, a Procrustean rotation technique.

Correlations between the groups' mean goal ratings were high and positive, indicating a similarity in the pattern of ratings assigned each goal by each group - Teacher, Citizen, and Student. Goals of a general nature received the highest ratings; these included the 3 R's, interpersonal skills, health and safety goals, and attitudes which are adaptive to one's environment - the school and the community. Goals related to specific curricular areas such as science, geography, social science, music, arts and crafts, and

history received moderate ratings. Goals related to French and foreign language received the lowest ratings.

The factors common to both the Teacher and the Citizen solutions were: 1. general human competencies; 2. intellectual/cognitive skills; 3. basic skills(3R's); 4. French and foreign language, music, arts and crafts and physical education. The other factors were centred more on curricular content goals and were different for the Teacher and the Citizen groups.

The Student data was reduced to 87 goal statements because of apparent difficulties in the understanding of the goal statements. The solutions were thus confined to more curricularly specific factors. The study did indicate a common structuring of importance perceptions by Teachers and Citizens particularly with respect to general areas of the elementary school. Differences became apparent with more specific, curriculum based goals.

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The writer feels that appropriate acknowledgement of the wife and dog is accorded by the dedication of this thesis.

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CHAPTER ONE

INTRODUCTION

> A truly rationale discussion of collective action in general or in specific contexts is necessarily complex, and what is even worse, it is necessarily incomplete and unresolved. Rationality after all, has to do with means and ends and their relation. It does not specify what the ends are. It only tries to make us aware of the congruence or dissonance between the two. So ultimately any value discussion must come to rest temporarily on unanalyzed postulates. There is an infinite regress as we try to justify one value judgement in terms of supposedly deeper ones. (Arrow, 1974, p. 17)

INTRODUCTION

This is surely a situation in which Education finds itself currently. There is so much to do, yet what is to be done and in what sequence and how? Many plans and programs rely upon clearly specified intentions which can be used in developing and evaluating that program. The number and kinds of tasks schools are being requested to do is continually increasing. In a situation in which you have more tasks than you have resources of time, money, or manpower, decisions must be made about which tasks should be attended to; which should be left alone.

An environment of limited resources is the nature of the school's situation. It has more things to do than it has

the capacity to accomplish. In a natural environment of limited resources, the resources are 'distributed' through competition, those organisms most able to acquire the resources do so; those least able do not acquire the resources. To an extent this occurs in the educational situation. Those programs most able to attract support, gain access to the resources of the school and survive in the sense that they become part of the school's curriculum. Those programs which do not gain acceptance, do not gain access to the resources of the school and do not survive in the school's curriculum.

In a natural environment of limited resources, individuals of different species compete for those resources in order to survive. Functionality and chance appear to be the major factors influencing success.

Many people prefer to consider the educational environment to be a rational system in that there is overall purpose directed by values. There is reason for particular programs to be included in the school's activities and these reasons are based on the values which determine the ends the school is trying to meet. To establish rationality in the educational process most models of educational programs include as a starting point the conceptualization of purpose - the goals of the program are determined. The overall goals of the school are determined from sources such as philosophers, educational commissions, noted educators, and other accessible and credible individuals and groups of

individuals. These general goal descriptions are translated into more concrete, specific forms which are more closely related to school activity. From these more specific goal statements, teaching learning processes are then developed.

The area of specifying educational intent has received much attention for more than two decades now with the well known behavioral objective-cum-criterion referenced testing movement. The popularity of this approach owes much to its obvious logic. By stating precisely what the instruction is intended to accomplish, designing the instruction to accomplish this end, and then testing to determine whether (and to what extent) the objective has been achieved, the educator is able to create a cycle of revision to achieve the desired ends. However, the emphasis of this approach is on format and procedure, not content. It has been pointed out (Taylor and Maguire, 1966) that objectives can be considered from two viewpoints - a measurement viewpoint and a value assessement viewpoint. The measurement viewpoint considers the accuracy with which intentions are described by the objectives. The intentions can be described at different levels of specificity. At a general level the description would be termed a goal. At a more specific level the intention can be described in terms of student behavior which is considered to be indicative of the intention. At this level of specificity, the description would be termed an objective or a behavioral objective. The intention then, can be translated from a global, general level such as a

value statement to a more specific goal statement to yet a more specific behavioral objective. The precision with which these translations are made is the concern of the measurement viewpoint. The value assessment viewpoint considers the worth of the intention expressed by the objective. The development of specific statements of intentions is a necessary component of the instructional strategy but the nature of the intent must also be addressed.

The movement has produced a plethora of objectives which describe in a very specific manner possible outcomes of instruction. Yet at the same time there appears to exist an overall lack of cohesiveness and direction in public education systems. Recent concern over declining scores on standardized achievement tests has produced vocal calls for the re-emphasis of the basics in schooling. Apparent shifts in the nature of society have resulted in moves to reduce the permissiveness of the instructional strategies in the schools. Perceived destruction of the individual by the bureaucratization of society has led to attempts to centre schooling on affective ends. Increased interest in the maintenance of ethnic identity has resulted in the inclusion of more foriegn language and culture programs in the schools. The present status of physical fitness of Canadians and the possible increased amount of available leisure time has prompted calls for more physical education in the schools. Not only have the calls been for more but many of

the requests are antagonistic to one another. Two questions that have to be addressed are: Is there any pattern to this seeming patchwork of requests and demands? Are there priorities of objectives for the school to work towards?

It would be of interest and potential benefit to determine the ways in which people perceive the school. Is the school and its functioning perceived in the same way or is it different things to different people? It has been suggested (Sjoberg, 1975) that in a pluralistic society any client-centred institution should be expected to have a diversity of functions and expectations placed upon it. If this is so, then in Canada which officially encourages diversity one could expect many perspectives on what the school is or at least what it should be. On the other hand, perhaps the school is commonly perceived as having one or two basic functions; the requested changes referring to peripheral functioning only or coming from vocal minorities.

That different perspectives of what the educational process should be certainly do exist is evident in the different philosophies of education expressed by various writers (White and Duker, 1973). Since there is variation in the models propounded by professionals, there is no compelling reason to believe that a unitary system of perceptions exists within the groups of individuals that have a legitimate interest in public education systems. Much has been written about what educational systems (eg; schools) should be doing but surprisingly few studies have

investigated the nature of educational perceptions empirically. Given descriptions of various goals current in elementary schools, will patterns or relationships between these goals be perceived and if so, to what extent will these relationship structures vary amongst different people? Are there differences in perceptions and expectations in different groups of people? Would patterns that do emerge have any congruence with patterns developed through conceptual analysis?

A recent review of Canadian educational policy (OECD, 1976) remarked on the apparent lack of goal directed policy to provide cohesive, meaningful direction for development in the public schools in Canada, or for that matter within any province. This is certainly an unusual situation: no overall direction for education, increased concern expressed for the need for explicit statements of intention, an increase in the quantity of explicit statements of intention, and little empirical study into the sources and the nature of those intentions.

Knowing the patterns in which educational goals are perceived to exist, inferences can be developed about what general kinds of things the school is perceived to be doing. Further, different overall purpose of the school may exist for different groups of people. If indicators of priority are available, relative measures of importance or worth of various activities could be developed.

Most previous studies (eg., Downey, 1960) investigating

important functions of the schools have through conceptual analysis provided general goal statements for individuals to rank. These goal statements are generally few in number (eg., 18) and rather general in level of description. The purposes of the schools have been condensed and in this way pattern has been imposed on the purposes of the school by the researchers. By taking the multitude of goals and abstracting, in effect constructing, the sixteen or eighteen major goals, much structure has been incorporated into the results before the goal statements are rated by the subjects involved in the study. Using more specific descriptions of goals (i.e.,objectives), less structure is built into the situation, and more structure can be imposed by the individual rating these goal statements. The present study used more objectively descriptive statements to disclose the patterns individuals perceive in school goals. It has to be pointed out that any descriptive statement contains preformed patterns, assumptions if you like; otherwise no meaningful perception exists or at least exists to be communicated. What the present study used were minimally inferential yet relatively exhaustive descriptions of school goals for individuals to rank in order of relative importance. These statements are educational goals stated at a relatively concrete level (level 2 according to the classification of Krathwohl and Payne, 1971), and so interpretation of their meaning should be relatively standard. By having people use one dimension (importance to

the elementary school) along which to discriminate amongst these goal statements, patterns of relationships were detected. Further, the goal statements were ordered in relation to the importance ratings.

PURPOSE OF THE STUDY

The major objective of the study was to investigate structures underlying the perceptions of the goals of the elementary schools. To generate data suitable for this study, individuals assigned values to each of 118 relatively specific goal statements. The base upon which the goals were valued was the importance of the goal to the elementary school. As a result of this process the study also produced measures of the perceived importance of each goal used. Since there is reason to expect differences in perceptions of goals by different people, different groups of subjects were investigated. Students, Teachers, and Citizens were the subject groups studied.

The study had two major phases of data analysis:

1. Description of the structures underlying a set of elementary school goals for Teachers, Students, and Citizens; and
2. Determination of educational priorities in relation to these goals (and structures) for Teachers, Citizens, and Students.

CHAPTER TWO

LITERATURE REVIEW

EDUCATIONAL GOALS IN GENERAL

There are at least two ways of discussing goals in relation to education: 1) the use of goals to provide a basis for planning and development ; 2) the use of goals (objectives) to provide a basis for measuring performance (achievement) of an educational process, be it a whole system or a particular segment of an individual instructional unit. Although the categories are by no means exclusive, the former tends to be in the domain of educational administration, the latter that of measurement and evaluation.

Quade(1975), writing on public policy said that in decision making or policy formation which relies upon analytic procedures, a criterion must be described upon which decisions or policy are to be based. The criterion will be a purpose, goal or objective of that decision or policy. The decision will be made in a manner which will increase the probability of achieving that objective. Through numerous such decisions, a policy can be formulated which is related to the objectives of concern. Quade pointed out that for this criterion based analytic procedure to actually occur in policy formation, goals and objectives

must be clearly and fully perceived. Some problems exist with goal determination and description. With a multitude of goals, all goals are unlikely to be maximally achieved or even intended to be maximally achieved due to limited resources or the antagonistic nature of the goals. Further, the goals of the situation may not be clearly communicated. Quade makes the interesting observation:

> Legally, there are few requirements for policy-makers to make clear statements of their goals. On the other hand, in many circumstances, there are clear political advantages in being ambiguous about , and even silent, concerning goals and objectives. (p. 85)

Another source of problems comes from the number of goals involved in a complex activity such as schooling. Besides having difficulty determining what the goals are, those described are generally not acceptable to all individuals involved in utilizing them. To collect information from a group of people and somehow determine a set of group goals does not appear to be possible. Regardless of what compromises or adjustments are made, some members of the group will be opposed to at least part of the goals developed. Of course, agreement amongst all individuals may be possible on very general goals since a multitude of interpretations are possible, but this is just disguised disagreement and with increasing specificity of description, outcomes become operationally described and differences of opinion concerning intended outcomes also become operational since interpretation of meaning becomes standardized.

In relation to evaluation Sjoberg(1975) noted that rather than complaining about vagueness, ambiguity, and the in-built antagonisms of program goals, evaluators should consider this the nature of these programs. He makes the point that client-centred institutions such as schools do not necessarily fit an input-output model used to characterize commercial institutions which have relatively clear cut goals related to corporate profit. If schools are to serve the needs of individuals (as well as society) multiple goals are to be expected, indeed they are essential to successful functioning.

He goes on to point out that much of the data collected from people involved in a particular social system will tend to be unrepresentative of the total population involved. The instruments used to collect the data will be formulated relative to a particular perceived structure. A physical education establishment may be viewed by some as functioning psimarily to inculcate in participants a life philosophy or 'character'. Others may view this establishment as functioning to fill in some leisure time of the participants. Evaluation instruments based on the former perspective will vary from those of the latter. The perspective(s) used in formulating test instruments and in turn the data collected will tend to be heavily influenced by those groups within that system which are most articulate and active. The test instrument then produces a limited view of the system in spite of representative sampling of the

population of participants to which the instrument is administered. In effect, the sampling of the variables is not representative of that system. So, given a complex, ambiguous situation, unrepresentative data are unlikely to be of benefit in sorting it out. A possible way around this problem is to use a relatively unstructured data collection instrument, one which is objectively descriptive of all aspects of the institution, or at least an extensive sampling of all aspects. Administered to a sample representative of the population of interest, the results can be used to determine the existence and nature of the structure of the phenomenon for the individuals and subgroups of the sample.

Both Quade and Sjoberg describe problems in attempting to develop a cohesive structure of goals, a policy statement. Alexander (1976) suggested that should goal systems be described in spite of the problems in developing realistic reflections of intent, they would be of limited value. Goal statements in the past have had negligible effect on educational decisions or processes. They are not part of the operating milieu of most educational organizations. Yet there is demand for descriptions of the aims and directions of the school. Organizational goals are believed to exist, and people want to know what they are. So, goal statements are issued but are these stated goals real? Alexander finds no agreed upon procedure for determining goals of an organization such as a school or

educational system. The goals, if produced, are rather general and open to interpretation(perhaps to give the appearance of agreement). People who need specific goals, such as evaluators and researchers will have to translate these policy type goals into specific, measurable objectives. In doing so, new goals can be generated reflecting the biases of the interpretor. These new goals may be viewed by the administrator not as translations of policy type goals but as goals towards different ends than he had intended. Since these specific goals are 'designed' for measurement purposes, they can serve as a basis for collecting information about that educational unit. The nature of the information and in turn the implications that can be drawn from it are closely related to the manner in which the researcher or evaluator translated the general goals into more specific statements of intent. As Alexander points out; 'This is tantamount to giving the researcher broad powers to interpret the aims of the program and decide which slice of reality is most important for assessing its effectiveness.' (p.55). Further, the researcher may not choose goals which are most important in terms of overall program purpose but rather those which are most amenable to measurement. In this way, other things being equal, measurability is directly related to importance of a goal; the goal which can and is measured is important in determination of the effectiveness of that program. An 'important' goal which is not measured does not influence

determination of effectiveness and so is not operationally important.

Mohr (1973) also addresses this problem of determining organizational goals; ' ... a useful conceptualization of this concept [organizational goal] is likely to call for the empirical determination of goals, not for the declaration of an official mission or some imputation of goals by the analyst.' (p.472) Mohr views organizational goals as necessary in assessing organizational effectiveness yet much organizational behavior need not be goal directed. He makes an interesting and potentially useful distinction between reflexive and transitive goals. A transitive goal is the intended output or product of the organization. A reflexive goal is an internally oriented goal, related to the maintenance and enhancement of the institution. Both are characteristic of an organization such as a school. The school is attempting to produce educated humans; this would be transitive in nature. The school is also attempting to maintain its own existence and integrity; this is reflexive in nature. Both types of goals should be considered interdependent. Measurement and evaluation concerns are primarily with what Mohr terms transitive goals - the outputs of the system, without much attention being paid to the reflexive goals. Administrators must maintain the existence of the school. The extent to which transitive goals are perceived to be achieved influences the existence of the school and what it becomes. Evaluation studies

concentrate on transitive goals yet for participants of the program being evaluated (students, teachers, administrators), the reflexive goals may have the greatest impact. The esprit de corps developed during the implementation of an experimental program may have more immediacy and impact on the participants than the transitive goals which are used by the evaluators in assessing that program. So a program which is viewed as a great success by participants may be measured as doing the same job as the regular program by the evaluators. Although the same program is being considered, different aspects of it are being used by the different groups in assessing it. The goals the present study worked with are transitive goals.

The focus on transitive goals of education by measurement and evaluation is clearly evident in the writing of Krathwohl and Payne (1971):

> Educational objectives are the goals and purposes that it is hoped will be realized through a system of education. To the extent that these objectives are defined clearly, it can be determined whether or not the system is doing what one wishes it to do. (p. 17)

Further, they view the goals as concerned with changes in student behavior, this is the product of the school. The curriculum is directed by these goals or objectives. The concept of reflexive goals is not discussed by Krathwohl and Payne.

In a review of evaluation methodology, Alkin and Fitz-Gibbon (1975) make it evident that goals (of a transitive

nature) are critical in interpreting the results of evaluation. Indeed, some of the most important information collected is what the goals of the program are - whether explicitly described by those involved in the operation of the program or inferred by the evaluators in a 'goal-free' evaluation procedure. Alkin and Fitz-Gibbon describe the well known formative/summative distinction. It should be pointed out that although formative evaluation is related to process goals and summative evaluation is related to outcome goals, both are focused on what Mohr would term transitive goals; the products of the program.

Scriven (1967) on evaluation methodology also assigns a central position to the role goals have to play. The maintenance of an up to date description of program goals related to a test question pool is important not only to monitoring the program but to the existence of the program. Without knowing what the program is attempting to achieve (the goals) and without knowing to what extent these attempts are successful (testing), Scriven sees little chance for the survival of that curriculum. Scriven (1972) also conceived of goal-free evaluation, yet even here goals are of importance. Rather than relying upon goal descriptions given by the program administrators to base an evaluation, evaluators should investigate the products of the program without reference to stated program goals. He argues that by using provided goal descriptions, evaluators' perceptions and procedures are pre-conditioned. An evaluator

viewing a program without this 'set' may be able to obtain a much more objective picture than otherwise. This relates closely to Sjoberg's point of institutional 'set' structuring or biasing the nature of the data collected. If the structure itself is being investigated, bias can be minimized by using minimally structured data collection procedures.

Many of the difficulties and problems with the use of goals and objectives in organizations as reported by Quade, Sjoberg and Alexander, and much of the attention paid to goals by educators can be traced to the translation of general statements of intent into descriptions of adequate specificity. Teachers must have an operational understanding of the intention of a particular program in order to conduct classes or lessons which will tend to realize those intentions. Individuals, such as teachers and evaluators who have to build tests to determine the extent of achievement of goals, must have an operationally specific description of these goals. Individuals such as parents and taxpayers use goals which are stated in language that is readily comprehensible and general enough that an overall picture of the goals of the school (not just one program within the school) can be obtained. The general public 'use' goals at least to the extent of rationalizing their support in the form of taxes for public education.

The global descriptors of school functioning such as 'back to basics', 'values education', or 'free schools' have

generally agreed upon meanings. Various subgroups within the general public disagree upon the worth of these movements but there appears to be consensus on what the terms mean at a global level. Taylor and Maguire(1966) incorporated this concept of varying levels of specificity being related to various groups into their theoretical evaluation model. The most general level of specificity is that of goals and values which characterize the intentions of various components of society for the school. These intentions find expression through statements of educational policy by political, academic, and social groups. This level of generality is broad so the goals are indicative of the general direction with much latitude available in translating to a more specific level. 'Curriculum planners' translate these broad statements of intent into behaviors' a student of the program should exhibit after having been educated (or at least exposed to the relevant portion of the program). The final stage is the translation of these objectives from words to actions; to implement the curriculum in the classroom. The translators would be individuals such as classroom teachers and others who directly effect classroom activity. It would be the usual case that specific objectives are translated from the goal statement level and this translation can cause problems in accurate communication of intent. Maintaining support for the intention once its implications for the classroom are realised can be a subsequent problem.

Page(1974) uses this same idea of differing levels of specificity of description in considering educational values. In general, the values vary in both content and specificity with which they are described. The specificity varies from the most generally stated intentions (values) to the most specifically stated (items or behaviors). He views objectives as related to items or behaviors; objectives are described in terms of human behavior. Translation of intentions along the continuum of specificity would run from values to goals to objectives, and would be done by functionally different groups within the educational system. The people involved at the most general level are members of the general community - parents, taxpayers, citizens, board members, and local officials. These people need not be specific about what they mean in terms of intentions, as Quade(1975) pointed out it may in fact be against their interests to specify what they mean. At the specific end, those involved would be '... psychological and subject-matter experts who thoroughly understand the details and their relative importance within the topics considered.' (p.575) Page(1972) sees two problems in this area. One is that of accurate translation. Broadly stated, intentions such as contentment, comittment, or adjustment do not have a close relationship to what is going on in the classroom. On the other hand, behavioral objectives are, of themselves, remote, fragmentary, isolated and lacking in relevance. The link between these highly specific statements of intent and

the global, value statements gives cohesiveness, structure, and relatedness to the curriculum. The second problem is comparability of goals; how can the value of a mathematics program be relatively and realistically compared to the value of say, a physical education program? Page has developed a method of assigning quantitative values to each goal statement within a particular level of specificity. The method produces a score which is comparable across content areas within the level of specificity considered. The basis of this comparability is the determination of values for each goal involved in all the curricula of the school system. Page et al. (1976) have extended this concept to an operations research approach to the determination of what a curriculum should be for 'maximum possible benefit.' Critical to this is the determination of value. This procedure has been a stumbling block in rational educational decision making:

> One major reason has been a defect in education itself: the lack of any clear "objective function" - any measure of definite, agreed-upon importance to the educational system. Yet ... a decision is dependent on values, whether stated, understood, or intuitive. There is no theory of rational decision-making which does not presume some pre-existing value system. To the extent that we have made educational decisions rather than simply following habits, conventions, or random error - to that extent we already have some operative system of values.
>
> The problem, therefore, consists in making such a value system explicit, in bringing it out into the open. (pp. 36-37, 1976)

So a 'value system' could be operative in that decisions

have been consciously made on some criteria. The criteria utilized may not be apparent until a decision is required.

RELATED STUDIES

In the previous section the need for goals to rationalize planning in educational systems was pointed out along with many of the problems that are associated with goals. The major problems discussed were the multiplicity of goals and the difficulty in operationalizing goals (or translating goals into more specific objectives). However, the problem of goal determination was not an apparent issue. Mohr stated that goals should be empirically determined, but Alexander wrote that he knew of no agreed upon procedure of goal determination. Yet goal studies in education are not uncommon.

A classic goal study is that reported by Downey(1960). This study '...had two broad purposes: first, to identify the elements of the tasks of public education; and second, to determine the extent to which the public perceived those elements to be important aspects of the task of the public school.' (p.6) Through an extensive review of relevant literature, the elements of public education were determined to be: 1) the intellectual; 2) the social; 3) the personal; and 4) the productive. Expanding these four elements of

public education, sixteen goals were developed which described the purposes of public education for the elementary school and sixteen statements related to the high school. A Q-sort methodology was employed. The subjects involved in the study were required to sort these sixteen statements into piles along a continuum of importance. Five North American regions served as population centres for the sampling: the New England States, the Deep South, the Midwest, the West Coast and the prairie provinces of Canada. For each item and each 'sub-public' weighted rank means were compared. Further, a factor analysis was conducted to '... identify basic differences in points of view towards the school's task, and corresponding clusters of respondents.' (p.33) The most consistent finding was the high ranking (number one) that intellectual skills received from all samples. Intellectual skills were described in the item (the goal statement) as 'the basic tools for acquiring and communicating knowledge -- the 3 R's.' Another general finding was that the productive aspects (those goals related to vocationally oriented education) of education's task were assigned positions of relatively low importance. It was also found that opinions of elementary school tasks were essentially the same as those for high school. The overall results of the rankings are presented in Table one.

In terms of regional differences, Canada was 'th greatest deviant, favored intellectual, world-citizenship, and aesthetic development but minimized the physical and

TABLE 1

Means and ranks of elementary and high school task dimensions by composite educator and non-educator samples. (from Downey, 1960, p.37)

	Elementary School				High School			
Task Dimension/ Item	Educator		Non-Educator		Educator		Non-Educator	
	mean	r	mean	r	mean	r	mean	r
Knowledge	3.32	11	3.32	13	3.08	14	3.20	13
Intellect.Skill	6.27	1	6.02	1	5.48	1	5.51	1
Creativity	4.98	4	4.99	4	5.10	3	4.85	3
Desire Knowledge	5.29	2	5.14	2	5.40	2	5.17	2
Man/Fellow man	5.17	3	5.00	3	4.64	4	4.54	4
Citizenship	4.38	6	4.24	6	4.41	6	4.34	7
Patriotism	4.05	8	4.07	7	3.96	10	4.00	9
World Citienship	3.65	10	3.34	11	3.98	9	3.96	10
Physical	3.65	9	3.57	10	3.22	12	3.27	12
Emotional	4.37	7	3.93	8	4,53	5	4.02	8
Ethical	4.62	5	4.70	5	4.34	7	4.38	5
Aesthetic	3.32	12	2.99	14	3.66	11	2.99	15
Vocation-Select.	2.79	15	3.33	12	4.19	8	4.34	6
Vocation-Prep.	2.92	14	3.75	9	3.15	13	3.76	11
Home&Family	2.95	13	2.81	15	2.19	16	2.53	16
Consumer	2.29	16	2.80	16	2.88	15	3.17	14

patriotic aspects of education.' (p.37) Occupational differences and differences in educational level also showed a relationship to educational belief. The higher the occupational status, the greater the importance assigned the intellectual, the aesthetic, and the world citizenship aspects of the task. The more schooling an individual had, the more importance he assigned the intellectual aspects of the school's task.

The interpretation of the factor analysis was based on the original four elements upon which the test instrument was constructed. The three meaningful factors were labeled: I. Intellectual versus Productive; II. Intellectual-Productive versus Social-Personal; and III. Social versus Personal. Downey views the emergence of these three facors as confirmatory of the initial four elements postulated from conceptual analysis: the intellectual, the social, the personal, and the productive. It must be noted that the data were generated relative to importance of the goal statements, so the factors emerging in this analysis would exist in a universe of importance. So, those goal statements which have similar factor structures are similar in terms of their rated importance. Whether this similarity also means that the goal statements are similar in terms of conceptual meaning is a matter of conjecture.

This study has served as a model for many goal studies that have followed. It should be noted that goal statements used in this instrument are of a general level of

specificity which has implications for the interpretation of results. A high level of agreement about generally stated goals does not mean that this unanimity will exist as these goals are translated into operational terms.

In relation to this point of consensus, an Alberta study using Downey's Tasks of Public Education Opinionaire (Division of Educational Administration, University of Alberta, 1959) concluded that in spite of general agreeement amongst the groups there was considerable disagreement within each group. Each of the sixteen tasks were assigned the highest rank by at least one person in each group and each goal was assigned the lowest rank by someone in each group as well. The study takes this to indicate that regardless of what set of objectives are used in the public schools, a substantial portion of the public will want other goals to be used. This would be compatible with Sjoberg's idea of multiple goals for institutions such as schools. Another interpretation of these findings can be based upon methodological considerations. The variation of results may be due to variation in interpretations of goal statements by the respondents. General descriptions of intentions of the school can be viewed as becoming different things in operation in the schools by different people. The 3 R's may be viewed as a general teaching/learning pattern, a common, pleasurable classroom activity by respondents; for others it may be a repressive, punitive, repetitive, mind-numbing process in the classroom. The extent to which general goal

statements are differentially interpretted is critical to the interpretation of these data and others like them. Yet the issue is not dealt with.

An approach used in some recent studies (Wood, 1973; Birnie, 1976; Mosychuk et al., 1976) to increase specificity of goal statements is to expand the description of each goal statement with the number of goal statements remaining under twenty. An example of such a goal is the following taken from Wood:

> COMMUNICATION: Develop this student's ability to communicate ideas freely and effectively. Similar goal statements:
> a) develop a background in oral and written English
> b) develop skills in reading
> c) develop skills in speaking and listening.

In all studies, the 3 R's goal rates highest as was the case in the Downey and the University of Alberta studies. There was general consensus amongst and within different groups of respondents on this goal. On the other goal areas the same degree of consensus was not found. Again, this difference in respondent ratings may be due to the multiplicity of educational aspirations held by members of the community or it may be due to the multiple, complex nature of the goal statements. By increasing the specificity of the goal statements in this manner, each goal statement has multiple interpretations which are now made explicit (as compared to the Downey goal descriptions). So by adding on to each goal statement more 'similar goal statements' the problem of

multiple interpretations is not reduced, it is rendered more evident. By obtaining responses to each element of each description the extent of multiple interpretations could be investigated.

Powell et al. (1977) took another approach as compared to Downey in that they considered that different perspectives of educational outlook exist. Different people view the purposes (and presumably the processes) of education as different things. The eight models of schooling they consider current in educational thought are: 1) the familial model; 2) the political model; 3) the economic model; 4) the religious model; 5) the collegial model; 6) the custodial model; 7) the community model; and 8) the humanizing model. From a logical analysis of the descriptions and meanings of the models Powell et al. described each model in terms of three bipolar dimensions: I. Approach to Motivation; II. Approach to Information; and III. Approach to Authority. They developed a test (of twenty four goal statements) to investigate and validate this dimensionality. Using the three dimensions as spatial coordinates, each model could be plotted in three dimensional space, and the interrelationships amongst the models could be pictured. The information previously contained in descriptions of eight models of education could now be consolidated into a more meaningful, cohesive, three-dimensional space - all eight models could be described in relation to the same space. This allows for both the commonalities and the differences

of the models to be simultaneously described. Should this model space contain only three factors, then conceivably any model of education could be placed within it and some meaning made of its position relative to the three dimensions (and of course in relation to other models). A definite limitation of the Powell et al. study (and the Downey study as well) is that the models and the dimensions have not been empirically developed - they were the products of logic and intuition. This is a limitation if the results are to be consistent with the real (empirical) world. By analysing data related to educational goals to determine the dimensions underlying the relationships amongst the goal structures a more objective description is produced. By using a broad sampling of individuals to produce the data, perspectives representative of all involved individuals can be investigated as well as variation in the dimensions amongst groups within the population.

The School Goal Study of Vancouver schools (Educational Research Institute of B.C., 1975) used seventy-one specific goal statements. The researchers did not attempt to condense these seventy-one goal statements into fifteen or twenty and thereby pre-organizing, pre-patterning the goal statements before they were responded to by the subjects of the investigation. Each goal statement was descriptive of a single goal. Basic literacy, for example, could be related to three goal statements: 1) 'get one's message across in writing for personal and work use'; 2) 'read for information

for personal and work needs'; and 3) 'read and be able to use written instructions.' This feature tends to reduce the multiplicity of interpretations inherent in some goal studies. Each specific description is more likely to have a standard interpretation so the same perceived goal statement is rated by the different respondents and the problems associated with multiple interpretation mentioned earlier are avoided. Another advantage of this approach is that the individuals can give a more differentiated response to the complex set of goals. From groupings which appeared in the rankings of goal statements, goal clusters were derived. These clusters might provide some insight into the way goal statements are perceived to be related, unfortunately the concept of clustering was not developed any further than to point out its existence.

The use of a large number of goal statements does tend to reduce ambiguity of description on each goal statement. The idea has been used in other studies, among them are: Swanson (1971) used 132 goal statements in a local (Canadian) study and Hoepfner (1972) used 106 goal statements in a national (U.S.) study. Both studies were at the elementary level. Besides addressing the problem of multiple interpretations, using this many goals which are descriptive of school activities the range of public school goals are extensively covered (Hoepfner even suggests exhaustively covered). This means that the full range of goals can be responded to by the subjects and information generated

relative to all (most) activities of the public school. The extent to which this information reveals multiple, complex patterns of ratings will more likely be reflective of educational intent held by individuals and less a function of variation in interpretation of the test instrument. A problem introduced by the use of a larger number of more specific goal statements is related to interpretability and management of results. With over one hundred statements being ranked, a list of rankings is difficult to make sense of, some summarization is required. The approach used in these studies was to categorize the goal statements on logical/intuitive bases and present ratings relative to these categories. The 'goal areas' used by Hoepfner include the affective area (rated the highest priority) and various curriculum areas such as mathematics, foreign language, music and science. Swanson relied more on the domains - cognitive, affective and psychomotor, with the injection of curricular categorizations as well. Using categorization schemes such as these to interpret the ratings does seem to make sense; yet do these categories represent the structures used by the individuals who produced the ratings? Does the cognitive domain, for example, have a functional relationship to the goal statements and their ratings or is it the closest available approximation of what underlies the ratings? The information available from these studies (Hoepfner, Swanson, the Vancouver Study) can be used to investigate this matter. A simple clustering procedure used

by the Vancouver Goal Study and Hoepfner was to consider the goal statements which receive similar mean rankings. By considering these clusters some structure may be inferred. A more sophisticated procedure which suggests itself for this task is factor analysis, not in the confirmatory approach used by Downey but rather as an exploratory procedure. The Downey study built a particular structure into its instrument then used the data produced by that test to see if the structure was there. The structure of the four main components (intellectual, social, personal, and productive) was not questioned as to its existence. However, by using an instrument which objectively describes a particular phenomenon, an analysis of the data it generates could shed light on structures and relationships the respondents perceive in that phenomenon. Ranking the goal statements along a continuum of importance links all subsequent analyses to this continuum, so all relationships and structures emerging are relative to 'similarity of importance'.

Taylor(1966) used such a procedure to study the structure of a discipline by investigating the basic dimensions of people's perceptions of that discipline. Four methods were used to generate data related to relationships amongst objectives in the discipline of Biology: 1) physical manipulation of objective statements and using the distance between objectives as the data; 2) pair-wise comparison of objectives; 3) sorting the objectives on the basis of

relative importance; and 4) determination of affective meaning of objectives by the use of Semantic-differential technique. This study involved three groups of respondents: curriculum writers, teachers, and academic experts. Data analysis included multidimensional scaling and categorical factor analysis. The structure of the discipline could be determined in that the components of the discipline and their interrelationships could be described. Further, differences in structure between different respondent groups could also be meaningfully made. This would indicate that besides providing a map of a particular discipline, the possibility of illustrating the existence of different maps for different people is present. The same objects are being observed and responded to by the subjects of the study so the differences produced are most likely due to differences in the perceptual structures of the respondents. The existence of different perceptual structures seems to be reflected then in the different perceptual maps produced in data analysis.

Maguire (1967) conducted a study into value components of teacher judgements by collecting data from teachers in relation to the importance of fifteen specifically described objectives. Through principal components analysis, four stable components of judgement emerged. A model of decision making was developed in which four (at least four) aspects of a situation are generally considered by these teachers in formulating a decision (relative to importance) concerning

the objective. The components were labelled Subject-Matter Value, Motivational Qualities, Ease of Implementation, and Statement Properties. This information sheds light on the nature of structures of perception of these teachers in relation to the objectives; the kinds of things they perceive and use when considering educational objectives. The components or aspects would seem to be common to all teachers; they all utilize these four aspects in consideration of an objective but the values these aspects are perceived to have in a particular objective will vary from teacher to teacher. So although the same four aspects of an objective are used in formulating an opinion or perception, different perceptions are made because of differential valuing of each of these aspects. For any particular objective, these teachers consider four aspects of it, 'determine' values for each aspect, somehow combine these values to arrive at the decision about that objective. These value aspects were operative to the extent of being utilized in a linear equation to characterize the decisions made about the objectives by the teachers. It seems evident that empirical investigation of perceptual structures can yield applicable and predictive results.

SUMMARY

Goals have both conceptual and functional signifigance to educational operations yet very little empirical effort

has been devoted to investigating their nature. Many theories and processes in education are based upon goal formulation. Specification of what goals are important and how these goals interrelate appears to be an understudied field.

Most goal studies have concerned themselves with the determination of priorities amongst a limited number of goal statements. Even studies which have attempted to investigate structure underlying the perceptions of goal statements have used rather limited sets of goals to generate data. Those studies which did use relatively specific goal statements and sophisticated analysis procedures limited the scope of the study to a particular discipline within the whole school. There appears to be a definite need for a study to investigate empirically the structures underlying goals for the whole of the school.

CHAPTER THREE

PROCEDURE

In this study students, teachers, and citizens rated one hundred eighteen goal statements with respect to their importance to the elementary school. This information was considered in two ways: a) the priorities (mean ratings) of each goal were determined, and b) the data were factor analysed to investigate the underlying structures involved in the goal ratings.

THE SAMPLE

The determination of curricular goals has generally been left to professionals, experts, or panels of worthy citizens (Baker, 1972). With increasing concern for educational accountability, needs assessment procedures have been used to accumulate information about community opinion relative to educational goals. These procedures tend to involve a broad spectrum of people with legitimate interest in the activities of the school: students, teachers, administrators, parents, and ordinary citizens.

In this study, the underlying structures of school goal priorities were to be investigated. It is of value to obtain data representative of a population of legitimately involved people. Rather than using a select group of possibly representative 'worthy citizens', samples of people in

functionally different groups within the school were selected for study. The groups sampled were Students, Teachers, and Citizens. In order to carry out the desired analysis, over 100 subjects were required for each group. Sampling was confined to one area which contained both a city and a county school system. Citizens within this area were randomly sampled. All teachers(both elementary and secondary) were considered to be potential respondents in order to insure large enough sample sizes to permit satisfactory analysis. Since the task presented to the respodents required a fair degree of reading comprehension, only the highest elementary grade(grade 6) students were used in the study. To insure that grade six students were capable of rating the goals in a meaningful manner, a pilot study was conducted previous to the major study.

By utilizing the 118 goal statements and the different samples, structures underlying the perception of the goal statements by the general public (of the school) were studied and comparisons made between groups.

THE INSTRUMENT

To investigate structures underlying perceptions of school goals a serious attempt was made to phrase the goals so that a standardized interpretation would be made by those involved in the study. The goal statements were designed to cover the whole range of school goals to insure that

relationships emerging would be complete. The goal statement group developed by Swanson(1971) was modified for use in this study. In all, 118 goal statements extensively covering the range of activities of the elementary school were used. (see Appendix A)

The goal set was initially developed by the Center for the Study of Evaluation(CSE) at UCLA from such sources as curriculum guides, published elementary school textbooks, national evaluation studies, and research reports of psychologists and educators. This set of one hundred six goal statements was believed to '...exhaust the range of elementary school goals', and the statements are considered to be '...a maximally comprehensive statement of the actual, professed, and ideal goals of elementary education.' (Hoepfner, 1972, p.1) The level of generality of description chosen was not as specific as that of behavioral objectives yet objective enough to allow for unambiguous interpretation by the general public. Field tests conducted in the U.S. indicated that coverage was extensive and description was objective (Hoefpner and Klein, 1970). Brittingham and Netusil (1976) investigated the reliability of the data generated by ranking these 106 goal statements in terms of stability of rankings over time. The reliability of the mean rankings over a two month time interval was 0.96. Further, since goal rankings are often pooled for subjects within any group to form mean rankings for each goal it is implicit that each subject within that group is to some extent a

replicate of any other subject. Using internal consistency measures, estimates of reliability within subgroups varied from 0.78 to 0.96, indicating that adding goal ratings to get mean ratings for each goal would be a meaningful operation.

Swanson(1971) modified this CSE goal set for use in a Canadian study. One hundred and thirty-two statements resulted. Three groups were involved in the modification procedure: a) a specialist group of educators; b) a parent group; and c) a teacher group. The goal set produced was comprehensive and related to all grade levels of the elementary school.

By using specific , objectively descriptive goal statements which comprehensively cover school functioning several problems associated with reviewed studies are dealt with. The problem of multiple interpretations is reduced since with objectives described at a specific level, standardized translation is facilitated. By comprehensively describing the school goals a sample of descriptors is available which is more representative of all the goals of the elementary school. The questionnaire does not consist of a limited number of goal statements which have been selected by the researcher. Such a set of statements would likely have inbuilt patterns refelecting the criteria of selection. By attempting to insure a broad spectrum of goals, the potential for inbuilt structure or patterns existing in the instrument is reduced. As Cattell(1966) points out, in

studying 'the domain of a phenomenon' in an exploratory manner, a representative array of variables must be considered. By condensing or abstracting variable sets to be studied you in effect limit the scope of the study to more specific hypothesis consideration. Since the purpose of the present study is to investigate structure and not to postulate that a particular structure exists, an extensive sampling of descriptors is mandatory. Information relative to the goals of the entire elementary school program can be obtained, in this way the relationships and structures emerging from the analysis will be complete. If multiplicity and complexity of goal patterns are the nature of the situation this characterisitic will be available for study.

In studies utilizing an instrument which contains a limited number of selected goals, the results will be specific to that instrument since a unique pattern is imposed on that data by the test used to generate it. By using a comprehensive set of objectively stated goal statements to form the basis of the test as in this study, the data are specific not to the test instrument but to the phenomenon the test is investigating. Patterns imposed on the responses to this set of the goal statements will be imposed by the subjects of the investigation, not by the instrument used to generate the data. Should specificity of results (external invalidity) be found, it will be in terms of the sampling of elementary schools and associated humans. To investigate the extent of this specificity another sample

(school district) could be used in a replicate study.

The actual assembly of goal statements took the form of a one hundred and eighteen item questionnaire (Appendix A). The respondents were required to indicate the importance of each goal statement to the elementary school. This was indicated by circling a number from one (most important) to nine (least important) which appeared below each goal. The respondents could, alternately circle an X to indicate that the goal statement was not understood so could not be realistically rated.

Considering that the order in which the goal statements were read may influence the ratings each goal received, the order of the items was randomized. Five different orderings were used to produce five forms of the questionnaire. Each form contained the same 118 items but in different random orders.

A modification in the number of goal statements included in the questionnaire distributed to the Students was also made. Goal number seventy two (Sex Education) was deleted from the questionnaires the Students received. The exclusion of this goal statement was made on the recommendation of the Department of Research and Evaluation of the Edmonton Public Schools. The Student questionnaires had 117 goal statements but there were five random orders of these.

It should be pointed out that the instruments from which this questionnaire was developed from were in the form

of index cards. Each goal statement was printed on an individual card. To respond, the subjects sorted the goals into order of perceived importance. The questionnaire format adopted in this study was used to facilitate ease of responding by the subjects. Since large numbers of individuals were requested to participate in this study, the explanations anticipated to be required with the card format would provide a major obstacle to data collection. The more orthodox questionnaire format presented no apparent difficulties to the respondents in understanding the nature of the task.

The instrument then tends to describe the goals of elementary school with minimal interpretive structure. This feature facilitates the study of the nature of people's perceptions of these goal statements by minimizing the attractiveness of instrumentation biasing as a possible alternate explanation for any structure emerging from analysis.

By being specific and objective the goal statements should facilitate standardized translation of the statements so that any disagreement in ratings should be disagreement about importance of the same goal rather than disagreement over different interpretations of the same goal.

By being comprehensive, the structure can be investigated adequately and the rating by relative importance will be more stable.

PILOT STUDY

Prior to the major study, a pilot study to confirm the feasibility of using the questionnaire with grade six students was conducted in an Edmonton Public School with the cooperation of their Department of Research and Evaluation. Swanson (1971) had used the 132 goal cards with students with no reported difficulty. But on perusal, some of the items looked as if they might present problems to a grade six student attempting to read them. To investigate this potential problem a class of twenty five grade six students at York Elementary School in Edmonton were requested to complete the 117 item questionnaire and a brief evaluation form (Appendix B) relating to the completed task. It was during the planning of this pilot study that goal number seventy-two (Sex Education) was dropped from the student form of the questionnaire.

The 117 item questionnaire was distributed to 25 grade six students at York Elementary School in Edmonton during a regularly scheduled 30 minute class period. Time taken to distribute the questionnaire and give instructions took 7 minutes, so 23 minutes were available for the students to work on the questionnaire. During this time 18 students completed the questionnaire and all students completed more than half of it. None of the students reported any major difficulty with the task required of them and none expressed inability to rate the goal statements. None of the students thought the task too difficult for other grade six students

to complete. On the basis of these results, grade six students were included as one of the groups to be sampled in this study.

PROCEDURE: DATA COLLECTION

The school districts of Camrose city and county were approached through their superintendents to participate in this study. With the approval by and subsequent cooperation of both superintendents, all elementary schools in the city(three) and four elementary schools in the county agreed to participate in the study in that their grade six classes would respond to the questionnaires. Further, all schools in the city and the four schools in the county received copies of the questionnaires for the teachers at all grade levels to respond to.

In the major portion of this study the questionnaires for the teachers were delivered to the participating schools for internal distribution and were returned to the district office when completed.

The questionnaires for the students were presented to intact grade six classes during regular school hours.

The questionnaires for the citizens were mailed from Edmonton to 498 randomly selected addresses from the Camrose and area telephone directory. These were to be returned by the provided return, stamped envelopes.

Each individual involved in the study was requested to

complete the study questionnaire(Appendix A). Personal status information for each respondent was collected on group membership(Student, Teacher, Citizen), sex, age, and educational level. Each respondent also indicated the level of importance of each goal statement to the elementary school(or that the statement was NOT UNDERSTOOD). The goal rating was the data of most signifigance to this study.

PROCEDURE: DATA ANALYSIS

The questionnaires were collected and the responses recorded on computer cards. Each subject's response pattern then had to be re-ordered so that all responses were in a standard order although initially in one of the five random orders.

The data were summarized by determining the mean ratings of each item for each group and the modal ratings for each group on each educational goal (Appendix C). The goals were placed in order of mean rankings for each group(Tables 6,7,and 8). The correlations amongst groups on the basis of mean rankings were also determined(Table 5).

The analyses of major interest in this study were the factor analyses of the data for each group. A common factor principal axes method(DERS:FACT03) was employed using correlation matrices with iterated communality estimates placed in the diagonal. The communality estimates were obtained by first factor analysing the correlation matrices

with 1's in the diagonal, extracting 15-25 factors and using the communalities produced by this analysis as the first estimate.

The initial analyses were conducted on the Teacher and the Citizen samples. These analyses extracted 15 factors which were othogonally rotated(Varimax). The interpretations of these solutions were not satisfactory. Eventually eight factors were extracted from the 118 item correlation matrices and meaningfully interpretted. These solutions(Teacher and Citizen) were then rotated obliquely by the Promax method(DERS:FACT05, modified to handle 118 variables) to final solutions of 8 factors from the 118 items. These two oblique solutions were then compared by means of the Ahmavaara matching technique termed transformational analysis(Ahmavaara, 1957; DERS:FACT05). The transformed Teacher loading matrix was then graphically compared to the Citizen loading matrix by plotting each tranformed loading to the related Citizen loading. This was done for the whole solution (Figures 1 and 2) and for each factor pair (Figures 3 to 10). This provided an estimate of the fit of the two solutions.

The analysis of the Student data proceeded somewhat differently. The 117 variable solutions did not produce meaningful interpretations at 8, 10, or 15 factor solutions. Considering that students may have had difficulty in interpretting the goal statements, those statements that had more than 10% of the sample reporting it NOT UNDERSTOOD were

dropped from analysis. This resulted in 87 items being used. Table 9 lists the items excluded from the analyses of the Student data. Interpretation of 10 and 17 factor solutions was attempted with unsatisfactory results. An eight factor solution was settled upon; it was obliquely rotated (Promax) and interpretted. To investigate the comparability of the Student solution with a Teacher solution, the Teacher data were reanalysed using the same 87 items and extracting 8 factors which were rotated to an oblique solution. These two solutions(Student and Teacher 8 factor, 87 item solutions) were then compared by means of the Ahmavaara transformation analysis(DERS:FACT05). The transformed Teacher loading matrix was then graphically compared to the Student loading matrix(Figure 11).

CHAPTER FOUR

RESULTS

The results of this study are generally divided into three units related to the samples: Teachers, Citizens, and Students. Each section of this chapter will include description of the results for each of these samples.

The results will be presented according to this pattern:

First, a description of the characteristics of the samples.

Then the descriptive summary of the goal ratings in terms of item means, item modes, the proportions of the samples not understanding each item, and the correlations between groups on the basis of the mean ratings of items.

The major section will be devoted to the presentation of the results of factor analyses of the goal rating data and the comparisons of solutions.

SAMPLE CHARACTERISTICS

All individuals involved in this study were teachers,

citizens, or elementary(grade six) students of Camrose, Alberta and surroundings. The sample sizes are reported in Table 2. The total number of individuals involved in the study was 423.

Camrose is a city of 11,000 situated 60 miles to the southeast of the provincial capital of Edmonton. The area is predominantly rural and agriculturally based. Most residents work in the area. Daily commuting to a larger centre is not a typical pattern for the area. The total adult population of Camrose city and county was reported by city hall and the county office as 17,937.

The proportion and numbers of the total sample in each group, sex, age, and educational level are presented in Table 3. The proportion of citizens with children(.14) is about equal to the proportion of citizens without children(.16). The proportion of elementary school teachers(.15) is higher than that of high school teachers(.09). Males(.48) and females(.52) were approximately equally represented. All age groups were represented with the majority of the adult repsondents in the 20 to 50 year age range.

The proportions of the five different item orders responded to are reported in Table 4. Each form was used approximately the same number of times, so item order cannot be considered an influence upon the results.

TABLE 2

Sample Sizes

	CITY	COUNTY	TOTAL
TEACHER	62	40	102
CITIZEN	--	--	131
STUDENT	115	75	190

TABLE 3

Total Sample Characteristics

	NUMBER	PROPORTION OF TOTAL SAMPLE
GROUP MEMBERSHIP		
Elem. Student	190	.45
HighSch.Student	6	.01
Citizen (with children)	58	.14
Citizen (without children)	67	.16
Teacher (elem.)	62	.15
Teacher (high school)	40	.09
AGE		
less than 15	190	.45
15 to 20	10	.03
21 to 30	60	.15
31 to 40	64	.16
41 to 50	41	.10
51 to 60	36	.09
61 to 70	11	.03
over 70	9	.03
SEX		
female	219	.52
male	204	.48
EDUCATIONAL LEVEL		
elementary	205	.48
high school	64	.15
university	120	.28
technical	23	.05
other	11	.03

TABLE 4

Proportions of Questionnaire Forms Used

QUESTIONNAIRE	NUMBER	PROPORTION
Form 1	84	.20
Form 2	87	.21
Form 3	81	.20
Form 4	91	.22
Form 5	80	.19

TABLE 5

Correlations bewteen samples of individuals on 117 items (item #72 is excluded).

	St	Tt	Ct	Sc	Tc	Sy	Ty
St	1.00	.855	.874	.983	.834	.970	.860
Tt		1.00	.971	.842	.991	.829	.987
Ct			1.00	.861	.961	.848	.960
Sc				1.00	.825	.909	.841
Tc					1.00	.804	.957
Sy						1.00	.840
Ty							1.00

St=Total Student Sample
Tt=Total Teacher Sample
Ct=Total Citizen Sample
Sc=City Students
Tc=City Teachers
Sy=County Students
Ty=County Teachers

GOAL RATINGS

The complete description of item means and modes for each item(goal statement) for each sample is found in Appendix C. One characteristic of the goal ratings is the general preference for ratings in the positive end(1 - 4) of the importance range. Modal ratings for most goals fall in the range of 1 to 4.

The goal statements are listed in order of importance for each group: Teachers(Table 6), Citizens(Table 7), and Students(Table 8). The importance was determined by the mean rating of the item - the closer to 1, the more important the goal. The general pattern emerging from all groups is:

> High ratings were accorded the basics of schooling: reading, writing, and arithmetic.
>
> High ratings were accorded personal skills, abilities, and attitudes such as School Orientation(118), Enjoyment of Learning(19), Independent Thinking(10), Success(11), Curiosity(12), and the like.
>
> Moderate ratings(3.5 - 5.0) were accorded strictly cognitive skills such as Classificatory Reasoning(24), Systematic Reasoning(26), and Span and Serial Memory(29).

TABLE 6

The items ordered by the means of the total Teacher sample

11. Success
85. Silent Reading Efficiency
19. Enjoyment in Learning
8. Self-Esteem
82. Phonetic Recognition
118. School Orientation
54. Operations with Integers
42. Spelling
5. Adjustment
92. Attitude Toward Reading
75. Group Activity - Sportsmanship
70. Practicing Health & Safety Principles
80. Listening Reaction & Response
46. Written Expression
16. Need Achievement
1. Socialization - Rebelliousness
2. Hostility - Friendliness
47. Independent Application of Writing Skills
12. Curiousity
43. Punctuation & Capitalization
88. Remebering Information Read
10. Independent Thinking
4. General Activity - Lethargy
111. Citizenship
57. Mathematical Problem Solving
21. Development of Canadianism
44. Grammar & Usage
61. Measurement Making & Reading
89. Inference Making from Reading Selections
71. Understanding Health & Safety Principles
15. Preparation for Secondary School
84. Oral Reading
45. Penmanship
74. Physical Development & Well Being
81. Speaking
30. Meaningful Memory
7. Responsibility
79. Relaxation
3. Dependence - Independence
9. Imagination

TABLE 6 (CON"T)

18. Leisure Time
73. Muscle Control
86. Recognition of Word Meanings
51. Comprehension of Positional Notation in Mathematics
58. Independent Application of Mathematical Skills
112. Interest in Social Studies
13. Creativity
17. Interest Areas
50. Comprehension of Numbers & Sets in Mathematics
87. Understanding Ideational Complexes
6. Shyness - Boldness
83. Structural Recognition
20. Social Poise & Skills
110. Research Skills in Social Science
48. Use of Data Sources as Reference Skills
14. Critical Analysis of Information
93. Attitude & Behavior Modification from Reading
104. Application of Scientific Methods to Everyday Life
56. Operations with Decimals & Percents
103. Science Interest & Appreciation
31. Spatial Memory
117. Involvement with Community
76. Interest&Independent Participation in Sports & Games
25. Relational - Implicational Reasoning
106. Knowledge of Physical Geography
27. Creative Flexibility
95. Observation & Description in Science
52. Comprehension of Equations & Equalities
114. Knowledge & Use of Media
28. Creative Fluency
116. Knowledge of Community
100. Experimentation in Science
108. Cultural Knowledge
115. Media: Critical Thinking
78. Knowledge of Physical Education Apparatus & Equipment
101. Formulation of Genralized Conclusions in Science
96. Use of Numbers & Measures in Science
24. Classificatory Reasoning
63. Musical Appreciation
91. Critical Reading

TABLE 6 (CON'T)

55. Operations with Fractions
97. Classification & Genralization in Science
77. Understanding Rules & Strategies of Sports & Games
22. Appreciation of Arts & Crafts
64. Music Interest & Enjoyment
98. Hypothesis Formation in Science
53. Compehension of Number Principles
94. Familiarity with Standard Children's Literature
49. Summarizing Information for Reference
26. Systematic Reasoning
107. Knowledge of Socio-Economic Geography
60. Geometric Vocabulary
105. Knowledge of History
59. Geometric Facility
102. Knowledge of Scientific Facts & Terminology
23. Representational Skills in Arts & Crafts
109. Social Organization Knowledge
113. Knowledge of Governments
99. Operational Definitions in Science
62. Statistics
29. Span & Serial Memory
67. Dance (Rhythmic Response)
66. Musical Instrument Playing
41. Insight & Interest Through a Foreign Language
65. Singing
34. Speaking Fluency in French
72. Sex Education
90. Recognition of Literary Devices
68. Aural Identification of Music
36. Insight & Interest Through French
69. Music Knowledge
33. Oral Comprehension of French
39. Speaking Fluency in a Foreign Language
38. Oral Comprehension of a Foreign Language
32. Reading Comprehension of French
37. Reading Comprehension of a Foreign Language
40. Writing Fluency in a Foreign Language
35. Writing Fluency in French

TABLE 7

The items ordered by the means of the total Citizen sample

19. Enjoyment in Learning
118. School Orientation
85. Silent Reading Efficiency
5. Adjustment
70. Practicing Health & Safety Principles
1. Socialization - Rebelliousness
42. Spelling
75. Group Activity - Sportsmanship
80. Listening Reaction & Response
54. Operations with Integers
8. Self Esteem
10. Independent Thinking
16. Need Achievement
17. Success
71. Understanding Health & Safety Principles
12. Curiousity
82. Phonetic Recognition
61. Measurement Making & Reading
92. Attitude Toward Reading
4. General Activity - Lethargy
2. Hostility - Friendliness
15. Preparation for Secondary School
84. Oral Reading
47. Independent Application of Writing Skills
9. Imagination
88. Remebering Information Read
43. Punctuation & Capitalization
111. Citizenship
21. Development of Canadianism
45. Penmanship
44. Grammar & Usage
74. Physical Development & Well Being
30. Meaningful Memory
79. Relaxation
46. Written Expression
6. Shyness - Boldness
89. Inference Making from Reading Selections
7. Responsibility
20. Social Poise & Skills
86. Recognition of Word Meanings

TABLE 7 (CON"T)

81. Speaking
57. Mathematical Problem Solving
50. Comprehension of Numbers & Sets in Mathematics
18. Leisure Time
13. Creativity
17. Interest Areas
93. Attitude & Behavior Modifica[illegible]from Reading
48. Use of Data Sources as Reference Skills
87. Understanding Ideational Complexes
55. Operations with Fractions
27. Creative Flexibility
58. Independent Application of Mathematical Skills
56. Operations with Decimals & Percents
51. Comprehension of Positional Notation in Mathematics
31. Spatial Memory
83. Structural Recognition
14. Critical Analysis of Information
3. Dependence - Independence
110. Research Skills in Social Science
73. Muscle Control
28. Creative Fluency
117. Involvement with Community
78. Knowledge of Physical Education Apparatus & Equipment
103. Science Interest & Appreciation
52. Comprehension of Equations & Equalities
112. Interest in Social Studies
25. Relational - Implicational Reasoning
104. Application of Scientific Methods to Everyday Life
76. Interest & Independent Participation in Sports & Games
106. Knowledge of Physical Geography
95. Obseravtion & Description in Science
114. Knowledge & Use of Media
116. Knowledge of Community
105. Knowledge of History
115. Media: Critical Thinking
96. Use of Numbers & Measures in Science
113. Knowledge of Governments
108. Cultural Knowledge
49. Summarizing Information for Reference
107. Knowledge of Socio-Economic Geography

TABLE 7 (CON'T)

77. Understanding Rules & Strategies of Sports & Games
109. Social Organization Knowledge
100. Experimentation in Science
98. Hypothesis Formation in Science
24. Classificatory Reasoning
94. Familiarity with Standard Children's Literature
101. Formulation of Generalized Conclusions in Science
91. Critical Reading
22. Appreciation of Arts & Crafts
59. Geometric Facility
26. Systematic Reasoning
60. Geometric Vocabulary
97. Classification & Genralization in Science
63. Musical Appreciation
102. Knowledge of Scientific Facts & Terminology
99. Operational Definitions in Science
29. Span & Serial Memory
72. Sex Education
23. Representational Skills in Arts & Crafts
64. Music Interest & Enjoyment
62. Statistics
66. Musical Instrument Playing
90. Recognition of Literary Devices
53. Compehension of Number Principles
41. Insight & Interest Through a Foreign Language
67. Dance (Rhythmic Response)
69. Music Knowledge
68. Aural Identification of Music
65. Singing
34. Speaking Fluency in French
36. Insight & Interest Through French
39. Speaking Fluency in a Foreign Language
40. Writing Fluency in a Foreign Language
38. Oral Comprehension of a Foreign Language
33. Oral Comprehension of French
37. Reading Comprehension of a Foreign Language
32. Reading Comprehension of French
35. Writing Fluency in French

TABLE 8

The items ordered by the means of the total Student sample.

75. Group Activity - Sportsmanship
71. Understanding Health & Safety Principles
54. Operations with Integers
70. Practicing Health & Safety Principles
11. Success
2. Hostility - Friendliness
10. Independent Thinking
76. Interest&Independent Participation in Sports & Games
42. Spelling
111. Citizenship
7. Responsibility
17. Interest Areas
78. Knowledge of Physical Education Apparatus & Equipment
16. Need Achievement
5. Adjustment
43. Punctuation & Capitalization
77. Understanding Rules & Strategies of Sports & Games
19. Enjoyment in Learning
74. Physical Development & Well Being
51. Comprehension of Positional Notation in Mathematics
57. Mathematical Problem Solving
85. Silent Reading Efficiency
55. Operations with Fractions
118. School Orientation
80. Listening Reaction & Response
73. Muscle Control
1. Socialization - Rebelliousness
45. Penmanship
84. Oral Reading
110. Research Skills in Social Science
50. Comprehension of Numbers & Sets in Mathematics
8. Self Esteem
9. Imagination
86. Recognition of Word Meanings
13. Creativity
58. Independent Application of Mathematical Skills
56. Operations with Decimals & Percents
83. Structural Recognition
47. Independent Application of Writing Skills
4. General Activity - Lethargy

TABLE 8 (CON'T)

44. Grammar & Usage
81. Speaking
48. Use of Data Sources as Reference Skills
22. Appreciation of Arts & Crafts
46. Written Expression
61. Measurement Making & Reading
88. Remebering Information Read
18. Leisure Time
82. Phonetic Recognition
12. Curiousity
79. Relaxation
21. Development of Canadianism
100. Experimentation in Science
112. Interest in Social Studies
20. Social Poise & Skills
52. Comprehension of Equations & Equalities
92. Attitude Toward Reading
49. Summarizing Information for Reference
117. Involvement with Community
114. Knowledge & Use of Media
30. Meaningful Memory
6. Shyness - Boldness
27. Creative Flexibility
108. Cultural Knowledge
14. Critical Analysis of Information
25. Relational - Implicational Reasoning
103. Science Interest & Appreciation
15. Preparation for Secondary School
99. Operational Definitions in Science
23. Representational Skills in Arts & Crafts
101. Formulation of Generalized Conclusions in Science
96. Use of Numbers & Measures in Science
95. Obseravtion & Description in Science
104. Application of Scientific Methods to Everyday Life
93. Attitude & Behavior Modification from Reading
3. Dependence - Independence
98. Hypothesis Formation in Science
59. Geometric Facility
31. Spatial Memory
24. Classificatory Reasoning

TABLE 8 (CON'T)

113. Knowledge of Governments
97. Classification & Genralization in Science
87. Understanding Ideational Complexes
105. Knowledge of History
102. Knowledge of Scientific Facts & Terminology
91. Critical Reading
106. Knowledge of Physical Geography
53. Compehension of Number Principles
115. Media: Critical Thinking
62. Statistics
28. Creative Fluency
29. Span & Serial Memory
60. Geometric Vocabulary
64. Music Interest & Enjoyment
89. Inference Making from Reading Selections
116. Knowledge of Community
109. Social Organization Knowledge
107. Knowledge of Socio-Economic Geography
39. Speaking Fluency in a Foreign Language
26. Systematic Reasoning
94. Familiarity with Standard Children's Literature
90. Recognition of Literary Devices
63. Musical Appreciation
69. Music Knowledge
41. Insight & Interest Through a Foreign Language
34. Speaking Fluency in French
66. Musical Instrument Playing
68. Aural Identification of Music
65. Singing
67. Dance (Rhythmic Response)
40. Writing Fluency in a Foreign Language
38. Oral Comprehension of a Foreign Language
35. Writing Fluency in French
37. Reading Comprehension of a Foreign Language
33. Oral Comprehension of French
36. Insight & Interest Through French
32. Reading Comprehension of French

Low ratings(5 - 7) were assigned to goals related to French and foreign language.

Low to moderate ratings(3 to 7) were assigned to goals related to music, arts and crafts, science, geography, and history.

The distinction was made between Operations with Integers (high rating) and other mathematics related goal statements(lower ratings).

The goals generally rating the highest are those associated with the basic skills of an elementary education namely, reading, writing, and arithmetic. Along with these, are skills and attitudes of a personal nature and those related to interpersonal competencies. These goals are of a generalized character in that they are not specific to particular curricular areas nor related to particular situations. The goals are related to mental and physical health, interpersonal competencies, and general basic academic skills.

It could be said the most favored goals are the goals related to basic skills or competencies for adequate functioning in a student environment. This environment includes such components as the school, the community, peers, and the self.

Goals related to adequate student adaption to the school would include

Enjoyment of Learning(#19)

School Orientation(#118)

Adjustment(#5)

Socialization(#1)

Group Activity(#75)

Need Achievment(#16)

General Activity(#4)

These are goals related to the students' ability to fit into the school (and to a large extent, community) environment, to accept the situation, and become a positively contributing member of it. Goals related to adequate student functioning in the school include:

Silent Reading Efficiency(85)

Spelling(42)

Operations with Integers(54)

Phonetic Recognition(82)

Oral Reading(84)

Independent Application of Writing Skills(47)

These would be what are often referred to as the basic skills of reading, writing, and arithmetic - the 3R's.

Goals which are related to adequate functioning within the general community would include some of those related to school functioning such as:

Group Activity(75)

School Orientation(118)

Socialization (1)

Hostility (2)

Responsibility (7)

But would also include Citizenship (111) and Development of Canadianism (21). The generalized nature of the most highly rated goals is evident here in that the goals of Involvement with Community (117) and Knowledge of Community (116) both specific goals directly connected with specific information or processes are not highly rated although both are related to the community.

Goals which are connected with adequate functioning with peers (in effect, socialization goals) would include:

Group Activity (75)

Socialization (1)

Hostility (2)

Those which are related with adaptation to and functioning of self would include:

Success (11)

Self Esteem (8)

Adjustment (5)

Practicing Health & Safety Principles (70)

Curiosity (12)

Independent Thinking (10)

Leisure Time (18)

Relaxation (79)

Dependence - Independence (3)

These goals are somewhat different than the goals

reported to be of most importance to the respondents of other goal studies. Downey(1960) reported the goals, Intellectual Skills, Desire for Knowledge, Man to Fellow Man, and Creativity as the top four goals of his 16 item questionnaire. These would represent the top 25% of the goals. In more recent studies(Wood,1973; Birnie,1976;Mosychuk et al,1976) the basic skills were also highly rated but again simplified goal questionnaires were used. The use of a simplified instrument to investigate a complex phenomenon appears to obfuscate the issue in the seeming consistency of simple results. This study demonstrates that the basic skills are not only those skills basic to the academic requirements of the elementary school but also those skills and attitudes basic to social and personal requirements on the individual if he/she is to function in and adapt to the environment. Further, there appears to be a general:specific distinction made amongst the goals with generalized goals being preferred to specifically focused goals.

More curricularly specific goals receive lower ratings as do more knowledge based and higher order cognitive goals. Those goals related to particular curriculum areas do not receive high ratings. Amongst these goals are:

Research Skills in the Social Sciences(#110)

Knowledge of Physical Geography(#106)

Knowledge of Socio-Economic Geography(#107)

Use of Numbers and Measures in Science(#96)

Familiarity with Standard Children's Literature (#94)

Goals related to specific skills such as those associated with arts and crafts and music receive lower ratings.

The very low ratings accorded the French and foreign language goals are striking and characteritstic of all samples.

Correlations between groups on the basis of mean item ratings were calculated and are presented in Table 5. The highest correlations (.957 to .991) occur amongst the adult groups- the Citizens and the Teachers (both the City and the County teachers). The correlations are all high and positive. The difference between city and county groups was small. The correlation between the two Teacher groups was .957 and between the Student groups was .909. The lowest correlation (.804) is between the mean ratings of the city teachers and the county students.

The correlations were calculated on the basis of the mean ratings for 117 items of the questionnaire. Item 72 (Sex Education) was not included in the Student questionnaire so to obtain comparable results, this item was not included in the Teacher or Citizen data to compute the correlations of Table 5. To insure that this exclusion did not greatly affect the results, correlations between adult groups were calculated using all 118 items, changes of less than 0.005 were found.

GOAL RATINGS: TEACHER AND CITIZEN SAMPLES

As the correlations demonstrate, the ratings of all groups tended to be very similar in terms of mean ratings assigned to each item or educational goal. The overall mean rating assigned by Teachers was 3.90(sd=1.15) whereas Citizens' overall mean rating was 3.49 (sd=1.19). Teachers tended to use lower ratings but the pattern of rating would tend to be similar as indicated by the correlation between Teachers and Citizens : .971. Only six item receive higher ratings(closer to 1) from Teachers than Citizens: Music Appreciation(#63), Music Interest and Enjoyment(#64), Singing(#65), Dance(#67), Muscle Control(#73), and Interest in Social Studies(#112).

The same basic pattern of ratings described in the overview holds for both the Teacher and the Citizen samples.

In considering the two subgroups of Teachers - the City group and the County group - close similarities are evident in the mean ratings. The overall mean ratings for the City group (3.99, sd=1.04) is of lower importance than that of the County group (3.76, sd=1.35). The correlation between the two is .957.

ITEM RATINGS: STUDENT SAMPLE

The major difference in the student sample compared to the Teacher and the Citizen samples is the increased proportion of students indicating that they did not

understand an item. The items which were indicated to be NOT UNDERSTOOD by more than 10% of the Student sample are listed in Table 9. These items were not included in the factor analyses of the Student data. The City and County subgroups of the Student sample found the same items to be difficult to understand. The 10% cut-off point was chosen on the basis(or assumption) that a high (greater than 0.10) proportion of reported misunderstanding of an item meant that the item was difficult to understand for that group. Proportions less than or equal to 0.10 were assumed to be non-characteristic of the group, to involve only a few individuals who did not understand that item and perhaps error. Should misunderstanding of the item be characteristic of the group, different interpretations of the goal statement are being responded to. Since one of the features in the design of this study was the concept of standardized interpretation of goal statements, those items suspect of not being uniformly interpretted by that group of respondents were dropped from further analysis. Thirty items were thus dropped from the Student data. None of the items for either Teacher or Citizen group were dropped.

SUMMARY: GOAL RATINGS

The goal listings show an overall preference for goals of a general nature, goals not tied to specific subject matter or for that matter not related to subject areas at

TABLE 9

The Items Excluded from the Analysis of Student Data

1. Socialization - Rebelliousness
3. Dependence - Independence
4. General Activity - Lethargy
8. Self Esteem
12. Curiousity
13. Creativity
14. Critical Analysis of Information
15. Preparation for Secondary School
20. Social Poise & Skills
24. Classificatory Reasoning
25. Relational - Implicational Reasoning
26. Systematic Reasoning
27. Creative Flexibility
28. Creative Fluency
53. Compehension of Number Principles
62. Statistics
87. Understanding Ideational Complexes
89. Inference Making from Reading Selections
90. Recognition of Literary Devices
91. Critical Reading
97. Classification & Genralization in Science
98. Hypothesis Formation in Science
99. Operational Definitions in Science
101. Formulation of Genralized Conclusions in Science
102. Knowledge of Scientific Facts & Terminology
104. Application of Scientific Methods to Everyday Life
107. Knowledge of Socio-Economic Geography
115. Media: Critical Thinking
116. Knowledge of Community
117. Involvement with Community

all. Goals which contribute to the student's ability to function competently in his/her environment and contribute to the personal growth of the individual are perceived as of highest importance. Affectively related goals are prominent in the first forty to fifty goals of each list (Teacher, Citizen, and Student). The goals related to characteristics which enhance the individual's ability to function in school and the broader community, and both with himself and others are given the highest ratings by all groups. The basic skills of the student's environment would be those required to get along in school; with other individuals, and with the curricular tasks of the elementary school. In addition, the student is equipped to get along with himself and is sound and healthy both in a mental and physical sense.

Curricularly related goals (other than basic skills of reading, writing, and arithmetic) are at the lower end of this importance scale with the area of French and foreign language consistently bringing up the rear.

FACTOR ANALYSES

The data for each of the three sampled groups (Teachers, Citizens, and Students) were analysed separately. The Teacher and Student groups were not subdivided into City and County subgroups for these analyses.

The analyses followed the same basic pattern for each group. Correlation matrices (118 by 118 for Teacher and

Citizen data, 87 by 87 for the Student data) were calculated. These correlation matrices were analysed by principal axes technique (DERS:FACT03) and 25 factors were extracted, as the preliminary attempt at an interpretable solution. This first attempt did not yield interpretable results and the values of the roots did not indicate a likely spot to limit the number of factors (i.e., there was no scree). In considering the loadings of items onto factors in the rotated loading matrix, factors past eight had but one or two items loading on them to any extent (greater than 0.30). Harman (1967) suggests that one way to obtain a rough estimate of the number of factors to extract in factor analysis is to look for clusters of variables in the early stages of analysis which suggest the presence of factors (p.78).

To arrive at communality estimates for insertion into the correlation matrix for further analysis, the communalities of each item were then inserted into the diagonal of the correlation matrix as the first communality estimate. The matrix was then reanalysed, 15 factors extracted, and the communalities calculated were then inserted as the second (and final) estimate of communalities into the diagonal of the correlation matrix. These second communality estimates were close in value (within 0.1) to the first communality estimates, indicating the estimates were tending to stabilize. The correlation matrix was then re-analysed by principal axes technique taking out from 6 to

15 factors. Each solution was orthogonally rotated by Varimax method. When an orthogonal solution was satisfactorily interpretted, the factor loading matrix was rotated to an oblique solution by Promax rotation (DERS:FACT05, modified to handle 120 variables). The final phase of the analysis was the comparison of the factor solutions. The technique employed was that of Ahmavaara transformation analysis (Ahmavaara, 1957). This is a Procrustean technique that attempts to fit one oblique factor loading (pattern) matrix of one group to another, minimizing the error between the transformed matrix and the target matrix. The matching procedure is conducted on the factor pattern matrices rather than the factor structure matrices. This is recommended by Meredith(1964). One factor loading matrix (F1) is transformed by means of a matrix L where,

$$L = (F1' F1)^{-1} F1' F2$$

F1 = factor pattern matrix of first group

F2 = factor pattern matrix of second group

The transformed matrix is formed by,

$$F1\ L$$

Matrix L is such that the sum of squared differences bewteen

F1L and F2 (the other factor loading matrix) is minimized. To compare the match of the two matrices two sources of information are considered: a) the transformation matrix L; and b) the graphical plotting of the loadings in F1L to the corresponding loadings of F2.

The matrix L contains the loadings of factors in group one on the factors for group two. The extent of matching can be estimated by the loadings of the factors from group 1 on the factors of the group 2 solution. With the Promax rotation only one matrix is input, the factor structure(or pattern) matrix from an orthogonal rotation. From this input matrix a target matrix is developed, the rows and columns are powered (in this study by a power of 4) to produce a simple structure target matrix. This simple structure matrix serves as the target for the Promax rotation which is a Procrustean rotation. The Ahmavaara match, also a Procrustean rotation involves two matrices provided by the researcher; both are factor pattern matrices developed by the Promax rotation(in this instance) to an oblique solution. One of the input matrices serves as the target, the procedure attempts to rotate the other input matrix to fit this target. In the Ahmavaara technique both input matrices(F1 and F2) are factor pattern matrices, the factors in this instance are correlated(an oblique solution). The transformation matrix (L) is used to rotate one of the input matrices (F1) to match or at least approximate the other matrix (F2). The coefficients of this transformation matrix

also indicate the extent of the match between the matrix to be rotated or transformed (F1) and the target matrix (F2). As the coefficient approaches 1.0 the corresponding factors are identically matched, as it approaches 0.0 the factors are unrelated. With a perfect match, 1's should occur down the diagonal of the L matrix and zero's in the off-diagonal locations. In other words, with a perfect match of the two solutions produced after Promax rotation, the L matrix should be an identity matrix (I). The extent to which this situation is approached is indicative of the degree of rotation required to match the two factor pattern matrices (F1 and F2).

The graphical treatment plots each loading of the transformed matrix against the corresponding loadings of the group 2 factor loading matrix. With a perfect match, the points would fall along a straight line 45 degrees to the X or Y axis of the graph. The extent to which the points diverge from this pattern is indicative of the error of matching.

Neither procedure has any criteria to determine the extent of the match. Individual judgement and 'taste' (according to Ahmavaara) have to be relied upon.

A further comparison of solutions was made using the index of similarity reported in Mulaik (1972, p.355). This index is intended to quantitatively express the degree to which pairs of factors are similar to one another. The index expresses the cosine of the angle between corresponding

column vectors of the matrices F1L and F2. The index is determined by dividing the sum of the crossproducts by the square root of the product of the sums of squares by column. There is no statistical criterion to determine the extent of similarity but Mulaik contends that it is common practice to accept two factors as equivalent if the index of similarity is equal to or greater than 0.90 . The index is appropriate for use in comparing one pattern matrix with a least squares approximation of it (ie., to compare F2 [illegible] F1L).

The results of the factor analysis will be presented in the following order:

1. The Teacher Solution
2. The Citizen Solution
3. The Teacher/Citizen Match
4. The Student Solution
5. The Student/Teacher Match

The oblique solutions are the main focus of this study and will be described in detail in the thesis. The orthogonal solutions can be found in Appendix D. The communalities reported for each item are taken from the orthogonal solutions.

TEACHER SOLUTION

The solution reported is from the analysis of the goal

ratings of the Teachers involved in the study consisted of 8 factors extracted from 118 by 118 correlation matrix. This solution accounted for 49.02% of the total variance. The orthogonal solution is reported in Appendix D. The communalities for each item are listed in Table 10, these are taken from the orthogonal solution.

In considering the communalities of the items, only 5 items (12.Curiosity, 15.Preparation for Secondary School, 29.Span and Serial Memory, 51.Comprehension of Positional Notation in Mathematics, and 112.Interest in Social Studies) had communalities of less than 0.30; of these only one (#29) did not have at least one loading on a factor greater than 0.30. This along with the 49.02% of the variance of 118 items being accounted for by 8 factors indicates that the solution does encompass much of the space in which the information exists and at a great reduction (8/118) in number of elements used to provide a meaningful description of that information.

The solution interpretted here is the obliquely rotated solution reported completely in Appendix E. In this solution and all others presented (as well as all those derived during analysis of the data) the most consistently characteristic feature was the existence of the factor on which the French and foreign language goals (#32 - #41) load. These goals do not load to any extent on any other factors, each item(goal) has a high communality (more than 0.50), and very few other items load on that factor more

TABLE 10

Teacher Solution

The communalities of the Teacher solution taken from the orthogonal rotation.

ITEMS	H2
1. Socialization - Rebelliousness	.566
2. Hostility - Friendliness	.449
3. Dependence - Independence	.454
4. General Activity - Lethargy	.552
5. Adjustment	.635
6. Shyness - Boldness	.351
7. Responsibility	.536
8. Self Esteem	.624
9. Imagination	.531
10. Independent Thinking	.482
11. Success	.477
12. Curiousity	.289
13. Creativity	.433
14. Critical Analysis -Information	.469
15. Preparation :Secondary School	.246
16. Need Achievement	.520
17. Interest Areas	.579
18. Leisure Time	.610
19. Enjoyment in Learning	.385
20. Social Poise & Skills	.579
21. Development of Canadianism	.429
22. Appreciation of Arts & Crafts	.426
23. Represnt'nl Skills Arts/Crafts	.352
24. Classificatory Reasoning	.384
25. Relation/I[illegible]cation'l Reason	.499
26. Systematic Reasoning	.457
27. Creative Flexibility	.517
28. Creative Fluency	.439
29. Span & Serial Memory	.209
30. Meaningful Memory	.478
31. Spatial Memory	.311
32. Reading Comprehension of French	.748
33. Oral Comprehension of French	.666
34. Speaking Fluency in French	.536
35. Writing Fluency in French	.760
36. Insight/Interest Through French	.558
37. Read Comp. of a Foreign Language	.693
38. Oral Comp. of Foreign Language	.779
39. Speak. Fluency: Foreign Language	.659
40. Write. Fluency: Foreign Language	.511

TABLE 10 (CON'T)

ITEMS	H2
41. Insight/Interest: Foreign Lang.	.519
42. Spelling	.493
43. Punctuation & Capitalization	.652
44. Grammar & Usage	.589
45. Penmanship	.631
46. Written Expression	.634
47. Indep. Applc. Writing Skills	.506
48. Data Sources as Refer. Skills	.412
49. Summarizing Information	.378
50. Comp. Numbers & Sets	.436
51. Comp. Positional Notation	.296
52. Comp. Equations/Equalities	.429
53. Comp. Number Principles	.266
54. Operations with Integers	.580
55. Operations with Fractions	.460
56. Operations with Decimals	.482
57. Mathematical Problem Solving	.425
58. Indep. Applic'n of Math.	.419
59. Geometric Facility	.503
60. Geometric Vocabulary	.569
61. Measurement Making & Reading	.446
62. Statistics	.359
63. Musica Appreciation	.564
64. Music Interest & Enjoyment	.534
65. Singing	.352
66. Musical Instrument Playing	.488
67. Dance (Rhythmic Response)	.424
68. Aural Identification of Music	.553
69. Music Knowledge	.448
70. Practicing Health & Safety	.617
71. Understanding Health & Safety	.501
72. Sex Education	.434
73. Muscle Control	.355
74. Physical Development/Well Being	.408
75. Group Activity - Sportsmanship	.[illegible]7
76. Interst/Participation in Sports	.[illegible]6
77. Under. Rule/Strategies: Sports	.[illegible]1
78. Knowledge of P.E. Apparatus	.405
79. Relaxation	.586
80. Listening Reaction & Response	.504

TABLE 10 (CON'T)

ITEMS	H2
81. Speaking	.365
82. Phonetic Recognition	.493
83. Structural Recognition	.493
84. Oral Reading	.553
85. Silent Reading Efficiency	.492
86. Recognition of Word Meanings	.475
87. Under. Ideational Complexes	.502
88. Remebering Information Read	.396
89. Inference Making from Reading	.421
90. Recognition of Literary Devices	.416
91. Critical Reading	.499
92. Attitude Toward Reading	.520
93. Att. &Beh. Modif'n from Reading	.476
94. Famil'y with Stan. Child. Lit.	.414
95. Observ'n/Descrp'n in Science	.481
96. Use Number/Measures-Science	.572
97. Class'n/Genral'n-Science	.467
98. Hypothesis Formation in Science	.535
99. Operational Definitions-Science	.651
100. Experimentation in Science	.476
101. Formulation Conclusion	.544
102. Know. Science Facts/Terms	.483
103. Science Interest/Appreciation	.514
104. Appl'n of Scientific Methods	.383
105. Knowledge of History	.457
106. Know. of Physical Geography	.561
107. Know. Socio-Economic Geog.	.528
108. Cultural Knowledge	.428
109. Social Organization Knowledge	.440
110. Research Skills/Social Science	.589
111. Citizenship	.443
112. Interest in Social Studies	.282
113. Knowledge of Governments	.561
114. Knowledge & Use of Media	.448
115. Media: Critical Thinking	.535
116. Knowledge of Community	.365
117. Involvement with Community	.613
118. School Orientation	.603

than 0.30 (either item 67 or 68 in the orthogonal solutions only).

The correlations between primaries are presented in Table 11.

For each factor, items which load more than 0.30 are listed along with their loadings on other factors in Tables 12 to 19. In this solution four items (21.Development of Canadianism, 29.Span and Serial Memory, 31.Spatial Memory, and 81.Speaking) did not load on any factor more than 0.30.

FACTOR ONE: TEACHER SOLUTION

The items which load more than 0.30 on factor one are presented in Table 12.

The items which load on this [redacted] are related to abilities, knowledge, and attitudes which involve functioning in the human component of an individual's environment - both inter and intra personal domains. Traits which are related to adapting to and functioning with self and others. These items are characteristic of a sound and healthy mind and body along with abilities to interact effectively in the social sphere.

These are the general traits of a healthy, functional member of the community whether the classroom, school, peer group, or community in general. The negative loading (-.318) of Aural Identification of Music (#68) fits this interpretation in that item 68 relates to a specific skill

TABLE 11

Teacher Oblique Solution : Correlations Between the Primaries

	Factors							
	1	2	3	4	5	6	7	8
1		0.502	0.410	0.008	0.304	0.163	0.277	0.266
2			0.416	0.170	0.433	0.245	0.260	0.367
3				-.063	0.130	0.128	0.127	0.261
4					0.211	0.249	0.095	0.074
5						0.236	0.189	0.189
6							0.244	-.041
7								-.037

TABLE 12

Teacher Oblique Solution: Factor One

The items loading more than 0.30 on Factor are listed along with their loadings on other factors in the Teacher solution.

ITEMS	FACTORS 1	2	3	4	5	6	7	8
18. Leisure Time	.817	-.048	-.097	.112	-.034	.182	-.106	-.015
17. Interest Areas	.785	-.088	-.122	.119	-.020	-.071	.140	.049
5. Adjustment	.775	-.136	.121	-.029	-.061	.123	-.204	.139
79. Relaxation	.754	.121	-.037	.028	-.161	-.168	.118	-.203
75. Group Activity - Sportsmanship	.687	-.295	.249	.050	-.000	.111	.055	.129
4. General Activity - Lethargy	.662	-.057	.175	.034	-.004	-.064	.125	-.045
70. Prac. Health/Safety Principles	.653	-.122	.371	.038	.009	-.023	.031	-.204
2. Hostility - Friendliness	.641	-.048	.060	.009	-.136	-.014	.061	.116
6. Shyness - Boldness	.612	.036	-.236	-.074	-.040	.034	.031	.065
8. Self Esteem	.568	-.060	.332	.110	-.136	-.026	.012	.199
71. Under. Health/Safety Principles	.533	.106	.145	.014	.105	.163	-.072	-.253
1. Socialization - Rebelliousness	.512	.152	.167	-.153	-.005	-.174	.002	.124
117. Involvement with Community	.510	.417	-.296	-.127	.228	-.160	-.076	-.019
20. Social Poise & Skills	.503	.300	.002	.015	.026	-.161	.115	.070
11. Success	.487	.024	-.299	.014	-.182	.014	.017	.097
77. Under. Rules/Strategies: Sports	.448	-.148	-.031	-.186	.351	.097	-.238	-.035
76. Participation in Sports/Games	.446	-.013	-.115	-.076	.069	.232	.298	.008
19. Enjoyment in Learning	.445	.016	.246	.065	-.127	-.182	.089	.073
118. School Orientation	.440	.020	.275	.0[illegible]	.060	-.334	.361	-.082
16. Need Achievement	.433	.218	.282	.00[illegible]	[illegible]	-.094	.083	.012
72. Sex Education	.426	-.024	-.415	.089	[illegible]	[illegible]	.035	.037

TABLE 12 (Con't)

80. Listening Reaction & Response	.423	.145	-.200	-.111	.016	.130	-.099	.142
10. Independent Thinking	.416	.169	.028	-.113	-.089	-.094	-.178	.337
111. Citizenship	.410	.165	.119	-.025	.196	-.082	.022	.007
74. Physical Development/Well Being	.407	.023	-.020	.054	-.058	.076	.371	-.013
3. Dependence - Independence	.406	.236	.028	-.016	.022	-.032	.164	.228
7. Responsibility	.390	.066	-.129	.060	.066	-.161	-.219	.108
9. Imagination	.381	-.088	.054	.029	.066	.090	.095	.488
13. Creativity	.363	.024	.075	.106	-.022	.052	.181	.332
73. Muscle Control	.354	.030	-.043	-.011	.114	.100	.283	.005
15. Preparation: Secondary School	.348	.071	.221	.110	-.006	.028	-.098	-.097
64. Music Interest & Enjoyment	.342	-.400	-.136	-.018	.140	.365	.441	.109
68. Aural Identification of Music	.318	.098	-.119	.238	.542	-.018	.186	.200
114. Knowledge & Use of Media	.310	.307	.082	.058	.100	.159	-.109	.009

not broadly functional in the succesful participation in the human social setting.

The skills and attitudes associated with this factor could be termed general human competencies. These are competencies which would serve to adapt an individual to functioning effectively in a human environment such as the school or the broader community. These competencies include social skills of interacting with others :

Group Activity(#75)

Hostility(#12)

Shyness(#6)

Social Poise(#20)

Cognitive competencies related to functioning are:

Understanding Health Principles(#71)

Understanding Rules & Principles(#77)

Sex Education(#72)

Independent Thinking(#10)

Imagination(#9)

Creativity(#13)

Preparation for Secondary School(#15)

Attitudes which serve to adapt an individual to his/her situation include:

Leisure Time(#18)

Adjustment(#5)

Interest Areas(#17)

Relaxation(#79)

Self Esteem(#8)

Success (#11)

School Orientation (#118)

Factor one relates to factor 2 (.5021) and to factor 3 (.4096).

FACTOR TWO : TEACHER SOLUTION

The items loading on this factor (Table 13) can be termed intellectual skills. They are cognitive skills related to the processing of academic information (eg., science, mathematics, reading, and social science). The abilities involve both the acquisition and processing of information.

It is felt that the academic connection is not of major signifigance. The academic content serves as that which is being processed. Rather, the processes are the central characteristic of this factor. The processes are mental abilities of a high order, generally acquired and given practice in the environment of formal education.

The negative loading (-.4004) of Music Interest and Enjoyment (#64) fits the interpretation in that it is definitely not an academic cognitive skill. Perhaps the goal can be viewed as a non-intellectual pursuit particularly if the music is perceived as current top forty disco hits.

The factor could be viewed as the serious, high order functioning of the intellect, certainly involving the 3R's but requiring far more complex cognitive functioning.

TABLE 13

Teacher Oblique Solution: Factor Two

The items loading on Factor Two are listed along with their loadings on the other factors of the Teacher solution.

ITEMS	FACTORS 1	2	3	4	5	6	7	8
99.Operational Definitions-Science	-.248	.720	-.052	.017	.181	.266	-.015	-.029
96.Use Number/Measures-Science	-.180	.698	-.046	-.049	-.147	.187	.312	-.003
26.Systematic Reasoning	.114	.691	-.169	-.022	.018	-.108	-.151	.030
14.Critical Analysis -Information	.143	.660	-.102	-.005	-.038	.073	-.355	-.016
104.Appl'n of Scientific Methods	.062	.654	-.061	.020	-.027	.054	-.049	-.159
24.Classificatory Reasoning	-.058	.612	.122	-.016	-.115	-.078	-.125	.087
91.Critical Reading	-.275	.604	-.066	.072	-.040	.178	-.033	.308
97.Class'n/Genral'n-Science	-.227	.594	.120	-.007	-.030	.090	.185	.112
98.Hypothesis Formation in Science	.097	.594	-.023	.051	-.107	.264	-.014	.051
107.Know.Socio-Economic Geog.	.018	.591	-.007	.078	.135	.044	.163	-.185
87.Under.Ideational Complexes	-.091	.565	.207	-.270	.010	-.087	.152	.048
25.Relation/Implication'l Reason	.196	.556	-.128	.019	.110	.041	-.150	.087
102.Know. Science Facts/Terms	-.148	.506	-.047	.096	-.003	.196	.248	.133
30.Meaningful Memory	.226	.487	.163	-.189	-.120	.132	.112	-.089
108.Cultural Knowledge	.107	.487	-.030	.086	.067	.031	.141	-.005
7.Responsibility	.390	.466	-.129	.060	.066	-.161	-.219	.108
95.Observ'n/Descrp'n in Science	-.010	.422	.196	-.140	-.124	.145	.084	.269
93.Att.&Beh.Modif'n from Reading	.250	.420	-.057	.055	.141	.092	-.043	.058
58.Indep.Applic'n of Math.	.211	.419	.032	-.091	.086	.002	.148	-.063
117.Involvement with Community	.510	.417	-.296	-.127	.228	-.160	-.076	-.019
12.Curiousity	.125	.414	-.022	.066	.062	-.110	.084	.012
103.Science Interest/Appreciation	-.083	.403	.040	-.225	.171	.195	.279	.130
55.Operations with Fractions	-.094	.401	.291	.013	.040	.328	-.105	-.363
64.Music Interest & Enjoyment	.342	-.400	-.136	-.018	.140	.365	.441	.109

TABLE 13 (Con't)

48.Data Sources as Refer.Skills	-.043	.400	.339	.051	.095	-.088	-.076	.056
110.Research Skills/Social Science	.071	.392	.324	-.130	.198	.250	-.186	-.087
46.Written Expression	-.005	.392	.482	-.010	-.128	.037	-.041	.200
109.Social Organization Knowledge	-.034	.378	-.072	.119	.469	-.049	-.170	-.121
57.Mathematical Problem Solving	-.159	.376	.343	.069	.163	-.095	.157	.016
116.Knowledge of Community	.247	.371	-.159	-.010	.213	.007	.037	.064
47.Indep.Applc.Writing Skills	.041	.346	.500	.024	.078	-.071	-.047	-.108
27.Creative Flexibility	.174	.338	-.069	-.034	-.115	.217	.011	.432
49.Summarizing Information	.050	.328	.158	.106	.194	.101	-.014	-.002
90.Recognition of Literary Devices	-.017	.314	-.065	.149	.214	.256	-.037	.130
114.Knowledge & Use of Media	.310	.307	.082	.058	.100	.159	-.109	.009
20.Social Poise & Skills	.503	.300	.002	.015	.026	-.161	.115	.070

Factor 2 is related to Factor 1 (.5021), Factor 3 (.4162), and Factor 5 (.4326). The relationship to Factor 1 is logical in that Factor 1 involves human competencies, general human competencies. A typically human characteristic is intellectual functioning. Intellectual functioning is more specific in terms of the total spectrum of human capacities but nonetheless related to human competencies (ie., Factor 1). Indeed, intellectual functioning is one of the major human abilities used in adapting to and functioning in the environment.

FACTOR THREE : TEACHER SOLUTION

The items loading on Factor 3 (Table 14) could be termed the basic skills or the 3R's . The basic skills required of a student in public school are reading, writing, and arithemetic, and these skills are well represented in the items which load on Factor 3.

The relationships to Factor 1 (.4096) and Factor 2 (.4162) support the conception of this factor being skills related. The ability to do things which are of use in the academic activities of an elementary (and high) school student.

The negative loadings of such non-basic areas as Sex Education (#72), Dance (#67), Knowledge of Governments (#113), and Music Knowledge (#69) supports the basic skills interpretation of this factor. The skills related to regular

TABLE 14

Teacher Oblique Solution: Factor Three

Items loading more than 0.30 are listed along with their loadings on the other factors in the Teacher Solution.

ITEMS	FACTORS							
	1	2	3	4	5	6	7	8
43. Punctuation & Capitalization	.054	-.175	.603	.019	-.016	.270	-.150	-.187
44. Grammar & Usage	-.051	.040	.709	.093	-.239	.041	-.193	-.040
42. Spelling	.051	-.116	.676	.069	-.190	-.093	.132	-.069
45. Penmanship	.012	-.087	.636	.066	-.043	.063	.428	-.256
82. Phonetic Recognition	.233	-.292	.635	.084	-.003	.095	.086	.049
54. Operations with Integers	.216	.106	.592	-.039	-.194	.111	.060	-.094
85. Silent Reading Efficiency	.200	-.106	.591	-.045	-.015	.033	-.051	.141
84. Oral Reading	-.127	.171	.572	.030	-.161	.210	.253	.013
47. Indep. Applc. Writing Skills	.041	.346	.500	.024	.078	-.071	-.047	-.108
46. Written Expression	-.005	.392	.482	-.010	-.128	.037	-.041	.200
61. Measurement Making & Reading	.075	.131	.471	-.097	.050	.149	.053	.043
86. Recognition of Word Meanings	-.051	-.119	.434	.098	.237	.182	-.262	.332
52. Comp. Equations/Equalities	-.030	.029	.424	-.212	.355	.033	.080	.072
92. Attitude Toward Reading	.134	.068	.420	.100	.105	-.116	.010	.298
72. Sex Education	.426	-.024	-.415	.089	.384	-.173	.035	.037
67. Dance (Rhythmic Response)	.093	.174	-.411	.084	.031	.127	.389	.294
83. Structural Recognition	-.062	-.080	.407	-.029	.659	-.141	-.091	-.114
88. Remebering Information Read	.154	.007	.396	.067	.223	-.066	-.066	.156
70. Practicing Health & Safety	.653	-.122	.371	.038	.009	-.023	.031	-.204
113. Knowledge of Governments	.257	.198	-.364	.087	.446	.160	-.077	.055
50. Comp. Numbers & Sets	-.003	-.091	.349	.007	.417	.100	.098	.191
57. Mathematical Problem Solving	-.159	.376	.343	.069	.163	-.095	.157	.016
48. Data Sources as Refer. Skills	-.043	.400	.339	.051	.095	-.088	-.076	.056
69. Music Knowledge	-.062	-.040	-.335	.002	.544	.039	.214	.169
8. Self Esteem	.568	-.060	-.332	.110	-.136	-.026	.012	.199
106. Know. of Physical Geography	.030	-.121	.329	.064	.600	.181	-.015	.001
110. Research Skills/Social Science	.071	.392	.324	-.130	.198	.250	-.186	-.087

curricular activities such as the 3R's, health and safety, geography, and social science all positively load on factor 3. The majority of items are related to reading, writing, and arithmetic.

The presence of [redacted] is curious although it does load more on Factor 1 (.5676 vs. .3326) where it seems to make a more logical fit. A possible explanation for the positive loading on Factor 3 may be the increased expressed concern for self concept and self esteem particularly in the mid to late 60's perhaps elevating this area into the basics realm.

FACTOR FOUR : TEACHER SOLUTION

The only items to load on Factor 4 (Table 15) are those related to French and foreign language. As mentioned, this pattern has emerged from all factor analytic solutions determined for any sample group and for all combinations of variables used. (It was so consistent that it served as a useful check to insure that the processing of data had been correctly conducted.)

It is considered that this factor has more than just an academic basis for its emergence. The current national concern for political unity and language rights has to be influential in the appearance of this factor. The factor stands in isolation from other factors; no other factor relates to it more than 0.25, no items (other than French

TABLE 15

Teacher Oblique Solution: Factor Four
The Items loading on factor four are listed along with their loadings on other Teacher factors

ITEMS	FACTORS 1	2	3	4	5	6	7	8
38.Oral Comp. of Foreign Language	.165	-.006	.078	.880	-.183	.004	.000	.088
35.Writing Fluency in French	.064	-.173	-.016	.834	.215	-.098	.069	.063
32.Reading Comprehension of French	-.121	.026	.037	.800	.275	-.178	-.040	.005
33.Oral Comprehension of French	.026	-.125	.066	.789	.213	-.119	-.037	.063
37.Read Comp.of a Foreign Language	-.046	-.055	-.016	.778	.195	-.161	.139	.089
39.Speak.Fluency:Foreign Language	.212	.052	-.043	.725	-.158	.134	.093	.051
36.Insight/Interest Through French	-.006	.166	.194	.698	-.112	-.003	.069	-.116
34.Speaking Fluency in French	-.037	.018	.030	.698	.089	.053	-.088	-.120
40.Write.Fluency:Foreign Language	.021	.048	.032	.688	-.141	.140	-.107	-.077
41.Insight/Interest:Foreign Lang.	.035	.298	.035	.582	-.089	.094	.001	.010

and foreign language items) load on Factor 3, and the French and foreign language items do not load (more than 0.30) on any other factor. Perhaps the isolation is due to the political basis of the factor, it does not have a high academic relevance as do the other factors considered in this solution.

FACTOR FIVE : TEACHER SOLUTION

The items which load on Factor 5(Table 16) are concerned with knowledge that has academic relevance but is not viewed as an essential part of the elementary school. The items here tend to receive low ratings (modes of 3 to 5) by the teachers.

The abilities involved are knowledge and comprehension of data sets or systems (music, geometry, geography, governments) rather than knowledge to do something. These are lower order cognitive skills(knowledge and comprehension) related to academically based information(often rather complex information). The information is not of a general nature but to an extent curricularly specific. Further, the curricula tend to be that of a later educational stage such as junior or senior high school - this perhaps accounts for its low rating of importance to the elementary school.

The inclusion of the items on Sex Education(#72), Music Knowledge(#64), and Knowledge of Governments(#113) seems to

TABLE 16

Teacher Oblique Solution: Factor Five

The items loading more than 0.30 on factor 5 are listed along with their loadings on the other Teacher factors.

ITEMS	FACTORS 1	2	3	4	5	6	7	8
83.Structural Recognition	-.062	-.080	.407	-.029	.659	-.141	-.091	-.114
106.Know. of Physical Geography	.030	-.121	.329	.064	.600	.181	-.015	.001
62.Statistics	-.160	.049	.090	.033	.569	.020	.039	.032
60.Geometric Vocabulary	-.099	.067	.180	.066	.552	.164	.165	.062
69.Music Knowledge	-.062	-.040	-.335	.002	.544	.039	.214	.169
68.Aural Identification of Music	-.318	.098	-.119	.238	.542	-.018	.186	.200
51.Comp.Positional Notation	.001	-.073	.220	-.013	.537	-.023	-.073	-.061
53.Comp.Number Principles	-.193	.110	-.079	-.177	.493	.100	-.069	.005
109.Social Organization Knowledge	-.034	.378	-.072	.119	.469	-.049	-.170	-.121
113.Knowledge of Governments	.257	.198	-.364	.087	.446	.160	-.077	.055
50.Comp.Numbers & Sets	-.003	-.091	.349	.007	.417	.100	.098	.191
89.Inference Making from Reading	.104	.180	.024	-.049	.394	-.177	-.093	.239
72.Sex Education	.426	-.024	-.415	.089	.384	-.173	.035	.037
52.Comp.Equations/Equalities	-.030	.029	.424	-.212	.355	.033	.080	.072
77.Under.Rule/Strategies:Sports	.448	-.148	-.031	-.186	.351	.097	.238	-.035
16.Need Achievement	.433	.218	.282	.002	-.312	-.094	.083	.012
63.Musical Appreciation	-.220	.004	-.111	.174	.304	-.167	.521	.416

support the idea that the information is at least not basic to an elementary education. The positive loadings of these items on Factor 5 and their negative loadings on Factor 3(basic skills) supports the interpretation of Factor 5 as a less than essential academic knowledge factor.

Factor 5 is related to Factor 1 (.3036) and Factor 2(.4326).

FACTOR SIX : TEACHER SOLUTION

The items loading positively on Factor 6(Table 17) are higher order cognitive skills and some affectively related goal statements. The ratings accorded these items by the Teachers were moderate to low (3 to 4) indicating that they may not be considered essential to the elementary school.

The negative loading (-.334) of School Orientation(#118) which is considered to be important (modal rating=1) and a basic human competency (Factor 1) supports the idea of Factor 6 being non-essential or at least certainly less than basic.

The items are process related; active cognitive manipulation and modification of information is called for, not the input and storage level processing of Factor 5. Factor 6 appears to involve active cognitive functioning whereas Factor 5 tends towards a more passive, reactive functioning.

This factor does not load more than 0.30 on any other

TABLE 17

Teacher Oblique Solution: Factor Six

The items loading on factor six are listed along with thier loadings on the other factors in the Teacher solution.

ITEMS	FACTORS 1	2	3	4	5	6	7	8
101. Formulation Conclusion	-.129	-.190	.203	-.091	-.059	.656	-.008	.082
100. Experimentation in Science	-.043	.105	.022	.017	-.116	.623	.032	.182
59. Geometric Facility	-.060	.113	.123	-.147	.131	.538	.173	.119
56. Operations with Decimals	.065	.053	.175	-.113	.172	.503	.058	.107
05. Knowledge of History	-.059	.100	.204	.091	.217	.486	-.076	-.059
115. Media: Critical Thinking	.073	.078	-.140	.026	.130	.450	-.156	.489
64. Music Interest & Enjoyment	.342	-.400	-.136	-.018	.140	.365	.441	.109
112. Interest in Social Studies	.062	.019	.273	-.146	.106	.353	-.029	-.020
118. School Orientation	.440	.020	.275	.004	.060	-.334	.361	-.082
28. Creative Fluency	.134	-.014	.222	.009	-.085	.329	-.047	.431
55. Operations with Fractions	-.094	.401	.291	.013	.040	.328	-.105	-.363

factor in the oblique Teacher solution.

FACTOR SEVEN : TEACHER SOLUTION

The items loading postively on Factor 7 (Table 18) relate to goals which could be and often are the task of specialist teachers within the school or educational sources other than the elementary school - music, dance, physical education, and arts and crafts. All can be considered as normal components of the school schedule but could be safely eliminated should the need arise.

The related activities may be prime consumers of the students' out of school time and talent by organizations not unlike the school, at least functionally. Music, sports, and arts and crafts involve systematic instruction often by adults and the participants(students) are expected to develop and perform new achievements as time goes by. The activities are based on a wider community than the classroom and the school in that all age levels of individuals may be actively engaged in these activities concurrently with the elementary student. Perhaps these are areas in which the student can learn and be rewarded for his/her accomplishments by sources other than the elementary school.

This factor does not load on any other Teacher factor more than 0.30.

TABLE 18

Teacher Oblique Solution: Factor Seven

The items loading on factor seven are listed along with their loadings on the other factors in the Teacher solution.

ITEMS	FACTORS 1	2	3	4	5	6	7	8
66. Musical Instrument Playing	-.025	-.016	.035	.051	-.048	-.069	.703	.186
65. Singing	.081	-.031	-.008	-.069	.002	.013	.571	-.051
63. Musical Appreciation	-.220	.004	-.111	.174	.304	-.167	.521	.416
64. Music Interest & Enjoyment	.342	-.400	-.136	-.018	.140	.365	.441	.109
45. Penmanship	.012	-.087	.636	.066	-.043	.063	.428	-.256
67. Dance (Rhythmic Response)	.093	.174	-.411	.084	-.031	.127	.389	.294
74. Physical Development/Well Being	.407	.023	-.020	.054	-.058	.076	.371	-.013
78. Knowledge of P.E. Apparatus	.273	-.014	.183	-.002	.135	.027	.363	-.176
118. School Orientation	.440	.020	.275	.004	.060	-.334	.361	-.082
14. Critical Analysis -Information	.143	.660	-.102	-.005	-.038	.073	-.355	-.016
22. Appreciation of Arts & Crafts	-.143	.271	-.215	-.032	.046	.064	.322	.471
96. Use Number/Measures-Science	-.180	.698	-.046	-.049	-.147	.187	.312	-.003

FACTOR EIGHT : TEACHER SOLUTION

The items loading positively on Factor 8 (Table 19) relate to high order mental processing of an active nature. The individual uses his/her mind in an independent way both to take in and interpret information and to produce unique output. These cognitive skills are not bound to academically constrained content (of input or output) but to an extent are free of form and limitations imposed by the school. This feature is supported by the negative (-.3633) of Operations with Fractions (#55), a rule bound constricted use of specific information to produce convergent results. The factor involves independent, flexible, and creative use of the mind for both input of information and the generation of output.

The items are based on cognitive functioning of a high order; basically free and individual use of the mind.

This factor does not load more than 0.30 on any other factor in the Teacher solution.

CITIZEN SOLUTION

The solution reported is from the principal axes analysis of the goal ratings of the 131 Citizens involved in the study. This solution extracted 8 factors from the 118 by 118 correlation matrix. This solution accounted for 44.06% of the total variance. The orthogonal rotation of this solution is presented in Appendix D. The communalities for

TABLE 19

Teacher Oblique Solution: Factor Eight

The items loading on factor eight are listed along with their loading on the other factors of the Teacher Solution.

ITEMS	FACTORS 1	2	3	4	5	6	7	8
115. Media: Critical Thinking	.073	.078	-.140	.026	.130	.450	-.156	.489
9. Imagination	.381	-.088	.054	.029	.066	.090	.095	.488
22. Appreciation of Arts & Crafts	-.143	.271	-.215	-.032	.046	.064	.322	.471
27. Creative Flexibility	.174	.338	-.069	-.034	-.115	.217	.011	.432
28. Creative Fluency	.134	-.014	.222	.009	-.085	.329	-.047	.431
63. Musical Appreciation	-.220	.004	-.111	.174	.304	-.167	.521	.416
55. Operations with Fractions	-.094	.401	.291	.013	.040	.328	-.105	-.363
10. Independent Thinking	.416	.169	.028	-.113	-.089	-.094	-.178	.337
86. Recognition of Word Meanings	-.051	-.119	.434	.098	.237	.182	-.262	.332
13. Creativity	.363	.024	.075	.106	-.022	-.052	.181	.332
23. Represnt'nl Skills Arts/Crafts	.073	.139	-.051	.000	-.054	.270	.265	.315
94. Famil'y with Stan.Child.Lit.	-.105	.249	.119	.096	.049	.251	.116	.311
91. Critical Reading	-.275	.604	-.066	.072	-.040	.178	-.033	.308

each item are listed in Table 20, these are taken from the orthogonal solution.

In the Citizen solution there are 7 items which do not load on any factor more than 0.30 :

Creative Flexibility (#27)

Spatial Memory (#31)

Music Appreciation (#63)

Understanding Health & Safety Principles (#71)

Sex Education (#72)

Familarity with Standard Children's Literature (#94)

Knowledge & Use of Media (#114)

The correlations between the primaries of the oblique Citizen solution are listed in Table 21.

FACTOR ONE : CITIZEN SOLUTION

The items which load more than 0.30 are listed in descending order in Table 22.

As with the Teacher solution the items loading on Factor 1 are related to general human competencies of the students - general skills, knowledge, and attitudes which equip the individual to get along in his/her world. Competencies related to adapting to and functioning in the school and community would be:

Adjustment (#5)

Socialization (#1)

TABLE 20

Citizen Solution

The communalities of the Citizen solution taken from the orthogonal rotation.

ITEMS	H2
1. Socialization - Rebelliousness	.448
2. Hostility - Friendliness	.567
3. Dependence - Independence	.318
4. General Activity - Lethargy	.546
5. Adjustment	.552
6. Shyness - Boldness	.361
7. Responsibility	.234
8. Self Esteem	.358
9. Imagination	.338
10. Independent Thinking	.475
11. Success	.301
12. Curiousity	.281
13. Creativity	.398
14. Critical Analysis -Information	.332
15. Preparation : Secondary School	.318
16. Need Achievement	.476
17. Interest Areas	.567
18. Leisure Time	.449
19. Enjoyment in Learning	.320
20. Social Poise & Skills	.494
21. Development of Canadianism	.416
22. Appreciation of Arts & Crafts	.434
23. Represnt'nl Skills Arts/Crafts	.394
24. Classificatory Reasoning	.530
25. Relation/Implication'l Reason	.260
26. Systematic Reasoning	.446
27. Creative Flexibility	.336
28. Creative Fluency	.357
29. Span & Serial Memory	.244
30. Meaningful Memory	.388
31. Spatial Memory	.252
32. Reading Comprehension of French	.752
33. Oral Comprehension of French	.808
34. Speaking Fluency in French	.611
35. Writing Fluency in French	.793
36. Insight/Interest Through French	.654
37. Read Comp. of a Foreign Language	.754
38. Oral Comp. of Foreign Language	.526
39. Speak. Fluency: Foreign Language	.663
40. Write. Fluency: Foreign Language	.458

TABLE 20 (CON'T)

ITEMS	H2
41. Insight/Interest: Foreign Lang.	.500
42. Spelling	.522
43. Punctuation & Capitalization	.461
44. Grammar & Usage	.675
45. Penmanship	.386
46. Written Expression	.456
47. Indep. Applc. Writing Skills	.582
48. Data Sources as Refer. Skills	.481
49. Summarizing Information	.488
50. Comp. Numbers & Sets	.451
51. Comp. Positional Notation	.567
52. Comp. Equations/Equalities	.539
53. Comp. Number Principles	.283
54. Operations with Integers	.450
55. Operations with Fractions	.540
56. Operations with Decimals	.611
57. Mathematical Problem Solving	.474
58. Indep. Applic'n of Math.	.350
59. Geometric Facility	.437
60. Geometric Vocabulary	.474
61. Measurement Making & Reading	.533
62. Statistics	.448
63. Musica Appreciation	.334
64. Music Interest & Enjoyment	.486
65. Singing	.525
66. Musical Instrument Playing	.376
67. Dance (Rhythmic Response)	.472
68. Aural Identification of Music	.434
69. Music Knowledge	.410
70. Practicing Health & Safety	.389
71. Understanding Health & Safety	.340
72. Sex Education	.112
73. Muscle Control	.307
74. Physical Development/Well Being	.425
75. Group Activity - Sportsmanship	.544
76. Interst/Participation in Sports	.552
77. Under. Rule/Strategies: Sports	.448
78. Knowledge of P.E. Apparatus	.455
79. Relaxation	.433
80. Listening Reaction & Response	.278

TABLE 20 (CON'T)

ITEMS	H2
81. Speaking	.316
82. Phonetic Recognition	.404
83. Structural Recognition	.263
84. Oral Reading	.486
85. Silent Reading Efficiency	.403
86. Recognition of Word Meanings	.482
87. Under. Ideational Complexes	.370
88. Remebering Information Read	.375
89. Inference Making from Reading	.453
90. Recognition of Literary Devices	.423
91. Critical Reading	.501
92. Attitude Toward Reading	.365
93. Att. &Beh. Modif'n from Reading	.465
94. Famil'y with Stan. Child. Lit.	.201
95. Observ'n/Descrp'n in Science	.358
96. Use Number/Measures-Science	.478
97. Class'n/Genral'n-Science	.393
98. Hypothesis Formation in Science	.495
99. Operational Definitions-Science	.515
100. Experimentation in Science	.380
101. Formulation Conclusion	.299
102. Know. Science Facts/Terms	.487
103. Science Interest/Appreciation	.418
104. Appl'n of Scientific Methods	.367
105. Knowledge of History	.466
106. Know. of Physical Geography	.517
107. Know. Socio-Economic Geog.	.532
108. Cultural Knowledge	.379
109. Social Organization Knowledge	.511
110. Research Skills/Social Science	.532
111. Citizenship	.405
112. Interest in Social Studies	.292
113. Knowledge of Governments	.494
114. Knowledge & Use of Media	.210
115. Media: Critical Thinking	.285
116. Knowledge of Community	.445
117. Involvement with Community	.496
118. School Orientation	.489

TABLE 21

Citizen Oblique Solution : Correlations Between the Primaries

	Factors							
	1	2	3	4	5	6	7	8
1		0.540	0.417	0.162	0.198	0.159	0.127	0.120
2			0.453	0.245	0.239	0.340	0.167	0.050
3				0.149	0.064	0.301	0.198	0.014
4					0.155	-.021	-.009	0.076
5						0.058	0.009	-.010
6							0.022	0.001
7								0.119

TABLE 22

Citizen Oblique Solution: Factor One

The items loading more than 0.30 on Factor 1 are listed along with their loadings on the other Citizen factors.

ITEMS	FACTORS 1	2	3	4	5	6	7	8
5. Adjustment	.819	-.099	-.102	.030	-.009	.031	-.055	.020
4. General Activity - Lethargy	.799	-.103	-.118	.093	-.120	.097	-.158	.050
1. Socialization - Rebelliousness	.674	-.099	.062	-.005	.033	.004	.086	-.092
2. Hostility - Friendliness	.655	-.189	-.112	.048	.294	-.111	.307	.015
70. Practicing Health & Safety	.640	-.267	.126	-.029	.131	-.154	.037	-.073
75. Group Activity - Sportsmanship	.637	-.268	.128	-.094	.313	-.089	.089	.169
18. Leisure Time	.633	-.136	.018	-.084	.277	.016	-.076	-.009
8. Self Esteem	.617	-.142	-.262	.112	-.180	.102	.062	.177
6. Shyness - Boldness	.602	-.113	.012	.020	-.051	-.012	.065	.156
17. Interest Areas	.592	-.004	-.130	-.043	.407	.065	.006	.042
118. School Orientation	.554	-.271	.160	-.127	.245	.173	.090	.194
111. Citizenship	.551	.017	.071	.124	-.093	-.073	.141	-.028
117. Involvement with Community	.531	.219	-.001	-.158	.048	-.174	.173	-.198
20. Social Poise & Skills	.528	.119	.117	.017	.088	-.152	.143	-.118
74. Physical Development/Well Being	.523	-.042	-.032	-.057	.306	-.116	.186	-.113
11. Success	.501	.030	-.090	-.206	.076	.123	-.083	.058
19. Enjoyment in Learning	.481	-.154	-.098	.064	-.015	.276	.066	.220
76. Interst/Participation in Sports	.473	-.059	-.066	-.119	.504	.043	-.015	-.269
10. Independent Thinking	.463	.118	-.046	-.081	-.044	.313	.070	.167
79. Relaxation	.448	.036	-.075	-.024	.333	-.196	.099	.161
12. Curiousity	.435	.096	-.134	-.037	-.204	.156	-.128	.156
9. Imagination	.424	.228	-.011	-.081	.045	-.106	.011	.115
21. Development of Canadianism	.422	-.171	.096	.098	.030	.229	.360	-.193

TABLE 22 (Con't.)

3. Dependence - Independence	.408	.084	-.233	.141	-.023	.070	.231	.151
16. Need Achievement	.390	.297	-.140	-.085	-.063	.341	-.154	.016
103. Science Interest/Appreciation	.386	.372	-.090	-.017	-.078	.101	.048	-.120
93. Att.&Beh.Modif'n from Reading	.382	-.000	.388	-.057	-.010	.004	.149	-.074
13. Creativity	.345	.183	-.150	.074	.254	.167	-.214	-.086
7. Responsibility	.339	.187	-.123	-.032	-.066	-.081	.148	.144
81. Speaking	.332	-.022	.352	.054	-.039	-.050	-.221	.005
116. Knowledge of Community	.313	.312	.196	-.048	.118	-.154	-.001	-.163
41. Insight/Interest:Foreign Lang.	.300	.086	.080	.511	-.041	-.127	-.167	.051

Group Activity(#75)

Shyness(#6)

School Orientation(#118)

Citizenship(#111)

Involvement with Community(#117)

Development of Canadianism(#21)

Responsibility(#7)

Social Poise & Skills(#20)

These are goals relating to getting along in a social system, adapting to the constraints imposed by social organization.

However, development of self and adapting to self are also related to this factor:

Adjustment(#5)

General Activity(#4)

Leisure Time(#18)

Self Esteem(#8)

Interest Areas(#17)

Physical Development(#74)

Success(#11)

Independent Thinking(#10)

Relaxation(#79)

Curiosity(#12)

Imagination(#9)

Need Acheivement(#16)

Creativity(#13)

These are individual-centred goals, skills, and attitudes

focused on self development and adaptation. These are abilities and attitudes related to the functioning of the individual without interpersonal interaction being involved as an issue.

The factor appears to be centred on the development of a mentally and physically healthy human capable of functioning in a social situation - in effect a competent human who can live and interact with himself and others.

Factor 1 is related to Factor 2(.5395) and Factor 3(.4166) in the Citizen solution.

FACTOR TWO : CITIZEN SOLUTION

The items loading on Factor 2(Table 23) relate to intellectual skills connected to academic activities. As with the Teacher Factor 2 these are the hard core academic/intellectual skills, there appears to be no affect relationship in this factor. These could be the skills 'educated' individuals use in the intellectual activities they are involved with:

Systematic Reasoning(#26)

Hypothesis Formation in Science(#98)

Application of Scientific Method(#104)

Use of Data Sources(#48)

Classification & Generalization in Science(#97)

Statistics(#62)

Critical Analysis of Information(#14)

TABLE 23

Citizen Oblique Solution: Factor Two

The items loading more than 0.30 on factor 2 are listed along with their loadings on the other Citizen factors.

ITEMS	FACTORS 1	2	3	4	5	6	7	8
26.Systematic Reasoning	-.137	.720	.028	.034	-.079	-.094	.120	-.019
98.Hypothesis Formation in Science	-.152	.676	-.042	-.041	.192	.054	.049	.167
99.Operational Definitions-Science	-.115	.643	-.145	.128	.116	.121	.213	-.047
104.Appl'n of Scientific Methods	-.049	.636	-.080	.040	.027	-.055	.097	.013
48.Data Sources as Refer.Skills	-.134	.634	.097	.025	-.096	-.034	.106	.264
97.Class'n/Genral'n-Science	-.274	.628	-.126	.025	.212	.108	-.050	.088
62.Statistics	-.080	.609	.108	-.054	.022	.128	-.040	.007
96.Use Number/Measures-Science	-.204	.596	.106	.022	-.145	.235	.075	.020
14.Critical Analysis -Information	-.059	.589	-.047	.024	-.032	-.109	.030	.221
24.Classificatory Reasoning	.103	.573	.117	.013	.048	.049	-.091	-.131
102.Know. Science Facts/Terms	.006	.513	.027	-.026	-.063	.202	.247	-.123
110.Research Skills/Social Science	-.062	.475	.423	-.027	-.079	.019	.006	.052
101.Formulation Conclusion	-.014	.465	-.217	.110	.138	.103	.094	-.125
89.Inference Making from Reading	.051	.454	.100	-.095	-.023	-.105	-.082	.461
100.Experimentation in Science	-.087	.451	-.140	.005	.143	.253	.138	.190
115.Media: Critical Thinking	.063	.434	-.010	.146	-.263	.008	.012	.075
95.Observ'n/Descrp'n in Science	.174	.412	.037	-.076	-.047	.166	-.163	.053
90.Recognition of Literary Devices	.016	.401	.294	-.081	.163	.000	.049	-.005
91.Critical Reading	.046	.400	.151	-.049	-.156	.022	.364	.142
52.Comp.Equations/Equalities	-.191	.387	.278	.030	.027	.362	.013	-.152
109.Social Organization Knowledge	.229	.383	-.212	-.035	.068	.062	.463	-.102
103.Science Interest/Appreciation	.386	.372	-.090	-.017	-.078	.101	.048	-.120
87.Under.Ideational Complexes	-.102	.369	.174	.077	-.101	.069	.149	.290

TABLE 23 (Con't.)

28.Creative Fluency	.200	.351	.098	.084	-.012	-.105	-.344	.104
58.Indep.Applic'n of Math.	.137	.322	.047	.064	-.103	.267	.014	-.050
25.Relation/Implication'l Reason	.002	.321	-.016	-.085	.166	.097	-.096	.299
108.Cultural Knowledge	.192	.314	.174	.033	-.067	-.126	.146	.172
116.Knowledge of Community	.313	.312	.196	-.048	.118	-.154	-.001	-.163
64.Music Interest & Enjoyment	.078	.300	-.079	.064	.476	-.300	.130	.064

Classificatory Reasoning(#24)

The activities are centred on the intake of complex academic information, to understand it, classify it, and process it. There is no emphasis on the output of information. These are difficult intellectual processes involved in education or at least idealized education. The skills or processes are the focus of this factor, the academic content serves as the vehicle upon which the processes operate. As with the Teacher Factor 2, the information is not central. It is the process. Curiously, these goals are not rated at the top end of the importance scale, the ratings range from 3 to 5.

This factor relates to Factor 1(.5395), Factor 3(.4530), and Factor 6(.3398).

FACTOR THREE : CITIZEN SOLUTION

Items loading on Factor 3(Table 24) represent the basic skills of the elementary school - reading, writing, and arithmetic. In addition, geography, social science, and history goals load on this factor in distinction from the Teacher solution.

Factor 3 relates to Factor 1(.4166), Factor 2(.4530), and Factor 6(.3009). The interrelationship of factors 1, 2, and 3 is consistent with interpretation. General human competency (Factor 1) is involved with adapting and functioning within the individual's environment. A major component of an elementary student's environment is the

TABLE 24

Citizen Oblique Solution: Factor Three

The items loading more than 0.30 on factor three are listed along with their loadings on the other Citizen factors.

ITEMS	FACTORS							
	1	2	3	4	5	6	7	8
44.Grammar & Usage	-.156	.025	.839	-.072	.185	.023	-.018	.077
42.Spelling	-.043	-.187	.697	-.000	.197	.157	-.034	.193
43.Punctuation & Capitalization	-.122	-.084	.673	.040	.202	.084	-.080	.168
84.Oral Reading	-.126	-.171	.632	.077	.280	.221	-.090	-.043
47.Indep.Applc.Writing Skills	.270	.007	.593	-.002	-.107	.073	-.053	.035
86.Recognition of Word Meanings	-.081	.271	.525	.063	-.155	-.030	-.037	.221
45.Penmanship	-.091	-.055	.499	.067	.207	.143	.009	.260
83.Structural Recognition	-.089	.038	.454	-.048	.161	.095	.030	.021
85.Silent Reading Efficiency	.181	-.170	.441	.035	-.201	.146	-.225	.297
46.Written Expression	.148	.258	.428	.045	-.155	-.062	.046	-.089
106.Know. of Physical Geography	.023	.214	.428	-.073	-.004	.115	.274	-.026
110.Research Skills/Social Science	-.062	.475	.423	-.027	-.079	.019	.006	.052
54.Operations with Integers	-.132	.017	.415	-.059	-.030	.390	.153	.131
92.Attitude Toward Reading	.217	-.028	.412	.061	-.160	-.066	-.091	.287
61.Measurement Making & Reading	.013	.014	.412	-.068	.014	.453	.065	.109
93.Att.&Beh.Modif'n from Reading	.382	-.000	.388	-.057	-.010	.004	.149	-.074
55.Operations with Fractions	-.256	.144	.358	-.091	.034	.466	.193	.014
81.Speaking	.332	-.022	.352	.054	-.039	-.050	-.221	.005
30.Meaningful Memory	.248	.148	.341	-.053	-.043	.036	-.160	.201
29.Span & Serial Memory	-.084	.118	.337	.043	.249	.032	-.137	-.090
49.Summarizing Information	.139	.214	.319	-.083	.044	.100	.262	-.185
105.Knowledge of History	.223	-.110	.303	.122	-.086	.137	.435	-.140

school. Intellectual and basic skills (Factors 2 and 3) are essential to adapting to and functioning in this environment.

FACTOR FOUR : CITIZEN SOLUTION

Factor 4 is the factor of French and foreign language. Items 32 to 41 load exclusively on Factor 4 (Table 25). All items have relatively high communalities (.458 to .808) so exist in the space defined by this solution. Yet no other items load on the factor and the factor has no relationship to other factors in the Citizen solution of over 0.30.

As with the Teacher Factor 4 the concern over political connections involved in language issues and the related national unity issue must have some influence on the existence of this factor but the information generated in this investigation does not reveal the nature of the connection.

FACTOR FIVE : CITIZEN SOLUTION

The items loading on Factor 5 (Table 26) are goals which are part of the school's curriculum. They are certainly not basic subject areas but more of the domain of the specialist teacher, some may consider the goals to be non-essential or even frills - music, dance, arts and crafts, and physical education.

TABLE 25

Citizen Oblique Solution: Factor Four

Items loading more than 0.30 on factor 4 are listed along with their loadings on other Citizen factors.

ITEMS	FACTORS 1	2	3	4	5	6	7	8
33. Oral Comprehension of French	-.042	.008	-.081	.915	-.092	-.026	.051	.020
35. Writing Fluency in French	-.094	.067	-.060	.896	-.069	-.029	.074	.008
37. Read Comp. of a Foreign Language	-.136	.086	-.063	.843	.082	.069	.149	-.030
32. Reading Comprehension of French	-.035	-.047	.024	.834	.005	.043	.139	.183
34. Speaking Fluency in French	.051	-.064	-.037	.765	.063	-.020	-.007	.097
36. Insight/Interest Through French	.094	-.057	.099	.753	.002	-.017	-.227	-.052
39. Speak. Fluency: Foreign Language	-.022	.165	-.009	.751	.064	-.011	.021	-.003
38. Oral Comp. of Foreign Language	.196	-.112	-.054	.667	.012	.169	.220	-.035
40. Write. Fluency: Foreign Language	.008	.084	.146	.546	.125	-.076	-.076	-.219
41. Insight/Interest: Foreign Lang.	.300	.086	.080	.511	-.041	-.127	-.167	.051

TABLE 26

Citizen Oblique Solution: Factor Five

Items loading more than 0.30 on factor 5 are listed along with their loadings on other Citizen Factors.

ITEMS	FACTORS 1	2	3	4	5	6	7	8
65.Singing	-.050	-.121	.155	-.032	.713	.015	.183	.012
66.Musical Instrument Playing	-.001	-.085	.109	.069	.523	.091	.021	.274
76.Interst/Participation in Sports	.473	-.059	-.066	-.119	.504	.043	-.015	-.269
78.Knowledge of P.E. Apparatus	.182	-.022	.130	.024	.488	.124	.110	.188
23.Represnt'nl Skills Arts/Crafts	.238	.065	.032	-.044	.484	.080	-.074	-.044
64.Music Interest & Enjoyment	.078	.300	-.079	.064	.476	-.300	.130	.064
67.Dance(Rhythmic Response)	-.037	.142	.046	.248	.473	-.279	-.103	.201
77.Under.Rule/Strategies:Sports	.223	.149	.158	-.063	.462	-.088	-.074	-.137
22.Appreciation of Arts & Crafts	.170	.024	.191	-.029	.431	.059	.234	-.128
17.Interest Areas	.592	-.004	-.130	-.043	.407	.065	.006	.042
73.Muscle Control	.181	.116	.100	.045	.347	.070	-.018	-.075
79.Relaxation	.448	.036	-.075	-.024	.333	-.196	.099	.161
75.Group Activity - Sportsmanship	.637	-.268	.128	-.094	.313	-.089	.089	.169
74.Physical Development/Well Being	.523	-.042	-.032	-.057	.306	-.116	.186	-.113
69.Music Knowledge	-.115	.235	.012	.130	.300	-.005	.434	.039

These areas are also related to out of school activities of the students. These are areas in which the students can spend a great deal of time, show development and achievement, become permanently invloved with (as are some of the Citizens), and all without going to a school. They are instructionally related activities which may be conducted by organizations which are not part of the elementary school. These are areas in which the Citizen may be (or has been) receiving instruction or are themselves instructors or coaches. These are goals related to pursuits of the students which may offer heavy competition for the time and the energies of the students that might otherwise be devoted to more academically involved education.

Factor 5 is almost orthogonal(.0644) to Factor 3, the basic skills factor. This supports the non-essential interpretation of this factor. Factor 5 does not relate more than 0.30 to any other factor in the Citizen solution.

FACTOR SIX : CITIZEN SOLUTION

Items loading on Factor 6 (Table 27) relate to higher and more difficult cognitive skills which are academically centred. The skills do not appear to be of general cognitive nature but tied to academic content, in particular mathematics. This link may be due to the semi-traditional view of mathematics as the 'difficult' subject of school. Besides being 'difficult' the skills involve comprehension

TABLE 27

Citizen Oblique Solution: Factor Six

The items loading more than 0.30 on Factor 6 are listed along with their loading on the other Citizen factors.

ITEMS	FACTORS							
	1	2	3	4	5	6	7	8
50. Comp. Numbers & Sets	-.010	-.138	.108	.075	.284	.584	-.134	.090
51. Comp. Positional Notation	.020	.070	.285	-.097	-.249	.522	.110	.024
57. Mathematical Problem Solving	.088	.061	.122	.015	-.158	.515	.218	.076
56. Operations with Decimals	-.192	.243	.273	-.047	-.147	.512	.178	.105
60. Geometric Vocabulary	-.035	.122	-.009	.109	.098	.485	.323	.152
55. Operations with Fractions	-.256	.144	.358	-.091	.034	.466	.193	.014
61. Measurement Making & Reading	.013	.014	.412	-.068	.014	.453	.065	.109
112. Interest in Social Studies	.085	.010	-.004	.263	-.041	.447	-.003	-.093
53. Comp. Number Principles	.050	.146	-.070	.083	.207	.390	.154	.098
54. Operations with Integers	-.132	.017	.415	-.059	-.030	.390	.153	.131
52. Comp. Equations/Equalities	-.191	.387	.278	.030	.027	.362	.013	-.152
15. Preparation : Secondary School	.174	.161	.080	.019	-.068	.361	.020	-.030
82. Phonetic Recognition	-.037	.140	.109	-.032	.030	.347	-.234	.427
16. Need Achievement	.390	.297	-.140	-.085	-.063	.341	-.154	.016
59. Geometric Facility	-.108	.227	.285	-.081	.008	.338	.189	-.114
10. Independent Thinking	.463	.118	-.046	-.081	-.044	.313	.070	.167
64. Music Interest & Enjoyment	.078	.300	-.079	.064	.476	-.300	.130	.064

and application to the point of problem solving and independent thinking.

The inclusion of Preparation for Secondary School(#15) and Need Achievement(#16) may indicate the academic bias of this factor, perhaps it could be termed a high academic factor. The negative loading of Music Interest and Enjoyment (-.300) does support the cognitive, academic nature of the factor since music and its enjoyment would not be considered a difficult cogntive, academic skill. The factor does relate to the intellectual Factor 2 (.3398) and the basic skills Factor 3 (.3009) further identifying it with cognitive, academic skills.

FACTOR SEVEN : CITIZEN SOLUTION

The items of Factor 7 (Table 28) are related to knowledge bases not strongly involved with the elementary school. These are knowledge bases linked to the socio-cultural data basic to understanding a country's past and present. The items are largely centred on the knowledge of blocks or systems of information. This information is largely of a socio-cultural heritage nature. Information is related to history, politics, geography, music, economics and sociology. The heritage concept is tied in with Development of Canadianism(#21).

Factor 7 shows practically no relationship (-.0088) to the French and foreign language Factor 4 as might be

TABLE 28

Citizen Oblique Solution: Factor Seven

The items loading more than 0.30 on factor 7 are listed along with their loadings on the other Citizen factors.

ITEMS	FACTORS 1	2	3	4	5	6	7	8
113. Knowledge of Governments	.115	.222	-.110	.076	.087	.039	.592	-.031
107. Know. Socio-Economic Geog.	.086	.141	.086	-.005	.069	.261	.523	.029
109. Social Organization Knowledge	.229	.383	-.212	-.035	.068	.062	.463	-.102
105. Knowledge of History	.223	-.110	.303	.122	-.086	.137	.435	-.140
69. Music Knowledge	-.115	.235	.012	.130	.300	-.005	.434	-.039
68. Aural Identification of Music	-.097	.281	.095	.078	.283	.016	.394	.066
91. Critical Reading	.046	.400	.151	-.049	-.156	.022	.364	.142
21. Development of Canadianism	.422	-.171	.096	.098	.030	.229	.360	-.193
28. Creative Fluency	.200	.351	.098	.084	-.012	-.105	-.344	.104
60. Geometric Vocabulary	-.035	.122	-.009	.109	.098	.485	.323	.152
2. Hostility - Friendliness	.655	-.189	-.112	.048	.294	-.111	.307	.015

expected. It shows no relationship greater than 0.20 to any other factor in the Citizen solution.

FACTOR EIGHT : CITIZEN SOLUTION

Items loading on Factor 8 (Table 29) are related to the capacity of the student to take in(reading and listening) information and store it. It appears to be a generalized ability not academically specific. It is not content bound but accessible for any form or nature of information which can be communicated by language - oral or written.

Factor 8 does not relate to any other factor in the Citizen solution more than 0.20.

THE TEACHER/CITIZEN MATCH

The Teacher and Citizen oblique factor pattern matrices were used in the matching procedure. The Teacher matrix was the matrix transformed by the transformation matrix L. Matrix L is presented in Table 30. Every row of matrix L refers to a factor in the Teacher solution and every column to a factor of the Citizen solution. The numbers refer to the loadings of the Teacher factors on the Citizen factors (Ahmavaara, 1957, pp.45-46).

Matrix L is the transformation matrix which is used to rotate the Teacher pattern matrix (F1) to fit the Citizen pattern matrix (F2). The coefficients in the matrix indicate

TABLE 29

Citizen Oblique Solution: Factor Eight

The items loading more than 0.30 on factor 8 are listed along with their loadings on the other Citizen factors.

ITEMS	FACTORS							
	1	2	3	4	5	6	7	8
88. Remebering Information Read	.099	.076	.033	.066	.103	.205	.046	.469
89. Inference Making from Reading	.051	.454	.100	-.095	-.023	-.105	-.082	.461
80. Listening Reaction & Response	.132	-.131	.232	.072	.009	-.029	.019	.430
82. Phonetic Recognition	-.037	.140	.109	-.032	.030	.347	-.234	.427
25. Relation/Implication'l Reason	.002	.321	-.016	-.085	.166	.097	-.096	.299

TABLE 30

Transformation Matrix L : Teacher/Citizen Solution

Teacher Factors	Citizen Factors 1	2	3	4	5	6	7	8
1	.960	-.073	-.071	-.058	0.228	-.059	0.066	0.066
2	0.154	0.928	0.168	-.005	-.074	0.136	0.235	0.087
3	0.018	-.077	0.809	0.022	-.130	0.452	-.190	0.285
4	0.002	0.001	-.030	0.995	0.039	-.054	0.073	0.003
5	0.045	0.466	0.418	-.005	0.271	0.323	0.653	0.041
6	-.317	0.587	0.170	0.108	0.416	0.359	0.329	-.323
7	0.141	-.108	0.164	0.078	0.937	0.194	0.141	-.029
8	0.590	0.472	-.173	0.084	-.211	-.057	-.234	0.538

the extent to which the factors of the two solutions are related. The coefficients '...are considered as primary pattern loadings of various factors in various other factors.' (Ahmavaara, 1957, p.49) A coefficient of 1.0 would indicate a perfect relationship, the factors would match exactly. A coefficient of 0.0 would indicate that the two factors have no relationship to one another - they are orthogonal. Due to error associated with measurement of the variables, coefficients of 1.0 or 0.0 should not be expected even if identical factors were under consideration. There are no established criteria against which to judge the extent of the matching. A match of 0.8 is higher than that of 0.6 but 0.8 does not necessarily mean the factors are the same. Ahmavaara (1957) suggests coefficients of over 0.9 can be considered to be indicative of identical factors; a coefficient of 0.68 was considered to be a good correspondence of the two factors, and he considers for mention all coefficients greater than 0.4 (p.53) and in some instances those greater than 0.3 (pp.94, 102, 110). The analysis of the transformation matrix then is quite open to interpretation and relative to the overall patterning of information available. In this study coefficients above 0.3 will be used to support interpretations of the solutions already made, relationships of 0.8 and above are considered to be strong, and those above 0.9 are considered to be indicative of similar or identical factors.

From matrix L Factors 1, 2, and 4 are apparently close

to identical in that their mutual coefficients are .9603, .9282, and .9947 respectively. Factor 5 of the Citizen solution is identical to Factor 7 of the Teacher solution(loading= .9366). Factor 3's of the two solutions are also closely related with a coefficient between them of .8090.

The close relationship (.9947) between Factor 4's does not come as a surprise, indeed it was a useful check of the handling of the data. This is the French and foreign language factor, a consistently strong presence in any factor analysis performed in this study. The emergence of French and foreign language being a key in the perception of the goals of the elementary school seems to fit in with the general mood of society in Western Canada in 1978. French language is certainly an issue of political concern and apparently a determinant in the structuring of the importance of goals for the elementary school. The isolation of this factor from the others is again demonstrated in this matching solution, neither Factor 4 relates to any other factor of either Teacher or Citizen solutions.

The strong relationship (.9603) of the first factor of both solutions argues for the inclusion of general human competency (as labeled in this study) as a major dimension in the structuring of perceptions of goals for the elementary school. Both groups used this dimension in perceiving importance in these goals.

Factor 5 of the Citizen solution and Factor 7 of the

Teacher solution are related strongly (.9366). This factor is the music, arts and crafts, and physical education factor; the extra-curricular, non-academic component of school functioning.

Factors 2 of each solution are strongly related (.9282). This is the intellectual/cognitive factor representing the cognitive processing of an educated individual.

Factors 3 are the basic skills factors, these are not as strongly related (.8090) as the previous four matchings which is interesting in the light of increased use of the concept of basic skills in publicly expressed interest in the functioning of the elementary school. However, the basic skills of reading, writing, and arithmetic do describe a dimension basic to the structuring of the goal importances for the elementary school.

These close relationships on five factor pairs (1-1, 2-2, 3-3, 4-4, 7-5) and the compatible interpretations presented in previous sections lends support to the validity of these interpretations - should strongly related (as evidenced by loadings in the transformation matrix L) factors have divergent interpretations; the transformation matrix or the interpretation would be faulty.

TEACHER FACTORS MATCHED TO THE CITIZEN SOLUTION

In this section each Teacher Factor will be discussed

in relation to the Citizen Factors to which it is related.

Teacher Factor 1 related strongly to Citizen Factor 1 (.9603), this was the only Citizen Factor it was sizably related to.

Teacher Factor 2 related to Citizen Factor 2 only and did so strongly (.9282).

Teacher Factor 3, the basic skills factor relates moderately strongly(.8090) to its Citizen counterpart Factor 3. As well, it is related to Citizen Factor 6 (.4520) the higher academic factor. These are academically based skills of a higher, more difficult nature than basic skills. The Citizen basic skills Factor 3 was also positively related to the higher difficult Citizen Factor 6 (.3009).

Teacher Factor 4 the French and foreign language factor would have to be considered identical to the Citizen Factor 4 with a coefficient of .9947. Both Factors 4 have the same low relationships to all other factors of both solutions.

Teacher Factor 5 is the Teacher factor related to academic knowledge of a non-essential level for the elementary school and comprehension of that knowledge. This factor is related to Citizen Factor 2 (.4661) a cognitive, intellectual factor; Citizen Factor 3 (.4184) the basic skills factor, and Factor 7 (.6530) which is the Citizen factor of knowledge bases not strongly involved with the elementary school. These relationships support Teacher Factor 5's academic, cognitive basis and its non-essentialness to the elementary school.

Teacher Factor 6 represents the higher order cognitive skills, perhaps not basic to an elementary education. This factor relates moderately (.5865) to Citizen Factor 2 which is an intellectual, cognitive factor. The relationship to Citizen Factor 5 (.4164) which is the extra-curricular, music, arts and crafts, and physical education factor is difficult to account for. The relationship may have some foundation in the concept of a classic liberal education which would include higher cognitive skills and development of appreciation and abilities in the arts and physical pursuits.

Teacher Factor 7 is the extra-curricular factor or more specifically the music, arts and crafts, and physical education factor. This relates strongly (.9366) with Citizen Factor 5 the extra-curricular Citizen factor. With no other major relationships, this fits in well with the interpretation of this factor.

Teacher Factor 8 is the independent mind use factor. It relates to Citizen Factor 1 (.5904) the general human competency factor, Factor 2 (.4716) the intellectual, cognitive factor, and Factor 8 (.5382) the comprehension and storage of language mediated information factor. The generalized, typically human use of the mind (independent mind use) fits in well with the Citizen factors it relates to. Free mind use is a general human competency (Citizen Factor 1), is intellectually based (Citizen Factor 2), and is related to the understanding and retention of language

mediated information (Citizen Factor 8).

CITIZEN FACTORS MATCHED TO TEACHER SOLUTION

Citizen Factor 1 was defined as the same basic dimension as Teacher Factor 1 and the match proved out in that the two factors are indeed strongly related numerically: .9603. The moderate relation (.5904) to Teacher Factor 8 indepedent mind use, is compatible to Citizen Factor 1 in that it is an individualistic characteristic which is typically human (or idealized as being typical of humans). The low moderate negative coefficient (-.3166) of Teacher Factor 6 must be noted. Teacher Factor 6 is related to high order cognitive functioning of an academically restricted nature. Perhaps the negative relationship is due to the restrictive (somewhat non-natural or artificial) nature of Teacher Factor 6 as opposed to the natural and general nature of Citizen Factor 1 skills and attitudes.

Citizen Factor 2 is the intellectual, cognitive factors and it relates strongly (.9282) to its Teacher counterpart Factor 2. It also relates to the cognitive Teacher Factors 5 (.4661) the knowledge/comprehension factor and 6 (.5865) the cognitive processing factor. The relationship to Teacher Factor 8 (.4716) seems to support the concept of Citizen Factor 2 being a broadly based (not content specific) cognitive, intellectual factor.

Citizen Factor 3 is the basic skills factor which has a

high moderate (.8090) relation to its Teacher counterpart. As mentioned the Citizen Factor 3 includes a broader knowledge base than the Teacher solution in that geography, social science, and history loads on the Citizen basic skills factor. This broader base characteristic is supported by the moderate relationship (.4184) between Citizen Factor 3 and Teacher Factor 5 the knowledge bases viewed as non-basic by the Teacher group.

Citizen Factor 4 is the French and foreign language factor which can be considered identical to Teacher Factor 4 with which it has a very strong relationship (.9947).

Citizen Factor 5 is the music, arts and crafts, and physical education factor and it is closely related to its counterpart which is Teacher Factor 7 (.9366). The relationship to Teacher Factor 6 (.4164) which is higher order cognitive skills is not easy to find a reason for. Perhaps the higher order cognitive skills, music, arts and crafts, and physical development are viewed as the marks of an 'educated person', certainly this could hold for a classic, liberal education.

Citizen Factor 6 is the mathematically centred higher cognitive skills factor and it is moderately related (.4520) to Teacher Factor 3 the basic skills factor. This ties in nicely to the interpretation, particularly as mathematics is considered to be a basic skill, but the higher order skills of Citizen Factor 6 being somewhat more than basic. Although a stronger relationship to Teacher Factor 6, high cognitive

order skills, could have been expected, the low moderate relationship (.3593) does fit the overall interpretation in that it is a positive relationship. The low magnitude may be due to the mathematical focus of the Citizen Factor as opposed to the broader academic base of the Teacher factor.

Citizen Factor 7 is the knowledge bases factor - the knowledge of systems or blocks of information particularly blocks of information centred on socio-cultural information. The moderate relationship (.6530) to Teacher Factor 5 does fit this interpretation . Teacher Factor 5 is the knowledge and comprehension of data sets such as music, geography, geometry, and governments; to an extent socio-cultural information. The lack of relation of either factor to more basic factors (1, 2, or 3) seems to be indicative of the perceived non-essentiality of these data bases to the elementary school.

Citizen Factor 8 is the intake and retention of language mediated information. This is an independently associated activity; by being capable of reading and listening with understanding and retention an individual becomes independent in his/her information assimilation in that an almost infinite store of information is available. This interpretation does fit with the moderate relationship (.5382) between this factor and Teacher Factor 8 independent mind use. This relationship fits in with the independent nature of the two factors. The extent of the weakness of the relationship may be due to the constrained nature of the

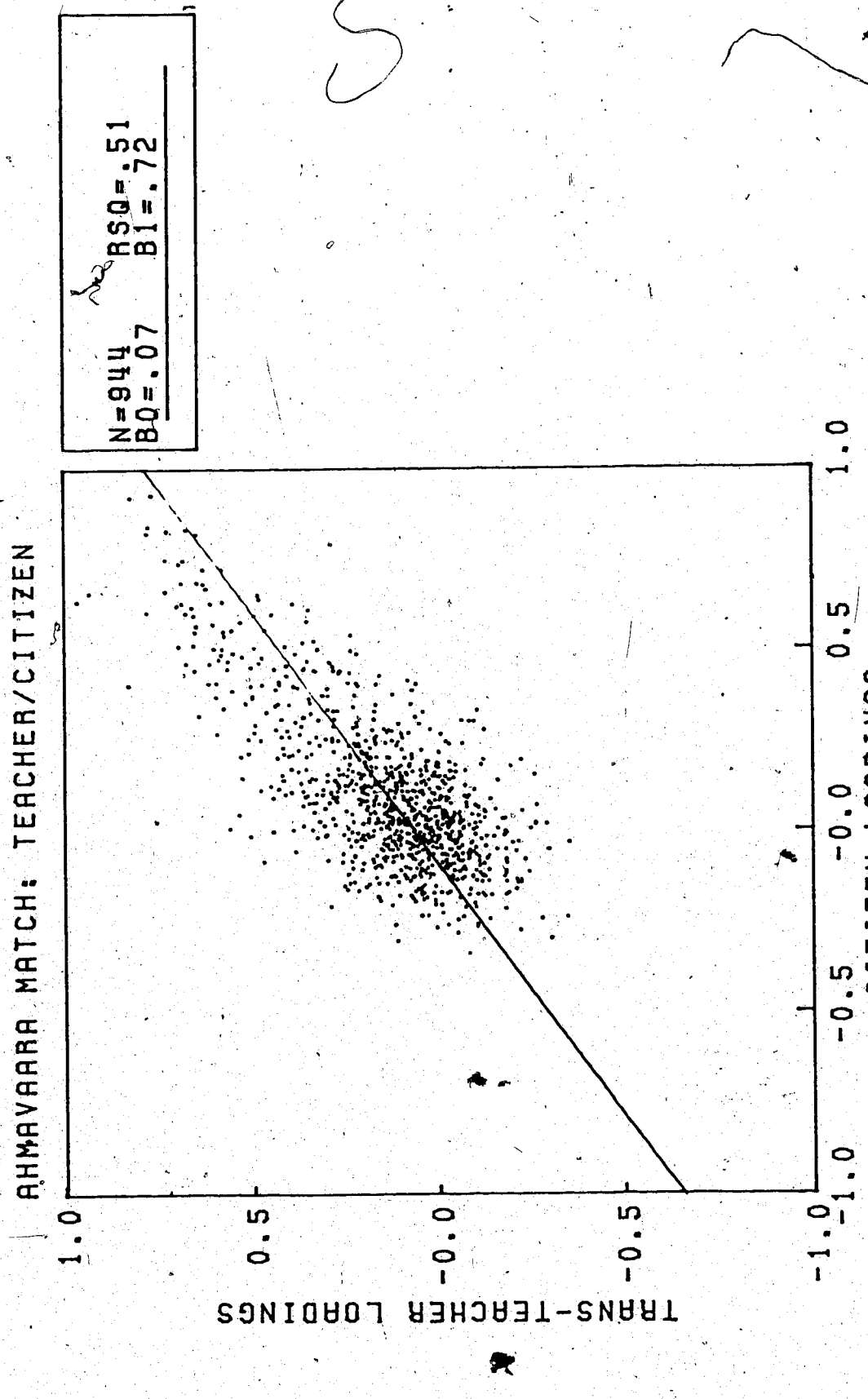
information in the Citizen factor - it is language bound. Further, the Teacher factor involves the output of information, the generation of information; the Citizen factor involves input and storage only (comprehension and recall).

PLOTTING OF THE TEACHER/CITIZEN MATCH

Transformation matrix L was used to transform the Teacher factor pattern matrix (F1) to approximate the Citizen pattern matrix (F2). This was done by post multiplying F1 by L, the transformed matrix will be termed F1L. The loadings in the 8 by 118 F1L matrix were then plotted against the corresponding loadings of the Citizen pattern matrix. This plot is presented in Figure One. A regression line was fitted to the plot, the correlation coefficient produced was 0.72 indicating a moderately strong relationship between the loadings of the transformed Teacher loading matrix (F1) and the loadings of the Citizen loading matrix (F2). This means the Teacher and the Citizen solution are closely matched.

After considering the transformation matrix L, it became apparent that Teacher Factor 7 was almost identical to Citizen Factor 5 (loading = .9366). This being the case, and the existence of a moderate relationship (.6530) between Teacher Factor 5 and Citizen Factor 7; the loading of Citizen Factor 5 were plotted against Teacher Factor 7 and

FIGURE ONE


AHMAVAARA MATCH: TEACHER/CITIZEN
N=944
BO=.07
RSQ=.51
B1=.72
TRANS-TEACHER LOADINGS
CITIZEN LOADINGS
1.0
0.5
-0.0
-0.5
-1.0

the Citizen Factor 7 was plotted against Teacher Factor 5(all other matching being as before). This plotting is presented in Figure Two. This configuration did not demonstrate a stronger relationship amongst the loadings of the two solutions. The matching solution using Ahmavaara procedure(DERS:FACT05) had the highest relationship amongst the loadings.

The plotting of the transformed Teacher loadings against the Citizen loadings was then done for each factor pair individually, plotting factor one of the transformed Teacher matrix against factor one of the Citizen loadings, then factor two's, and so on. These plots are shown in Figures 3 to 10. Keep in mind, the plots are of the transformed Teacher loadings of the 118 items against the Citizen loadings, the Citizen loadings are the target for the transformation rotation.

Each plot also has a regression line fitted which will indicate the extent of the relationship between the two sets of loading for each factor.

The plots of factors one to four (Figures 3 to 6) show similar relationships as one would expect from the transformation matrix L - all are moderate to high positive relationships with Factors 4 showing the strongest relationship. Factors 5 show a stronger relationship (r=.640) on the plot than is evidenced from the L matrix.

Factors 7 also show a stronger relationship than might have been expected(Fig.9) from the L matrix. The plot shows

FIGURE TWO

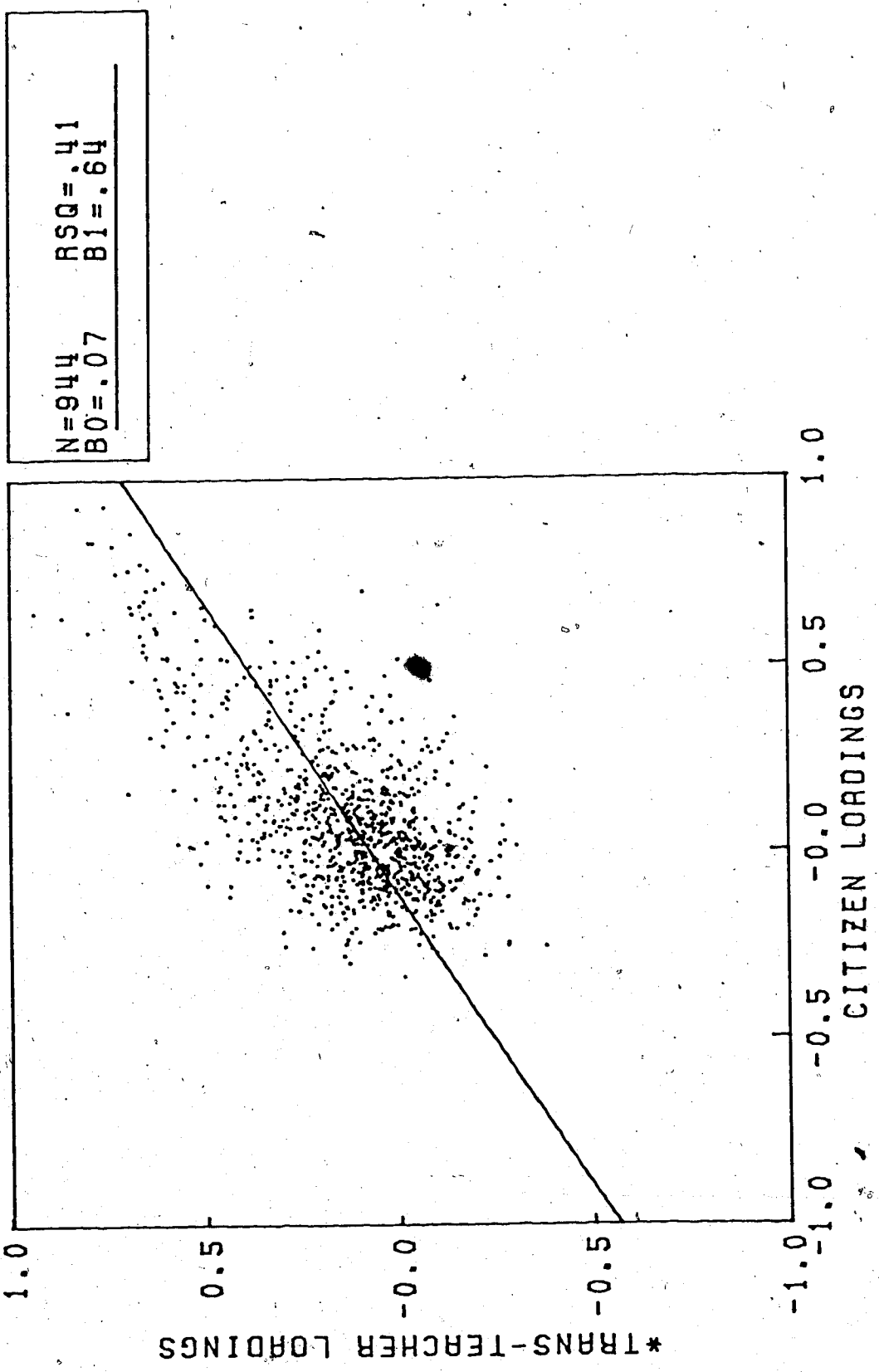
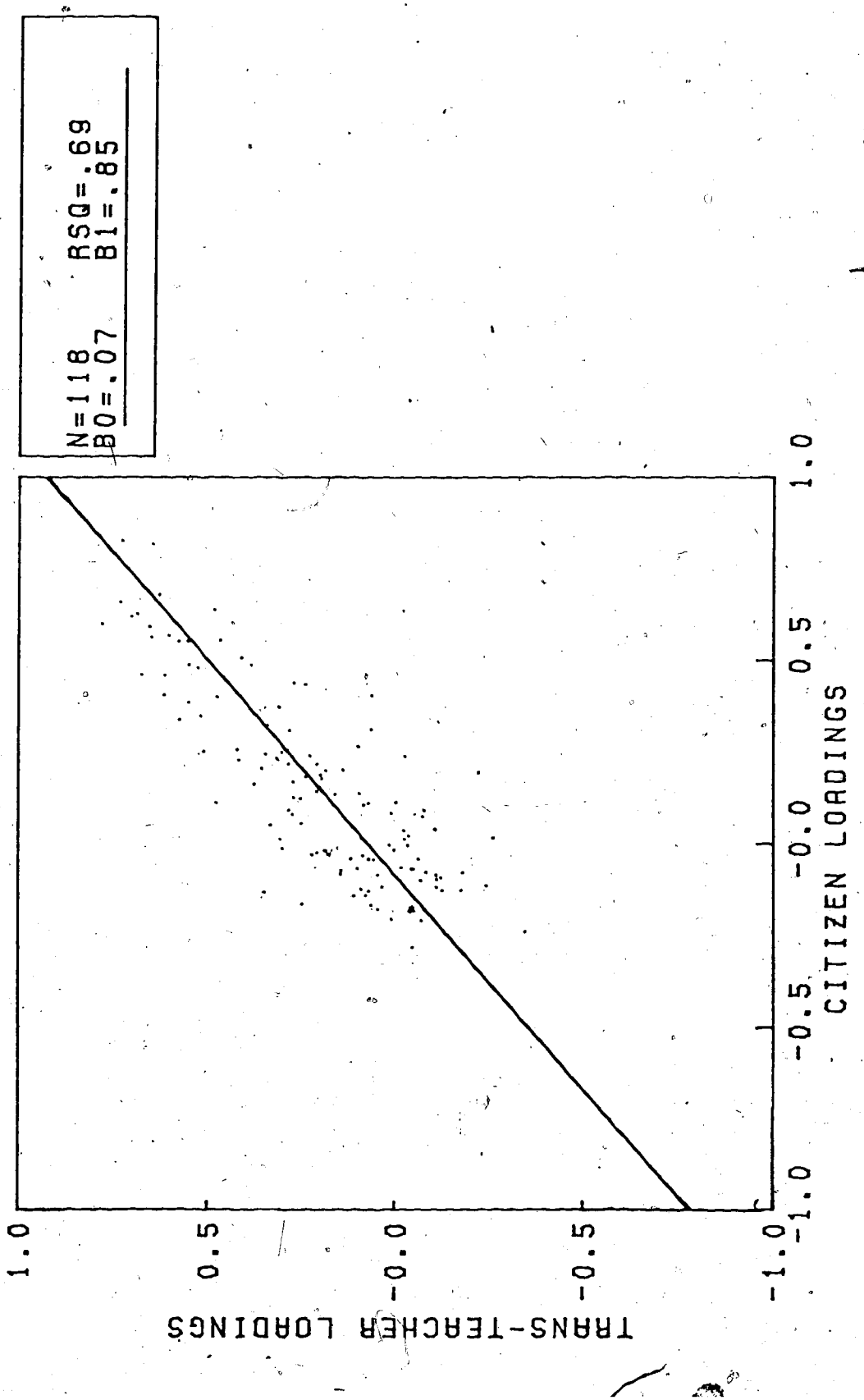

AHMAVAARA MATCH: *TEACHER/CITIZEN
N=944 RSQ=.41
B0=.07 B1=.64
*TRANS-TEACHER LOADINGS
1.0
0.5
-0.0
-0.5
-1.0
-1.0
-0.5
-0.0
0.5
1.0
CITIZEN LOADINGS

FIGURE THREE

TEACHER/CITIZEN: FACTOR ONE



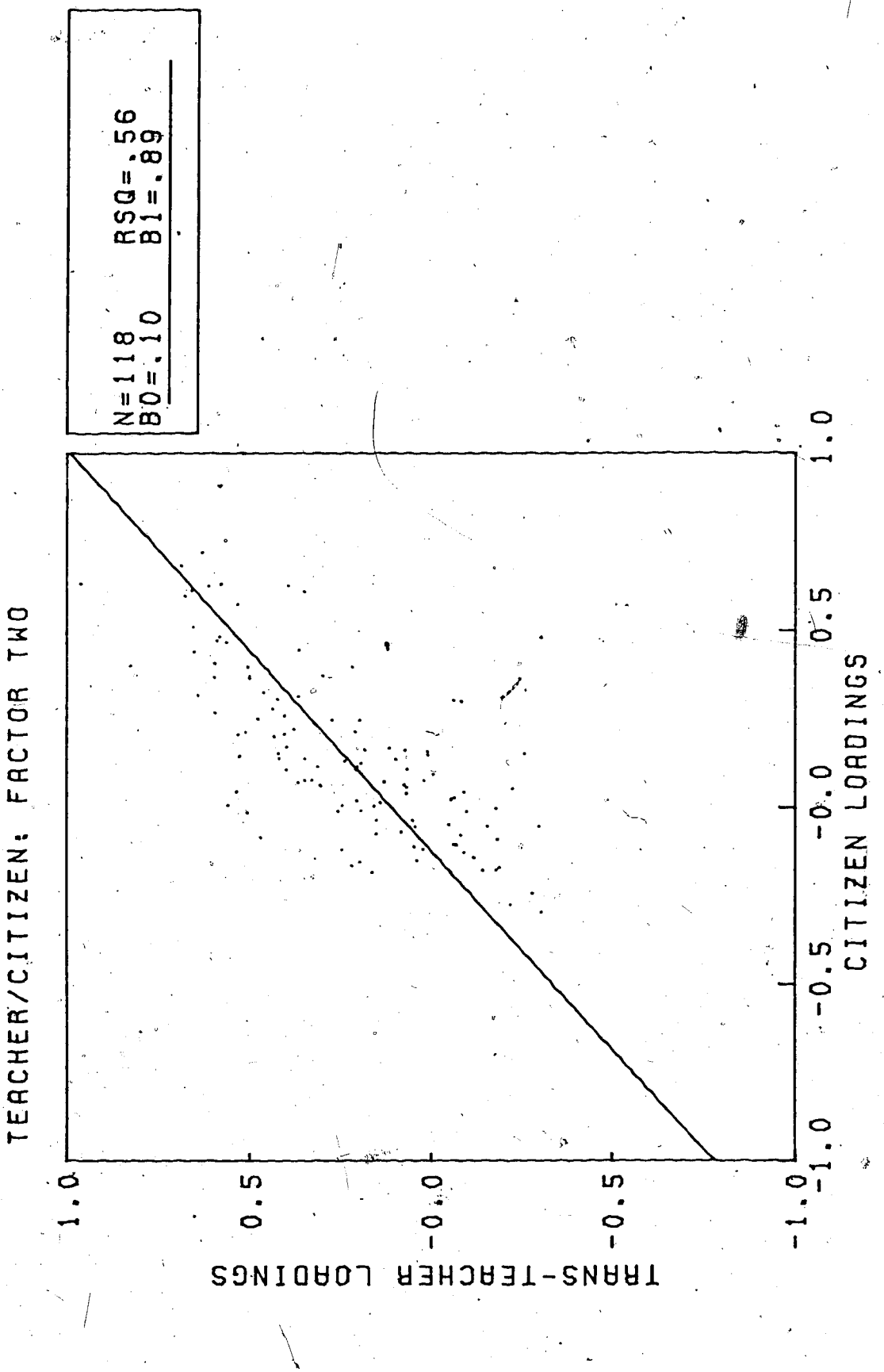
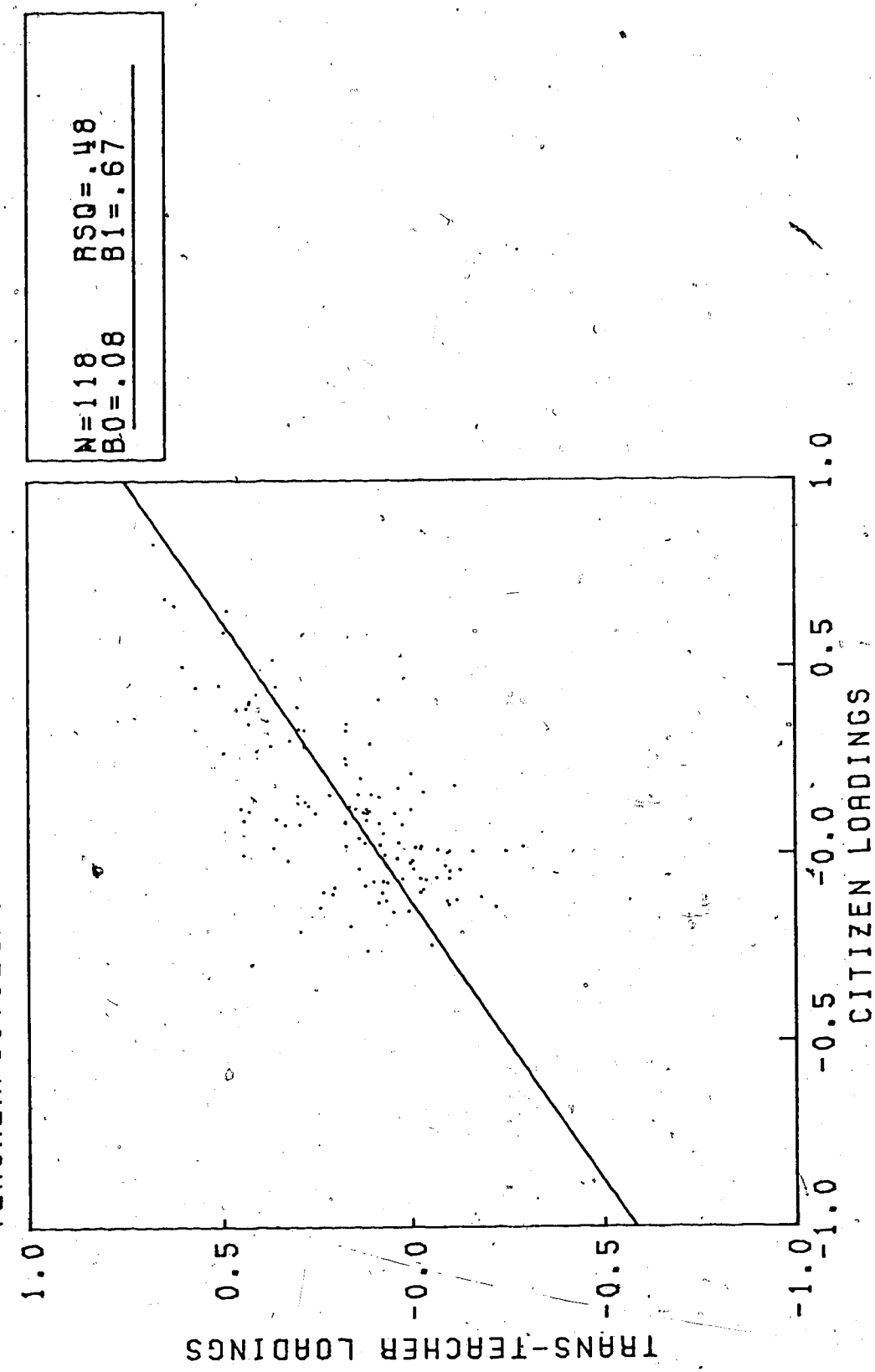


FIGURE FOUR

TEACHER/CITIZEN: FACTOR TWO

FIGURE FIVE

TEACHER/CITIZEN: FACTOR THREE



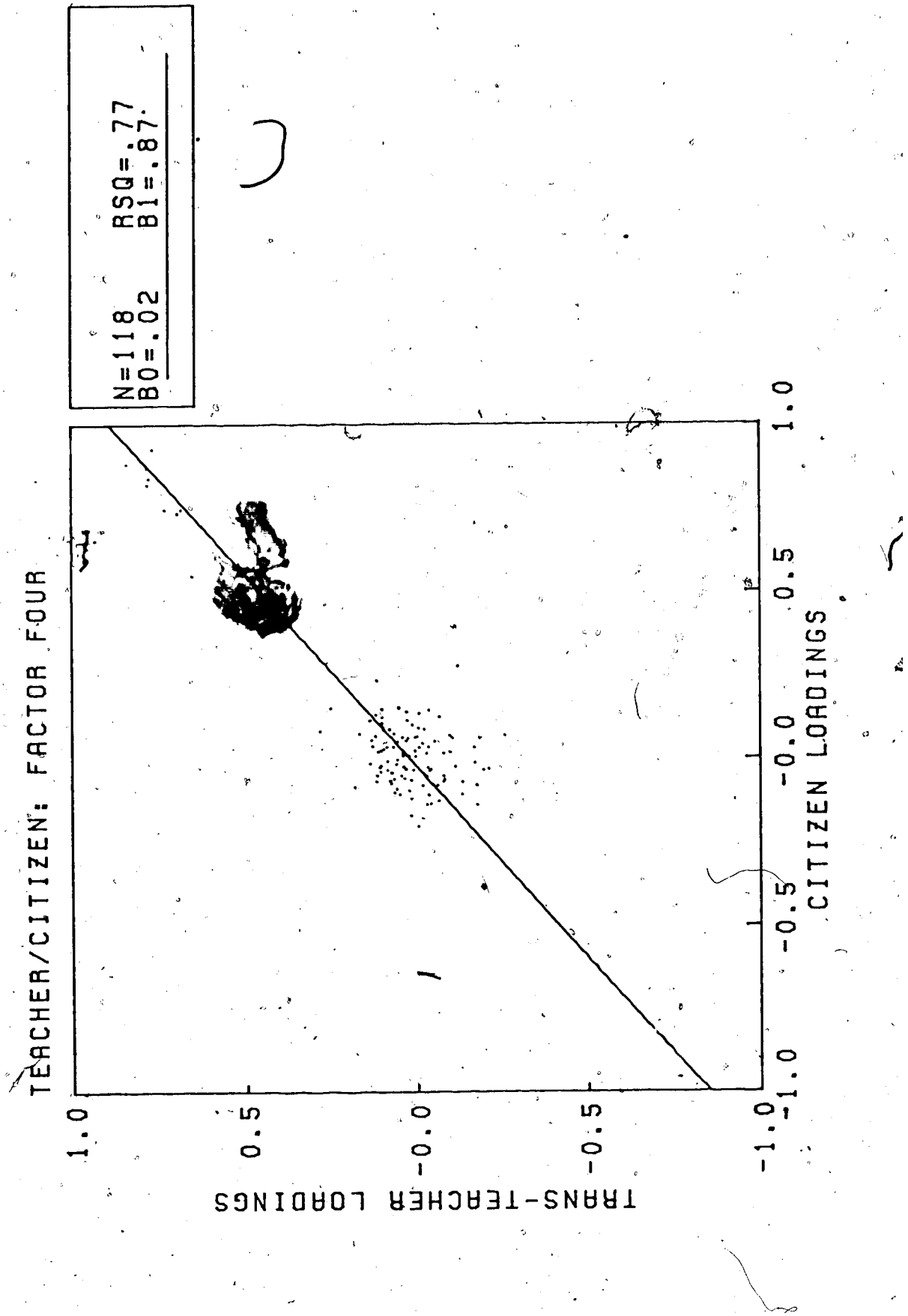


FIGURE SIX
TEACHER/CITIZEN: FACTOR FOUR

FIGURE SEVEN

TEACHER/CITIZEN: FACTOR FIVE

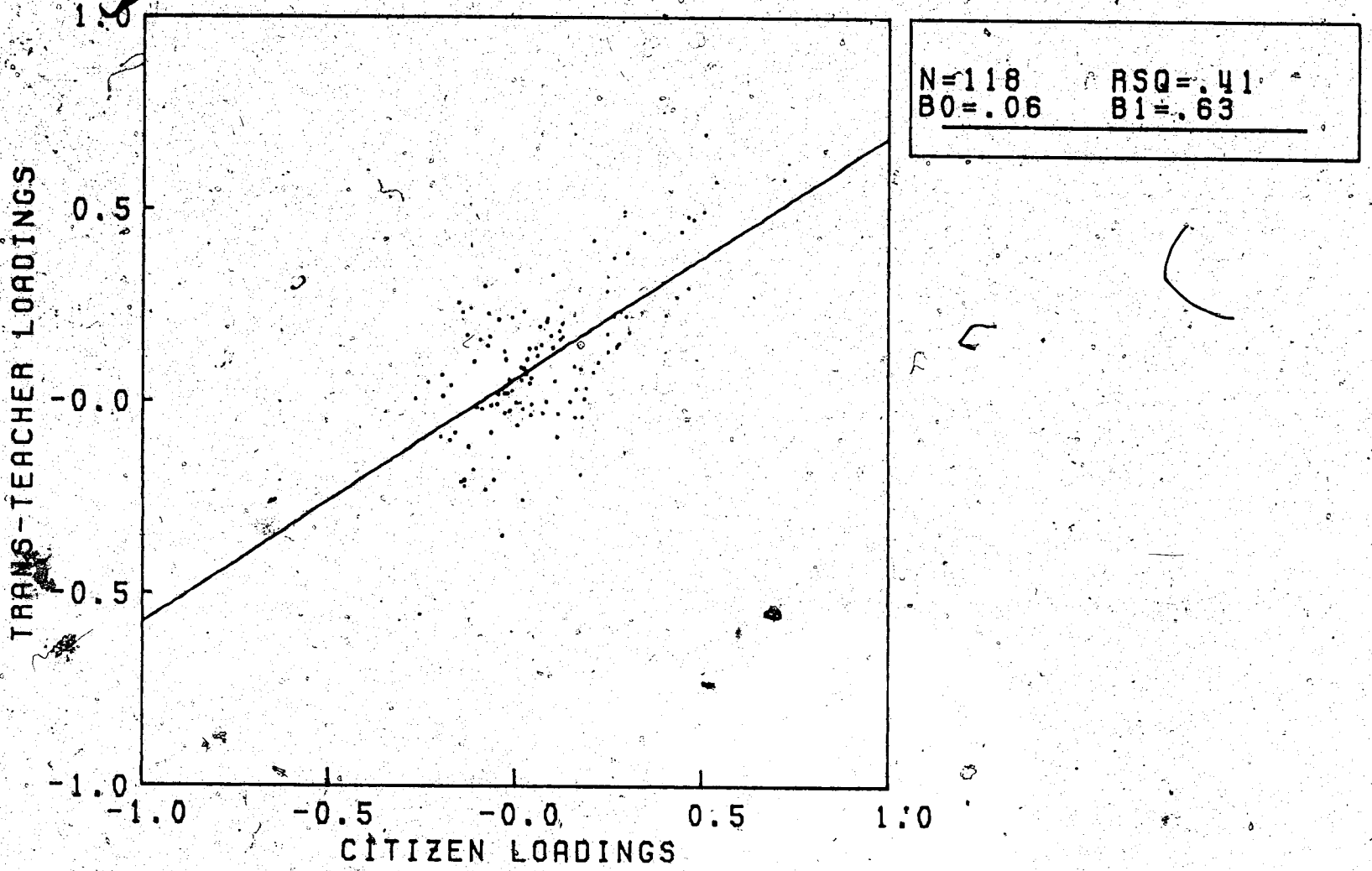


FIGURE EIGHT

TEACHER/CITIZEN: FACTOR SIX

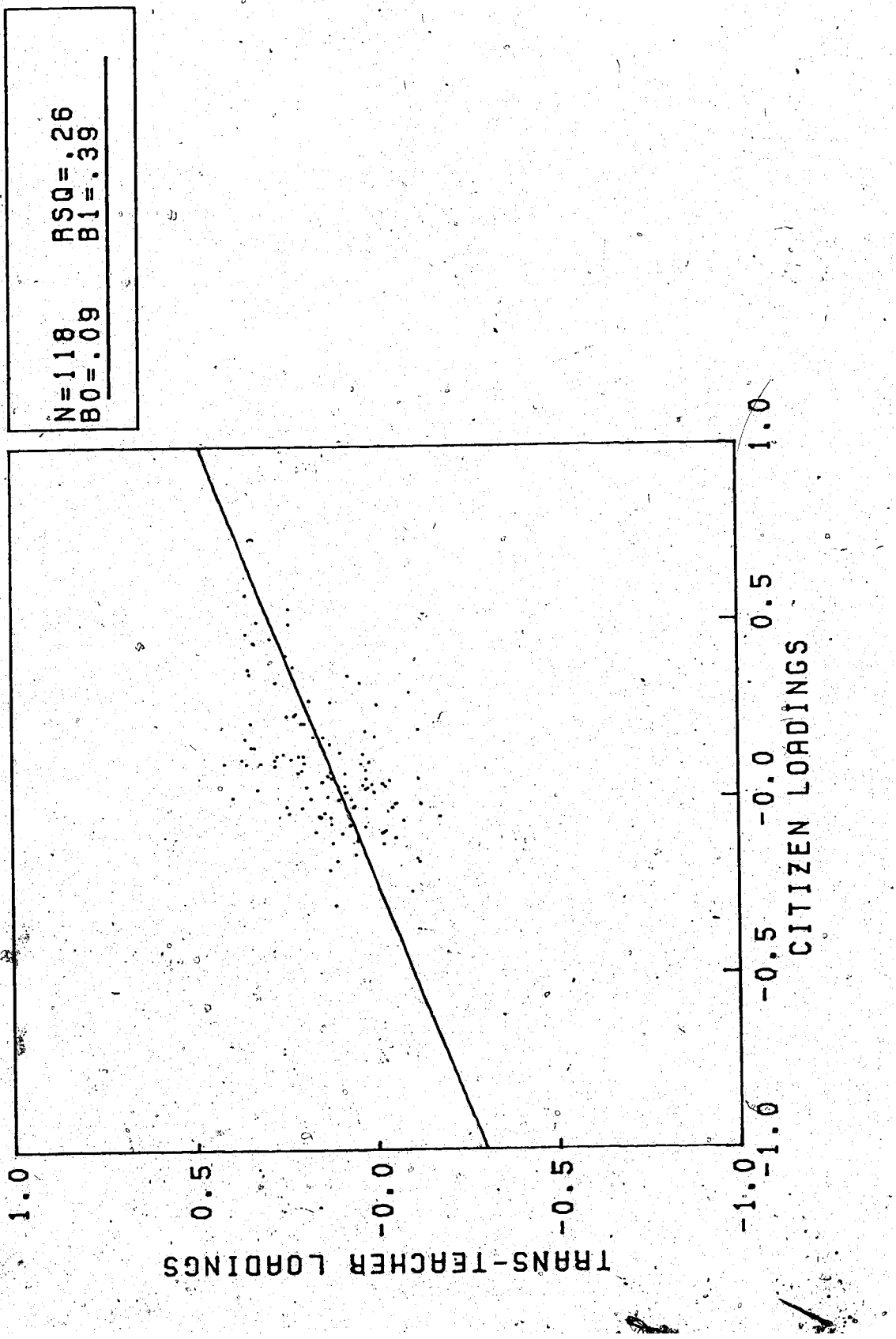


FIGURE NINE

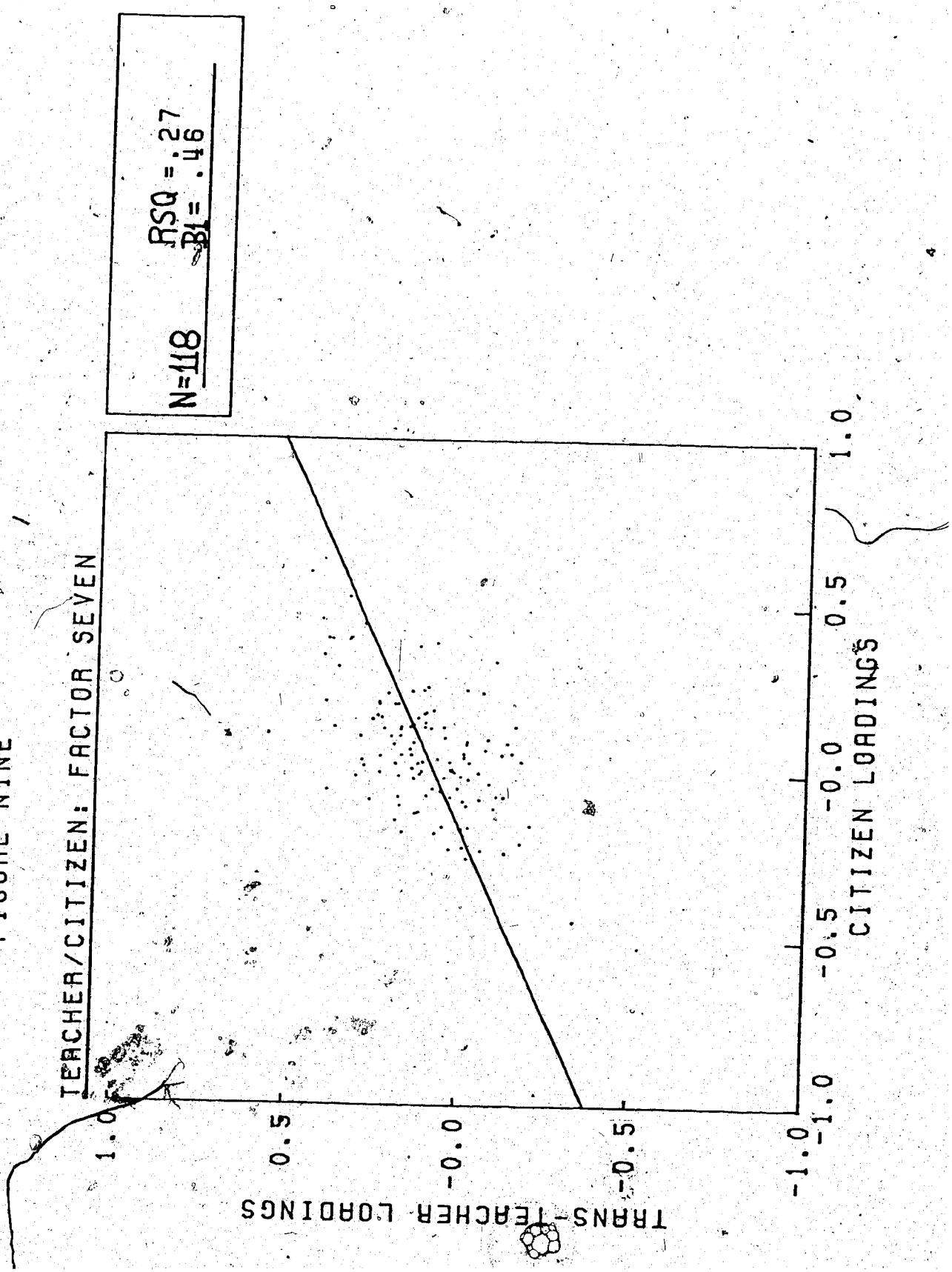
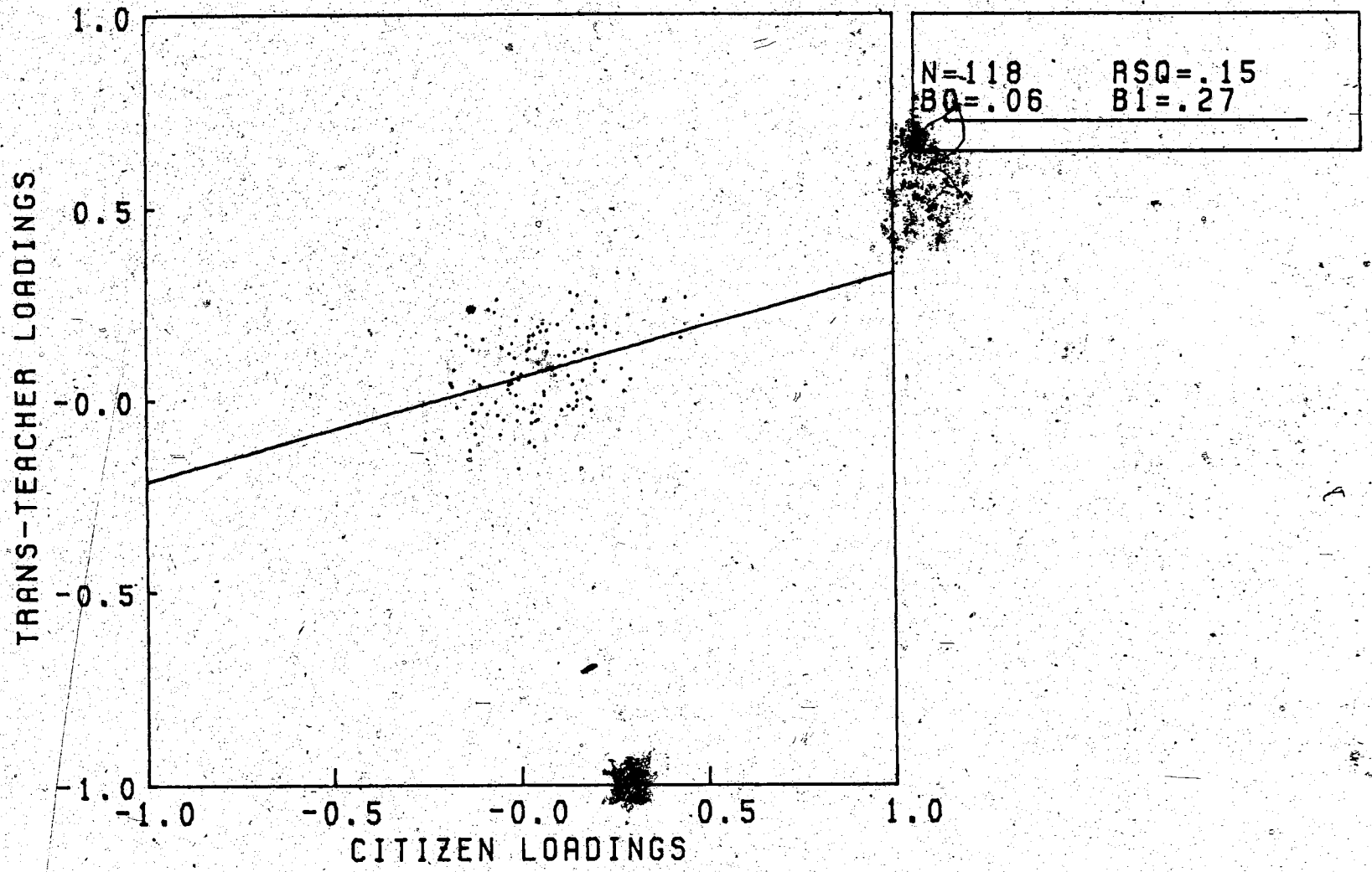

TEACHER/CITIZEN: FACTOR SEVEN
N=118
RSQ = .27
B1 = .46
TRANS-TEACHER LOADINGS
CITIZEN LOADINGS
1.0
0.5
-0.0
-0.5
-1.0
1.0
0.5
-0.0
-0.5
-1.0

FIGURE TEN

TEACHER/CITIZEN: FACTOR EIGHT



a moderately close relationship for Factors 7. The correlation between the two sets of loadings is .520.

The general pattern of relationships between factors is similar to that of matrix L. This does not hold for Factors 8. The loadings between factors 8 (L matrix) is sixth highest yet the correlation between transformed Teacher loadings and Citizen loadings is the lowest of the group.

These individual factor plots support the interpretation of Factors 1 to 4 of both Teacher and Citizen solutions being very similar and somewhat positive relationship existing between factors 5 to 8.

The indices of similarity were calculated for the transformed Teacher loadings and the corresponding Citizen loadings for each factor. These indices are reported in Table 31.

These results indicate that Factors 1, Factors 2, and Factors 4 are the most closely related, as all interpretations and calculations have been indicating throughout the study. The basic skills factor (Factor 3) does not show the same degree of similarity. The pattern of the similarities are the same as in the L matrix and the plotting of the loadings.

Overall the results of the plotting of the loadings, the consideration of the relationships amongst the factors in transformation matrix L, and the indices of factor similarity point to the close compatibility of the Teacher and the Citizen solutions. The factors 1, 2, 3, and 4 of

TABLE 31

The indices of similarity for Teacher/Citizen matched factors.

FACTORS	INDEX OF SIMILARITY
1	.882
2	.826
3	.769
4	.890
5	.707
6	.626
7	.601
8	.497

both solutions and the Teacher Factor 7: Citizen Factor 5 pair show a high degree of similarity. The emergence of factors of general human competencies(1), intellectual/cognitive skills(2), basic skills(3), French and foreign language(4), and the music, arts and crafts, and physical education factor(Teacher 7 : Citizen 5) appear to be common to both solutions.

STUDENT SOLUTION

The Student solution differs fundamentally from the Teacher and the Citizen solution in that only 87 items (as opposed to 118) were used to determine the correlation matrix that served as the basis of the factor analyses. Item 72 (Sex Education) had been dropped from the questionnaire previous to its administration to the Student sample. Subsequent to data collection all items were deleted which were reported to be NOT UNDERSTOOD by over 10% of the Student sample. Thirty items (Table 9) were excluded leaving 87 items to work with. Many of the items deleted were those of a general cognitive and affective nature. This had the tendency of shifting the solution into a more academically focused interpretation. A greater proportion of the variables analysed are descriptive of more specific academic/classroom skills and activities than the Teacher or Citizen analyses.

The pattern of analysis was the same as for the Citizen

and Teacher solutions. The 87 by 87 correlation matrix with 1's in the diagonal was factor analysed, extracting 15 factors. The communalities were estimated from two iterations of inserting the communalities produced by the analysis back into the diagonal of the correlation matrix. An 8 factor orthogonal solution was determined through Varimax rotation - this is reported in Appendix D. The orthogonal solution was then rotated (Promax) to an oblique solution. This was then matched to a Teacher solution of an 87 by 87 correlation matrix. The 87 item, 8 factor Teacher solution will also be reported in this section since it differs from the 118 item solution and it serves as the basis of the Student/Teacher match.

The Student communalities are listed in Table 32, these are taken from the orthogonal solution. The Student 8 factor solution accounts for 35.30% of the total variance. Perusal of the communalities reveals an abundance of low (less than 0.30) communalities, suggesting the solution is not describing the data as fully as those of the Teacher and Citizen analyses. In the oblique solution to be reported (see Appendix E for the whole factor loading matrix) there are 15 items which do not load on any factor more than 0.30. There is no apparent pattern to these items not being embedded more firmly into the solution space defined by the 8 dimensions about to be described.

The correlations between the primaries of the oblique Student solution are reported in Table 33.

TABLE 32

Student Solution

The communalities of the Student solution taken from the orthogonal rotation.

ITEMS	H2
2. Hostility - Friendliness	.509
5. Adjustment	.396
6. Shyness - Boldness	.265
7. Responsibility	.374
9. Imagination	.404
10. Independent Thinking	.295
11. Success	.406
16. Need Achievement	.394
17. Interest Areas	.370
18. Leisure Time	.319
19. Enjoyment in Learning	.384
21. Development of Canadianism	.172
22. Appreciation of Arts & Crafts	.439
23. Represnt'nl Skills Arts/Crafts	.398
29. Span & Serial Memory	.265
30. Meaningful Memory	.240
31. Spatial Memory	.174
32. Reading Comprehension of French	.517
33. Oral Comprehension of French	.612
34. Speaking Fluency in French	.319
35. Writing Fluency in French	.511
36. Insight/Interest Through French	.489
37. Read Comp. of a Foreign Language	.528
38. Oral Comp. of Foreign Language	.498
39. Speak. Fluency: Foreign Language	.538
40. Write. Fluency; Foreign Language	.416
41. Insight/Interest: Foreign Lang.	.278
42. Spelling	.437
43. Punctuation & Capitalization	.343
44. Grammar & Usage	.359
45. Penmanship	.451
46. Written Expression	.226
47. Indep. Applc. Writing Skills	.332
48. Data Sources as Refer. Skills	.330
49. Summarizing Information	.336
50. Comp. Numbers & Sets	.448
51. Comp. Positional Notation	.405
52. Comp. Equations/Equalities	.289
54. Operations with Integers	.485
55. Operations with Fractions	.455
56. Operations with Decimals	.439
57. Mathematical Problem Solving	.311
58. Indep. Applic'n of Math.	.297

TABLE 32 (CON'T)

ITEMS	H2
59. Geometric Facility	.245
60. Geometric Vocabulary	.340
61. Measurement Making & Reading	.281
63. Musica Appreciation	.502
64. Music Interest & Enjoyment	.329
65. Singing	.370
66. Musical Instrument Playing	.372
67. Dance (Rhythmic Response)	.288
68. Aural Identification of Music	.379
69. Music Knowledge	.300
70. Practicing Health & Safety	.435
71. Understanding Health & Safety	.299
73. Muscle Control	.413
74. Physical Development/Well Being	.439
75. Group Activity - Sportsmanship	.471
76. Interst/Participation in Sports	.539
77. Under. Rule/Strategies: Sports	.310
78. Knowledge of P.E. Apparatus	.362
79. Relaxation	.314
80. Listening Reaction & Response	.265
81. Speaking	.530
82. Phonetic Recognition	.227
83. Structural Recognition	.320
84. Oral Reading	.234
85. Silent Reading Efficiency	.253
86. Recognition of Word Meanings	.333
88. Remebering Information Read	.217
92. Attitude Toward Reading	.218
93. Att. & Beh. Modif'n from Reading	.348
94. Famil'y with Stan. Child. Lit.	.378
95. Observ'n/Descrp'n in Science	.222
96. Use Number/Measures-Science	.453
100. Experimentation in Science	.222
103. Science Interest/Appreciation	.243
105. Knowledge of History	.236
106. Know. of Physical Geography	.379
108. Cultural Knowledge	.313
109. Social Organization Knowledge	.359
110. Research Skills/Social Science	.272
111. Citizenship	.289
112. Interest in Social Studies	.227
113. Knowledge of Governments	.241
114. Knowledge & Use of Media	.247
118. School Orientation	.223

TABLE 33

Student Oblique Solution: Correlation Between the Primaries

	Factors							
	1	2	3	4	5	6	7	8
1		0.268	0.043	0.345	0.137	0.225	0.356	0.205
2			0.167	0.335	0.111	0.342	0.394	0.319
3				0.168	0.143	0.230	0.162	0.049
4					0.144	0.326	0.270	0.127
5						0.288	0.146	0.161
6							0.301	0.197
7								0.093

FACTOR ONE : STUDENT SOLUTION

The items loading on Factor 1 are reported in Table 34. These items all relate to schoolwork, academic classroom tasks particularly those involved with assigned work. This work is difficult and mentally taxing; mathematics, reading, spelling, researching social sciences. These are not frivolous activities or time killers but rather the serious business of the student in the classroom.

The factor appears to be related to the basic skills of reading, writing, and arithmetic, but also focused on the schoolwork which is demanded of the student. These are tasks only a school would cause a student to do, if it were not for the classroom and the teacher these tasks would not be part of the repetoire of a twelve year old human. The tasks would be unlikely to elicit feelings of enthusiasm, interest, or joy in the student.

The negative loading of Dance(-.3287) fits well with this interpretation. Dance is a non-academic, non-schoolwork, perhaps frivolous activity often unrelated to normal classroom routine.

Factor 2 is related to Factor 4(.3449) and Factor 7 (.3560).

FACTOR TWO : STUDENT SOLUTION

The items loading on Factor 2 (Table 35) are related to general competency, adaptation to environment, and

TABLE 34

Student Oblique Solution: Factor One

The items loading more than 0.30 on Factor 1 are listed along with their loadings on other Student factors.

ITEMS	FACTORS							
	1	2	3	4	5	6	7	8
54. Operations with Integers	.619	.138	.097	-.054	-.074	.230	-.073	-.124
51. Comp. Positional Notation	.590	-.072	.020	.167	-.114	-.043	.017	-.014
50. Comp. Numbers & Sets	.555	.405	.007	-.180	-.001	.062	-.114	-.075
83. Structural Recognition	.510	.126	.078	-.023	-.125	-.005	-.004	.060
55. Operations with Fractions	.374	-.124	.127	-.140	.169	.301	.044	-.031
110. Research Skills/Social Science	.346	.031	-.017	-.052	.069	.213	.074	.082
42. Spelling	.332	.251	-.035	.178	-.073	.115	.068	.066
67. Dance (Rhythmic Response)	-.329	-.074	.046	.154	.377	.117	.102	.104
56. Operations with Decimals	.318	-.221	-.028	.169	.042	-.120	.478	.089
60. Geometric Vocabulary	.316	.057	-.045	.220	.088	-.177	.244	.022
49. Summarizing Information	.306	.036	-.008	.141	.037	.337	-.007	-.121

concommittant independence. The ability to get along in the Student environment is the focus of this factor. This environment is more closely identified with the school by the Students as opposed to the more generalized environment of the Teacher or Citizen solutions. The Student still maintains some links with the community in general (eg., Citizenship(#111) and Development of Canadianism(#21)).

The factor also includes positive attitudes towards the environment which are useful to the adaptation of the individual to that environment. These positive attitudes along with the functional competencies render the environment livable, interesting, and a good place to be. These are characteristics of a general nature which make a Student an efficiently functioning component of the school/community and this positiveness would be both from the perspective of the Student and from the perspective of others around him/her.

This factor is related to Factor 4 (.3353), Factor 6 (.3421), Factor 7 (.3938), and Factor 8 (.3189) of the Student solution.

FACTOR THREE : STUDENT SOLUTION

Factor 3 is the factor of French and foreign language (Table 36). Items 32 to 41 load exclusively(almost) on this factor. The presense of this factor is as evident in the Student solution as either adult solution. The communalities

TABLE 35

Student Oblique Solution: Factor Two

The items loading more than 0.30 on Factor 2 are listed along with their loadings on other Student factors.

ITEMS	FACTORS							
	1	2	3	4	5	6	7	8
19.Enjoyment in Learning	.166	.579	.015	.051	.128	-.051	-.067	-.118
93.Att.&Beh.Modif'n from Reading	.046	.561	.022	.108	-.019	-.042	-.034	-.020
109.Social Organization Knowledge	-.045	.465	.103	.138	.122	.022	.052	-.028
114.Knowledge & Use of Media	-.063	.408	-.014	.004	.090	-.053	.219	-.082
50.Comp.Numbers & Sets	.555	.405	.007	-.180	-.001	.062	-.114	-.075
63.Musica Appreciation	-.082	.395	-.045	-.181	.622	-.147	.074	-.013
10.Independent Thinking	.082	.378	-.000	.083	-.157	.018	.052	.156
64.Music Interest & Enjoyment	-.068	.371	-.100	-.044	.377	.106	-.000	.022
79.Relaxation	-.047	.369	.120	-.038	.051	-.047	.137	.235
81.Speaking	.189	.367	.129	.308	-.131	.017	.111	-.023
70.Practicing Health & Safety	.179	.339	-.108	.034	-.036	.427	-.182	.070
7.Responsibility	.081	.333	-.127	-.115	-.067	.382	.154	-.064
47.Indep.Applc.Writing Skills	.151	.328	-.152	.215	.135	.147	-.030	-.199
111.Citizenship	-.263	.318	-.036	.208	-.017	.282	-.026	-.075
103.Science Interest/Appreciation	.149	.317	-.053	.218	.134	.006	-.084	-.260
80.Listening Reaction & Response	.215	.306	.011	.132	-.018	.091	.024	-.194

TABLE 36

Student Oblique Solution: Factor Three

The items loading more than 0.30 on Factor 3 are listed along with their loadings on the other Student factors.

ITEMS	FACTORS							
	1	2	3	4	5	6	7	8
33. Oral Comprehension of French	.087	-.048	.743	.024	.073	-.091	.054	.167
32. Reading Comprehension of French	.167	.163	.692	-.016	.037	-.289	.123	.028
38. Oral Comp. of Foreign Language	.010	.078	.655	.076	-.183	.112	.099	.018
37. Read Comp. of a Foreign Language	-.018	.101	.649	-.087	.135	-.236	.106	.034
36. Insight/Interest Through French	.037	-.205	.635	-.082	.018	.179	.109	.038
35. Writing Fluency in French	-.018	-.100	.584	-.117	.127	.139	.245	.045
40. Write. Fluency: Foreign Language	-.028	.188	.561	.179	-.145	-.028	-.171	.035
39. Speak. Fluency: Foreign Language	-.059	-.049	.475	.099	-.033	.445	.041	-.143
34. Speaking Fluency in French	-.012	-.022	.424	.247	-.051	.157	-.260	-.102
41. Insight/Interest: Foreign Lang.	-.034	.213	.400	.057	.042	-.061	.101	.007

of items 32 to 41 are amongst the highest for the Student solution ranging from .278 to .612.

It is reasonable to consider this factor as fundamental to all samples' perceptions of the elementary school goals. Most likely this factor is strongly linked to the current political climate in Canada which is evidently felt by the students involved in this study.

Factor 3 does not load on any other Student factor more than 0.30.

FACTOR FOUR : STUDENT SOLUTION

Items loading on Factor 4 (Table 37) are abilities used in the classroom of a general nature, skills acquired from many sources within the school. These are not particularly arduous, threatening, nor dreaded activities but a required part of school life.

From the Student's perspective these may be basic generalized skills for classroom performance. These are skills used to produce publicly (within the class at least) accessible results in the form of actual physical presentation or the production of written work. These are skills required for the generation of output in response to classroom demands that may be perceived and reacted to by peers and teachers.

Factor 4 relates (.3449) to Factor 1 the schoolwork factor. This relationship between these two classroom

TABLE 37

Student Oblique Solution: Factor Four

Items loading more than 0.30 on Factor 4 are listed along with their loadings on the other Student factors.

ITEMS	FACTORS							
	1	2	3	4	5	6	7	8
73. Muscle Control	-.130	-.069	-.070	.537	.236	-.142	.026	.328
9. Imagination	-.083	.080	-.034	.529	.074	.176	.046	-.088
84. Oral Reading	.075	.032	.058	.457	-.019	-.132	.028	-.024
29. Span & Serial Memory	-.158	.097	.118	.441	-.073	.072	-.023	.073
86. Recognition of Word Meanings	.088	-.118	.057	.429	-.259	-.016	.247	.069
96. Use Number/Measures-Science	.287	.275	.015	.393	.094	-.008	-.072	-.206
22. Appreciation of Arts & Crafts	-.017	.067	-.023	.376	.536	-.193	.055	-.039
43. Punctuation & Capitalization	.172	.051	-.103	.367	-.075	-.064	.138	.216
77. Under. Rule/Strategies: Sports	.032	-.038	.024	.365	.241	.057	-.314	.189
82. Phonetic Recognition	-.043	.091	-.035	.365	-.116	.138	.058	.054
46. Written Expression	.122	-.090	.028	.329	-.112	.192	.040	.053
81. Speaking	.189	.367	.129	.308	-.131	.017	.111	-.023
74. Physical Development/Well Being	-.055	.042	.003	.298	-.279	.251	-.227	.268

activities factors is compatible with the interpretation. The relationship to Factor 2 (.3353) the environmental adaptation and functioning factor also fits the interpretation of Factor 4 as adaptive to the school environment. Factor 4 is also related to Student Factor 6 (.3262).

FACTOR FIVE : STUDENT SOLUTION

Items loading on Factor 5(Table 38) are confined to the music, dance, and arts and crafts areas, to an extent a fine arts factor. The relationship to its counterparts in the Teacher solution (Factor 7) and the Citizen solution (Factor 5) is evident. The major diffence is the exclusion of physical education as a item loading on this factor. However, Physical Development and Well Being (#74) does have its highest loading on Factor 5 (.2790).

Factor 5 relates to no other Student factor more than 0.30.

FACTOR SIX : STUDENT SOLUTION

Items loading on Factor 6(Table 39) are related to project work in the classroom - getting along with members of a group of peers to work on and complete a school (teacher) assigned project. The individual characteristics of Hostility - Friendliness(#2), Adjustment(#5), and

TABLE 38

Student Oblique Solution: Factor Five

Items loading more than 0.30 on Factor 5 are listed along with their loadings on the other Student factors.

ITEMS	FACTORS 1	2	3	4	5	6	7	8
63. Musica Appreciation	-.082	.395	-.045	-.181	.622	-.147	.074	-.013
23. Represnt'nl Skills Arts/Crafts	-.069	.035	-.069	.129	.611	-.133	-.044	.134
[illegible]2. Appreciation of Arts & Crafts	-.017	.067	-.023	.376	.536	-.193	.055	-.039
[illegible]. Aural Identification of Music	-.008	.064	.013	-.248	.520	.187	.083	-.193
[illegible]. Singing	-.044	-.022	.128	-.009	.444	.215	.014	.122
[illegible]. Music Knowledge	.114	-.036	.159	.094	.441	-.073	.116	-.127
66. Musical Instrument Playing	.095	-.063	.141	-.156	.414	.152	-.088	.269
67. Dance (Rhythmic Response)	-.329	-.074	.046	.154	.377	.117	.102	.104
64. Music Interest & Enjoyment	-.068	.371	-.100	-.044	.377	.106	-.000	.022
74. Physical Development/Well Being	-.055	.042	.003	.298	.279	.251	-.227	.268

TABLE 39

Student Oblique Solution: Factor Six

The items loading on Factor 6 are listed along with their loadings on the other factors of the Student solution.

ITEMS	FACTORS 1	2	3	4	5	6	7	8
75. Group Activity - Sportsmanship	.222	.019	-.047	-.130	-.036	.619	-.060	.155
17. Interest Areas	.074	-.142	-.085	.151	.198	.474	.044	-.033
39. Speak. Fluency: Foreign Language	-.059	-.049	.475	.099	-.033	.445	.041	-.143
70. Practicing Health & Safety	.179	.339	-.108	.034	-.036	.427	-.182	.070
2. Hostility - Friendliness	.214	.288	.045	.083	-.025	.421	-.228	.151
7. Responsibility	.081	.333	-.127	-.115	-.067	.382	.154	-.064
100. Experimentation in Science	-.016	.022	-.161	.111	-.078	.363	.180	-.046
105. Knowledge of History	-.122	.062	.043	-.092	-.135	.356	.208	.154
49. Summarizing Information	.306	.036	-.008	.141	.037	.337	-.007	-.121
52. Comp. Equations/Equalities	.278	-.201	.031	-.054	.108	.315	.111	.139
5. Adjustment	-.084	.248	-.082	.082	-.077	.308	.110	.279
55. Operations with Fractions	.374	-.124	.127	.140	.169	.301	.044	-.031

Sportsmanship (#75) also suggestive of groupwork and interpersonal skills.

The content areas of foreign language speaking, science experiments, sports, and history are curricular areas which rely upon groupwork as as major mode of instruction.

The relationship to Factor 2, the adaptation and functioning factor (.3421) and the relationship (.3262) to Factor 4 the classroom competencies factor, support the concept of Factor 6 as a groupwork/project factor.

FACTOR SEVEN : STUDENT SOLUTION

Factor 7 (Table 40) is not easily interpretable. One interpretation is the concept of the factor as descriptive of the 'too good' student, the 'teacher's pet', the student thought to be the teacher's or the school's model of a good student. These are items which embody the student who performs magnificently on the report card yet does not do as well with his/her peers. The negative loading (-.3143) of Understanding Rules and Strategies of Sports and Games (#77) lends some credence to this interpretation.

The relationships to Factor 1 (.3560), Factor 2 (.3938), and Factor 6 (.3008) support the classroom centredness of the interpretation of this factor.

TABLE 40

Student Oblique Solution: Factor Seven

Items loading more than 0.30 on Factor 7 are listed along with their loadings on the other Student factors.

ITEMS	FACTORS							
	1	2	3	4	5	6	7	8
106. Know. of Physical Geography	.008	-.158	-.018	.052	-.097	.144	.570	.177
108. Cultural Knowledge	-.299	.163	.061	.048	.056	-.049	.492	.016
56. Operations with Decimals	.318	-.221	-.028	.169	.042	-.120	.478	.089
95. Observ'n/Descrp'n in Science	-.030	.063	-.060	.021	.152	-.055	.428	-.016
94. Famil'y with Stan. Child. Lit.	-.043	.249	.079	.070	-.056	.092	.385	.047
61. Measurement Making & Reading	.173	.046	.051	-.014	.092	-.052	.383	.090
44. Grammar & Usage	.231	.092	.004	.097	-.047	.136	.323	-.039
77. Under. Rule/Strategies: Sports	.032	-.038	.024	.365	.241	.057	-.314	.189
6. Shyness - Boldness	-.140	.088	.115	-.031	.040	.068	.313	.281
88. Remebering Information Read	.176	-.036	.057	-.112	-.071	.195	.313	.026
16. Need Achievement	.030	.200	-.087	.089	.198	.170	.300	.015

FACTOR EIGHT : STUDENT SOLUTION

Factor 8 (Table 41) could be interpretted as the 'good student' as perceived by peers (as opposed to Factor 7). The items relate to skills and qualities that would be particularly useful in establishing popularity with peers in Grade 6 (perhaps with the exception of Silent Reading Efficiency(.3157)).

The absence of a relationship with Factor 7 (.0933) supports the interpretation as a factor of peer popularity. The relationship (.3189) to Factor 2 the adaptation to and functioning in the environment factor, fits well with the above interpretation since peers is a fundamental component of the environment and establishing popularity amongst one's peers is a considerably important adaptation for a student to make in order to function efficiently in that environment.

87 ITEM TEACHER SOLUTION

This solution of the reduced Teacher data is described briefly in order that the Student/Teacher match can be discussed. This Teacher solution does have differences from the 118 item Teacher solution; these are mainly in the order of the factors. The 87 item Teacher oblique solution(Appendix E) will be the only information considered, the orthogonal solution is reported in Appendix. D. The correlations between the primaries are reported in

TABLE 41

Student Oblique Solution: Factor Eight

Items loading more than 0.30 on Factor 8 are listed along with their loadings on other *Student factors.*

ITEMS	FACTORS							
	1	2	3	4	5	6	7	8
76. Interst/Participation in Sports	-.023	-.220	.119	.001	.064	.098	.174	.701
11. Success	-.085	.149	-.045	.223	.014	-.078	.203	.461
18. Leisure Time	.011	.257	.077	-.062	.167	.114	-.244	.335
73. Muscle Control	-.130	-.069	-.070	.537	.236	-.142	.026	.328
85. Silent Reading Efficiency	.139	.014	.048	.027	-.068	-.021	.261	.316

Table 42. The items deleted from analysis are listed in Table 9.

FACTOR ONE : 87 ITEM TEACHER SOLUTION

Teacher Factor 1 in this solution (Table 43) is similar to Factor 1 of the major Teacher solution - general human competencies. These are the abilities and attitudes required to function in the Student's environment (the school and the community) and to function effectively at both the intra and inter personal levels.

This factor relates to Factors 2(.3794), 4(4543), 6(.3516), and 7(.3723) in this solution.

FACTOR TWO : 87 ITEM TEACHER SOLUTION

Factor 2 (Table 44) in this solution is most comparable to Factor 3 in the major Teacher solution - the basic skills factor.

This involves the skills of reading, writing, and arithmetic. Items of Dance (#67), Knowledge of Music (#69), and Knowledge of Governments (#113) load negatively on this factor.

Factor 2 relates to Factor 1 (.3794), the general human competencies factor and to Factor 4 (.4847).

TABLE 42

87 Item Teacher Oblique Solution: Correlation between Primaries

	Factors							
	1	2	3	4	5	6	7	8
1		0.379	0.041	0.454	0.287	0.352	0.372	0.125
2			-.059	0.485	0.137	0.232	0.239	-.054
3				0.127	0.224	0.276	0.187	0.056
4					0.301	0.358	0.349	0.106
5						0.364	0.311	0.058
6							0.256	0.172
7								-.150

TABLE 43

87 Item Teacher Solution: Factor One

Items loading more than 0.30 on Factor 1 are listed along with their loading on the 87 item Teacher solution.

ITEMS	FACTORS							
	1	2	3	4	5	6	7	8
18.Leisure Time	.810	-.140	.128	.054	-.022	.172	-.219	-.086
5.Adjustment	.808	.187	-.019	-.143	-.056	.054	-.069	-.174
17.Interest Areas	.793	-.101	.113	-.008	.058	-.176	-.022	.188
79.Relaxation	.738	-.033	.037	.220	-.096	-.236	-.157	.178
75.Group Activity - Sportsmanship	.724	.327	.066	-.279	-.006	.081	-.058	.045
6.Shyness - Boldness	.685	-.239	-.061	.080	-.025	-.038	-.046	.038
2.Hostility - Friendliness	.649	.158	.012	-.050	-.156	-.132	.145	.099
70.Practicing Health & Safety	.626	.393	.045	-.084	.098	-.019	-.290	.132
11.Success	.543	.334	.032	.038	-.133	-.011	-.072	-.009
19.Enjoyment in Learning	.515	.262	.073	.080	-.100	-.256	.039	.046
71.Understanding Health & Safety	.507	.085	.044	.169	.106	.235	-.332	-.042
9.Imagination	.499	.071	.010	-.113	.027	.106	.327	-.071
10.Independent Thinking	.497	.040	-.147	.162	-.076	-.151	.228	-.278
7.Responsibility	.453	-.202	.087	.564	.065	-.315	.124	-.280
80.Listening Reaction & Response	.447	.218	-.110	.059	-.002	.193	.054	-.127
16.Need Achievement	.445	.316	.007	.257	-.302	-.117	.031	.032
77.Under.Rule/Strategies:Sports	.443	-.106	-.186	-.005	.345	.091	-.039	.285
76.Interst/Participation in Sports	.441	-.150	-.076	.029	.050	.258	.018	.338
74.Physical Development/Well Being	.426	-.035	.039	.062	-.068	.049	.110	.369
111.Citizenship	.383	.129	-.008	.215	.175	-.123	.094	.037
73.Muscle Control	.352	-.049	-.009	.106	.124	-.051	.158	.375
64.Music Interest & Enjoyment	.325	-.072	-.021	-.387	.046	.360	.163	.464
114.Knowledge & Use of Media	.305	.014	.074	.318	.110	.195	-.018	-.137
68.Aural Identification of Music	-.303	-.104	.226	-.043	.472	.001	.481	.137

TABLE 44

87 Item Teacher Solution: Factor Two

Items loading more than 0.30 on Factor 2 are listed along with their loadings on the other factors of the 87 item Teacher solution.

ITEMS	FACTORS 1	2	3	4	5	6	7	8
[illegible].Punctuation & Capitalization	-.006	.824	.055	-.124	.078	.203	-.371	.011
[illegible].Phonetic Recognition	.243	.744	.097	-.315	.024	.044	-.037	.147
[illegible].Silent Reading Efficiency	.204	.712	-.044	-.154	.005	-.009	.069	-.041
[illegible].Spelling	.020	.709	.068	-.056	.217	-.121	-.008	.203
[illegible].Grammar & Usage	-.061	.700	.099	-.021	.262	.079	-.072	-.147
[illegible].Penmanship	-.093	.696	.087	-.032	-.007	.061	-.089	.540
[illegible].Operations with Integers	.192	.576	-.019	.193	-.055	.046	-.201	.112
[illegible].Oral Reading	-.132	.558	.048	.185	-.156	.260	.030	.215
[illegible].Recognition of Word Meanings	-.022	.505	.112	-.223	.180	.230	.139	-.333
[illegible].Written Expression	.027	.488	-.016	.336	-.125	.061	.224	-.160
[illegible].Indep.Applc.Writing Skills	-.018	.479	.024	.320	.156	-.007	-.052	-.007
113.Knowledge of Governments	.288	-.419	.105	.152	.291	.170	.207	-.130
61.Measurement Making & Reading	.062	.408	-.094	.220	.066	.212	-.043	-.021
70.Practicing Health & Safety	.626	.393	.045	-.084	.098	-.019	-.290	.132
52.Comp.Equations/Equalities	-.063	.363	-.226	.113	.455	-.037	.088	.139
67.Dance (Rhythmic Response)	.134	-.363	.084	.035	-.139	.210	.471	.301
69.Music Knowledge	-.037	-.357	-.020	-.111	.427	.108	.388	.159
31.Spatial Memory	.097	.354	.047	-.006	.073	-.021	.227	.294
11.Success	.543	.334	.032	.038	-.133	-.011	-.072	-.009
75.Group Activity - Sportsmanship	.724	.327	.066	-.279	-.006	.081	-.058	.045
[illegible].Data Sources as Refer.Skills	-.051	.317	.053	.343	.173	-.075	.102	-.109
16.Need Achievement	.445	.316	.007	.257	-.302	-.117	.031	.032
50.Comp.Numbers & Sets	.007	.310	.006	-.023	.465	.012	.191	.083

FACTOR THREE : 87 ITEM TEACHER SOLUTION

This is the French and foreign language factor (Table 45). In the major solution it was Factor 4.

Factor 3 does not relate to any other factors in this solution more than 0.30.

FACTOR FOUR : 87 ITEM TEACHER SOLUTION

The items loading on Factor 4 (Table 46) are related to the basic skills, however, the items can be considered enrichment components, the goals to go for once the basics are established. The link to the basics is supported by the relationship of Factor 4 to Factor 2(.4827) in this solution. The goals would be considered less 'enrichment' and more basic in the higher grades. The abilities involved could be expected to be found in the 'compleat student' of the elementary school - the student who can do it all, the elementary school scholar.

Factor 4 is related to Factors 1(.4543), 2(.4847), 5(.3575), 6(.3575), and 7(.3487).

FACTOR FIVE : 87 ITEM TEACHER SOLUTION

The items loading on Factor 5 (Table 47) are related to skills which are not of high cognitive order but the content involved is complex, so to know and understand (low cognitive order) this knowledge is difficult.

TABLE 45

87 Item Teacher Solution: Factor Three

Items loading more than 0.30 on Factor 3 are listed along with their loadings on the other factors in the 87 item Teacher solution.

ITEMS	FACTORS 1	2	3	4	5	6	7	8
38. Oral Comp. of Foreign Language	.172	.161	.915	-.042	-.179	-.093	.015	.005
35. Writing Fluency in French	.072	.013	.858	-.149	.163	-.163	.084	.036
33. Oral Comprehension of French	.052	.109	.818	-.189	.151	-.137	.092	-.057
32. Reading Comprehension of French	-.093	.012	.815	.015	.256	-.218	.087	-.085
37. Read Comp. of a Foreign Language	-.048	-.030	.773	-.072	.154	-.141	.195	.087
39. Speak. Fluency: Foreign Language	.210	-.040	.767	.067	-.189	.133	-.026	.073
34. Speaking Fluency in French	-.023	-.040	.756	.046	.075	.038	-.157	-.086
40. Write. Fluency: Foreign Language	-.000	.032	.753	.072	-.211	.073	-.090	-.085
36. Insight/Interest Through French	-.032	.191	.753	.127	-.117	.043	-.097	.102
41. Insight/Interest: Foreign Lang.	.028	-.013	.623	.281	-.112	.125	.033	-.044

TABLE 46

87 Item Teacher Solution: Factor Four

Items loading more than 0.30 on Factor 4 are listed along with their loading on the other factors of the 87 item Teacher solution.

ITEMS	FACTORS 1	2	4	5	6	7	8
105. Knowledge of History	.070	-.265	.803	.041	.045	-.172	-.098
96. Use Number/Measures-Science	-.184	-.124	.644	-.235	.317	.228	.217
30. Meaningful Memory	.217	.062	.617	-.046	-.139	-.034	.102
7. Responsibility	.453	-.202	.564	.065	-.315	.124	-.280
88. Remebering Information Read	-.064	.159	.530	.113	-.114	.203	.135
100. Experimentation in Science	-.256	.108	.524	-.063	.092	.371	.129
108. Cultural Knowledge	-.019	-.075	.516	.118	.157	.066	.147
58. Indep. Applic'n of Math.	.212	-.091	.507	.102	.064	-.008	.119
110. Research Skills/Social Science	.021	.164	.479	.237	.324	-.157	-.197
55. Operations with Fractions	-.137	.133	.440	.118	.389	-.406	-.020
49. Summarizing Information	.008	.079	.402	.150	.101	.078	-.037
109. Social Organization Knowledge	-.021	-.263	.396	.475	.016	-.003	-.225
64. Music Interest & Enjoyment	.325	-.072	-.387	.046	.360	.163	.464
57. Mathematical Problem Solving	-.178	.297	.367	.184	-.031	.190	.086
93. Att. &Beh. Modif'n from Reading	.244	-.089	.365	.059	.139	.196	-.093
48. Data Sources as Refer. Skills	-.051	.317	.343	.173	-.075	.102	-.109
46. Written Expression	.027	.488	-.336	-.125	.061	.224	-.160
95. Observ'n/Descrp'n in Science	-.014	.212	-.150	.330	-.187	.215	.359
29. Span & Serial Memory	-.149	.127	.100	.322	.137	-.089	.060
47. Indep. Applc. Writing Skills	-.018	.479	.024	.320	.156	-.007	-.052
114. Knowledge & Use of Media	.305	.014	.074	.318	.110	.195	-.018
82. Phonetic Recognition	.243	.744	.097	-.315	.024	.044	-.037

TABLE 47

87 Item Teacher Solution: Factor Five

Items loading more than 0.30 on Factor 5 are listed along with their loading on the other factors in the 87 item Teacher solution.

ITEMS	FACTORS 1	2	3	4	5	6	7	8
83.Structural Recognition	-.055	-.268	-.033	.062	.812	-.184	-.193	-.033
51.Comp.Positional Notation	.001	.108	-.024	.008	.697	-.046	-.156	-.022
106.Knov. of Physical Geography	.019	-.261	.050	-.1[illegible]	.554	.298	.045	-.036
60.Geometric Vocabulary	-.089	.029	.061	.131	.486	.278	.147	.060
109.Social Organization Knowledge	-.021	-.263	.113	.396	.475	.016	-.003	-.225
68.Aural Identification of Music	-.303	-.104	.226	-.043	.472	.001	.481	.137
50.Comp.Numbers & Sets	.007	.310	.006	-.023	.465	.012	.191	.083
52.Comp.Equations/Equalities	-.063	.363	-.226	.113	.455	-.037	.088	.139
69.Music Knowledge	-.037	-.357	-.020	-.111	.427	.108	.388	.159
77.Under.Rule/Strategies:Sports	.449	-.106	-.186	-.005	.345	.091	-.039	.285
92.Attitude Toward Reading	.169	-.009	-.071	.101	.338	-.117	.329	-.196
16.Need Achievement	.445	.316	.007	.257	-.302	-.117	.031	.032

The factor is school based and largely academic. Fun, enjoyment, and the like would not be appropriate terms to associate with this factor.

The relationship to Factor 4 4(.3013), the elementary scholar factor, fits in with the advanced level of content associated with both factors 4 and 5. Factor 4 also relates to Factor 6(.3635) and Factor 7(.3114).

FACTOR SIX : 87 ITEM TEACHER SOLUTION

The items loading on Factor 6(Table 48) also appear to involve advanced subject material and skills as did Factors 4 and 5 which Factor 6 relates to .3575 and .3635 repectively. The skills and content areas involved with Factor 6 can be identified with school clubs such as the science club, the choir or orchestra, or the mathematics club. These are school centred abilities which go beyond curricular requirements.

The abilities are more process related than Factor 5 which was knowledge/comprehension based. Factor 6 also includes an affective component, a feature not found in Factor 5.

Factor 6 is related to Factor 1(.3516), Factor 4(.3575), and Factor 5(.3635).

FACTOR SEVEN : 87 ITEM TEACHER SOLUTION

TABLE 48

87 Item Teacher Solution: Factor Six

Items loading more than 0.30 on Factor 6 are listed along with their loadings on the other factors in the 87 item Teacher solution.

ITEMS	FACTORS 1	2	3	4	5	6	7	8
59. Geometric Facility	-.098	.063	-.140	.077	.028	.730	.096	-.113
103. Science Interest/Appreciation	-.170	.167	-.073	.121	-.122	.730	.013	-.014
56. Operations with Decimals	.038	.129	-.113	.001	.009	.697	.091	-.006
118. School Orientation	.105	-.038	-.085	.085	-.021	.451	.362	-.232
112. Interest in Social Studies	.034	.247	-.137	.019	.115	.395	-.124	-.000
55. Operations with Fractions	-.137	.133	.048	.440	.118	.389	-.406	-.020
94. Famil'y with Stan. Child. Lit.	-.116	.101	.076	.152	-.027	.380	.373	-.012
64. Music Interest & Enjoyment	.325	-.072	-.021	-.387	.046	.360	.163	.464
110. Research Skills/Social Science	.021	.164	-.119	.479	.237	.324	-.157	-.197
23. Represnt'nl Skills Arts/Crafts	.039	.018	-.010	.053	-.162	.321	.429	.201
96. Use Number/Measures-Science	-.184	.124	-.009	.644	-.235	.317	.228	.217
7. Responsibility	.453	.202	.087	.564	.065	-.315	.124	-.280

Items loading positively on Factor 7 (Table 49) are related to classic liberal education, in particular the fine arts and science. The goals are very much the kinds of things the school does not focus on, but at the same time these are worthy goals for the student to pursue independently, in or out of school. Creative abilities are very much involved with this factor.

Factor 7 relates to Factor 1(.3723), Factor 4(.3487), and Factor 5(.3114).

FACTOR EIGHT : 87 ITEM TEACHER SOLUTION

The items loading on Factor 8(Table 50) are goals which would relate to only one or two students in a class who are particularly proficient in the related skill(singing, penmanship, music, memory, sports). The skill, except for sports, is usually of limitted participation. These are independently pursued activities not required by the school and not considered to be academic nor necessarily intellectual in nature. These are abilities which may receive rewards (reinforcement) from sources other than the classroom and the teacher.

Factor 8 does not relate to other factors in this solution more than 0.30.

STUDENT/TEACHER MATCH

The results of the Ahmavaara matching are now reported.

TABLE 49

87 Items Teacher Solution: Factor Seven.

Items loading more than 0.30 of Factor 7 are listed along with their loadings on the other factors of the 87 item Teacher solution.

ITEMS	FACTORS 1	2	3	4	5	6	7	8
22. Appreciation of Arts & Crafts	-.135	-.143	-.056	.169	-.121	.052	.772	.179
63. Musica Appreciation	-.181	-.077	.140	-.079	.189	-.067	.710	.323
66. Musical Instrument Playing	-.063	.117	.049	.004	-.158	-.053	.512	.695
68. Aural Identification of Music	-.303	-.104	.226	-.043	.472	.001	.481	.137
67. Dance (Rhythmic Response)	.134	-.363	.084	.035	-.139	.210	.471	.301
23. Represnt'nl Skills Arts/Crafts	.039	-.018	-.010	.053	-.162	.321	.429	.201
55. Operations with Fractions	-.137	.133	.048	.440	.118	.389	-.406	-.020
69. Music Knowledge	-.037	-.357	-.020	-.111	.427	.108	.388	.159
94. Famil'y with Stan.Child.Lit.	-.116	.101	.076	.152	-.027	.380	.373	-.012
43. Punctuation & Capitalization	-.006	.824	.055	-.124	.078	.203	-.371	.011
100. Experimentation in Science	-.256	.108	.001	.524	-.063	.092	.371	.129
118. School Orientation	.105	-.038	.065	-.085	-.021	.451	.362	-.232
95. Observ'n/Descrp'n in Science	-.014	.212	-.150	.330	-.187	.215	.359	-.005
71. Understanding Health & Safety	.507	.085	.044	.169	.106	.235	-.332	-.042
92. Attitude Toward Reading	.169	-.009	-.071	.101	.338	-.117	.329	-.196
9. Imagination	.499	.071	.010	-.113	.027	.106	.327	-.071
81. Speaking	.190	.217	.072	.192	-.089	-.044	.323	.141

TABLE 50

87 Item Teacher Solution: Factor Eight

Items loading more than 0.30 on Factor 8 are listed along with their loadings on the other factors of the 87 item Teacher solution.

ITEMS	FACTORS							
	1	2	3	4	5	6	7	8
65.Singing	-.032	.057	-.068	.018	-.016	-.009	.204	.720
66.Musical Instrument Playing	-.063	.117	.049	.004	-.158	-.053	.512	.695
45.Penmanship	-.093	.696	.087	-.032	-.007	.061	-.089	.540
78.Knowledge of P.E. Apparatus	.228	.114	.009	.146	.234	-.040	-.100	.470
64.Music Interest & Enjoyment	.325	-.072	-.021	-.387	.046	.360	.163	.464
73.Muscle Control	.352	-.049	-.009	.106	.124	-.051	.158	.375
74.Physical Development/Well Being	.426	-.035	.039	.062	.068	.049	.110	.369
29.Span & Serial Memory	-.149	.127	.100	.322	.137	-.089	.060	.359
76.Interst/Participation in Sports	.441	-.150	-.076	.029	.050	.258	.018	.338
86.Recognition of Word Meanings	-.022	.505	.112	-.223	.180	.230	.139	-.333
63.Musica Appreciation	-.181	-.077	.140	-.079	.189	-.067	.710	.323
67.Dance(Rhythmic Response)	.134	-.363	.084	.035	-.139	.210	.471	.301

The Student and the Teacher oblique factor pattern matrices from the solutions of the 87 item data were used in this match. The Teacher pattern matrix (87 by 8) was the matrix transformed. The transformed matrix, F1L(Appendix F), is the attempted match to the Student solution(Appendix E). The transformation matrix L is presented in Table 51.

As with the Teacher/Citizen match, the French and foreign language factors of both solutions appear to be identical in that they load on one another .9917. In these solutions the factor is number three whereas in the major Teacher solution the French and foreign language factor was number four. The remainder of the match is not as simple as this , all other Student factors load on more than one Teacher factor.

In discussing the Student/Teacher match only the Student factors will be considered in detail since the Teacher solution was developed to provide a comparative base for the Student solution only.

Student Factor 1 is the schoolwork factor involving classroom activities or work, this is the serious business of being a student in the elementary school. It is substantially related to Teacher Factor 2 (.6874) the basic skills factor. This relationship of classroom activities to basic skills certainly fits in since most classroom activities are or at least involve basic skills. Student Factor 1 has its highest coefficient (.8345) on Teacher Factor 5 the difficulty related skills factor, the recall

TABLE 51

Transformation Matrix L : Student/Teacher Match

Teacher Factors	Student Factors 1	2	3	4	5	6	7	8
1	-.011	0.626	-.023	0.221	0.141	0.553	0.098	0.472
2	0.687	0.264	-.108	0.440	-.312	0.254	0.291	0.074
3	-.030	0.071	0.992	0.062	0.020	0.077	0.008	-.013
4	0.315	0.598	0.094	0.382	-.019	0.433	0.430	-.125
5	0.835	0.199	0.093	-.047	0.246	0.189	0.375	0.128
6	0.242	-.003	0.083	0.588	0.349	-.101	0.667	0.108
7	-.147	0.524	-.042	0.265	0.604	-.082	0.470	-.199
8	0.007	-.190	0.097	0.113	0.791	0.197	-.288	0.441

and comprehension of high level knowledge. This high coefficient confirms the common attributes of being school-based and difficult in both factors.

The relationship (.3149) to Teacher Factor 4 the [redacted] core academic skills factor also fits since scho[redacted] (Student Factor 1) is a characteristic of the ex[redacted]nt student, the kind which would have the attributes of Teacher Factor 4.

Student Factor 2 is moderately related to three Teacher Factors: 1(.6261), 4(.5980), and 7(.5242). Student Factor 2 involves positive attitutdes and functional competentcies which facilitate adaptation to and functioning within the student environment. This is basically the same interpretation as that for Teacher Factor 1 with which Student Factor 2 has its strongest relationship (.6261).

Teacher Factor 4 involves enrichment skills and knowledge; academically based, more difficult skills and knowledge. These skills will definitely increase functional competency within the classroom environment.

Teacher Factor 7 is related to classic, liberal education. This is indeed related to overall functioning in and adapting to one's environment - in a liberal education the aim is to produce the well rounded, educated human.

Student Factor 3 is the French and foreign language factor. It is related to only one factor of the Teacher solution - Factor 3. The relationship is very strong (.9917) indicating the factors to be as good as identical.

Student Factor 4, the formats of information factor, involving the rules, organizational strategies, and patterns of knowledge fields such as science, games, and arts and crafts. It relates to Teacher Factor 2(.4404), Factor 4(.3823), and 6(.5880).

Teacher Factor 2 is the basic skills factor. Basic skills of reading, writing, and arithmetic do involve the understanding and application of information patterns particularly in terms of reading and writing at the elementary level where the learning of conventions of grammar and spelling provide a major body of the instructional effort.

Teacher Factor 4 involves generalized classroom skills, things required to do common classroom related activities. These include comprehension and the abilities to use knowledge bases such as history(#105), numbers and measures(#96), and culture(#108). Although involving these knowledge bases, Teacher Factor 4 involves more process related goals than does Student Factor 4. This may account for the low moderate (.3823) relationship between the two.

Teacher Factor 6 shows the highest relationship to Student Factor 4(.5880). Teacher Factor 6 is the high order scholastic skills factor, skills beyond the scope of most students but nevertheless demonstrated by some elementary students. These skills are related to information patterns not used in the elementary school to a great extent - geometry, science, decimal system, and standard children's

literature.

Student Factor 5 is the music, dance, and arts and crafts factor. It relates strongly with Teacher Factor 7 (.6036) and Factor 8 (.7909). Teacher Factor 7 involves arts and crafts, music, and dance so the positive relationship is consistent with interpretation. Teacher Factor 8 also involves music, dance, and physical education. The link amongst these factors is music and dance. The presence of physical education and arts and crafts indicates the factors also have a non-basics to extra-curricular character about them. One is tempted to use the term frills, but this would be too strong.

The low negative relationship to Teacher Factor 2, the basic skills factor does support the non-basic nature of Student Factor 5. The low positive relationship (.3494) to Teacher Factor 6 is due to the music and arts and crafts components common to both.

Student Factor 6 is the project work factor. This is moderately related to Teacher Factor 1 (.5533) due to the interpersonal skills called for in both factors. The relationship to Teacher Factor 4 (.4332) can be considered to be due to the academic bias involved in both factors. Teacher Factor 4 is academically centred, related to scholastic skills many of which would have use in completing assigned projects. Student Factor 6, is involved with academic work along with interpersonal competencies, so the relationships to both Teachers factors is compatible with

the interpretation.

Student Factor 7 appears to be the excellent student factor, high level academic competencies of the elementary classroom. Factor 7 relates to Teacher Factors 4(.4295), 5(.3749), 6(.6670), and 7(.4701). All of these Teacher factors are involved with high order academic skills and knowledge, the kinds of things an excellent student would be able to do and would know (or at least would tend toward). These are scholastically specific skills to a large extent, they are not skills and competencies which would be acquired in out of school experience, they are generally taught.

Student Factor 8 is the popular student factor; to be popular amongst peers would require a good level of interpersonal competencies and this goes along with the relationship to Teacher Factor 1, general human competencies. The relationship to Teacher Factor 8(.4410) would be based on the shared inclusion of physical education goals.

PLOTTING STUDENT/TEACHER MATCH

The 87 by 8 Teacher pattern matrix was transformed by post multiplying it by the transformation matrix L (Table 51) to produce matrix F1L. The loadings of this 87 by 8 matrix were plotted against the loadings of the 87 by 8 Student pattern matrix. This plot is shown in Figure 11. A regression line was fitted to this plot, the correlation

FIGURE ELEVEN

AHMAVARA MATCH: STUDENT/TEACHER

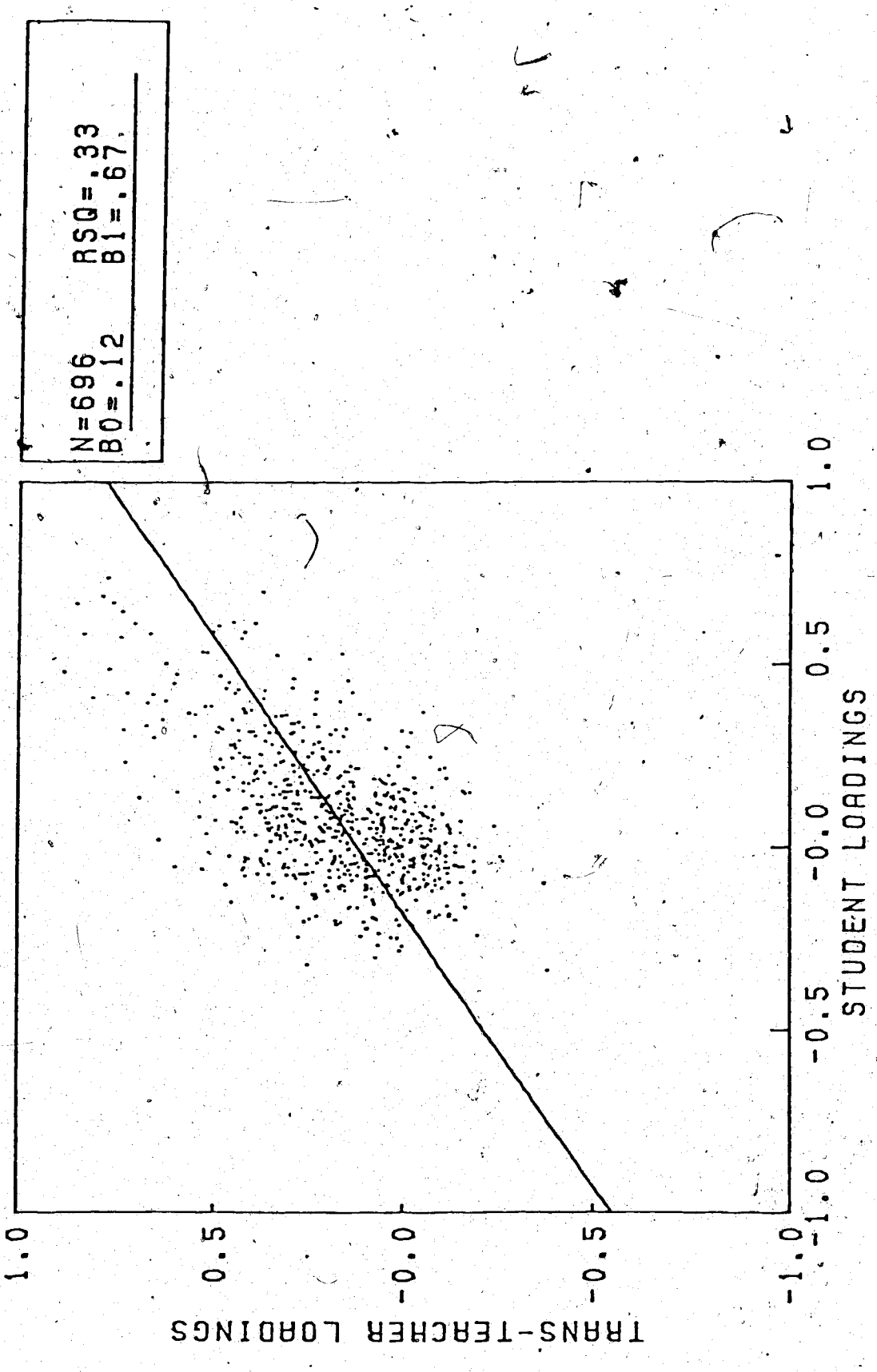


TABLE 52

The indices of similarity for Student/Teacher matched factors

FACTORS	INDEX OF SIMILARITY
1	.708
2	.652
3	.891
4	.561
5	.760
6	.595
7	.594
8	.589

calculated was .67, somewhat lower than that of the Teacher/Citizen match but nevertheless positive and moderately strong showing that the Student and the Teacher(87 item) solution are related to one another. The Student/Teacher match had one identical match(.9917), that between the Factor 3's the French and foreign language factor. Other than this the relationships were scattered amongst the factors with each Student factor being related to a number of Teacher factors. The indices of similarity were calculated and are listed in Table 52.

The patterns of similarities does not conform well to that revealed in the transformation matrix L (Table 51). The major similarity is the close relationship of Factors 3, the French and foreign language factor. The music and arts and crafts factor (Student factor 5) also show a moderate relationship between the two solutions. The matching demonstrates the reduced compatibility of the Student and the Teacher solutions in relation to he match between the Teacher and the Citizen solutions.

The Student solution was confined to a large extent to classroom specific activities, goals of a more general or global nature were excluded from analysis since they were not well understood by the Students. By excluding these items from analysis the Teacher solution was forced into a more classroom centred solution than the more general solution presented in the 118 item data analysis.

CHAPTER FIVE

DISCUSSION, CONCLUSIONS, AND IMPLICATIONS

DISCUSSION

This study attempted to determine the nature of the dimensions upon which individuals rate the importance of goals for the elementary school. To do this, samples of Teachers, Citizens, and Students of Camrose, Alberta and area were requested to rate 118 goal statements presented to them in questionnaire format(Appendix A). The collected data was then analysed in two stages: 1. the mean rating of each item by each sample was calculated(Appendix C); 2. the correlations between items for each group were determined and these were factor analysed.

ITEM RATINGS

The mean rankings reveal that the Teacher, Citizen, and Student groups were ranking the goals in a consistently similar pattern. The high correlations (.855 to .971) between groups on the basis of the mean item ratings indicated the Teachers, Citizens, and Students were very similar in the overall ratings assigned each goal. This consistency was further demonstrated in the ordering of items by mean ratings(Tables 6, 7, and 8). This consistency

was found amongst the different functional groups - Teachers, Citizens, and Students, and also between city and county groups. On the basis of the results, the residents of Camrose city and county appear to be rather undifferentiated in their ratings of educational goals for the elementary school.

The goals which were accorded the highest ratings had several characteristics. One of the most striking is the high rating assigned general goals, those not tied to particular curricular areas. The goals related to curricular areas such as history, geography, arts and crafts, science, music, and language fell in the bottom half of the goals ordered by mean rating. Further, these highly rated goals were of academic, physical, interpersonal, and personal generality. The academic skills considered to be of most importance were the basic skills of reading, writing, and arithmetic - the 3R's. These are general academic skills used in most academic activity. The highly rated goals related to physical aspects of elementary education were involved with physical health and well being rather than specific physical skills or knowledge. Many of the goals were related to an individual's ability to function with others, to be able to participate successfully in the social sphere, to get along - not simply conform but interact with others. Goals related to an individual's own perspective of his/her self are also accorded high ratings; self esteem, success, and enjoyment of learning are considered to be

important things for an elementary student to develop and the school is viewed as being responsible for this development.

So the basic skills were perceived as not simply the conventional academically based 3R's one might expect, but included the 3R's plus skills and attitudes required to function effectively in all components of the student's environment - in the school, in the community, with peers, and with self. This is quite an expansion of the concept of basic skills but nonetheless justified for these data. The extent to which this expanded concept of basic skills exists outside of the samples involved in this study is of course open to speculation. The sample cannot be considered typically Canadian or for that matter typically Albertan. On the other hand, there is no compelling reason to believe they are atypical; there are many communities apparently very similar to Camrose city and county.

Another characteristic of the data is the ratings assigned the goals related to French and foreign language (#32 to #41). These goals were generally viewed as of low importance to the elementary school. These goals are accorded distinctly lower ratings than any other goals. It does not seem to be simply a relatively low rating in that these goals were just moved down the line of importance in order to accomodate other goals. Rather, their ratings form a distinct break in the mean values assigned goals - no other goals have consistent modal ratings of 9. Only one

other goal had a rating of 9(#72. Sex Education), only two had modal ratings of 8(#68, #69), and two had ratings of 7(#67, #65). In general goals were rated between 1 and 5. The rating of goals 32 to 41 was undoubtedly influenced in various ways by political events and circumstances in Canada in 1978 with Quebec separation being such a prominent issue and the federal government being so closely associated with developments in that issue. A low rating accorded goals associated not only with schools but also the federal government, may serve as criticism or at least projected criticism or rejection of the government rather than being directly related to educational policy. Another theme which must be considered is the perceived non-essentiality of French or foreign language in a predominantly English speaking community. This non-essentiality would be particularly pronounced if the basic skills of functioning in and adapting to the student environment is given a high priority as is the case here. Placing emphasis on and devoting resources to what is perceived as non-essential only takes away from the much desired development of the basic skills which some evidence suggests are on the decline. Such evidence as declines in test scores, increased rates of vandalism, and increased use of drugs in other communities would certainly argue for insuring that students coming out of Camrose elementary schools should be as adequately prepared as possible for functioning in the human environment. This being viewed as the case would place non-

essentails in an unfavorable light indeed. However, the isolation of the factor these items form and the low correlations items 32 to 41 have with any other items suggest the former interpretation of political influence to be the most plausible.

The items relating to specific skills and curriculum areas received lower ratings than do the more general skills mentioned. This lower rating is not as pronounced as that accorded the French and foreign language goals. This can be viewed as reflecting a relatively lower priority given these specific goals since general goals are more important. Had general goals been excluded from the questionnaire these specific goals would be accorded ratings of 1 or 2, whereas this would be unlikely in the case of the French and foreign language goals. In other words, French and foreign language goals were viewed as having low importance; curricularly specific goals are viewed as important but not as important as the more general goals.

One area of general ability which was rated as moderately important rather than high was cognitive abilities such as span and serial memory, spatial memory, creative flexibility, systematic reasoning, classificatory reasoning, and relational-implicational reasoning. These moderate ratings have three possible influences. Firstly, they could be viewed as areas which are important but are not within the realm of the elementary school's responsibility. Perhaps they are viewed as characteristics

that are more or less fixed, unaccessible to modification by educational intervention. Or perhaps if they are viewed as modifiable, the school should not concern itself with interferring in the changes. Secondly, these goals may not be viewed as important. And lastly, they may not have been understood in spite of the lack of NOT UNDERSTOOD being checked; respondents may have been reluctant to express their lack of comprehension.

FACTOR ANALYSIS

In discussing the results of the factor analyses, the analyses of the Teacher and the Citizen data will be focused upon, the Student data will be considered separately.

To some extent the factor analyses produced results consistent with patterns evident in the item ratings. The first factor linked together items describing general human competencies. Other factors common to both solutions (Teacher and Citizen) were a cognitive/intellectual factor, a basic skills factor, a music, arts and crafts, and physical education factor, and the ever present French and foreign language factor. There were also two cognitive factors which were academically based and there was a cognitive factor which was not constrained by academic content. The orders of these last three factors and the music, arts and crafts, and physical education factor are different in the two solutions.

The matching procedures conducted in this study indicated close relationships between Factors 1: general human competencies; Factors 2: cognitive/intellectual abilities; Factors 4: the French and foreign language factor; and Teacher Factor 7 and Citizen Factor 5: the music, arts and crafts, and physical education factor. The relationship between Factors 3: the basic skills factor, was moderately strong. This and the nature of the items loading on the factor in the two solutions suggests that Factors 3 are closely related as well.

The dimension of general human competency upon which individuals structure their perceptions of importance of elementary school goals is involved with the skills and attitudes necessary to adapt to and function in the human environment - in this instance the environment includes the elementary school as a major component. This along with the high ratings accorded most of these goals point to a concern for the elementary school to be producing the generally competent human. This seems to be sound structuring of the importance domain, particularly in view of the increasingly dynamic nature of the human environment. With the nature of human activities increasingly fluid particularly in skills areas and related knowledge bases the development of skills and attitudes which are of use in almost any situation becomes more critical. Further, as specific skills and knowledges become less relevant for an individual to 'carry' with him/her, those skills such as interpersonal

competencies become basic to successful adaptation to and subsequent functioning in any human environment the individual enters.

The related factors of cognitive/intellectual skills and basic skills(3R's) are more directly related to the student's immediate environment - the school. These skills are directly related to the student's functioning in the school whereas the general human competencies refer to a more generalized environment. So the importance domain is structured along the dimensions of developing skills for more schooling(factors 2 and 3) and a dimension concerned with skills and attitudes for a more inclusive, general human environment(factor 1).

The French and foreign language factor although it is embedded in the importance space (as evidenced by the communalities of items 32 to 41) is not closely related to any other dimensions of the space. It is a stable, consistent presence in all solutions; it is the factor which the two solutions(all three for that matter) have most in common. This factor is characteristic of the importance space but it is a dimension which is separate from the others. The factor is likely to have strong political links as the French language is closely related to the issues of national unity and minority rights. These issues do not have a close conceptual relationship to academic performance nor a particularly close relationship to interpersonal competencies in an English speaking community, so the

factor's isolation from the other factors is not surprising. However, French and foreign languages do have a recognised legitimacy in public schools yet not as a basic component of the curriculum necessarily. These goals (#32 to 41) were accorded ratings from 1 to 9; so some respondents did view the goals as highly important although this was definitely not a majority opinion. The curricular aspects of these goals may account for its embedment in the importance space and its political bias may account for its isolation from the other factors.

The factors (Teacher factor 7 and Citizen factor 5) which are associated with music, arts and crafts, and physical education appear to be a dimension of extra curricular activities. The moderate to low ratings accorded items loading on this factor do lend an extra curricular to non-essential character to the factor. Perhaps the activities to which these goals relate are viewed as of marginal importance to the school, as activities better done outside of the school at out of school hours.

It is of interest to note the potential significance of the fact that to this point (after considering five Teacher/Citizen factor pairs) a rather similar structuring of the importance space by both Teachers and Citizens has been described. Although Teachers function daily within the school and Citizens are observers with an external perspective, similarities of the dimensions are striking. This similarity of importance space may be a trait of this

area where Teachers and Citizens are likely to meet on a social basis with greater frequency than in a larger urban centre. But within this community, public consideration of elementary school goals is likely to have a common foundation upon which to work.

The remaining factors do not have the same degree of closeness but are nevertheless related both conceptually and numerically. These factors centre more upon academic content or subject matter and demonstrate differences in the structuring of the importance spaces of the two groups. This is reasonable due to the different perspectives of Teachers and Citizens particularly in relation to subject matter. The existence of a mathematics dominated factor in the Citizen solution (factor 6) is not matched in the Teacher solution. A related factor in the Teacher solution (factor 5) includes some of the same mathematics goals but is further differentiated (subject matter wise) into other content areas such as geography, music, governments, and sex. The Citizen may be viewing mathematics as a difficult academic field. The Teacher may have an underlying relationship of 'subject matter for later grades' and the goals are not blocked on subject matter labels as with the Citizens but rather on curricular or grade level placement.

The Citizen factor 7 contains knowledge bases such as government, socio-economic geography, social organization, history, music, and Canadianism. These are knowledge bases to some extent related to later grades (as with Teacher

factor 5) but also a base of socio-cultural knowledge, knowledge which could serve as the foundation for understanding an individual's heritage. The Teacher solution does not contain a comparable dimension although Teacher factor 5 contains some of the same items, its overall focus appears to be knowledge for later grades. Here the Teachers' perspective is much more functionally related, forming a dimension of goal importance which ties in with the organization and the functioning of the public school.

Teacher factor 6 also has this school function centredness. The factor contains items describing high order cognitive skills. The Teacher factor 5 focused on knowledge bases, factor 6 focuses on processes. Both factors are tied in with school functioning, with curricular demands on students. For Teachers these demands should be expected to be used as referrents in determining the relative importance of a set of goals for the elementary school. Citizens on the other hand, would not have such an intimate knowledge of curriculum and so would not utilize such functional dimensions to structure this importance space.

This same trend is evident in the last factor of each solution. The Citizen factor 8 is related to reading and listening, two human abilities the school specifically attempts to modify for improvement. Reading and listening are two areas Citizens realize are major concerns for the elementary school. Teacher factor 8 is different, it is a more complex, mental ability related factor. With the

Teacher factor, independent mind use is the focus: creative, independent, and unconstrained (by academic content or formalisms) use of the mind both to interpret input and produce output. Information input is a feature of both factors but the Teacher factor is more inclusive of many formats and modes of information (music, reading, arts, media) rather than simply reading or listening to language. The Teacher factor 8 is centred more upon curricular demands and the variation in these demands both in the elementary school and later forms of education.

STUDENT FACTOR ANALYSIS

The Student solution was constrained by the deletion of 30 items which were not well understood by the Students. This deletion limited the solution to items descriptive of classroom specific goals; general goals tended to be excluded. However, some common (to other solutions) factors did emerge.

The French and foreign language factor did emerge as factor 3 in this solution. A generalized human competency factor was present (factor 2). A music and arts and crafts factor was present as factor 5.

Basic skills were located in a number of factors rather than confined to one factor. Factors 1, 4, and 6 contained items which are related to the skills and abilities for a student to function within the academic environment of an

elementary school classroom. These factors were differentiated by functional characteristics. Factor 1 was general classroom work of an assigned nature; individual abilities necessary to complete the task. There is a strong link to mathematics, and writing and research skills are also involved. Factor 4 abilities are those required to generate and present assigned tasks. Factor 6 encompasses the skills and attitudes necessary to get along with peers to work on a project together.

Factors 7 and 8 are related to peer perceptions. These are traits of students which are perceived to be used by teachers or the school (factor 7), or by peers (factor 8) to characterize or categorize elementary school students.

In all, the Student dimensions are very much those of an insider, they are functional dimensions based on the occurances which the Student experiences in the classroom. The dimensions do not have the generality of either the Teacher or Citizen solutions. The only exception is the French and foreign language factor which does not seem to have a direct link to classroom life. Most likely this factor is developed from importance ratings imported into the classroom by the Student rather than developed during school activities as the other dimensions appear to have been developed.

CONCLUSIONS

The conclusions in relation to the item ratings by the Teachers and Citizens of Camrose and area are:

Goals which are related to the basic skills of reading, writing, and arithmetic are viewed as very important for the elementary school to achieve.

Goals related to the basic skills of adapting to and functioning with self and others are viewed as equally important to the elementary school.

Goals related to the development of sound mental and physical health of the student are viewed as very important.

Goals related to the development of skills in specific curricular areas such as mathematics, music, physical education, social science, history, geography, arts and crafts, and science are viewed as important but not to the extent of the general goals of basic skills and attitudes.

Goals related to French and foreign language are viewed as of least importance to the elementary school.

All groups tended to rate all the goals in a very similar pattern of importance.

The conclusions in relation to the factor analyses of the goal rating data are:

The major dimensions along which importance of goals to the elementary school are structured are:

1. General human competency
2. Intellectual/cognitive skills
3. Basic skills - the 3R's
4. French and foreign language
5. Music, arts and crafts, and physical education.

Differences in the structuring of the importance space between Teachers and Citizens occurs with curricularly specific goals.

Students base their dimensions more directly on classroom functioning than either Teachers or Citizens.

IMPLICATIONS

Several implications arise from the findings of this study. One is that the concept of basic skills is not

confined simply to the 3R's - reading, writing, and arithmetic but includes the 3R's, interpersonal competencies, maintenance of physical health, and skills and attitudes necessary to function with self.

Besides having implications for those who use 'basic skills' as a label for various products of groupthink, it is indicative of the complexity of most concepts associated with complex, dynamic interactions such as 'The Elementary School'. The concept of basic skills should be used for convenience in discussion not as a replacement for that for which it stands. The condensation of complex concepts into slogans or buzz words masks the very nature of the issues the slogans are attempting to bring to light.

The overall agreement in ratings and the compatability of dimensions of importance suggest a commonality of understanding exists amongst Teachers and Citizens (in Camrose and area at least). This being the case, the use of interactive approaches in the development of educational policy appears to be a rational path to follow. However, again due to the complexity of the situation consensus can be approached but should not be expected to be achieved.

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APPENDIX A

The Questionnaire

ELEMENTARY EDUCATIONAL GOAL STUDY

This study you are participating in is investigating the educational priorities individuals hold for the elementary school.

This questionnaire contains one hundred and eighteen descriptions of educational goals. You are asked to rate these goals in relation to IMPORTANCE TO THE ELEMENTARY SCHOOL. Attempt to relate each statement to students of elementary schools - at what goals should the schools be aiming? What kind of student should the elementary schools be attempting to produce?

Do NOT relate these goals to the high school. Do NOT relate these goals to other individuals and agencies which influence the education of the student such as the home, the community in general, or social or religious organizations and associations.

Keep in mind that the school has a limited time with each student so it must make decisions about which goals are most important to work on; which goals are the schools uniquely responsible for?

The responses made on this questionnaire will remain annonymous. The information relating to personal status will be used in organizing the information from different groups of people for further analysis.

To facilitate the analysis of this educational goal study, please complete the following items:

1. GROUP: To which group do you belong? (c4)

1. STUDENT - Elementary .....

2. STUDENT - High School.....

3. STUDENT - Post Secondary.....

4. CITIZEN - With children in school.....

5. CITIZEN - With no children in school...

6. TEACHER - .....

2. AGE GROUP: To which age group do you belong? (c5)

1. under 15 .....

2. 15 - 20 .....

3. 21 - 30 .....

4. 31 - 40 .....

5. 41 - 50 .....

6. 51 - 60 .....

7. 61 - 70 .....

8. over 70 .....

3. SEX: (c6)

1. Female .....

2. Male .....

4. EDUCATIONAL LEVEL: (c7)

1. Elementary .....

2. High School .....

3. University .....

4. Technical School...

THE GOALS

D

You are asked to rate each goal statement in terms of its importance to the elementary school:

ONE : Most important to the elementary school, an essential goal.

TWO : High importance.

THREE : High to moderate importance; a desirable
: goal for the elementary school to work
: towards but not at the expense of more
FOUR : important goals.

FIVE : Moderate importance to the elementary
: school. School should attempt this goal
: if more important goals are being attained
SIX : satifactorily.

SEVEN : Marginal importance, a goal of minimal concer

EIGHT : Low importance.

NINE : Should not be a goal of the elementary school

X - Circle the X if you do not understand what this goa

FOR EACH GOAL STATEMENT, CIRCLE THE APPROPRIATE NUMBER (OR X) THAT GOAL STATEMENT.

SOCIALIZATION - REBELLIOUSNESS

Has a healthy balance between conformity and non-conformity. Is open-minded and tolerant of new ideas ,non-conformity in others. Respects public and private property,shares, cooperates, is respectful and courteous.

1 2 3 4 5 6 7 8 9	X
High Medium Low	Not
Importance Importance	Understood

HOSTILITY - FRIENDLINESS

Is friendly, generous, helpful, good-natured, interested in people. Avoids aggression, hostility and bitterness.

1 2 3 4 5 6 7 8 9	X
High Medium Low	Not
Importance Importance	Understood

DEPENDENCE - INDEPENDENCE

Is self-sufficient and self-responsible. Does not have an excessive need for acceptance, approval, security or protection.

1 2 3 4 5 6 7 8 9	X
High Medium Low	Not
Importance Importance	Understood

GENERAL ACTIVITY - LETHARGY

Has a healthy level of drive, curiosity, need for activity and need for play.

1 2 3 4 5 6 7 8 9	X
High Medium Low	Not
Importance Importance	Understood

ADJUSTMENT

Faces reality. Is well adjusted. Is generally happy.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

SHYNESS - BOLDNESS

Has a healthy balance between extreme shyness and boldness.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

RESPONSIBILITY

Faces responsibility involved in school and a community; makes own decisions and takes responsibility for himself; manages own affairs.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

SCHOOL ORIENTATION

Has good attitude toward school, teachers and studying.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

SELF ESTEEM

Has a healthy self-concept, self-confidence, and self-esteem.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

IMAGINATION

Can use what he sees, hears, and experiences creatively, resourcefully, and uniquely.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

INDEPENDENT THINKING

Develop the power to think clearly and independently; is able and free to decide for himself and mature enough to do so.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

SUCCESS

Be successful in at least some aspects of school life.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

CURIOSITY

Questions; searches for answers; inquisitive; constant probing of unknown.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

CREATIVITY

Shows keen interest and strong desire to present own ideas in any desired media.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

CRITICAL ANALYSIS OF INFORMATION

Acquires the talent to understand the views of others and express his/her own views effectively; examines various aspects of issues; develops habits of reacting critically to ideas.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

PREPARATION FOR SECONDARY SCHOOL

Is prepared for secondary school studies which will lead to the attainment of specific qualifications.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

NEED ACHIEVEMENT

Directs energy and thinking into productive channels. Does his best. Strives for excellence. Pursues goals in spite of frustrations.

1 2 3 4 5 6 7 8 9	X
High Importance — Medium Importance — Low Importance	Not Understood

INTEREST AREAS

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

1 2 3 4 5 6 7 8 9	X
High Importance — Medium Importance — Low Importance	Not Understood

LEISURE TIME

Develops activities that can lead to enjoyable and profitable use of leisure time.

1 2 3 4 5 6 7 8 9	X
High Importance — Medium Importance — Low Importance	Not Understood

ENJOYMENT IN LEARNING

Finds pleasure in the act of learning.

1 2 3 4 5 6 7 8 9	X
High Importance — Medium Importance — Low Importance	Not Understood

SOCIAL POISE AND SKILLS

Acquires the knowledge and understanding necessary to participate with ease and confidence in school and community activities and events.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

DEVELOPMENT OF CANADIANISM

Learns a knowledge of, and pride in Canada, its history and resources, its people and achievements, and its future.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

APPRECIATION OF ARTS AND CRAFTS

Appreciates and responds to many styles of art, good workmanship and good design. Becomes aware of color, form, arrangement, and artistic factors in architecture, objects, and in the natural environment.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

REPRESENTATIONAL SKILLS IN ARTS AND CRAFTS

Learns and uses a variety of artistic techniques (mixing colors, glazing clay works, drawing, painting, modelling, constructing, etc.) in order to represent reality or express themes and ideas.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

CLASSIFICATORY REASONING

Organizes information, ideas and things into classes or groups. Uses a classification scheme consistently.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

RELATIONAL - IMPLICATIONAL REASONING

Recognizes and makes analogies and comparisons. Solves problems and finds logical answers by making inferences.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

SYSTEMATIC REASONING

Produces and solves complex problems and evaluates their solutions. Analyzes situations and deduces solutions.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

CREATIVE FLEXIBILITY

Recognizes that something can be the same though it appears different. Reinterprets information. Finds many different ways to solve a problem and switches to another way when one doesn't work.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

CREATIVE FLUENCY

Calls to mind much relevant information and many ideas when needed. Elaborates on ideas. Creates original information.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

SPAN AND SERIAL MEMORY

Can memorize series, sequences, and lists.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

MEANINGFUL MEMORY

Remembers meaningful ideas and information; without rote memorization.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

SPATIAL MEMORY

Remembers what things looked like; how they were shaped.

1 2 3 4 5 6 7 8 9	X
High Medium Low	Not
Importance Importance	Understood

READING COMPREHENSION OF FRENCH

Reads without translation into English.

1 2 3 4 5 6 7 8 9	X
High Medium Low	Not
Importance Importance	Understood

ORAL COMPREHENSION OF FRENCH

Understands French as spoken by a fluent speaker.

1 2 3 4 5 6 7 8 9	X
High Medium Low	Not
Importance Importance	Understood

SPEAKING FLUENCY IN FRENCH

Speaks in a manner acceptable and comprehensible. Expresses himself spontaneously in conversation, discussion, asking and answering questions. Speaks with good pronounciation, grammar and usage.

1 2 3 4 5 6 7 8 9	X
High Medium Low	Not
Importance Importance	Understood

WRITING FLUENCY IN FRENCH

Writes accurately and fluently without translation from English.

1 2 3 4 5 6 7 8 9	X
High Medium Low	Not
Importance Importance	Understood

INSIGHT & INTEREST THROUGH FRENCH

Understands and accepts French culture. Has greater appreciation of literature and art. Participates in French activities in class and indepently.

1 2 3 4 5 6 7 8 9	X
High Medium Low	Not
Importance Importance	Understood

READING COMPREHENSION OF A FOREIGN LANGUAGE

Reads without translation into English.

1 2 3 4 5 6 7 8 9	X
High Medium Low	Not
Importance Importance	Understood

ORAL COMPREHENSION OF A FOREIGN LANGUAGE

Understands a foreign language as spoken by a fluent speaker.

1 2 3 4 5 6 7 8 9	X
High Medium Low	Not
Importance Importance	Understood

SPEAKING FLUENCY IN A FOREIGN LANGUAGE

Speaks in a manner acceptable and comprehensible to a native speaker. Expresses himself spontaneously in conversation, discussion, asking and answering questions. Speaks with good pronounciation, grammar and usage.

1 2 3 4 5 6 7 8 9	X
High Importance Medium Importance Low Importance	Not Understood

WRITING FLUENCY IN A FOREIGN LANGUAGE

Writes accurately and fluently without translation from English.

1 2 3 4 5 6 7 8 9	X
High Importance Medium Importance Low Importance	Not Understood

INSIGHT & INTEREST THROUGH A FOREIGN LANGUAGE

Understands and accepts another culture. Has greater appreciation of literature and art. Participates in foreign language activities in class and independently.

1 2 3 4 5 6 7 8 9	X
High Importance Medium Importance Low Importance	Not Understood

SPELLING

Applies correct spelling to written work. Applies spelling rules, phonetic skills, syllabication, rules for forming plurals and word study skills to spell new words.

1 2 3 4 5 6 7 8 9	X
High Importance Medium Importance Low Importance	Not Understood

PUNCTUATION & CAPITALIZATION

Correctly punctuates and capitalizes written work.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

GRAMMAR AND USAGE

Knows and applies correct sentence structure to written work. Correctly uses parts of speech. Forms correct paragraphs; uses contractions and abbreviations correctly.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

PENMANSHIP

Prints neatly, accurately and legibly. Writes with ease, speed, accuracy, legibility and neatness. Has good eye-hand coordination. Reduces writing to normal adult size.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

WRITTEN EXPRESSION

Communicates adequately in writing for social purposes (letters, invitations, etc.). Communicates adequately in writing for scholastic purposes (reports, compositions, etc.). Shows originality in writing. Organizes written work well (clearly, concisely, emphasizing main ideas). Writes with style.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

INDEPENDENT APPLICATION OF WRITING SKILLS

Appreciates the importance of good grammar to clear communication. Appreciates writing as a means of self-expression, as a creative endeavor, and as an important means of communication. Finds satisfaction in having written something well.

1 2 3 4 5 6 7 8 9	X
High Medium Low	Not
Importance Importance	Understood

USE OF DATA SOURCES AS REFERENCE SKILLS

Skillfully uses the library and other sources of information to research topics and check descrepancies.

1 2 3 4 5 6 7 8 9	X
High Medium Low	Not
Importance Importance	Understood

SUMMARIZING INFORMATION FOR REFERENCE

Takes notes. Makes outlines, tables of contents, and bibliographies. Writes summaries and reports.

1 2 3 4 5 6 7 8 9	X
High Medium Low	Not
Importance Importance	Understood

COMPREHENSION OF NUMBERS AND SETS IN MATHEMATICS

Understands numbers and number concepts. Understands sets and set concepts.

1 2 3 4 5 6 7 8 9	X
High Medium Low	Not
Importance Importance	Understood

COMPREHENSION OF POSITIONAL NOTATION IN MATHEMATICS

Understands place value, the decimal system of numeration, non-decimal systems of numeration (bases other than 10). Reads and writes numerals. Rounds whole numbers.

1 2 3 4 5 6 7 8 9 X
High Importance — Medium Importance — Low Importance — Not Understood

COMPREHENSION OF EQUATIONS AND EQUALITIES

Understands number sentences. Uses formulae and solves simple equations.

1 2 3 4/5 6 7 8 9 X
High Importance — Medium Importance — Low Importance — Not Understood

COMPREHENSION OF NUMBER PRINCIPLES

Understands properties of and operations with numbers such as inverse operations, the properties of 0 and 1, commutative, associative and distributive properties.

1 2 3 4 5 6 7 8 9 X
High Importance — Medium Importance — Low Importance — Not Understood

OPERATIONS WITH INTEGERS

Adds, subtracts, multiplies and divides whole numbers; checks answers and tests for divisibility.

1 2 3 4 5 6 7 8 9 X
High Importance — Medium Importance — Low Importance — Not Understood

OPERATIONS WITH FRACTIONS

Adds, subtracts, divides and multiplies fractions. Recognizes equivalent fractions, proper fractions, improper fractions and mixed numbers. Expresses fractions in the lowest and highest terms.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

OPERATIONS WITH DECIMALS AND PERCENTS

Reads and writes decimals and percents. Compares decimals and percents . Adds, subtracts, multiplies and divides decimals and percents. Converts decimals and percents to fractions and vice versa.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

MATHEMATICAL PROBLEM SOLVING

Uses mathematical knowledge and skills (arithmetic, measurement and geometry) to solve common practical problems.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

INDEPENDENT APPLICATION OF MATHEMATICAL SKILLS

Transfers math knowledge and skills to situations outside of the of school requirements. Becomes a skillful buyer. Uses math in games and hobbies.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

GEOMETRIC FACILITY

Draws, constructs and measures lines, perpendiculars, angles, plane and solid figures. Finds areas, volumes, circumferences, perimeters. Draws to scale.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

GEOMETRIC VOCABULARY

Identifies points, lines, angles, plane figures and solid figures. Understands symetry, congruence, intersection and other geometric concepts.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

MEASUREMENT READING AND MAKING

Understands the concepts of length, weight, time, area, volume, speed, money, etc. Understands how to measure them and can compute units of measure.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

STATISTICS

Understands, interprets and uses graphs and tables. Understands and computes averages and probabilities.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

MUSIC APPRECIATION

Appreciates the beauty and creativity of music. Appreciates the role of music and the musician in society. Appreciates many types of music.

1 2 3 4 5 6 7 8 9	X
High Importance — Medium Importance — Low Importance	Not Understood

MUSIC INTEREST AND ENJOYMENT

Enjoys musical activities. Pursues music activities in leisure time, finds music and dance satisfying means of self-expression. Feels an aesthetic and emotional response to the rhythm and mood of the music.

1 2 3 4 5 6 7 8 9	X
High Importance — Medium Importance — Low Importance	Not Understood

SINGING

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

1 2 3 4 5 6 7 8 9	X
High Importance — Medium Importance — Low Importance	Not Understood

MUSICAL INSTRUMENT PLAYING

Plays simple classroom instruments effectively. Can play a part in a group or can play solo.

1 2 3 4 5 6 7 8 9	X
High Importance — Medium Importance — Low Importance	Not Understood

DANCE (RHYTHMIC RESPONSE)

Has poise, muscular control, coordination and rhythm. Responds to the mood, beat and rhythm of a selection through movement. Expresses himself freely through movement. Learns popular and folk dances.

1 2 3	4 5 6	7 8 9	X
High Importance	Medium Importance	Low Importance	Not Understood

AURAL IDENTIFICATION OF MUSIC

Identifies the mood, rhythm and harmonic and melodic characteristics of musical selections by listening. Identifies voice types, instruments, types of music (folk, classical, etc.), major compositions and composers and national or ethnic origins by listening.

1 2 3	4 5 6	7 8 9	X
High Importance	Medium Importance	Low Importance	Not Understood

MUSIC KNOWLEDGE

Understands major historical and national developments. Understands common terminology(eg; chords, scales, key).

1 2 3	4 5 6	7 8 9	X
High Importance	Medium Importance	Low Importance	Not Understood

PRACTICING HEALTH AND SAFETY PRINCIPLES

Applies health and safety principles to daily life. Develops good habits of personal hygiene. Gets adequate rest, sleep and physical exercise. Wears proper clothing for the climate and the activity. Practices common sense safety in all activities and obeys traffic and safety rules. Develops good eating habits.

1 2 3	4 5 6	7 8 9	X
High Importance	Medium Importance	Low Importance	Not Understood

UNDERSTANDING HEALTH AND SAFETY PRINCIPLES

Knows about and understands health and safety: personal hygiene, physical fitness, mental health, drugs, structure and function of the body, communicable diseases, food and nutrition, safety and first aid.

1 2 3 4 5 6 7 8 9	X
High Importance — Medium Importance — Low Importance	Not Understood

SEX EDUCATION

Understands functions of the reproductive and endocrine systems, intercourse and conception, prenatal development, and birth. Understands the role of the family, sexual expression, and social attitudes towards sex. Has healthy attitudes towards all aspects of sex and identifies with own sex.

1 2 3 4 5 6 7 8 9	X
High Importance — Medium Importance — Low Importance	Not Understood

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, and swimming.

1 2 3 4 5 6 7 8 9	X
High Importance — Medium Importance — Low Importance	Not Understood

PHYSICAL DEVELOPMENT AND WELL BEING (PHYSICAL EDUCATION)

Has a healthy body and physical well being. Meets physical emergencies. Demonstrates good physical condition. Has efficient body movements.

1 2 3 4 5 6 7 8 9	X
High Importance — Medium Importance — Low Importance	Not Understood

GROUP ACTIVITY - SPORTSMANSHIP

Is a good winner and a good loser. Has initiative, leadership and the ability to be a good follower. Obeys the rules of the game.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

INTEREST AND INDEPENDENT PARTICIPATION IN SPORTS AND GAMES

Participates in a variety of physical activities independent of school requirements. Analyzes his/her performance and tries to improve it.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

UNDERSTANDING RULES AND STRATEGIES OF SPORTS AND GAMES

Knows the vocabulary and concepts associated with sports and games. Understands the rules and directions of games and sports. Understands the strategies and objectives of games and sports. Understands his/her role as a team member.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

KNOWLEDGE OF PHYSICAL EDUCATION APPARATUS AND EQUIPMENT

Knows how to use physical education equipment and apparatus. Uses equipment properly and safely.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

RELAXATION

Has the ability to relax physically and mentally.

1 2 3	4 5 6	7 8 9	X
High Importance	Medium Importance	Low Importance	Not Understood

LISTENING REACTION AND RESPONSE

Listens attentively to a speaker. Gains information through listening and remembers it. Can follow the thoughts of others, the directions of others.

1 2 3	4 5 6	7 8 9	X
High Importance	Medium Importance	Low Importance	Not Understood

SPEAKING

Participates in discussion . Relates stories, experiences and events clearly and concisely without advance preparation. Speaks fluently, distinctly, and with good pronounciation.

1 2 3	4 5 6	7 8 9	X
High Importance	Medium Importance	Low Importance	Not Understood

PHONETIC RECOGNITION

Uses phonetics as a reading tool. Identifies sounds. Can sound out unfamiliar words.

1 2 3	4 5 6	7 8 9	X
High Importance	Medium Importance	Low Importance	Not Understood

STRUCTURAL RECOGNITION

Recognizes the structural components of words such as roots, prefixes, syllables, contractions, plurals, and similar letter configurations.

1 2 3 4 5 6 7 8 9	X
High Medium Low	Not
Importance Importance	Understood

ORAL READING

Reads aloud with correct intonation and pronounciation, clarity and fluency, expression and comprehension.

1 2 3 4 5 6 7 8 9	X
High Medium Low	Not
Importance Importance	Understood

SILENT READING EFFICIENCY

Reads at a reasonable rate for age and grade level. Adjusts reading speed to material and purpose.

1 2 3 4 5 6 7 8 9	X
High Medium Low	Not
Importance Importance	Understood

RECOGNITION OF WORD MEANINGS

Has broad vocabulary. Recognizes word meanings through context, analysis of prefixes, suffixes, roots, and word origins. Recognizes different meanings of the same words and different words used to express the same meaning.

1 2 3 4 5 6 7 8 9	X
High Medium Low	Not
Importance Importance	Understood

UNDERSTANDING OF IDEATIONAL COMPLEXES

Recognizes the main ideas and supporting details of reading selections. Paraphrases passages and ideas. Grasps the thought of a work as a whole.

1 2 3 4 5 6 7 8 9	X
High Importance — Medium Importance — Low Importance	Not Understood

REMEMBERING INFORMATION READ

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

1 2 3 4 5 6 7 8 9	X
High Importance — Medium Importance — Low Importance	Not Understood

INFERENCE MAKING FROM READING SELECTIONS

Correctly interprets what is read. Sees implications, makes inferences, arrives at generalizations and conclusions. Interprets characters' actions, motives, and traits.

1 2 3 4 5 6 7 8 9	X
High Importance — Medium Importance — Low Importance	Not Understood

RECOGNITION OF LITERARY DEVICES

Recognizes basic metaphors, themes, irony, symbolism, exaggeration, etc.

1 2 3 4 5 6 7 8 9	X
High Importance — Medium Importance — Low Importance	Not Understood

CRITICAL READING

Analyzes and evaluates reading selections. Recognizes authors' points of view and purposes for writing. Analyzes and compares different points of view. Distinguishes fact from fiction. Recognizes persuasive devices, illogical thinking, discrepancies and unstated assumptions.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

ATTITUDE TOWARD READING

Appreciates the importance of reading to communication and as source of pleasure. Appreciates the creativity of literature and its importance to understanding man. Reads various types of literature in leisure time for recreation and personal fulfillment.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

ATTITUDE AND BEHAVIOR MODIFICATION FROM READING

Is selective in choice of reading materials. 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.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

FAMILIARITY WITH STANDARD CHILDREN'S LITERATURE

Is acquainted with a variety of children's classics, authors and works from many cultures and periods.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

OBSERVATION AND DESCRIPTION IN SCIENCE

Is more observant of his/her environment. Describes accurately what is observed in writing, orally, in tables, graphs and charts.

1 2 3 4 5 6 7 8 9	X
High Medium Low	Not
Importance Importance	Understood

USE OF NUMBERS AND MEASURES IN SCIENCE

Applies mathematical and measurement knowledge and skills in scientific situations. Draws conclusions from computations and measurements.

1 2 3 4 5 6 7 8 9	X
High Medium Low	Not
Importance Importance	Understood

CLASSIFICATION AND GENERALIZATION IN SCIENCE

Classifies physical and biological things and systems and gives reasons for his/her classification. Makes simple generalizations based on classifications and observations.

1 2 3 4 5 6 7 8 9	X
High Medium Low	Not
Importance Importance	Understood

HYPOTHESIS FORMATION IN SCIENCE

Makes reasonable predictions from known information, observation and/or experimentation. Formulates simple hypotheses by putting different pieces of information together. Changes hypotheses in the light of new evidence. Thinks in terms of possible explanations for what is observed.

1 2 3 4 5 6 7 8 9	X
High Medium Low	Not
Importance Importance	Understood

OPERATIONAL DEFINITIONS IN SCIENCE

Formulates questions, definitions and scientific problems in specific terms before attempting to devise a solution.

1 2 3 4 5 6 7 8 9	X
High Importance — Medium Importance — Low Importance	Not Understood

EXPERIMENTATION IN SCIENCE

Proposes ways to test a hypothesis or a prediction. Plans a simple experiment for problems and hypotheses, and carries them to completion.

1 2 3 4 5 6 7 8 9	X
High Importance — Medium Importance — Low Importance	Not Understood

FORMULATION OF GENERALIZED CONCLUSIONS IN SCIENCE

Analyzes and interprets experimental results, observations and known information to arrive at generalizations and conclusions. Distinguishes relevant from irrelevant information. Finds evidence to verify or disprove a hypothesis or prediction.

1 2 3 4 5 6 7 8 9	X
High Importance — Medium Importance — Low Importance	Not Understood

KNOWLEDGE OF SCIENTIFIC FACTS AND TERMINOLOGY

Has a basic knowledge and understanding of the biological and physical sciences and their vocabularies.

1 2 3 4 5 6 7 8 9	X
High Importance — Medium Importance — Low Importance	Not Understood

SCIENCE INTEREST AND APPRECIATION

Appreciates the impact of science on our lives and the creative nature of the scientist's work. Is concerned about and aware of man's responsibility for his/her environment. Is curious and inquisitive about science. Participates in science activities independent of school requirements.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

APPLICATION OF SCIENTIFIC METHODS TO EVERYDAY LIFE

Applies scientific knowledge and skills to solve problems independent of school requirements. Distinguishes between science and superstition and relies on the former. Desires experimental proof. Has a speculating attitude.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

KNOWLEDGE OF HISTORY

Knows history vocabulary and concepts. Knows about important people, places, events, dates and movements in history. Knows history of Alberta, Canada and the world. Knows current affairs, the role of Canada today, and how the past influences present conditions.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

KNOWLEDGE OF PHYSICAL GEOGRAPHY

Knows geographic vocabulary. Understands geographic concepts such as: distance, direction, location, longitude, latitude, hemisphere, equator. Understands variations in climate. Recognizes important natural sites.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

KNOWLEDGE OF SOCIO-ECONOMIC GEOGRAPHY

Is familiar with natural resources, agricultural areas and industrial areas. Understands production processing, manufacture and marketing of food, clothing, and natural resources. Understands the relationship between human and geographic conditions.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

CULTURAL KNOWLEDGE

Has knowledge of different cultures and peoples. Understands society's influence on our way of thinking and way of life.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

SOCIAL ORGANIZATION KNOWLEDGE

Understands how people and nations are interrelated and interdependent. Understands communications between communities, provinces and nations. Knows about trade and transportation. Understands the development, structure and functions of social groups: family, school community, public works and services.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

RESEARCH SKILLS IN SOCIAL STUDIES

Uses reference materials, maps, globes, and encyclopaedias. Uses the library, reading writing and problem solving skills to research and write reports on social studies topics, issues, problems, current events, points of view, etc.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

CITIZENSHIP

Is concerned for the dignity, welfare, rights and freedoms of every individual. Does not have prejudices. Accepts his/her role and responsibilities as a group member. Supports free and honest communication.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

INTEREST IN SOCIAL STUDIES

Is interested in social studies. Participates in social studies activities.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

KNOWLEDGE OF GOVERNMENTS

Understands the Canadian government, its origins, development, structure, and functions. Knows the rights, freedoms, and responsibilities of citizens. Understands political systems and philosophies.

1 2 3 4 5 6 7 8 9		X
High Importance	Medium Importance	Low Importance	Not Understood

KNOWLEDGE AND USE OF MEDIA

Develop a knowledge of the types and use of media (such as TV, radio, film, books) which can assist in the learning process, broaden experience and add dimension of enjoyment to life.

1 2 3 4 5 6 7 8 9	X
High Importance — Medium Importance — Low Importance	Not Understood

MEDIA: CRITICAL THINKING

Analyze and evaluate media presentations in order to judge the worth and authenticity of material and information presented.

1 2 3 4 5 6 7 8 9	X
High Importance — Medium Importance — Low Importance	Not Understood

KNOWLEDGE OF COMMUNITY

Experience in immediate community; also an awareness of responsibility to extended community; knowledge of facilities and resources of local and provincial area.

1 2 3 4 5 6 7 8 9	X
High Importance — Medium Importance — Low Importance	Not Understood

INVOLVEMENT WITH COMMUNITY

Realization and acceptance of responsibilities to community; awareness of contributions of community to individual and family existence and enjoyment; greater utilization of community resources.

1 2 3 4 5 6 7 8 9	X
High Importance — Medium Importance — Low Importance	Not [redacted]erstood

APPENDIX B

Evaluation Form : Pilot Study

YORK ELEMENTARY SCHOOL FIELD TEST

How many items did you complete?

about 25% .....

about 50% .....

about 75% .....

100% .....

Did you have enough time?

yes ...

no ...

Were the goal statements easy to understand ?

yes ...

no ...

Was it difficult to estimate the importance of each goal?

yes ...

no ...

Do you think other grade 6 students could do this successful

yes ...

no ...

THANK YOU VERY MUCH FOR DOING THIS.

APPENDIX C

The Means, Modes, and Proportions of Items Not Understood by Each Sample for Each of the 118 Goal Statements.

1. SOCIALIZATION - REBELIOUSNESS

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	2.96	2.79	1.99	2.87	3.03	3.09	2.40
mode	1	2	1	1,2	1	1	2
not understood	.14	.03	.06	.14		.15	

2. HOSTILITY - FRIENDLINESS

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	2.43	2.81	2.38	2.28	3.00	2.68	2.53
mode	1	2	1	1	1	1	2
not understood	.05	.01	.04	.06		.04	

3. DEPENDENCE - INDEPENDENCE

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.79	3.19	3.31	3.62	3.50	4.03	2.68
mode	1,3,4	3	1	1,4	3	3	3
not understood	.12	.02	.05	.14		.10	

4. GENERAL ACTIVITY - LETHARGY

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.20	2.92	2.38	3.26	3.21	3.12	2.48
mode	1	3	1	1	3	1	3
not understood	.11	0.0	.05	.12		.10	

5. ADJUSTMENT

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	2.64	2.38	1.92	2.45	2.69	2.93	1.90
mode	1	1	1	1	1	1	1
not understood	.07	.01	.05	.07		.08	

6. SHYNESS - BOLDNESS

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.54	3.50	2.76	3.48	3.67	3.64	3.23
mode	1	3	1	1	5	1	3
not understood	.08	.02	.01	.09		.07	

7. RESPONSIBILITY

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	2.59	3.19	2.79	2.46	3.21	2.78	3.15
mode	1	1	2	1	1	1	3
not understood	.04	.01	.03	.05		.02	

8. SELF ESTEEM

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.05	2.31	2.10	3.03	2.51	3.07	2.00
mode	1	1	1	1	1,2	1	1
not understood	.19	.01	.03	.20		.18	

9. IMAGINATION

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.07	3.21	2.44	3.12	3.39	2.99	2.92
mode	1	3	1	1	3	1	3
not understood	.08	.01	.04	.07		.10	

10. INDEPENDENT THINKING

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	2.43	2.87	2.11	2.34	3.00	2.59	2.67
mode	1	1	1	1	1	1	1
not understood	.05	.01	.04	.03		.07	

11. SUCCESS

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	2.42	2.05	2.27	2.34	2.38	2.54	1.54
mode	1	1	1	1	1	1	1
not understood	.02	.03	.01	0.0		.04	

12. CURIOUSITY

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.34	2.82	2.29	3.19	2.77	3.55	2.90
mode	2	3	1	2	3	2	2
not understood	.11	.02	.01	.11		.11	

13. CREATIVITY

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.13	3.43	2.93	3.04	[illegible]	3.26	3.00
mode	1	3	3	1	3	1	3
not understood	.12	0.0	.03	.14		.08	

14. CRITICAL ANALYSIS OF INFORMATION

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.57	3.62	3.31	3.37	3.51	3.91	3.80
mode	4	3	1	4	3	4	3
not understood	.13	.01	.04	.11		.16	

15. PREPARATION FOR SECONDARY SCHOOL

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.61	3.07	2.39	3.50	3.45	3.79	2.46
mode	3	2	1	3	3	3	1,2
not understood	.23	.05	.01	.20		.26	

16. NEED ACHIEVEMENT

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	2.63	2.76	2.25	2.50	3.05	2.83	2.31
mode	1	1	1	1	3	1	1
not understood	.10	.02	.02	.11		.08	

17. INTEREST AREAS

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	2.61	3.43	2.95	2.75	3.71	2.40	3.00
mode	1	3	2,3	1	4	1	2
not understood	.05	.01	.02	.06		.03	

18. LEISURE TIME

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.3	3.24	2.89	3.26	3.37	3.44	3.03
mode	1	1,3	1	1,3	1	1	3
not understood	.06	0.0	.03	.06		.07	

19. ENJOYMENT IN LEARNING

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	2.66	2.16	1.67	2.31	2.44	3.22	1.73
mode	1	1	1	1	1	1	1
not understood	.02	0.0	.04	.01		.03	

20. SOCIAL POISE AND SKILLS

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.43	3.53	2.84	3.28	3.77	3.66	3.15
mode	3,4	3	3	3	3	4	3
not understood	.12	0.0	.03	.13		.10	

21. DEVELOPMENT OF CANADIANISM

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.36	2.97	2.57	3.00	3.16	3.92	2.67
mode	1	1	1	1	1	1	1,2
not understood	.03	.01	0.0	.03		.03	

22. APPRECIATION OF ARTS AND CRAFTS.

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.25	4.39	4.09	3.43	4.38	2.97	4.40
mode	1	5	5	3	5	2	5
not understood	.08	.02	.06	.10		.06	

23. RESPRESENTATIONAL SKILLS IN ARTS AND CRAFTS

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.64	4.76	4.45	3.76	4.90	3.47	4.55
mode	3	5	5	3	5	3	5
not understood	.03	.01	.01	.03		.03	

24. CLASSIFICATORY REASONING

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.85	4.22	4.03	3.79	4.20	3.92	4.25
mode	4	4	4	4	3	3	4
not understood	.15	.02	.03	.16		.14	

25. RELATIONAL - IMPLICATIONAL REASONING

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.57	3.92	3.47	3.45	3.90	3.76	3.95
mode	2	3	3	2	3	3	3
not understood	.13	.02	.05	.13		.12	

26. SYSTEMATIC REASONING

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	4.31	4.51	4.13	4.09	4.21	4.68	4.98
mode	4	5	3	4,5	5	4	3
not understood	.25	0.0	.03	.21		.30	

27. CREATIVE FLEXIBILTY

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.54	3.98	3.06	3.35	4.05	3.79	3.87
mode	3	3	3	1-4	3	3	4
not understood	.15	.01	.02	.19		.10	

28. CREATIVE FLUENCY

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.98	4.01	3.36	3.94	4.18	4.05	3.74
mode	4	3	4	4	3	4	3,5
not understood	.16	.02	.06	.15		.18	

29. SPAN AND SERIAL MEMORY

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.98	5.16	4.38	3.74	5.15	4.33	5.18
mode	3	3	5	2	3-5	3	6
not understood	.09	.02	.05	11		.07	

30. MEANINGFUL MEMORY

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.51	3.18	2.68	3.43	3.45	3.63	2.76
mode	2	3	1,2	4	3	2	3
not understood	.07	.02	.05	.05		.10	

31. SPATIAL MEMORY

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.85	3.85	3.20	3.53	3.95	4.34	3.69
mode	4	5	1	4	5	4	4
not understood	.03	.01	.07	.03		.02	

32. READING COMPREHENSION OF FRENCH

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	5.95	6.70	6.53	5.45	6.56	6.75	6.92
mode	9	9	9	4,9	9	9	9
not understood	.07	.02	.04	.05		.10	

33. ORAL COMPREHENSION OF FRENCH

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	5.77	6.36	6.38	5.40	6.23	6.31	6.58
mode	9	9	9	7	5,6,9	9	9
not understood	.08	.03	.04	.09		.07	

34. SPEAKING FLUENCY IN FRENCH

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	4.56	5.68	5.82	4.26	5.34	5.03	6.21
mode	1,9	9	9	1	5	3	9
not understood	.10	.02	.05	.09		.11	

35. WRITNG FLUENCY IN FRENCH

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	5.72	7.13	6.80	5.42	7.00	6.18	7.33
mode	9	9	9	9	9	9	9
not understood	.12	.02	.04	.12		.12	

36. INSIGHT & INTEREST THROUGH FRENCH

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	5.81	6.06	6.09	5.32	5.86	6.57	6.39
mode	9	5	9	9	5	9	9
not understood	.08	.01	.03	.08		.08	

37. READING COMPRENHENSION OF A FOREIGN LANGUAGE

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	5.72	6.71	6.46	5.43	6.62	6.17	6.85
mode	4,9	9	9	4	9	9	9
not understood	.09	.02	.02	.09		.08	

38. ORAL COMPREHENSION OF A FOREIGN LANGUAGE

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	5.40	6.54	6.31	5.11	6.37	5.84	6.80
mode	9	9	9	9	5	9	9
not understood	.08	.01	.03	.08		.07	

39. SPEAKING FLUENCY IN A FOREIGN LANGUAGE

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	4.31	6.45	6.15	4.18	6.15	4.52	6.92
mode	1,4	9	9	4	5	1	9
not understood	.10	.01	.01	.10		.10	

40. WRITING FLUENCY IN A FOREIGN LANGUAGE

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	5.14	6.77	6.22	4.70	6.52	5.82	7.18
mode	4,9	9	9	2,4	9	7	9
not understood	.08	.01	.03	.07		.10	

41. INSIGHT & INTEREST THROUGH A FOREIGN LANGUAGE

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	4.55	5.42	5.02	4.29	5.12	4.96	5.90
mode	4	4	5	5	4	4	4
not understood	.07	.02	.01	.07		.08	

42. SPELLING

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	2.55	2.34	2.01	2.56	2.42	2.54	2.23
mode	1	1	1	1	1	1	1
not understood	.04	0.0	.03	.05		.02	

43. PUNCTUATION & CAPITALIZATION

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	2.64	2.84	2.56	2.66	3.07	2.62	2.49
mode	1	1	1	1	1	1	1
not understood	.02	.01	.02	.02		.02	

44. GRAMMAR & USAGE

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.20	2.97	2.62	3.17	3.00	3.24	2.93
mode	3	1	1	3	1	3	2
not understood	.09	0.0	.02	.11		.06	

45. PENMANSHIP

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	2.97	3.12	2.60	3.00	3.37	2.92	2.73
mode	1	3	1	1	3	1	2
not understood	.03	0.0	0.0	.01		.04	

46. WRITTEN EXPRESSION

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.27	2.69	2.72	3.17	2.85	3.43	2.45
mode	1	1	1	1	2	4	1
not understood	.09	.01	.03	11		.07	

47. INDEPENDENT APPLICATION OF WRITING SKILLS

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.19	2.82	2.44	3.15	2.90	3.26	2.70
mode	2	2	1	3	2	2	1
not understood	.05	.02	.01	.07		.03	

48. USE OF DATA SOURCES AS REFERENCE SKILLS

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.20	3.57	2.99	3.18	3.62	3.25	3.50
mode	2	3	3	2	2	1	4
not understood	.07	.02	.06	.07		.08	

49. SUMMARIZING INFORMATION FOR REFERENCE

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.48	4.49	3.85	3.49	4.61	3.47	4.30
mode	2	4	4	2	3,4	4	4
not understood	.04	.01	.05	.06		.02	

50. COMPREHENSION OF NUMBERS & SETS IN MATHEMATICS

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.02	3.45	2.88	2.84	3.82	3.30	2.88
mode	2	5	1,2	2	5	1	4
not understood	.07	.01	.09	.08		.06	

51. COMPREHENSION OF POSITIONAL NOTATION IN MATHEMATICS

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	2.71	3.35	3.12	2.43	3.33	3.14	3.38
mode	1	3	1	1	3	1	2
not understood	.02	.01	.03	.01		.02	

52. COMPREHENSION OF EQUATIONS & EQUALITIES

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.45	3.99	3.46	3.28	4.26	3.73	3.58
mode	3	3	3	3	3	3	2,5
not understood	.08	.01	.05	.07		.11	

53. COMPREHENSION OF NUMBER PRINCIPLES

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.94	4.46	4.86	3.71	4.75	4.32	4.00
mode	3,5	4	3	3	4,5	5	2
not understood	.26	.03	.14	.24		.30	

54. OPERATIONS WITH INTEGERS

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	2.24	2.33	2.09	2.06	2.57	2.49	1.98
mode	1	1	1	1	1	1	1
not understood	.04	0.0	0.0	.05		.03	

55. OPERATIONS WITH FRACTIONS

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	2.82	4.25	3.00	2.69	4.17	3.03	4.38
mode	1	4	1	1	5	1	4
not understood	.05	.02	.02	.06		.04	

56. OPERATIONS WITH DECIMALS & PERCENTS

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.16	3.79	3.09	2.87	4.02	3.61	3.45
mode	1	3	1	1	3,4	1,3	3
not understood	.07	0.0	0.0	.07		.07	

57. MATHEMATICAL PROBLEM SOLVING

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	2.80	2.97	2.88	2.45	3.26	3.32	2.52
mode	1	3	1	1	3,4	1	2
not understood	.04	.01	.04	.05		.02	

58. INDEPENDENT APPLICATION OF MATHEMATICAL SKILLS

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.16	3.36	3.08	2.75	3.34	3.79	3.39
mode	1	3	1	1	3	3	4
not understood	.07	.01	0.0	.07		.07	

59. GEOMETRIC FACILITY

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.82	4.63	4.13	3.84	5.05	3.80	3.98
mode	3	5	3	3	5	3	3
not understood	.06	0.0	.02	.08		.02	

60. GEOMETRIC VOCABULARY

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	4.02	4.53	4.13	3.97	4.88	4.09	4.00
mode	4	4	3	4	4	1	4
not understood	.07	.03	.03	.08		.06	

61. MEASUREMENT MAKING & READING

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.29	3.00	2.32	3.21	3.37	3.41	2.43
mode	1	2	1	1	2	1,3	3
not understood	.07	0.0	0.0	.07		.07	

62. STATISTICS

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.97	[illegible]	4.66	3.94	5.25	4.02	4.90
mode	4	5	5	4	5	4	4
not understood	.14	.01	.03	.14		.14	

63. MUSIC APPRECIATION

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	4.44	4.23	4.25	4.51	4.41	4.34	3.95
mode	4	4	4,5	4	4	4	4
not understood	.02	.01	.02	.01		.02	

64. MUSIC INTEREST & ENJOYMENT

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	4.04	4.44	4.61	4.13	4.51	3.92	4.33
mode	4	4,5	5	4	5	4	4
not understood	.05	.02	.01	.07		0.0	

65. SINGING

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	4.73	5.50	5.62	4.83	5.57	4.57	5.37
mode	3	5	7	5	5	3	5
not understood	.07	.01	.03	.07		.07	

66. MUSICAL INSTRUMENT PLAYING

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	4.62	5.31	4.68	4.56	5.21	4.72	5.46
mode	3	5	5	4,5	5	3	4
not understood	.02	.01	.05	.02		.02	

67. DANCE (RHYTHMIC RESPONSE)

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	4.92	5.17	5.21	5.06	4.77	4.70	5.78
mode	3	5	5	3	5	5	6,7
not understood	.05	0.0	.02	.02		.08	

68. AURAL IDENTIFICATION OF MUSIC

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	4.69	5.[illegible]		4.64	5.58	4.77	6.20
mode	3	5		3	5.	4	8
not understood	.07	.01	.05	.07		.07	

69. MUSIC KNOWLEDGE

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	4.51	6.36	5.50	4.41	6.18	4.66	6.64
mode	3	8	5	3	7,9	3	8
not understood	.06	.02	.05	.08		.03	

70. PRACTICING HEALTH & SAFETY PRINCIPLES

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	2.39	2.52	1.94	2.46	2.71	2.29	2.23
mode	1	1	1	1	1	1	1
not understood	.05	.01	.02	.07		.03	

71. UNDERSTANDING HEALTH & SAFETY PRINCIPLES

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	2.17	3.06	2.29	2.29	3.26	2.00	2.74
mode	1	2	1	1	3	1	2
not understood	.05	.01	.02	.07		.03	

72. SEX EDUCATION

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean		5.71	4.40		5.32		6.35
mode		9	1		7,9		8
not understood		.05	.02				

73. MUSCLE CONTROL (PHYSICAL EDUCATION)

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	2.87	3.32	3.33	2.89	3.38	2.84	3.23
mode	1	3	4	1	3	1	3,4
not understood	.03	.01	.02	.04		.02	

74. PHYSICAL DEVELOPMENT & WELL BEING

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	2.71	3.13	3.67	2.59	3.32	2.88	2.83
mode	1	2	1	1	1,3	1	2
not understood	.04	0.0	.02	.05		.02	

75. GROUP ACTIVITY - SPORTSMANSHIP

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	1.96	2.47	2.02	1.95	2.82	1.99	1.90
mode	1	1	1	1	1	1	1
not understood	.03	.02	.04	.01		.06	

76. INTEREST & INDEPENDENT PARTICIPATION IN SPORTS & GAMES

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	2.52	3.88	3.49	2.46	4.08	2.60	3.58
mode	1	5	3	1	3	1	5
not understood	.04	0.0	.03	.05		.03	

77. UNDERSTANDING RULES & STRATEGIES OF SPORTS & GAMES

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	2.65	4.30	3.88	2.82	4.62	2.38	3.80
mode	1	5	3	1	5	1	3
not understood	.05	.02	0.0	05		.06	

78. KNOWLEDGE OF PHYSICAL EDUCATION APPARATUS & EQUIPMENT

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	2.62	4.16	3.39	2.68	4.39	2.53	3.80
mode	1	3	3	1	3,5,6	1	3
not understood	.03	0.0	.05	.04		0.0	

79. RELAXATION

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.35	3.1 9	2.68	3.32	3.39	3.40	2.88
mode	1	1	1	1	1	1	1
not understood	.04	.01	.05	.04		.04	

80. LISTENING REACTION & RESPONSE

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	2.86	2.62	2.03	3.06	2.82	2.54	2.33
mode	1	1	1	2	1	1	1
not understood	.04	.01	.02	.03		.04	

81. SPEAKING

	St	Tt	Ct	So	Tc	Sy	Ty
mean	3.20	3.13	2.86	3.04	3.36	3.43	2.77
mode	1	3	1	1	3	1	2
not understood	.06	.0	0.0	.07		.04	

82. PHONETIC RECOGNITION

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.33	2.31	2.30	3.45	2.53	3.16	1.98
mode	1	1	1	3	1	1	1
not understood	.07	0.0	.03	.10		.03	

83. STRUCTURAL RECOGNITION

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.17	3.52	3.21	3.13	3.72	3.23	3.20
mode	1	3	1	1	3,4	[illegible]	
not understood	.03	.01	.06	.03		.03	

84. ORAL READING

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.00	3.11	2.40	3.02	3.18	2.97	3.00
mode	2	3	1	2	3	2	3
not understood	.03	.01	0.0	.01		.06	

85. SILENT READING EFFICIENCY

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	2.81	2.05	1.79	2.73	2.26	2.93	1.73
mode	1	1	1	1	1	1	1
not understood	.03	0.0	.03	.03		.02	

86. RECOGNITION OF WORD MEANINGS

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.13	3.35	2.85	3.04	3.44	3.28	3.20
mode	3	3,4	2	1	1,4	3	2
not understood	.08	.01	.02	.07		.08	

87. UNDERSTANDING IDEATIONAL COMPLEXES

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.89	3.47	3.00	3.89	3.64	3.88	3.20
mode	3	3	3	3	5	3	3
not understood	.18	.03	.05	.24		.08	

88. REMEMBERING INFORMATION READ

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.32	2.86	2.51	3.30	3.08	3.36	2.53
mode	1	3	3	2	3	1	2
not understood	.07	0.0	.03	.10		.03	

89. INFERENCE MAKING FROM READING SELECTIONS

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	4.05	3.01	2.77	4.11	3.00	3.94	3.03
mode	4	3	1	4	1	3	3
not understood	.20	.01	.05	.15		.28	

90. RECOGNITION OF LITERARY DEVICES

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	4.39	5.73	4.73	4.44	5.66	4.31	5.83
mode	4	5	5	4	5	3	6
not understood	.22	0.0	.05	.19		.27	

91. CRITICAL READING

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.92	4.24	4.08	3.52	3.87	4.57	4.82
mode	4	3	3	4	3	4,5	4
not understood	.13	.01	.03	.10		.16	

92. ATTITUDE TOWARD READING

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.46	2.46	2.37	3.38	2.50	3.58	2.40
mode	2	1	1	1	1	2	1
not understood	.09	0.0	0.0	.07		.11	

93. ATTITUDE & BEHAVIOR MODIFICATION FROM READING

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.77	3.66	2.98	3.59	3.66	4.04	3.67
mode	3	3	3	3	3	4	3
not understood	.08	.04	.04	.09		.07	

94. FAMILIARITY WITH STANDARD CHILDREN'S LITERATURE

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	4.33	4.47	4.03	4.19	4.40	4.54	4.58
mode	3	4	5	3	3,4	4,6	4
not understood	.10	0.0	.04	.12		.08	

95. OBSERVATION & DESCRIPTION IN SCIENCE

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.75	3.99	3.56	3.68	4.15	3.87	3.75
mode	4	4	3	3,4	4	5	3,4
not understood	.08	.01	.04	.08		.08	

96. USE OF NUMBERS & MEASURES IN SCIENCE

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.72	4.20	3.74	3.55	4.24	3.99	4.13
mode	3	4	4,5	2	4	3	4,5
not understood	.08	0.0	.05	.07		.10	

97. CLASSIFICATION & GENERALIZATION IN SCIENCE

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.88	4.25	4.17	3.67	4.30	4.28	4.18
mode	4	4	4	2	4	4	4
not understood	.19	.02	.09	.13		.28	

98. HYPOTHESIS FORMATION IN SCIENCE

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.80	4.45	3.97	3.71	4.64	3.95	4.15
mode	5	4	4	2	5	5	3,4
not understood	.19	.01	.08	.18		.20	

99. OPERATIONAL DEFINITIONS IN SCIENCE

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.63	5.04	4.31	3.41	4.81	3.98	5.41
mode	3	5	4	3	5	4	4
not understood	.16	.01	.06	.14		.19	

100. EXPERIMENTATION IN SCIENCE

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.39	4.04	3.96	3.17	4.18	3.74	3.83
mode	3	3	3	1	4	3	3
not understood	.06	0.0	.05	.04		.10	

101. FORMULATION OF GENERALIZED CONCLUSIONS IN SCIENCE

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.68	4.17	4.05	3.44	4.13	4.10	4.23
mode	3	3	5	3	2-4	3	3
not understood	.25	0.0	.09	.21		.31	

102. KNOWLEDGE OF SCIENTIFIC FACTS & TERMINOLOGY

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.91	4.72	4.31	3.68	4.75	4.27	4.68
mode	4	4,5	4	2,3	5	4	4
not understood	.17	.04	.03	.17		.18	

103. SCIENCE INTEREST & APPRECIATION

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.59	3.84	3.44	3.17	3.90	4.23	3.74
mode	2	3	4	2	3,5	4	3
not understood	.08	.02	.03	.08		.07	

104. APPLICATION OF SCIENTIFIC METHODS TO EVERYDAY LIFE

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.77	3.68	3.48	3.58	3.56	4.08	3.88
mode	3	3	3	3	5	3	3
not understood	.12	.01	.07	.10		.15	

105. KNOWLEDGE OF HISTORY

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.89	4.55	3.66	3.75	4.39	4.11	4.78
mode	1	4	3	1	5	2	4
not understood	.05	.01	.02	.04		.06	

106. KNOWLEDGE OF PHYSICAL GEOGRAPHY

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.93	3.98	3.52	3.89	4.02	3.99	3.92
mode	3	5	3	5	5	3	3
not understood	.05	.03	.01	.04		.06	

107. KNOWLEDGE OF SOCIO-ECONOMIC GEOGRAPHY

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	4.12	4.53	3.85	4.27	4.47	3.89	4.63
mode	4	3	3	2	5	4	3
not understood	.12	0.0	.04	.12		.12	

108. CULTURAL KNOWLEDGE

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.56	4.04	3.80	3.46	4.38	3.72	3.53
mode	3	3	4	3	3,4	3	3
not understood	.10	.01	.01	.10		.10	

109. SOCIAL ORGANIZATION KNOWLEDGE

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	4.12	4.78	3.96	3.99	4.89	4.31	4.63
mode	3	3	5	3	5	3	3
not understood	.08	.01	.05	.09		.07	

110. RESEARCH SKILLS IN SOCIAL SCIENCE

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.00	3.53	3.32	3.03	3.76	2.96	3.18
mode	1	3	3	1	3	1	3
not understood	.04	0.0	.03	.02		.07	

111. CITIZENSHIP

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	2.55	2.96	2.57	2.40	3.13	2.79	2.70
mode	1	3	1	1	3	1	1
not understood	.09	.01	.01	.08		.11	

112. INTEREST IN SOCIAL STUDIES

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.[illegible]	3.40	3.46	3.46	3.71	3.35	2.93
mode	[illegible]	3	3	3	3	2	3
not understood	[illegible]	.0	.02	.03		.02	

113. KNOWLEDGE OF GOVERNMENTS

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.88	4.86	3.75	3.57	4.80	4.35	4.95
mode	1	5	2	1	5	3	5
not understood	.06	.02	.02	.07		.06	

114. KNOWLEDGE & USE OF MEDIA

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.49	3.99	3.56	3.66	4.10	3.22	3.83
mode	3	4	3	3	5	1	4
not understood	.09	0.0	.05	.08		.10	

115. MEDIA: CRITICAL THINKING

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.94	4.15	3.71	4.01	4.15	3.83	4.16
mode	3	4	3	3	3	3	4
not understood	.36	.03	.04	.35		.38	

116. KNOWLEDGE OF COMMUNITY

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	4.08	4.03	3.59	4.01	4.00	4.17	4.08
mode	3	4	3	3	3	5	4
not understood	.17	.02	.05	.19		.14	

117. INVOLVEMENT WITH COMMUNITY

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	3.48	3.87	3.37	3.37	3.97	3.63	3.73
mode	2	3	2,3	2,3	4	1	3
not understood	.17	0.0	.04	.19		.14	

118. SCHOOL ORIENTATION

	St	Tt	Ct	Sc	Tc	Sy	Ty
mean	2.85	2.31	1.71	2.59	2.56	3.23	1.93
mode	1	1	1	1	1	1	1
not understood	.06	.01	.01	.07		.03	

APPENDIX D

The Orthogonal Factor Loadings

The Teacher Solution

	1	2	3	4	5	6	7	8
1	0.5880	0.2708	0.2960	-0.1615	0.0575	-0.0874	0.0275	0.1455
2	0.6216	0.0928	0.1695	-0.0029	-0.0639	0.0448	0.0867	0.1084
3	0.4770	0.3374	0.1692	0.0113	0.1092	0.0346	-0.1194	0.2381
4	0.6607	0.1008	0.2664	0.0241	0.0477	0.0276	0.1716	-0.0308
5	0.7163	0.0551	0.2311	-0.0296	0.0066	0.1665	-0.1458	0.1244
6	0.5565	0.1153	-0.0996	-0.0463	0.0329	0.0754	0.0780	0.0522
7	0.4598	0.4858	0.0357	0.0913	0.1694	-0.0710	-0.1525	0.1495
8	0.6122	0.1367	0.4203	0.0827	-0.0633	0.0496	0.0296	0.2005
9	0.4712	0.1474	0.1860	0.0749	0.1375	0.1408	0.0968	0.4458
10	0.4723	0.2707	0.1671	-0.1156	-0.0077	-0.0517	-0.1703	0.3357
11	0.5284	0.1546	0.3783	-0.0061	-0.1110	0.0767	0.0432	0.1012
12	0.2458	0.4127	0.0890	0.1069	0.1383	-0.0213	0.1302	0.0470
13	0.4535	0.1961	0.1928	0.1220	0.0545	0.0205	0.1795	0.3174
14	0.2273	0.5689	0.0354	0.0583	0.0787	0.1288	-0.2552	0.0254
15	0.3597	0.1440	0.2609	0.1080	0.0349	0.0888	-0.0404	-0.0713
16	0.4979	0.2678	0.3717	-0.0353	-0.2213	-0.0177	0.1034	0.0368
17	0.7222	0.0702	0.0081	0.1193	0.0524	0.0089	0.1820	0.0470
18	0.7206	0.0944	0.0293	0.1419	0.0545	0.2397	-0.0126	-0.0241
19	0.4842	0.1320	0.3137	0.0198	-0.0765	-0.1068	0.0902	0.0935
20	0.5909	0.3859	0.1613	0.0376	0.1204	-0.0484	0.1642	0.0991
21	0.3562	0.1803	0.3511	0.0403	0.2333	0.2308	0.1593	0.1100
22	0.0421	0.3318	-0.0765	0.0616	0.1302	0.0996	0.3028	0.4315
23	0.1968	0.2349	0.0632	0.0891	0.0372	0.3016	0.2851	0.2693
24	0.1134	0.5432	0.2256	0.0093	-0.0176	-0.0130	-0.0872	0.1294
25	0.3183	0.5511	0.0350	0.1047	0.2217	0.1239	-0.0606	0.1149
26	0.2404	0.6064	-0.0094	0.0356	0.1306	-0.0264	-0.0789	0.0777
27	0.3159	0.4202	0.1009	0.0499	0.0176	0.2564	0.0445	0.3996
28	0.2416	0.1557	0.3016	0.0649	-0.0081	0.3395	-0.0313	0.3812
29	0.0472	0.2190	0.1781	0.1184	0.1262	0.1584	0.2391	-0.1280
30	0.3649	0.4533	0.2811	-0.1770	-0.0363	-0.0396	0.1565	-0.0452
31	0.2253	0.1632	0.3446	0.0650	0.0727	0.1031	0.2786	0.1292
32	-0.0896	0.0975	-0.0018	0.7984	0.2811	-0.1027	-0.0201	0.0507
33	0.0193	-0.0007	0.0285	0.7774	0.2210	-0.0542	-0.0238	0.0913
34	-0.0653	0.0430	-0.0164	0.7054	0.1124	0.0958	-0.0405	-0.0903
35	0.0412	-0.0384	-0.0468	0.8302	0.2261	-0.0317	0.0811	0.0818
36	0.0333	0.1803	0.1712	0.6858	-0.0484	0.0711	0.1069	-0.0756
37	-0.0184	0.0480	-0.0353	0.7771	0.2129	-0.0878	0.1384	0.1139
38	0.1379	0.0774	0.0693	0.8507	-0.1023	0.0614	0.0178	0.1046
39	0.1915	0.1212	-0.0135	0.7392	-0.0619	0.1897	0.1355	0.0523
40	-0.0287	0.0486	-0.0049	0.6831	-0.0848	0.1624	-0.0646	-0.0605

Teacher Solution (con't)

	1	2	3	4	5	6	7	8
41	0.0959	0.3083	0.0770	0.6142	0.0091	0.1629	0.0582	0.0350
42	0.1939	0.0517	0.6354	0.0465	0.1581	-0.0046	0.1424	-0.0351
43	0.1187	-0.0513	0.7114	0.0007	-0.0407	0.2968	-0.0995	-0.1728
44	0.1093	0.1789	0.6721	0.0978	0.2223	0.1153	-0.1448	0.0019
45	0.1356	0.0070	0.5784	0.0526	-0.0537	0.1414	0.4438	-0.2354
46	0.2179	0.4565	0.5602	0.0079	-0.0398	0.1132	-0.0146	0.2234
47	0.2193	0.3888	0.5366	0.0333	0.1176	0.0310	0.0099	-0.0503
48	0.1484	0.4347	0.4020	0.0757	0.1479	0.0006	-0.0355	0.1022
49	0.1950	0.3835	0.2370	0.1810	0.2552	0.1862	0.0640	0.0238
50	0.1642	0.1224	0.3806	0.0758	0.4051	0.1698	0.1273	0.1847
51	0.0852	0.0570	0.2159	0.0371	0.4838	0.0384	-0.0244	-0.0363
52	0.1560	0.1780	0.4538	-0.1590	0.3354	0.1032	0.1095	0.0823
53	-0.1010	0.1393	-0.0479	-0.0788	0.4617	0.1200	-0.0193	0.0074
54	0.3260	0.1861	0.6068	-0.0543	-0.1459	0.1764	0.0996	-0.0740
55	0.0062	0.3287	0.2957	0.0880	0.0858	0.3778	0.0143	-0.3269
56	0.1839	0.1814	0.2435	0.0124	0.2219	0.5313	0.1420	0.0668
57	0.0709	0.4159	0.3932	0.1101	0.2032	0.0076	0.1882	0.0596
58	0.3462	0.4320	0.1601	-0.0247	0.1656	0.0986	0.2197	-0.0351
59	0.0857	0.2077	0.1930	-0.0064	0.1874	0.5598	0.2480	0.0709
60	0.0843	0.2272	0.2274	0.1867	0.5499	0.2511	0.2326	0.0648
61	0.2373	0.2417	0.5119	-0.0596	0.0862	0.2150	0.0973	0.0505
62	-0.0226	0.1584	0.1121	0.1218	0.5376	0.0845	0.0850	0.0470
63	-0.0315	0.1470	-0.0399	0.2362	0.3181	-0.0998	0.4665	0.3935
64	0.3102	-0.2061	-0.0845	0.0671	0.1525	0.3756	0.4667	0.0349
65	0.1506	0.0184	0.0322	-0.0351	0.0181	0.0618	0.5636	-0.0673
66	0.1170	0.0784	0.0915	0.0779	-0.0115	-0.0065	0.6545	0.1602
67	0.1623	0.2146	-0.2726	0.1741	0.0643	0.1581	0.3941	0.2501
68	-0.1596	0.1937	-0.0810	0.3407	0.5332	0.0435	0.2025	0.2008
69	0.0073	0.0647	-0.2634	0.1145	0.5273	0.0754	0.2370	0.1452
70	0.6336	0.0333	0.4111	0.0101	0.0336	0.0670	0.0943	-0.1757
71	0.5254	0.1877	0.2210	0.0571	0.1570	0.2432	0.0421	-0.2281
72	0.3735	0.0701	-0.3066	0.1352	0.3966	-0.1112	0.0760	0.0454
73	0.4022	0.1407	0.0564	0.0512	0.1647	0.1708	0.3334	-0.0058
74	0.4380	0.1188	0.0741	0.0905	0.0100	0.1473	0.4072	-0.0242
75	0.6627	-0.0480	0.3210	0.0476	0.0406	0.1696	0.0899	0.1070
76	0.4634	0.1044	0.0000	0.0046	0.1317	0.2874	0.3609	-0.0225
77	0.4704	0.0224	0.0600	-0.1114	0.3529	0.1654	0.2973	-0.0503
78	0.3400	0.0868	0.2249	0.0322	0.1508	0.1140	0.4094	-0.1649
79	0.6938	0.1652	0.0779	-0.0027	-0.0841	-0.0765	0.1732	-0.1689
80	0.5046	0.2758	0.3183	-0.0702	0.0915	0.1934	-0.0373	0.1412

Teacher Solution (con't)

	1	2	3	4	5	6	7	8
81	0.3425	0.2840	0.2696	0.0814	0.0842	0.0618	0.2042	0.1865
82	0.3017	-0.0808	0.6006	0.0556	-0.0120	0.1446	0.0914	0.0450
83	0.0655	0.0725	0.3770	0.0050	0.5755	-0.0569	-0.0459	-0.0672
84	0.0703	0.2363	0.5743	0.0558	-0.1090	0.2689	0.2743	0.0158
85	0.3072	0.0700	0.5980	-0.0687	-0.0039	0.0820	-0.0459	0.1461
86	0.0714	0.0814	0.4336	0.1330	0.2361	0.2035	-0.2444	0.3175
87	0.1490	0.5315	0.3211	-0.2184	0.0808	-0.0012	0.1818	0.0822
88	0.2829	0.1799	0.4354	0.0771	0.2342	0.0118	-0.0433	0.1765
89	0.2412	0.3051	0.1284	0.0005	0.4131	-0.0990	-0.0682	0.2605
90	0.1072	0.3663	0.0333	0.2649	0.2913	0.3107	0.0443	0.1263
91	-0.0633	0.5610	0.0579	0.1728	0.0790	0.2168	0.0064	0.3062
92	0.3057	0.2513	0.4830	0.1001	0.1443	-0.0308	0.0080	0.3136
93	0.3644	0.4647	0.0895	0.1424	0.2407	0.1812	0.0476	0.0778
94	0.0809	0.3413	0.2092	0.1890	0.1328	0.2986	0.1485	0.2875
95	0.1996	0.4599	0.3197	-0.0760	-0.0188	0.1993	0.1114	0.2626
96	0.0388	0.5931	0.0856	0.0579	-0.0174	0.2597	0.3748	0.0076
97	0.0176	0.5555	0.2267	0.0769	0.0706	0.1664	0.2269	0.1295
98	0.2434	0.5612	0.1229	0.1514	0.0348	0.3325	0.0825	0.0608
99	-0.0301	0.6407	0.0689	0.1654	0.2855	0.3409	-0.0972	-0.0037
100	0.0452	0.2103	0.0921	0.1402	-0.0191	0.6126	0.1047	0.1240
101	-0.0051	0.2274	0.2467	0.0353	0.0171	0.6502	0.0773	0.0351
102	0.0515	0.4919	0.0714	0.2061	0.1088	0.2658	0.3023	0.1310
103	0.1434	0.4429	0.1701	-0.0995	0.2443	0.2676	0.3348	0.1208
104	0.1789	0.5486	0.0563	0.0900	0.0793	0.1329	0.0466	-0.1131
105	0.0317	0.1754	0.2202	0.2056	0.2511	0.5148	0.0273	-0.0727
106	0.1558	0.0885	0.3371	0.1570	0.5659	0.2579	0.0615	0.0076
107	0.1838	0.5402	0.1059	0.1707	0.2250	0.1551	0.2610	-0.1386
108	0.2559	0.4857	0.0988	0.1638	0.1660	0.1285	0.2136	0.0225
109	0.0687	0.3778	-0.0039	0.2047	0.4886	0.0360	-0.0771	-0.0692
110	0.2344	0.4356	0.4034	-0.0385	0.2563	0.3256	-0.0725	-0.0586
111	0.4924	0.2823	0.2302	0.0093	0.2442	0.0184	0.0834	0.0342
112	0.1422	0.1048	0.2965	-0.0747	0.1257	0.3730	0.0371	-0.0373
113	0.2864	0.2772	-0.2293	0.2166	0.4994	0.2228	0.0264	0.0528
114	0.3962	0.3774	0.1984	0.1294	0.1870	0.2388	-0.0124	0.0258
115	0.1593	0.2224	-0.0169	0.1534	0.2171	0.4452	-0.1043	0.4249
116	0.3263	0.3850	-0.0279	0.0706	0.2823	0.0931	0.1218	-0.0374
117	0.5523	0.4385	-0.1054	-0.0644	0.3099	-0.0609	0.0102	0.0183
118	0.5260	0.1489	0.3443	-0.0326	0.0803	-0.2115	0.3631	-0.0415

The Citizen Solution

	1	2	3	4	5	6	7	8
1	0.6157	0.0680	0.1880	0.0455	0.0932	0.0564	0.0887	-0.0837
2	0.6000	-0.0132	-0.0172	0.0995	0.3206	-0.0709	0.2951	0.0457
3	0.4068	0.1825	-0.0712	0.1631	0.0264	0.1036	0.2154	0.1712
4	0.6854	0.0567	0.0467	0.1349	-0.0477	0.1476	-0.1629	0.0416
5	0.7224	0.0671	0.0554	0.0851	0.0595	0.0889	-0.0599	0.0182
6	0.5573	0.0393	0.1163	0.0623	-0.0062	0.0266	0.0673	0.1622
7	0.3742	0.2230	-0.0090	0.0145	-0.0147	-0.0300	0.1439	0.1473
8	0.5096	-0.0059	-0.1157	0.1120	-0.1437	0.1179	0.0413	0.1909
9	0.4765	0.2751	0.1025	0.0032	0.1147	-0.0299	0.0210	0.1023
10	0.4742	0.2566	0.1613	-0.0451	0.0238	0.3515	0.0695	0.1644
11	0.4599	0.1156	0.0360	-0.1558	0.1197	0.1647	-0.0852	0.0418
12	0.3998	0.1606	0.0138	-0.0116	-0.1472	0.1913	-0.1320	0.1408
13	0.3396	0.2300	-0.0079	0.1347	0.3220	0.2231	-0.2156	-0.1095
14	0.1288	0.5056	0.0600	0.1036	0.0456	-0.0305	0.0450	0.2006
15	0.2088	0.2540	0.2455	0.0300	-0.0054	0.3837	0.0263	-0.0337
16	0.3994	0.3544	0.0859	-0.0415	0.0255	0.3957	-0.1560	-0.0098
17	0.5685	0.1313	0.0039	0.0372	0.4571	0.1225	0.0031	0.0374
18	0.5716	0.0139	0.1053	-0.0138	0.3181	0.0653	-0.0711	-0.0174
19	0.4212	0.0197	0.0472	0.0679	0.0149	0.2806	0.0573	0.2305
20	0.5583	0.2257	0.2299	0.0992	0.1654	-0.0713	0.1547	-0.1127
21	0.3764	0.0314	0.2376	0.0885	0.0669	0.2355	0.3536	-0.1540
22	0.2368	0.1393	0.2520	0.0268	0.4597	0.0936	0.2472	-0.1148
23	0.2712	0.1380	0.0959	0.0289	0.5184	0.1243	-0.0637	-0.0584
24	0.2554	0.5470	0.2767	0.1057	0.1614	0.1460	-0.0676	-0.1604
25	0.1238	0.3097	0.0659	-0.0196	0.2081	0.1406	-0.0812	0.2724
26	0.0802	0.6168	0.1631	0.1117	0.0209	-0.0027	0.1363	-0.0341
27	0.3433	0.2994	0.0846	-0.1096	0.2336	0.0673	0.0434	0.2195
28	0.2870	0.3259	0.1660	0.1773	0.0731	-0.0213	-0.3166	0.0611
29	0.0095	0.1455	0.3276	0.0968	0.2819	-0.0652	-0.1045	-0.1089
30	0.3364	0.2322	0.4072	0.0229	0.0215	0.0930	-0.1225	0.1742
31	0.1994	0.1508	0.2178	0.0873	0.1617	0.2296	-0.2349	0.0161
32	0.0197	0.0669	0.0698	0.8186	0.0402	0.0407	0.1446	0.2192
33	-0.0209	0.0676	-0.0373	0.8908	-0.0477	-0.0223	0.0479	0.0525
34	0.0658	0.0234	-0.0084	0.7627	0.0977	-0.0125	-0.0047	0.1202
35	-0.0477	0.1146	-0.0135	0.8771	-0.0210	-0.0200	0.0732	0.0401
36	0.0886	0.0217	0.1155	0.7626	0.0548	0.0034	-0.2121	-0.0476
37	-0.0713	0.1493	0.0043	0.8266	0.1278	0.0741	0.1467	0.0051
38	0.1798	0.0475	0.0598	0.6416	0.0557	0.1677	0.2116	0.0076
39	0.0553	0.2154	0.0635	0.7688	0.1302	0.0227	0.0290	0.0145
40	0.0525	0.1229	0.1641	0.5747	0.1803	-0.0395	-0.0607	-0.2127

Citizen Solution (con't)

	1	2	3	4	5	6	7	8
41	0.3264	0.1587	0.1416	0.5638	0.0349	-0.0688	-0.1497	0.0464
42	0.0600	-0.0162	0.6457	0.0394	0.2012	0.1553	0.0209	0.1860
43	0.0063	0.0398	0.6105	0.0896	0.2134	0.0939	-0.0233	0.1551
44	0.0229	0.1373	0.7759	-0.0021	0.2120	0.0530	0.0504	0.0611
45	0.0324	0.0731	0.4806	0.1070	0.2178	0.1479	0.0525	0.2553
46	0.2678	0.3168	0.5011	0.1083	-0.0718	0.0057	-0.0826	-0.0969
47	0.3466	0.1615	0.6450	0.0565	-0.0412	0.1193	-0.0052	0.0227
48	0.1008	0.5754	0.2209	0.1032	-0.0091	0.0431	0.1307	0.2477
49	0.2451	0.3045	0.4341	-0.0370	0.1094	0.1500	0.2834	-0.1756
50	-0.0148	0.0054	0.1957	0.0595	0.2876	0.5506	-0.1261	0.0824
51	0.0681	0.1951	0.4348	-0.1234	-0.2075	0.5104	0.1247	0.0274
52	-0.0442	0.4113	0.4129	0.0556	0.0993	0.3944	0.0377	-0.1647
53	0.0140	0.2043	0.0578	-0.0810	0.2233	0.3859	0.1494	0.1023
54	-0.0303	0.1420	0.4824	-0.0664	-0.0124	0.3746	0.1811	0.1364
55	-0.1287	0.2324	0.4524	-0.1018	0.0566	0.4518	0.2157	0.0199
56	-0.0599	0.3263	0.4234	-0.0611	-0.1021	0.5064	0.1973	0.1085
57	0.1280	0.2049	0.3020	-0.0128	-0.1168	0.5034	0.2206	0.0917
58	0.2224	0.3757	0.2237	0.0968	-0.0224	0.3116	0.0239	0.0409
59	0.0060	0.2943	0.4039	-0.0723	0.0550	0.3525	0.2070	-0.1099
60	0.0495	0.2473	0.1653	0.0915	0.1287	0.4735	0.3196	0.1770
61	0.0965	0.1702	0.5154	-0.0597	0.0484	0.4505	0.0946	0.1064
62	0.1070	0.5600	0.2577	0.0217	0.1163	0.2052	-0.0170	-0.0213
63	0.2999	0.1944	0.1098	0.1916	0.2968	-0.0142	0.2217	0.1426
64	0.2075	0.2722	-0.0566	0.1656	0.5144	-0.2255	0.1381	0.0617
65	0.0189	-0.0312	0.1125	0.0174	0.6870	0.0181	0.1958	0.0240
66	0.0709	0.0117	0.0981	0.1166	0.5121	0.0945	0.0377	0.2732
67	0.0777	0.1280	-0.0073	0.3373	0.4917	-0.2279	-0.0817	0.1879
68	0.0703	0.3237	0.1764	0.1258	0.3203	0.0535	0.4049	0.0881
69	0.0311	0.2708	0.0839	0.1641	0.3258	0.0224	0.4365	0.0688
70	0.5557	-0.1082	0.1539	0.0233	0.1575	-0.1152	0.0436	-0.0654
71	0.3424	0.1669	0.3394	-0.0508	0.1337	-0.0208	0.2387	0.0393
72	0.2632	0.1307	-0.0461	-0.0074	0.1016	-0.0160	0.1002	0.0515
73	0.2364	0.1866	0.1728	0.1085	0.3930	0.1159	-0.0039	-0.0834
74	0.5019	0.0723	0.0500	0.0091	0.3437	-0.0621	0.1828	-0.1004
75	0.5976	-0.0728	0.1672	-0.0219	0.3302	-0.0508	0.1009	0.1759
76	0.4191	0.0407	0.0161	-0.0535	0.5367	0.0896	-0.0201	-0.2737
77	0.2906	0.1927	0.1935	0.0340	0.5101	-0.0199	-0.0525	-0.1555
78	0.2570	0.1145	0.1879	0.0876	0.5075	0.1501	0.1267	0.1915
79	0.4745	0.1164	-0.0180	0.0630	0.3676	-0.1344	0.1021	0.1620
80	0.1833	-0.0215	0.2141	0.1021	0.0105	-0.0238	0.0429	0.4308

Citizen Solution (con't)

	1	2	3	4	5	6	7	8
81	0.3474	0.0757	0.3749	0.1159	0.0165	-0.0008	-0.1872	-0.0167
82	0.0480	0.1923	0.1879	-0.0036	0.0568	0.3530	-0.2117	0.3956
83	0.0195	0.1152	0.4467	-0.0095	0.1809	0.1107	0.0665	0.0139
84	-0.0495	-0.0282	0.5846	0.1011	0.2848	0.2133	-0.0424	-0.0504
85	0.1966	-0.0341	0.4408	0.0534	-0.1791	0.1476	-0.1861	0.2783
86	0.1023	0.3148	0.5487	0.1473	-0.0901	0.0213	0.0146	0.2029
87	0.0776	0.3867	0.2703	0.1208	-0.0431	0.1104	0.1723	0.2875
88	0.1865	0.1756	0.1232	0.0996	0.1276	0.2181	0.0588	0.4660
89	0.2348	0.4230	0.1744	0.0029	0.0423	-0.0291	-0.0523	0.4282
90	0.1903	0.4173	0.3792	0.0081	0.2374	0.0746	0.0819	-0.0233
91	0.2144	0.4351	0.2916	-0.0038	-0.0864	0.0767	0.3789	0.1547
92	0.2834	0.0798	0.4158	0.1117	-0.1195	-0.0320	-0.0518	0.2743
93	0.4270	0.1508	0.4679	-0.0010	0.0498	0.0543	0.1764	-0.0684
94	0.1659	0.1291	0.2934	0.1131	-0.0071	0.1020	0.2153	-0.0342
95	0.2669	0.4140	0.1933	-0.0093	0.0407	0.2335	-0.1475	0.0209
96	-0.0144	0.5532	0.2715	0.0582	-0.0573	0.2881	0.0922	0.0056
97	-0.0835	0.5170	-0.0108	0.0897	0.2769	0.1669	-0.0418	0.0616
98	0.0741	0.5989	0.1001	0.0495	0.2744	0.1343	0.0657	0.1433
99	0.0698	0.5900	0.0454	0.1834	0.2066	0.1909	0.2130	-0.0473
100	0.0614	0.4429	0.0257	0.0444	0.1993	0.2912	0.1381	0.1845
101	0.0846	0.4171	-0.0624	0.1498	0.2076	0.1575	0.0850	-0.1285
102	0.1509	0.5162	0.2254	0.0116	0.0265	0.2611	0.2515	-0.1202
103	0.4314	0.4077	0.1155	0.0415	0.0215	0.1777	0.0469	-0.1283
104	0.1308	0.5537	0.0624	0.1155	0.1165	0.0293	0.1057	-0.0007
105	0.2482	0.0704	0.3973	0.1120	-0.0512	0.1418	0.4441	-0.0971
106	0.1712	0.3103	0.5192	-0.0288	0.0539	0.1555	0.3059	-0.0177
107	0.1855	0.2704	0.2464	0.0000	0.1076	0.2739	0.5225	0.0662
108	0.3288	0.3553	0.2685	0.1087	0.0062	-0.0539	0.1694	0.1696
109	0.3172	0.4155	-0.0069	0.0027	0.1382	0.1203	0.4455	-0.0754
110	0.1448	0.4818	0.5131	0.0547	0.0115	0.0949	0.0503	0.0299
111	0.5417	0.1498	0.1932	0.1721	-0.0226	-0.0153	0.1466	-0.0155
112	0.0691	0.1198	0.1418	0.2339	0.0019	0.4372	-0.0068	-0.0839
113	0.2085	0.2915	0.0402	0.0901	0.1285	0.0693	0.5781	0.0143
114	0.3156	0.1999	0.0065	0.0495	0.2076	-0.1067	-0.0021	0.1154
115	0.1711	0.4060	0.1244	0.1844	-0.1791	0.0677	0.0210	0.0651
116	0.4052	0.3415	0.2883	0.0518	0.2053	-0.0603	0.0223	-0.1787
117	0.5531	0.2728	0.1306	-0.0768	0.1257	-0.0872	0.1747	-0.1966
118	0.5162	-0.0471	0.2437	-0.0826	0.2617	0.1889	0.1005	0.2003

Student Solution

	1	2	3	4	5	6	7	8
1	0.3089	0.3334	0.1392	0.1813	0.1046	0.3939	-0.1201	0.2640
2	0.0814	0.3160	0.0148	0.1581	0.0311	0.3391	0.1420	0.3583
3	-0.0001	0.1572	0.1637	0.0235	0.1013	0.1316	0.3032	0.3055
4	0.1947	0.3733	-0.0272	0.0096	0.0056	0.3909	0.2025	0.0491
5	0.0601	0.1672	0.0648	0.5249	0.1602	0.2425	0.0847	-0.0269
6	0.1802	0.3812	0.0513	0.1627	-0.1082	0.0748	0.1146	0.2412
7	0.0798	0.2160	0.0045	0.2502	0.0789	0.0174	0.2153	0.4869
8	0.1897	0.2832	0.0091	0.1720	0.2596	0.2453	0.3344	0.0957
9	0.1759	-0.0187	0.0102	0.1881	0.3090	0.4516	0.0584	0.0058
10	0.0640	0.2453	0.1111	-0.0241	0.2210	0.0983	-0.1648	0.3946
11	0.2321	0.5316	0.0750	0.1427	0.1307	0.0115	0.0597	0.0189
12	0.1415	0.2924	0.0689	-0.0437	0.0611	0.0896	0.1386	0.1706
13	0.0757	0.1099	0.0216	0.3442	0.5304	-0.0967	0.1064	-0.0077
14	-0.0091	0.0547	-0.0444	0.0937	0.5960	-0.0876	-0.0038	0.1464
15	-0.0452	0.1487	0.1797	0.4242	0.0053	0.1288	0.0077	0.1112
16	0.1434	0.2436	0.0447	0.3052	0.1900	0.0685	0.1456	0.0539
17	0.2678	0.2194	0.0180	-0.0944	0.1398	0.0848	-0.0976	0.0946
18	0.1286	0.1198	0.6467	0.0162	0.0410	-0.2494	-0.0380	0.0505
19	0.1228	-0.0004	0.7294	0.0619	0.1431	-0.0490	0.0997	0.1669
20	-0.0136	-0.0037	0.4448	0.2314	0.0221	0.1343	-0.2063	-0.0785
21	0.0526	-0.0176	0.6070	-0.0561	0.2055	0.1654	0.2519	0.0531
22	0.0657	-0.1243	0.6409	-0.0385	0.1076	0.1724	0.1230	0.0258
23	0.0219	0.1111	0.6318	-0.0406	0.1443	-0.1556	0.2598	0.0478
24	0.0346	0.0982	0.6684	0.1167	-0.0934	0.1154	-0.0421	0.0537
25	0.0239	0.0446	0.5514	0.1512	0.0973	0.4302	0.0711	-0.0926
26	-0.0044	0.1753	0.5694	0.1963	-0.0830	-0.0030	-0.0983	0.0795
27	0.0358	0.2244	0.4262	0.1047	0.0786	0.0030	0.1535	0.0588
28	0.4356	0.3064	0.0347	0.2801	0.0057	0.1668	0.1457	0.1556
29	0.2870	0.1274	-0.0593	0.3959	-0.0127	0.0187	0.1621	0.2403
30	0.3465	0.1825	0.0713	0.1966	0.0218	0.2020	0.3464	0.0201
31	0.4214	0.0904	0.0097	0.2691	0.2247	0.2689	0.1658	0.2057
32	0.2067	0.0036	0.0829	0.3488	-0.0169	0.2143	0.0542	0.0717
33	0.2352	0.3466	-0.0655	0.2765	0.1711	0.1877	0.0569	-0.0890
34	0.3476	0.0775	0.1504	0.2194	0.0830	0.3054	0.1790	-0.0163
35	0.3716	0.1166	0.0687	0.2194	0.1295	0.3306	0.0516	-0.0510
36	0.5476	0.3742	0.0349	-0.0368	0.0183	0.0602	0.0096	0.0383
37	0.5825	-0.0170	0.0191	0.2347	-0.0719	-0.0209	0.0652	0.0002
38	0.3378	-0.0883	0.0748	0.0154	0.2027	0.2918	0.1170	0.1457
39	0.6187	0.1772	0.1359	0.0807	-0.0022	0.2089	0.0243	-0.0406
40	0.4433	-0.0058	0.1916	0.2151	0.2760	0.3006	0.0963	0.0103

Student Solution (con't)

	1	2	3	4	5	6	7	8
41	0.4122	-0.0952	-0.0112	0.2229	0.0786	-0.0235	0.4470	0.0637
42	0.3761	0.1790	-0.0593	0.2188	-0.0556	0.1231	0.2136	0.1477
43	0.2476	0.2698	0.1110	0.2529	0.0656	0.0468	0.2815	-0.0235
44	0.1893	0.0897	0.1074	0.2861	0.1163	-0.0739	0.2969	0.0332
45	0.3928	0.1177	-0.0198	0.2743	0.1037	-0.0817	0.2767	0.0497
46	0.2735	0.1201	0.0840	0.0665	0.1225	0.0301	0.3886	0.1158
47	-0.0165	0.3547	-0.0071	-0.1397	0.5679	-0.0849	0.1486	0.0686
48	0.0303	0.3673	-0.0253	0.0098	0.3911	0.1407	0.0742	0.1199
49	0.0436	0.0484	0.1856	0.0148	0.5073	0.2181	0.0497	0.1538
50	0.1315	-0.0150	0.1611	-0.1256	0.4657	0.1248	-0.0477	0.2793
51	-0.2186	-0.0059	0.1009	0.1151	0.4178	0.1507	0.0901	0.1063
52	0.0187	0.0835	0.0577	-0.2040	0.5122	0.1750	0.1145	-0.1453
53	0.1545	0.0116	0.1824	0.1078	0.4424	-0.0214	0.1535	-0.1080
54	0.2708	0.3685	-0.0094	0.1349	0.0692	0.3994	-0.0855	0.1907
55	0.2262	0.2288	0.0194	0.1201	0.1373	0.2087	0.2526	0.2336
56	0.0042	0.0125	-0.0279	0.4734	0.2887	-0.0516	0.0362	0.3174
57	0.0560	0.1109	0.0797	0.2883	0.3822	0.2497	-0.1646	0.3136
58	0.3063	0.1144	0.0439	-0.0200	0.1062	0.5471	-0.0178	0.2244
59	0.1057	-0.1001	0.1376	0.0235	0.1745	0.1207	0.1424	0.6580
60	0.0739	-0.0013	0.0556	0.3190	0.3013	0.0543	-0.2552	0.2018
61	0.1857	0.2075	0.0551	0.2540	0.2736	0.1848	0.0221	0.3276
62	0.0679	0.3729	0.1690	0.0369	0.0861	0.0251	0.1917	0.3090
63	0.2754	0.3174	0.0731	0.2128	0.0178	0.1330	0.1035	-0.0967
64	0.3166	0.4078	0.2056	0.3989	-0.0570	0.1117	0.1989	0.0830
65	0.0741	0.1569	0.0351	0.3788	-0.0368	0.1879	0.0795	0.0985
66	0.5129	0.1461	0.0840	0.0784	-0.0842	0.0090	0.0642	0.1069
67	0.1414	0.0752	0.0861	0.4410	0.0141	-0.0550	0.0602	-0.0046
68	0.2400	0.0870	0.0714	0.0915	-0.0085	0.0393	0.2607	0.3240
69	0.1913	-0.0172	0.0928	0.4399	-0.1834	0.0646	0.2286	0.0624
70	0.2507	0.0471	0.0973	-0.0192	-0.0086	0.2166	0.3039	0.0497
71	0.0791	0.2447	0.0119	0.2141	0.1290	0.2138	0.2047	0.0439
72	0.1339	0.5216	0.0833	0.1853	-0.0007	0.0269	0.0693	0.1043
73	0.1180	0.3178	0.1582	0.1623	0.0080	0.1862	0.4034	0.1212
74	0.0817	0.1252	-0.0167	0.0692	0.1559	0.0350	0.4107	0.0075
75	0.3557	0.2998	0.0805	0.4422	0.1341	0.0592	0.0343	-0.1083
76	0.0955	0.1084	-0.0738	0.1636	0.0044	0.3720	0.1740	0.0025
77	0.1888	0.3032	0.0021	0.2566	0.1381	0.0491	0.0050	-0.1664
78	-0.0050	0.1353	0.1131	-0.0214	-0.0413	0.3570	0.1948	0.1938
79	0.1658	-0.0143	0.0389	0.1213	-0.0161	0.2213	0.5071	0.1694
80	-0.1463	0.2154	0.1172	0.0846	0.0697	0.0632	0.4615	0.0499
81	0.0769	0.4638	0.1810	0.2064	0.1587	0.1000	0.1423	0.0876
82	0.4039	0.1006	0.0300	0.0429	0.1393	0.2128	0.1184	0.1296
83	-0.1398	0.3369	0.0636	0.2319	0.0496	0.3074	0.0196	0.0208
84	0.3340	0.1922	-0.0252	0.0300	0.0335	0.0164	0.1291	0.2421
85	0.1407	0.1846	0.2164	-0.1085	0.0139	0.2469	0.2557	0.0487
86	0.0397	0.3983	0.0433	0.0731	0.0857	0.0316	0.2674	0.0082
87	0.1037	0.1959	0.0524	0.2857	-0.0879	-0.0009	0.2498	-0.1379

87 Item Teacher Solution

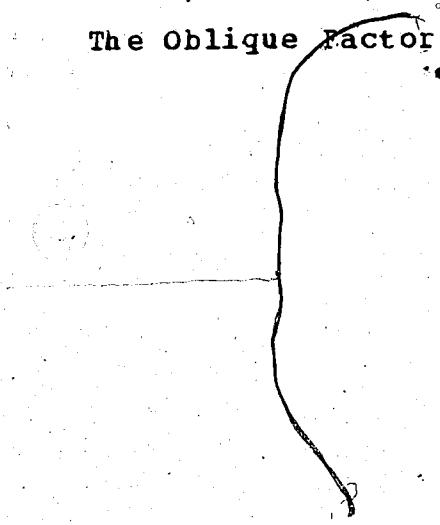
	1	2	3	4	5	6	7	8
1	0.6306	0.2419	-0.0098	0.0544	-0.0711	-0.0248	0.1796	0.0970
2	0.7380	0.2832	-0.0265	-0.0107	0.0327	0.1425	0.0468	-0.1282
3	0.6132	-0.0977	-0.0419	0.0940	0.0447	0.0458	0.0207	0.0940
4	0.5027	0.0361	0.1106	0.5178	0.1623	-0.1517	0.2231	-0.2199
5	0.5345	0.1846	0.0721	0.0408	0.1527	0.1878	0.3759	-0.0487
6	0.5166	0.1937	-0.1385	0.2175	0.0189	-0.0579	0.2914	-0.2685
7	0.5528	0.4055	0.0054	0.1326	-0.0643	0.0846	0.0066	0.0165
8	0.5034	0.4189	-0.0335	0.2988	-0.2169	-0.0132	0.0806	0.0377
9	0.7204	0.0136	0.1101	0.0584	0.1203	-0.0335	0.0406	0.2326
10	0.7275	0.0114	0.1599	0.1044	0.0821	0.2592	-0.0795	0.0199
11	0.5175	0.3308	0.0234	0.1507	-0.0504	-0.1295	0.0842	0.0420
12	0.3654	0.3255	0.0519	0.1386	0.2429	0.3399	0.1337	0.1001
13	0.0517	-0.0232	0.0496	0.2276	0.0167	0.0866	0.6798	0.1413
14	0.1833	0.1095	0.0886	0.1442	-0.0260	0.3339	0.3998	0.2104
15	0.0038	0.1750	0.1305	0.3150	0.1417	0.0058	0.0375	0.3727
16	0.3538	0.2443	-0.1600	0.5581	0.0029	-0.0156	0.0114	0.1466
17	0.2252	0.3754	0.0703	0.1180	0.1166	0.0745	0.2094	0.2802
18	-0.0860	-0.0141	0.8072	0.0517	0.2821	-0.1185	0.1291	-0.0635
19	0.0194	0.0491	0.7952	-0.0983	0.1916	-0.0556	0.1333	-0.0471
20	-0.0502	-0.0592	0.7506	0.0439	0.1133	0.0824	-0.0837	-0.0272
21	0.0341	-0.0360	0.8404	-0.0779	0.2034	-0.0709	0.1171	0.0534
22	0.0090	0.1690	0.7301	0.1459	-0.0556	0.1064	-0.0482	0.1398
23	-0.0381	-0.0612	0.7784	-0.0140	0.2022	-0.0573	0.2010	0.0957
24	0.1399	0.1245	0.8604	0.0150	-0.0945	-0.0123	0.0681	0.0224
25	0.1982	-0.0116	0.7712	0.0932	-0.0758	0.1901	0.0377	0.1324
26	-0.0223	0.0110	0.7244	0.0640	-0.1380	0.0930	-0.0324	-0.0468
27	0.0976	0.0618	0.6534	0.2796	0.0006	0.1889	0.1006	0.0196
28	0.1503	0.6614	0.0401	0.0957	0.1927	-0.0042	0.0073	0.1812
29	0.0744	0.7327	0.0131	0.0110	0.0435	0.2363	-0.2939	0.0287
30	0.0758	0.6770	0.1025	0.1321	0.2633	0.1592	0.0047	-0.1320
31	0.0575	0.6132	0.0591	0.0843	-0.0287	0.1320	-0.1193	0.5181
32	0.2278	0.5979	0.0096	0.4215	-0.0213	0.1474	0.2758	-0.1530
33	0.1561	0.5477	0.0407	0.3813	0.1795	0.1039	0.0113	0.0245
34	0.1162	0.4097	0.0843	0.3892	0.2138	0.0347	0.1549	-0.0854
35	0.1687	0.2164	0.2136	0.4219	0.2286	0.1989	0.1413	0.0481
36	0.1531	0.3513	0.0790	0.1254	0.4819	0.1241	0.2170	0.1014
37	0.0589	0.1360	0.0373	0.0764	0.6345	0.0533	-0.0896	0.0351
38	0.1095	0.4118	-0.1659	0.2164	0.4332	0.0711	0.1018	0.1518
39	0.3039	0.6098	-0.0447	0.2663	-0.0341	0.1371	-0.1369	0.1369
40	-0.0054	0.2202	0.1149	0.3930	0.1390	0.4094	-0.3013	0.0929

87 Item Teacher Solution (con't)

	1	2	3	4	5	6	7	8
41	0.1809	0.2213	0.0280	0.1187	0.1327	0.6681	0.1508	0.0735
42	0.0379	0.3839	0.1163	0.4133	0.2280	-0.0772	0.2044	0.1035
43	0.3441	0.0999	0.0067	0.4790	0.1746	0.1739	0.0515	0.1989
44	0.0775	0.1562	0.0187	0.1645	0.1414	0.6913	0.1315	0.1952
45	0.0812	0.1301	0.2035	0.2265	0.5413	0.3566	0.1962	0.1364
46	0.2178	0.4885	-0.0483	0.3000	0.1190	0.2775	0.0253	0.0239
47	-0.0317	-0.0438	0.2336	0.0323	0.2641	-0.0013	0.6065	0.2774
48	0.3203	-0.0715	0.0610	-0.2466	0.1105	0.3609	0.1324	0.4860
49	0.0766	0.0517	-0.0370	0.0549	-0.0110	0.0421	0.0985	0.6928
50	0.0897	0.1221	0.0836	0.0830	-0.0946	0.0098	0.3783	0.6335
51	0.2010	-0.2561	0.1881	0.0706	-0.0063	0.2234	0.4170	0.3151
52	-0.1628	-0.0775	0.3396	0.0492	0.5069	0.0661	0.4356	0.1374
53	0.0241	-0.2895	0.1126	-0.0428	0.4665	0.1422	0.3527	0.1827
54	0.6018	0.4265	0.0130	0.0357	-0.1119	0.1018	-0.1927	0.1775
55	0.5151	0.2076	0.0852	0.2125	0.1656	0.3184	-0.1944	0.0670
56	0.4172	0.0539	0.0426	0.1646	0.1788	0.0645	0.1546	0.4019
57	0.4621	0.0576	0.0752	0.1191	0.0110	0.1358	0.1134	0.3985
58	0.6746	0.3624	0.0549	-0.1024	0.0634	0.1739	0.0269	0.0746
59	0.4711	-0.0352	0.0088	0.0886	0.1292	0.3173	0.0467	0.4053
60	0.4663	0.0007	-0.1056	0.0684	0.3658	0.1876	0.0005	0.3499
61	0.3089	0.1716	0.0406	0.1879	0.2306	0.0808	-0.0892	0.5111
62	0.6875	0.0978	0.0008	0.2189	-0.0472	-0.0943	-0.0883	0.2226
63	0.5089	0.3399	-0.0622	0.1717	0.0973	0.2649	0.1432	-0.0772
64	0.3265	0.3179	0.1023	0.2765	0.0123	0.0609	0.3256	0.1390
65	0.2941	0.6643	0.0537	-0.1110	0.0332	0.1161	-0.0058	0.1234
66	0.0328	0.2839	0.0083	0.1393	0.7175	-0.0475	-0.1211	0.0143
67	0.0656	0.5730	0.0701	0.2703	-0.0956	0.2992	0.0416	0.2253
68	0.2916	0.6883	-0.0763	0.0261	0.0322	0.0669	0.1083	-0.0680
69	0.0671	0.4863	0.1489	-0.0382	0.2331	0.2526	0.2094	-0.3244
70	0.1538	0.3120	-0.2228	0.5211	0.1500	-0.0023	0.1999	0.1469
71	0.2560	0.1156	0.0013	0.1872	0.3951	-0.0121	0.3681	-0.1788
72	0.3674	0.1044	0.1661	0.3967	0.1884	0.2352	0.2694	-0.0204
73	0.0722	0.2035	0.1935	0.2436	0.1092	0.3986	0.3874	0.0219
74	0.1943	0.3515	-0.0727	0.3888	-0.0580	0.2575	0.3661	0.0068
75	0.0515	0.0619	0.1037	0.5786	-0.0991	0.3476	0.2234	0.2767
76	0.0016	0.2495	0.0870	0.5228	0.0406	0.1625	0.3518	0.1444
77	-0.0046	0.2362	0.0503	0.1843	-0.0105	0.6673	0.0619	0.0602
78	0.1947	-0.0351	0.1311	0.6618	0.1135	0.1390	-0.0729	0.0157
79	0.1315	0.2891	0.1607	0.0102	0.5790	0.3652	0.1169	0.0264
80	0.1604	0.0914	0.2033	0.4925	0.2038	0.2509	0.1112	0.2275
81	0.0700	-0.1043	0.2176	0.3634	0.5091	0.1096	0.0872	-0.1303
82	0.2016	0.3353	-0.0145	0.4944	0.3034	0.3961	-0.0327	-0.0872
83	0.4642	0.2613	0.0245	0.2846	0.2342	0.0199	0.1539	0.0743
84	0.1290	0.2873	-0.0685	0.0981	0.1493	0.3973	-0.0630	0.0571
85	0.3236	-0.2403	0.2353	0.1840	0.3997	0.2414	0.2788	-0.0406
86	0.3989	0.1842	0.1534	0.3571	0.2136	0.2877	0.0923	-0.0442
87	0.1880	0.0602	0.1842	0.0375	0.1303	0.4359	0.4081	-0.1882

APPENDIX E

The Oblique Factor Loadings



Oblique Teacher Solution

ITEMS	FACTORS 1	2	3	4	5	6	7	8
1. Socialization - Rebelliousness	.512	.152	.167	-.153	-.005	-.174	.002	.124
2. Hostility - Friendliness	.641	-.048	.060	.009	-.136	-.014	.061	.116
3. Dependence - Independence	.406	.236	.028	-.016	.022	-.032	-.164	.228
4. General Activity - Lethargy	.662	-.057	.175	.034	-.004	-.064	.125	-.045
5. Adjustment	.775	-.136	.121	-.029	-.061	.123	-.204	.139
6. Shyness - Boldness	.612	.036	-.236	-.074	-.040	.034	.031	.065
7. Responsibility	.390	.466	-.129	.060	.066	-.161	-.219	.108
8. Self Esteem	.568	-.060	.332	.110	-.136	-.026	.012	.199
9. Imagination	.381	-.088	.054	.029	.066	.090	.095	.488
10. Independent Thinking	.416	.169	.028	-.113	-.089	-.094	-.178	.337
11. Success	.487	.024	.299	.014	-.182	.014	.017	.097
12. Curiousity	.125	.414	-.022	.066	.062	-.110	.084	.012
13. Creativity	.363	.024	.075	.106	-.022	-.052	.181	.332
14. Critical Analysis -Information	.143	.660	-.102	-.005	-.038	.073	-.355	-.016
15. Preparation :Secondary School	.348	.071	.221	.110	-.006	.028	-.098	-.097
16. Need Achievement	.433	.218	.282	.002	-.312	-.094	.083	.012
17. Interest Areas	.785	-.088	-.122	.119	-.020	-.071	.140	.049
18. Leisure Time	.817	-.048	-.097	.112	-.034	.182	-.106	-.015
19. Enjoyment in Learning	.445	.016	.246	.065	-.127	-.182	.089	.073
20. Social Poise & Skills	.503	.300	.002	.015	.026	-.161	.115	.070
21. Development of Canadianism	.234	.003	.279	-.022	.198	.157	.108	.118
22. Appreciation of Arts & Crafts	-.143	.271	-.215	-.032	.046	.064	.322	.471
23. Represnt'nl Skills Arts/Crafts	.073	.139	-.051	.000	-.054	.270	.265	.315
24. Classificatory Reasoning	-.058	.612	.122	-.016	-.115	-.078	-.125	.087
25. Relation/Implication'l Reason	.196	.556	-.128	.019	.110	.041	-.150	.087
26. Systematic Reasoning	.114	.691	-.169	-.022	.018	-.108	-.151	.030
27. Creative Flexibility	.174	.338	-.069	-.034	-.115	.217	.011	.432
28. Creative Fluency	.134	-.014	.222	.009	-.085	.329	-.047	.431
29. Span & Serial Memory	-.064	.214	.155	.066	.097	.097	.189	-.141
30. Meaningful Memory	.226	.487	.163	-.189	-.120	-.132	.112	-.089

Oblique Teacher Solution (con't)

	1	2	3	4	5	6	7	8
31. Spatial Memory	.083	.034	.297	.038	.036	-.033	.272	.132
32. Reading Comprehension of French	-.121	.026	.037	.800	.275	-.178	-.040	.005
33. Oral Comprehension of French	.026	-.125	.066	.789	.213	-.119	-.037	.063
34. Speaking Fluency in French	-.037	.018	.030	.698	.089	.053	-.088	-.120
35. Writing Fluency in French	.064	-.173	-.016	.834	.215	-.098	.069	.063
36. Insight/Interest Through French	-.006	.166	.194	.698	-.112	-.003	.069	-.116
37. Read Comp. of a Foreign Language	-.046	-.055	-.016	.778	.195	-.161	.139	.089
38. Oral Comp. of Foreign Language	.165	-.006	.078	.880	-.183	.004	.000	.088
39. Speak. Fluency: Foreign Language	.212	.052	-.043	.725	-.158	.134	.093	.051
40. Write. Fluency: Foreign Language	.021	.048	.032	.688	-.141	.140	-.107	-.077
41. Insight/Interest: Foreign Lang.	.035	.298	.035	.582	-.089	.094	.001	.010
42. Spelling	.051	-.116	.676	.069	.190	-.093	.132	-.069
43. Punctuation & Capitalization	.054	-.175	.803	.019	-.016	.270	-.150	-.187
44. Grammar & Usage	-.051	.040	.709	.093	.239	.041	-.193	-.040
45. Penmanship	.012	-.087	.636	.066	-.043	.063	.428	-.256
46. Written Expression	-.005	.392	.482	-.010	-.128	.037	-.041	.200
47. Indep. Applc. Writing Skills	.041	.346	.500	.024	.078	-.071	-.047	-.108
48. Data Sources as Refer. Skills	-.043	.400	.339	.051	.095	-.088	-.076	.056
49. Summarizing Information	.050	.328	.158	.106	.194	.101	-.014	-.002
50. Comp. Numbers & Sets	-.003	-.091	.349	.007	.417	.100	.098	.191
51. Comp. Positional Notation	.001	-.073	.220	-.013	.537	-.023	-.073	-.061
52. Comp. Equations/Equalities	-.030	.029	.424	-.212	.355	.033	.080	.072
53. Comp. Number Principles	-.193	.110	-.079	-.177	.493	.100	-.069	.005
54. Operations with Integers	.216	.106	.592	-.039	-.194	.111	.060	-.094
55. Operations with Fractions	-.094	.401	.291	.013	.040	.328	-.105	-.363
56. Operations with Decimals	.065	.053	.175	-.113	.172	.503	.058	.107
57. Mathematical Problem Solving	-.159	.376	.343	.069	.163	-.095	.157	.016
58. Indep. Applic'n of Math.	.211	.419	.032	-.091	.086	.002	.148	-.063
59. Geometric Facility	-.060	.113	.123	-.147	.131	.538	.173	.119
60. Geometric Vocabulary	-.099	.067	.180	.066	.552	.164	.165	.062

Oblique Teacher Solution (con't)

	1	2	3	4	5	6	7	8
61. Measurement Making & Reading	.075	.131	.471	-.097	.050	.149	.053	.043
62. Statistics	-.160	.049	.090	.033	.569	.020	.039	.032
63. Musica Appreciation	-.220	.004	-.111	.174	.304	-.167	.521	.416
64. Music Interest & Enjoyment	.342	-.400	-.136	-.018	.140	.365	.441	.109
65. Singing	.081	-.031	-.008	-.069	.002	.013	.571	-.051
66. Musical Instrument Playing	-.025	-.016	.035	.051	-.048	-.069	.703	.186
67. Dance (Rhythmic Response)	.093	.174	-.411	.084	-.031	.127	.389	.294
68. Aural Identification of Music	-.318	.098	-.119	.238	.542	-.018	.186	.200
69. Music Knowledge	-.062	-.040	-.335	.002	.544	.039	.214	.169
70. Practicing Health & Safety	.653	-.122	.371	.038	.009	-.023	.031	-.204
71. Understanding Health & Safety	.533	.106	.145	.014	.105	.163	-.072	-.253
72. Sex Education	.426	-.024	-.415	.089	.384	-.173	.035	.037
73. Muscle Control	.354	.030	-.043	-.011	.114	.100	.283	.005
74. Physical Development/Well Being	.407	.023	-.020	.054	-.058	.076	.371	-.013
75. Group Activity - Sportsmanship	.687	-.295	.249	.050	-.000	.111	.055	.129
76. Interst/Participation in Sports	.446	-.013	-.115	-.076	.069	.232	.298	.008
77. Under. Rule/Strategies: Sports	.448	-.148	-.031	-.186	.351	.097	.238	-.035
78. Knowledge of P.E. Apparatus	.273	-.014	.183	-.002	.135	.027	.363	-.176
79. Relaxation	.754	.121	-.037	.028	-.161	-.168	.118	-.203
80. Listening Reaction & Response	.423	.145	.200	-.111	.016	.130	-.099	.142
81. Speaking	.206	.169	.170	.050	.015	-.020	.185	.182
82. Phonetic Recognition	.233	-.292	.635	.084	-.003	.095	.086	.049
83. Structural Recognition	-.062	-.080	.407	-.029	.659	-.141	-.091	-.114
84. Oral Reading	-.127	.171	.572	.030	-.161	.210	.253	.013
85. Silent Reading Efficiency	.200	-.106	.591	-.045	-.015	.033	-.051	.141
86. Recognition of Word Meanings	-.051	-.119	.434	.098	.237	.182	-.262	.332
87. Under. Ideational Complexes	-.091	.565	.207	-.270	.010	-.087	.152	.048
88. Remebering Information Read	.154	.007	.396	.067	.223	-.066	-.066	.156
89. Inference Making from Reading	.104	.186	.024	-.049	.394	-.177	-.093	.239
90. Recognition of Literary Devices	-.017	.314	-.065	.149	.214	.256	-.037	.130

Oblique Teacher Solution (con't)

	1	2	3	4	5	6	7	8
91.Critical Reading	-.275	.604	-.066	.072	-.040	.178	-.033	.308
92.Attitude Toward Reading	.134	.068	.420	.100	.105	-.116	.010	.298
93.Att.&Beh.Modif'n from Reading	.250	.420	-.057	.055	.141	.092	-.043	.058
94.Famil'y with Stan.Child.Lit.	-.105	.249	.119	.096	.049	.251	.116	.311
95.Observ'n/Descrp'n in Science	-.010	.422	.196	-.140	-.124	.145	.084	.269
96.Use Number/Measures-Science	-.180	.698	-.046	-.049	-.147	.187	.312	-.003
97.Class'n/Genral'n-Science	-.227	.594	.120	-.007	-.030	.090	.185	.112
98.Hypothesis Formation in Science	.097	.594	-.023	.051	-.107	.264	-.014	.051
99.Operational Definitions-Science	-.248	.720	-.052	.017	.181	.266	-.015	-.029
100.Experimentation in Science	-.043	.165	.022	.017	-.116	.623	.032	.182
101.Formulation Conclusion	-.129	.190	.203	-.091	-.059	.656	-.008	.082
102.Know. Science Facts/Terms	-.148	.506	-.047	.096	-.003	.196	.248	.133
103.Science Interest/Appreciation	-.083	.403	.040	-.225	.171	.195	.279	.130
104.Appl'n of Scientific Methods	.062	.654	-.061	.020	-.027	.054	-.049	-.159
105.Knowledge of History	-.059	.100	.204	.091	.217	.486	-.076	-.059
106.Know. of Physical Geography	.030	-.121	.329	.064	.600	.181	-.015	.001
107.Know.Socio-Economic Geog.	.018	.591	-.007	.078	.135	.044	.163	-.185
108.Cultural Knowledge	.107	.487	-.030	.086	.067	.031	.141	-.005
109.Social Organization Knowledge	-.034	.378	-.072	.119	.469	-.049	-.170	-.121
110.Research Skills/Social Science	.071	.392	.324	-.130	.198	.250	-.186	-.087
111.Citizenship	.410	.165	.119	-.025	.196	-.082	.022	.007
112.Interest in Social Studies	.062	.019	.273	-.146	.106	.353	-.029	-.020
113.Knowledge of Governments	.257	.198	-.364	.087	.446	.160	-.077	.055
114.Knowledge & Use of Media	.310	.307	.082	.058	.100	.159	-.109	.009
115.Media: Critical Thinking	.073	.078	-.140	.026	.130	.450	-.156	.489
116.Knowledge of Community	.247	.371	-.159	-.010	.213	.007	.037	-.064
117.Involvement with Community	.510	.417	-.296	-.127	.228	-.160	-.076	-.019
118.School Orientation	.440	.020	.275	.004	.060	-.334	.361	-.082

Oblique Citizen Solution

ITEMS	FACTORS							
	1	2	3	4	5	6	7	8
1. Socialization - Rebelliousness	.674	-.099	.062	-.005	.033	.004	.086	-.092
2. Hostility - Friendliness	.655	-.189	-.112	.048	.294	-.111	.307	.015
3. Dependence - Independence	.408	.084	-.233	.141	-.023	.070	.231	.151
4. General Activity - Lethargy	.799	-.103	-.118	.093	-.120	.097	-.158	.050
5. Adjustment	.819	-.099	-.102	.030	-.009	.031	-.055	.020
6. Shyness - Boldness	.602	-.113	.012	.020	-.051	-.012	.065	.156
7. Responsibility	.339	.187	-.123	-.032	-.066	-.081	.148	.144
8. Self Esteem	.617	-.142	-.262	.112	-.180	.102	.062	.177
9. Imagination	.424	.228	-.011	-.081	.045	-.106	.011	.115
10. Independent Thinking	.463	.118	-.046	-.081	-.044	.313	.070	.167
11. Success	.501	.030	-.090	-.206	.076	.123	-.083	.058
12. Curiousity	.435	.096	-.134	-.037	-.204	.156	-.128	.156
13. Creativity	.345	.183	-.150	.074	.254	.167	-.214	-.086
14. Critical Analysis -Information	-.059	.589	-.047	.024	-.032	-.109	.030	.221
15. Preparation :Secondary School	.174	.161	.080	.019	-.068	.361	.020	-.030
16. Need Achievement	.390	.297	-.140	-.085	-.063	.341	-.154	.016
17. Interest Areas	.592	-.004	-.130	-.043	.407	.065	.006	.042
18. Leisure Time	.633	-.136	.018	-.084	.277	.016	-.076	-.009
19. Enjoyment in Learning	.481	-.154	-.098	.064	-.015	.276	.066	.220
20. Social Poise & Skills	.528	.119	.117	.017	.088	-.152	.143	-.118
21. Development of Canadianism	.422	-.171	.096	.098	.030	.229	.360	-.193
22. Appreciation of Arts & Crafts	.170	.024	.191	-.029	.431	.059	.234	-.128
23. Represnt'nl Skills Arts/Crafts	.238	.065	.032	-.044	.484	.080	-.074	-.044
24. Classificatory Reasoning	.103	.573	.117	.013	.048	.049	-.091	-.131
25. Relation/Implication'l Reason	.002	.321	-.016	-.085	.166	.097	-.096	.299
26. Systematic Reasoning	-.137	.720	.028	.034	-.079	-.094	.120	-.019
27. Creative Flexibility	.249	.268	-.022	-.192	.184	.006	.033	.237
28. Creative Fluency	.200	.351	.098	.084	-.012	-.105	-.344	.104
29. Span & Serial Memory	-.084	.118	.337	.043	.249	.032	-.137	-.090
30. Meaningful Memory	.248	.148	.341	-.053	-.043	.036	-.160	.201

Oblique Citizen Solution (con't)

	1	2	3	4	5	6	7	8
31. Spatial Memory	.173	.084	.143	.042	.113	.197	-.255	.043
32. Reading Comprehension of French	-.035	-.047	.024	.834	.005	.043	.139	.183
33. Oral Comprehension of French	-.042	.008	-.081	.915	-.092	-.026	.051	.020
34. Speaking Fluency in French	.051	-.064	-.037	.765	.063	-.020	-.007	.097
35. Writing Fluency in French	-.094	.067	-.060	.896	-.069	-.029	.074	.008
36. Insight/Interest Through French	.094	-.057	.099	.753	.002	-.017	-.227	-.052
37. Read Comp. of a Foreign Language	-.136	.086	-.063	.843	.082	.069	.149	-.030
38. Oral Comp. of Foreign Language	.196	-.112	-.054	.667	.012	.169	.220	-.035
39. Speak. Fluency: Foreign Language	-.022	.165	-.009	.751	.064	-.011	.021	-.003
40. Write. Fluency: Foreign Language	.008	.084	.146	.546	.125	-.076	-.076	-.219
41. Insight/Interest: Foreign Lang.	.300	.086	.080	.511	-.041	-.127	-.167	.051
42. Spelling	-.043	-.187	.697	-.000	.197	.157	-.034	.193
43. Punctuation & Capitalization	-.122	-.084	.673	.040	.202	.084	-.080	.168
44. Grammar & Usage	-.156	.025	.839	-.072	.185	.023	-.018	.077
45. Penmanship	-.091	-.055	.499	.067	.207	.143	.009	.260
46. Written Expression	.148	.258	.428	.045	-.155	-.062	.046	-.089
47. Indep. Applc. Writing Skills	.270	.007	.593	-.002	-.107	.073	-.053	.035
48. Data Sources as Refer. Skills	-.134	.634	.097	.025	-.096	-.034	.106	.264
49. Summarizing Information	.139	.214	.319	-.083	.044	.100	.262	-.185
50. Comp. Numbers & Sets	-.010	-.138	.108	.075	.284	.584	-.134	.090
51. Comp. Positional Notation	.020	.070	.285	-.097	-.249	.522	-.110	.024
52. Comp. Equations/Equalities	-.191	.387	.278	.030	.027	.362	.013	-.152
53. Comp. Number Principles	-.050	.146	-.070	-.083	.207	.390	.154	.098
54. Operations with Integers	-.132	.017	.415	-.059	-.030	.390	.153	.131
55. Operations with Fractions	-.256	.144	.358	-.091	.034	.466	.193	.014
56. Operations with Decimals	-.192	.243	.273	-.047	-.147	.512	.178	.105
57. Mathematical Problem Solving	.088	.061	.122	.015	-.158	.515	.218	.076
58. Indep. Applic'n of Math.	.137	.322	.047	.064	-.103	.267	.014	.050
59. Geometric Facility	-.108	.227	.285	-.081	.008	.338	.189	-.114
60. Geometric Vocabulary	-.035	.122	-.009	.109	.098	.485	.323	.152

Oblique Citizen Solution (con't)

	1	2	3	4	5	6	7	8
61. Measurement Making & Reading	.013	.014	.412	-.068	.014	.453	.065	.109
62. Statistics	-.080	.609	.108	-.054	.022	.128	-.040	.007
63. Musica Appreciation	.218	.105	.034	.131	.256	-.060	.213	.129
64. Music Interest & Enjoyment	.078	.300	-.079	.064	.476	-.300	.130	.064
65. Singing	-.050	-.121	.155	-.032	.713	.015	.183	.012
66. Musical Instrument Playing	-.001	-.085	.109	.069	.523	.091	.021	.274
67. Dance (Rhythmic Response)	-.037	.142	.046	.248	.473	-.279	-.103	.201
68. Aural Identification of Music	-.097	.281	.095	.078	.283	.016	.394	.066
69. Music Knowledge	-.115	.235	.012	.130	.300	-.005	.434	.039
70. Practicing Health & Safety	.640	-.267	.126	-.029	.131	-.154	.037	-.073
71. Understanding Health & Safety	.265	.061	.283	-.112	.092	-.068	.217	.032
72. Sex Education	.250	.103	-.122	-.044	.072	-.051	.106	.048
73. Muscle Control	.181	.116	.100	.045	.347	.070	-.018	-.075
74. Physical Development/Well Being	.523	-.042	-.032	-.057	.306	-.116	.186	-.113
75. Group Activity - Sportsmanship	.637	-.268	.128	-.094	.313	-.089	.089	.169
76. Interst/Participation in Sports	.473	-.059	-.066	-.119	.504	.043	-.015	-.269
77. Under. Rule/Strategies: Sports	.223	.149	.158	-.063	.462	-.088	-.074	-.137
78. Knowledge of P.E. Apparatus	.182	-.022	.130	.024	.488	.124	.110	.188
79. Relaxation	.448	.036	-.075	-.024	.333	-.196	.099	.161
80. Listening Reaction & Response	.132	-.131	.232	.072	.009	-.029	.019	.430
81. Speaking	.332	-.022	.352	.054	-.039	-.050	-.221	.005
82. Phonetic Recognition	-.037	.140	.109	-.032	.030	.347	-.234	.427
83. Structural Recognition	-.089	.038	.454	-.048	.161	.095	.030	-.021
84. Oral Reading	-.126	-.171	.632	.077	.280	.221	-.090	-.043
85. Silent Reading Efficiency	.181	-.170	.441	.035	-.201	.146	-.225	.297
86. Recognition of Word Meanings	-.081	.271	.525	.083	-.155	-.030	-.037	.221
87. Under. Ideational Complexes	-.102	.369	.174	.077	-.101	.069	.149	.290
88. Remebering Information Read	.099	.076	.033	.066	.103	.205	.046	.469
89. Inference Making from Reading	.051	.454	.100	-.095	-.023	.105	-.082	.461
90. Recognition of Literary Devices	.016	.401	.294	-.081	.163	.000	.049	-.005

Oblique Citizen Solution (con't)

	1	2	3	4	5	6	7	8
91.Critical Reading	.046	.400	.151	-.049	-.156	.022	.364	.142
92.Attitude Toward Reading	.217	-.028	.412	.061	-.160	-.066	-.091	.287
93.Att.&Beh.Modif'n from Reading	.382	-.000	.388	-.057	-.010	.004	.149	-.074
94.Famil'y with Stan.Child.Lit.	.116	.029	.224	.101	-.045	.084	.202	-.051
95.Observ'n/Descrp'n in Science	.174	.412	.037	-.076	-.047	.166	-.163	.053
96.Use Number/Measures-Science	-.204	.596	.106	.022	-.145	.235	.075	.020
97.Class'n/Genral'n-Science	-.274	.628	-.126	.025	.212	.108	-.050	.088
98.Hypothesis Formation in Science	-.152	.676	-.042	-.041	.192	.054	.049	.167
99.Operational Definitions-Science	-.115	.643	-.145	.128	.116	.121	.213	-.047
100.Experimentation in Science	-.087	.451	-.140	.005	.143	.253	.138	.190
101.Formulation Conclusion	-.014	.465	-.217	.110	.138	.103	.094	-.125
102.Know. Science Facts/Terms	.006	.513	.027	-.026	-.063	.202	.247	-.123
103.Science Interest/Appreciation	.386	.372	-.090	-.017	-.078	.101	.048	-.120
104.Appl'n of Scientific Methods	-.049	.636	-.080	.040	.027	-.055	.097	.013
105.Knowledge of History	.223	-.110	.303	.122	-.086	.137	.435	-.140
106.Know. of Physical Geography	.023	.214	.428	-.073	-.004	.115	.274	-.026
107.Know.Socio-Economic Geog.	.086	.141	.086	-.005	.069	.261	.523	.029
108.Cultural Knowledge	.192	.314	.174	.033	-.067	-.126	.146	.172
109.Social Organization Knowledge	.229	.383	.212	-.035	.068	.062	.463	-.102
110.Research Skills/Social Science	-.062	.475	.423	-.027	-.079	.019	.006	.052
111.Citizenship	.551	.017	.071	.124	-.093	-.073	.141	-.028
112.Interest in Social Studies	.085	.010	-.004	.263	-.041	.447	-.003	-.093
113.Knowledge of Governments	.115	.222	-.110	.076	.087	.039	.592	-.031
114.Knowledge & Use of Media	.257	.190	-.047	-.027	.164	-.168	-.010	.127
115.Media: Critical Thinking	.063	.434	-.010	.146	-.263	.008	.012	.075
116.Knowledge of Community	.313	.312	.196	-.048	.118	-.154	-.001	-.163
117.Involvement with Community	.531	.219	-.001	-.158	.048	-.174	.173	-.198
118.School Orientation	.554	-.271	.160	-.127	.245	.173	.090	.194

Oblique Student Solution

ITEMS	FACTORS 1	2	3	4	5	6	7	8
2. Hostility - Friendliness	.214	.288	.045	.083	-.025	.421	-.228	.151
5. Adjustment	-.084	.248	-.082	.082	-.077	.308	.110	.279
6. Shyness - Boldness	-.140	.088	.115	-.031	.040	.068	.313	.281
7. Responsibility	.081	.333	-.127	-.115	-.067	.382	.154	-.064
9. Imagination	-.083	.080	-.034	.529	.074	.176	.046	-.088
10. Independent Thinking	.082	.378	-.000	.083	-.157	.018	.052	.156
11. Success	-.085	.149	-.045	.223	.014	-.078	.203	.461
16. Need Achievement	.030	.200	-.087	.089	.198	.170	.300	.015
17. Interest Areas	.074	-.142	-.085	.151	.198	.474	.044	-.033
18. Leisure Time	.011	.257	.077	-.062	.167	.114	-.244	.335
19. Enjoyment in Learning	.166	.579	.015	.051	.128	-.051	-.067	-.118
21. Development of Canadianism	.072	.291	.029	-.127	.034	.059	.089	.101
22. Appreciation of Arts & Crafts	-.017	.067	-.023	.376	.536	-.193	.055	-.039
23. Represnt'nl Skills Arts/Crafts	-.069	.035	-.069	.129	.611	-.133	-.044	.134
29. Span & Serial Memory	-.158	.097	.118	.441	-.073	.072	-.023	.073
30. Meaningful Memory	.033	.201	-.019	.275	.153	-.008	.092	-.011
31. Spatial Memory	.277	.245	.004	-.171	.122	.114	-.182	.024
32. Reading Comprehension of French	.167	.163	.692	-.016	.037	-.289	-.123	.028
33. Oral Comprehension of French	.087	-.048	.743	.024	.073	-.091	.054	.167
34. Speaking Fluency in French	-.012	-.022	.424	.247	-.051	.157	-.260	-.102
35. Writing Fluency in French	-.018	-.100	.584	-.117	.127	.139	.245	.045
36. Insight/Interest Through French	.037	-.205	.635	-.082	.018	.179	.119	.038
37. Read Comp. of a Foreign Language	-.018	.101	.649	-.087	.135	-.236	.226	.034
38. Oral Comp. of Foreign Language	.010	.078	.655	.076	-.183	.112	-.099	.018
39. Speak. Fluency: Foreign Language	-.059	-.049	.475	.099	-.033	.445	.041	-.143
40. Write. Fluency: Foreign Language	-.028	.188	.561	.179	-.145	-.028	-.171	.035
41. Insight/Interest: Foreign Lang.	-.034	.213	.400	.057	.042	-.061	.101	.007
42. Spelling	.332	.251	-.035	.178	-.073	.115	.068	.066
43. Punctuation & Capitalization	.172	.051	-.103	.367	-.075	-.064	.138	.216
44. Grammar & Usage	.231	.092	.004	.097	-.047	.136	.323	-.039

Oblique Student Solution (con't)

	1	2	3	4	5	6	7	8
45. Penmanship	.299	-.031	-.067	.194	.118	.236	.125	.160
46. Written Expression	.122	-.090	.028	.329	-.112	.192	.040	.053
47. Indep. Applc. Writing Skills	.151	.328	-.152	.215	-.135	.147	-.030	-.199
48. Data Sources as Refer. Skills	.259	-.026	.080	.138	-.015	.287	.146	-.067
49. Summarizing Information	.306	.036	-.008	.141	.037	.337	-.007	-.121
50. Comp. Numbers & Sets	.555	.405	.007	-.180	-.001	.062	-.114	-.075
51. Comp. Positional Notation	.590	-.072	.020	.167	-.114	-.043	.017	-.014
52. Comp. Equations/Equalities	.278	-.201	.031	-.054	.108	.315	.111	.139
54. Operations with Integers	.619	.138	.097	-.054	-.074	.230	-.073	-.124
55. Operations with Fractions	.374	-.124	.127	.140	.169	.301	.044	-.031
56. Operations with Decimals	.318	-.221	-.028	.169	.042	-.120	.478	.089
57. Mathematical Problem Solving	.283	.112	-.110	.136	-.117	.070	.183	.098
58. Indep. Applic'n of Math.	.146	.227	.056	.182	.035	-.045	.233	-.094
59. Geometric Facility	.093	.025	.080	.262	.097	-.180	.285	.018
60. Geometric Vocabulary	.316	.057	-.045	.220	.088	-.177	.244	.022
61. Measurement Making & Reading	.173	.046	.051	-.014	.092	-.052	.383	.090
63. Musica Appreciation	-.082	.395	-.045	-.181	.622	-.147	.074	-.013
64. Music Interest & Enjoyment	-.068	.371	-.100	-.044	.377	.106	-.000	.022
65. Singing	-.044	-.022	.128	-.009	.444	.215	.014	.122
66. Musical Instrument Playing	.095	-.063	.141	-.156	.414	.152	-.088	.269
67. Dance (Rhythmic Response)	-.329	-.074	.046	.154	.377	.117	.102	.104
68. Aural Identification of Music	-.008	.064	.013	-.248	.520	.187	.083	-.193
69. Music Knowledge	.114	-.036	.159	.094	.441	-.073	.116	-.127
70. Practicing Health & Safety	.179	.339	-.108	.034	-.036	.427	-.182	.070
71. Understanding Health & Safety	.091	.153	-.052	.036	.065	.156	.224	.173
73. Muscle Control	-.130	-.069	-.070	.537	.236	-.142	.026	.328
74. Physical Development/Well Being	-.055	.042	.003	.298	.279	.251	-.227	.268
75. Group Activity - Sportsmanship	.222	.019	-.047	-.130	-.036	.619	-.060	.155
76. Interst/Participation in Sports	-.023	-.220	.119	.001	.064	.098	.174	.701
77. Under. Rule/Strategies: Sports	.032	-.038	.024	.365	.241	.057	-.314	.189

Oblique Student Solution (con't)

	1	2	3	4	5	6	7	8
78.Knowledge of P.E. Apparatus	.058	.140	-.018	.216	.185	.149	-.040	.268
79.Relaxation	-.047	.369	.124	-.038	.051	-.047	.137	.235
80.Listening Reaction & Response	.215	.306	.011	.132	-.018	.091	.024	-.194
81.Speaking	.189	.367	.129	.308	-.131	.017	.111	-.023
82.Phonetic Recognition	-.043	.091	-.035	.365	-.116	.138	.058	.054
83.Structural Recognition	.510	.126	.078	-.023	-.125	-.005	-.004	.060
84.Oral Reading	.075	.032	.058	.457	-.019	-.132	.028	-.024
85.Silent Reading Efficiency	.139	.014	.048	.027	-.068	-.021	.261	.316
86.Recognition of Word Meanings	.088	-.118	.057	.429	-.259	-.016	.247	.069
88.Remebering Information Read	.176	-.036	.057	-.112	-.071	.195	.313	.026
92.Attitude Toward Reading	-.049	.188	-.070	.165	.074	.157	.176	-.026
93.Att.&Beh.Modif'n from Reading	.046	.561	.022	.108	-.019	-.042	-.034	-.020
94.Famil'y with Stan.Child.Lit.	-.043	.249	.079	.070	-.056	.092	.385	.047
95.Observ'n/Descrp'n in Science	-.030	.063	-.060	.021	.152	-.055	.428	-.016
96.Use Number/Measures-Science	.287	.275	.015	.393	.094	-.008	.072	-.206
100.Experimentation in Science	-.016	.022	-.161	.111	-.078	.363	.180	-.046
103.Science Interest/Appreciation	.149	.317	-.053	.218	.134	.006	-.084	-.260
05.Knowledge of History	-.122	.062	.043	-.092	-.135	.356	.208	.154
106.Know. of Physical Geography	.008	-.158	-.018	.052	-.097	.144	.570	.177
108.Cultural Knowledge	-.299	.163	.061	.048	.056	-.049	.492	.016
109.Social Organization Knowledge	-.045	.465	.103	.138	.122	.022	.052	-.028
110.Research Skills/Social Science	.346	.031	-.017	-.052	.069	.213	.074	.082
111.Citizenship	-.263	.318	-.036	.208	-.017	.282	-.026	-.075
112.Interest in Social Studies	.280	.168	-.047	-.052	.002	-.017	.084	.198
113.Knowledge of Governments	.066	.139	.167	-.214	-.045	.234	.238	-.008
114.Knowledge & Use of Media	-.063	.408	-.014	.004	.090	-.053	.219	-.082
118.School Orientation	.026	.170	.012	.254	-.097	-.090	.232	-.185

87 Item Teacher Oblique Solution

ITEMS	FACTORS							
	1	2	3	4	5	6	7	8
2. Hostility - Friendliness	.649	.158	.012	-.050	-.156	-.132	.145	.099
5. Adjustment	.808	.187	-.019	-.143	-.056	.054	-.069	-.174
6. Shyness - Boldness	.685	-.239	-.061	.080	-.025	-.038	-.046	.038
7. Responsibility	.453	-.202	.087	.564	.065	-.315	.124	-.280
9. Imagination	.499	.071	.010	-.113	.027	.106	.327	-.071
10. Independent Thinking	.497	.040	-.147	.162	-.076	-.151	.228	-.278
11. Success	.543	.334	.032	.038	-.133	-.011	-.072	-.009
16. Need Achievement	.445	.316	.007	.257	-.302	-.117	.031	.032
17. Interest Areas	.793	-.101	.113	-.008	.058	-.176	-.022	.188
18. Leisure Time	.810	-.140	.128	.054	-.022	.172	-.219	-.086
19. Enjoyment in Learning	.515	.262	.073	.080	-.100	-.256	.039	.046
21. Development of Canadianism	.261	.239	-.026	.005	.164	.267	.068	.046
22. Appreciation of Arts & Crafts	-.135	-.143	-.056	.169	-.121	.052	.772	.179
23. Represnt'nl Skills Arts/Crafts	.039	.018	-.010	.053	-.162	.321	.429	.201
29. Span & Serial Memory	-.149	.127	.100	.322	.137	-.089	.060	.359
30. Meaningful Memory	.217	.062	-.179	.617	-.046	-.139	-.034	.102
31. Spatial Memory	.097	.354	.047	-.006	.073	-.021	.227	.294
32. Reading Comprehension of French	-.093	.012	.815	.015	.256	-.218	.087	-.085
33. Oral Comprehension of French	.052	.109	.818	-.189	.151	-.137	.092	-.057
34. Speaking Fluency in French	-.023	-.040	.756	.046	.075	.038	-.157	-.086
35. Writing Fluency in French	.072	.013	.858	-.149	.163	-.163	.084	.036
36. Insight/Interest Through French	-.032	.191	.753	.127	-.117	.043	-.097	.102
37. Read Comp. of a Foreign Language	-.048	-.030	.773	-.072	.154	-.141	.195	.087
38. Oral Comp. of Foreign Language	.172	.161	.915	-.042	-.179	-.093	.015	.005
39. Speak. Fluency: Foreign Language	.210	-.040	.767	.067	-.189	.133	-.026	.073
40. Write. Fluency: Foreign Language	-.000	.032	.753	.072	-.211	.073	-.090	-.085
41. Insight/Interest: Foreign Lang.	.028	-.013	.623	.281	-.112	.125	.033	-.044
42. Spelling	.020	.709	.068	-.056	.217	-.121	-.008	.203
43. Punctuation & Capitalization	-.006	.824	.055	-.124	.078	.203	-.371	.011
44. Grammar & Usage	-.061	.700	.099	-.021	.262	.079	-.072	-.147

87 Item Teacher Oblique Solution (con't)

	1	2	3	4	5	6	7	8
45. Penmanship	-.093	.696	.087	-.032	-.007	.061	-.089	.540
46. Written Expression	.027	.488	-.016	.336	-.125	.061	.224	-.160
47. Indep. Applc. Writing Skills	-.018	.479	.024	.320	.156	-.007	-.052	-.007
48. Data Sources as Refer. Skills	-.051	.317	.053	.343	.173	-.075	.102	-.109
49. Summarizing Information	.008	.079	.138	.402	.150	.101	.078	-.017
50. Comp. Numbers & Sets	.007	.310	.006	-.023	.465	.012	.191	.083
51. Comp. Positional Notation	.001	.108	-.024	.008	.697	-.046	-.156	-.022
52. Comp. Equations/Equalities	-.063	.363	-.226	.113	.455	-.037	.088	.139
54. Operations with Integers	.192	.576	-.019	.193	-.055	.046	-.201	.112
55. Operations with Fractions	-.137	.133	.048	.440	.118	.389	-.406	-.020
56. Operations with Decimals	.038	.129	-.113	.001	.009	.697	.091	-.006
57. Mathematical Problem Solving	-.178	.297	.063	.367	.184	-.031	.190	.086
58. Indep. Applic'n of Math.	.212	-.091	-.071	.507	.102	.064	-.008	.119
59. Geometric Facility	-.098	.063	-.140	.077	.028	.730	.096	.113
60. Geometric Vocabulary	-.089	.029	.061	.131	.486	.278	.147	.060
61. Measurement Making & Reading	.062	.408	-.094	.220	.066	.212	-.043	-.021
63. Musica Appreciation	-.181	-.077	.140	-.079	.189	-.067	.710	.323
64. Music Interest & Enjoyment	.325	-.072	-.021	-.387	.046	.360	.163	.464
65. Singing	-.032	.057	-.068	.018	-.016	-.009	.204	.720
66. Musical Instrument Playing	-.063	.117	.049	.004	-.158	-.053	.512	.695
67. Dance (Rhythmic Response)	.134	-.363	.084	.035	-.139	.210	.471	.301
68. Aural Identification of Music	-.303	-.104	.226	-.043	.472	.001	.481	.137
69. Music Knowledge	-.037	-.357	-.020	-.111	.427	.108	.388	.159
70. Practicing Health & Safety	.626	.393	.045	-.084	.098	-.019	-.290	.132
71. Understanding Health & Safety	.507	.085	.044	.169	.106	.235	-.332	-.042
73. Muscle Control	.352	-.049	-.009	.106	.124	-.051	.158	.375
74. Physical Development/Well Being	.426	-.035	.039	.062	-.068	.049	.110	.369
75. Group Activity - Sportsmanship	.724	.327	.066	-.279	-.006	.081	-.058	.045
76. Interst/Participation in Sports	.441	-.150	-.076	.029	.050	.258	.018	.338
77. Under. Rule/Strategies: Sports	.443	-.106	-.186	-.005	.345	.091	-.039	.285

APPENDIX F

The Transformed Teacher Pattern Matrices

The 118 Item Transformed Teacher Matrix

	FACTORS							
	1	2	3	4	5	6	7	8
1	0.6462	0.0451	0.0761	-0.1867	-0.0196	0.0035	-0.0626	0.2170
2	0.6845	-0.1198	-0.0747	-0.0127	0.1319	-0.0615	-0.0921	0.1147
3	0.5491	0.3047	-0.0282	-0.0374	-0.1384	-0.0272	0.0033	0.1941
4	0.6412	-0.1882	0.0998	-0.0008	0.2326	0.0330	0.0043	0.0815
5	0.7371	-0.0609	-0.0408	-0.0607	-0.0159	-0.0309	-0.0669	0.1125
6	0.6193	0.0352	-0.2431	-0.1019	0.1835	-0.1323	0.0619	-0.0022
7	0.5311	0.4247	-0.1099	0.0058	-0.2035	-0.1064	0.0983	0.1487
8	0.6638	-0.1086	0.1216	0.0995	0.0157	0.0404	-0.1742	0.2374
9	0.6287	0.1893	-0.0247	0.0660	0.1287	0.0330	-0.0324	0.2664
10	0.6256	0.2055	-0.1157	-0.1320	-0.2269	-0.0991	-0.1397	0.2632
11	0.5240	-0.0696	0.1233	0.0046	0.0231	0.0529	-0.1525	0.1594
12	0.2396	0.3380	0.0603	0.0510	0.0504	0.0319	0.1279	0.0804
13	0.5901	0.0864	-0.0102	0.1219	0.1476	0.0006	-0.0603	0.2366
14	0.1522	0.6664	-0.0407	-0.0393	-0.3122	-0.0185	0.1364	0.0142
15	0.2690	0.0023	0.1656	0.0817	-0.0123	0.0775	0.0195	0.0342
16	0.4890	-0.0551	0.0991	-0.0184	-0.0023	0.0124	-0.1995	0.1495
17	0.8093	-0.1723	-0.1791	0.0785	0.2914	-0.1278	0.0344	0.0546
18	0.6928	-0.0009	-0.1456	0.0719	0.1771	-0.0697	0.0952	-0.0424
19	0.5422	-0.1776	0.0858	0.0381	0.0285	-0.0099	-0.1560	0.1915
20	0.6386	0.1779	0.0055	-0.0188	0.1256	-0.0203	0.0675	0.1474
21	0.2735	0.1915	0.3165	0.0055	0.2111	0.2480	0.1295	0.1128
22	0.2051	0.5246	-0.1158	0.0416	0.2159	0.0237	0.0789	0.1776
23	0.2256	0.3805	-0.0111	0.0705	0.2925	0.1046	0.0641	0.0747
24	0.0940	0.5175	0.1088	-0.0239	-0.2742	0.0481	-0.0232	0.1550
25	0.2934	0.6440	-0.0111	0.0015	-0.0910	0.0215	0.2134	0.0670
26	0.2438	0.6223	-0.0685	-0.0569	-0.1910	-0.0514	0.1488	0.0753
27	0.4006	0.5832	-0.0941	0.0137	0.0007	0.0252	-0.0016	0.1786
28	0.2698	0.3222	0.1062	0.0750	-0.0181	0.1478	-0.0904	0.1943
29	-0.1084	0.2058	0.2756	0.0842	0.2248	0.2097	0.1761	-0.0500
30	0.2935	0.2352	0.1643	-0.2125	0.0231	0.0773	-0.0007	0.0895
31	0.1974	0.0723	0.2813	0.0755	0.2300	0.2010	0.0019	0.1472
32	-0.0432	0.0607	0.0958	0.7797	-0.0421	0.0007	0.1642	0.0797
33	0.0875	-0.0585	0.0588	0.7741	-0.0037	-0.0159	0.0980	0.0942
34	-0.1265	0.0434	0.0615	0.6854	0.0014	0.0180	0.1383	-0.0655
35	0.1232	-0.0990	0.0022	0.8249	0.1295	-0.0354	0.1305	0.0594
36	-0.0380	0.0242	0.1483	0.6938	0.0447	0.0558	0.0158	0.0034
37	0.0803	-0.0230	0.0190	0.7763	0.1219	-0.0273	0.1170	0.0938
38	0.2029	-0.0650	-0.0678	0.8765	-0.0052	-0.0858	-0.0798	0.0732
39	0.2062	0.0550	-0.1003	0.7341	0.1669	-0.0521	0.0295	-0.0171
40	-0.0812	0.0325	-0.0283	0.6849	-0.0414	-0.0295	0.0136	-0.0725

Transformed 118 Teacher Matrix(con't)

	1	2	3	4	5	6	7	8
41	0.0535	0.2900	0.0355	0.5879	0.0171	0.0275	0.0790	0.0112
42	0.0590	-0.1762	0.6190	0.0749	0.0859	0.3406	-0.0186	0.1830
43	-0.1785	-0.1498	0.6624	0.0368	-0.0713	0.4079	-0.0877	0.0332
44	-0.0825	0.1230	0.6632	0.0963	-0.1941	0.3804	0.0294	0.1837
45	-0.1033	-0.2802	0.6042	0.0986	0.3981	0.3778	-0.0225	0.0024
46	0.1594	0.3884	0.3675	0.0168	-0.1929	0.2247	-0.1242	0.2628
47	0.0568	0.2290	0.4902	0.0099	-0.1098	0.2660	0.0372	0.1447
48	0.0811	0.3753	0.3453	0.0477	-0.1758	0.1882	0.0395	0.1936
49	0.0748	0.4390	0.2728	0.1132	0.0524	0.2038	0.2168	0.0519
50	0.1031	0.2214	0.4417	0.0473	0.1664	0.3240	0.1865	0.1768
51	-0.0211	0.1312	0.3854	-0.0237	0.0566	0.2446	0.2872	0.0555
52	0.0420	0.2068	0.5108	-0.1861	0.0973	0.3466	0.1460	0.1611
53	-0.1869	0.4199	0.1849	-0.1645	0.0604	0.1817	0.3589	-0.0332
54	0.1429	-0.0397	0.4462	-0.0284	0.0326	0.2654	-0.1356	0.0957
55	-0.3545	0.4068	0.4268	0.0197	0.0369	0.3216	0.2377	-0.1851
56	-0.0064	0.4495	0.2978	-0.0459	0.2717	0.3300	0.2359	-0.0411
57	-0.0197	0.3451	0.4246	0.0861	0.0419	0.2598	0.1115	0.1619
58	0.2536	0.3657	0.1553	-0.0983	0.1855	0.1245	0.1919	0.0237
59	-0.1084	0.5139	0.2807	-0.0599	0.3531	0.3448	0.2476	-0.0693
60	-0.0491	0.4205	0.4367	0.1081	0.3102	0.3582	0.4028	0.0493
61	0.0880	0.2046	0.4480	-0.0675	0.0590	0.3091	0.0183	0.1255
62	-0.1005	0.3384	0.3339	0.0488	0.1413	0.2518	0.3626	0.0529
63	0.1729	0.2127	0.0337	0.2385	0.3844	0.0701	0.1405	0.2296
64	0.2818	-0.1031	-0.0276	0.0434	0.7042	0.1202	0.2006	-0.1172
65	0.1191	-0.1113	0.0898	-0.0314	0.5700	0.1098	0.0924	-0.0479
66	0.2023	-0.0667	0.0770	0.1160	0.5705	0.0981	-0.0065	0.1067
67	0.2955	0.3439	-0.2909	0.1371	0.4118	-0.0775	0.1390	0.0088
68	-0.1181	0.4397	0.1555	0.2778	0.2159	0.1591	0.3696	0.0845
69	0.0699	0.3256	-0.0333	0.0300	0.3603	0.0682	0.4086	-0.0086
70	0.5069	-0.2981	0.2722	-0.0081	0.1762	0.1226	-0.0029	0.0357
71	0.3245	0.0814	0.2006	-0.0240	0.1770	0.1405	0.2045	-0.0962
72	0.4960	0.0697	-0.2422	0.0403	0.2133	-0.1544	0.2980	-0.0016
73	0.3605	0.0893	0.0557	0.0003	0.4205	0.0918	0.1837	-0.0193
74	0.4124	-0.0349	0.0086	0.0664	0.4625	0.0485	0.0827	-0.0214
75	0.6674	-0.2235	0.1067	0.0447	0.2177	0.0719	-0.0540	0.1229
76	0.4005	0.1040	-0.0094	-0.0553	0.5070	0.0866	0.2038	-0.0813
77	0.4040	0.0105	0.1317	-0.1860	0.4753	0.1455	0.2894	-0.0351
78	0.2081	-0.0910	0.2770	0.0021	0.4649	0.1984	0.1693	-0.0397
79	0.6851	-0.2211	-0.1051	-0.0424	0.2087	-0.1240	-0.0089	-0.0149
80	0.4617	0.2492	0.1472	-0.1131	-0.0093	0.1154	0.0213	0.1355

The Transformed 87 Item Teacher Matrix

	FACTORS							
	1	2	3	4	5	6	7	8
1	-0.0971	0.4461	-0.0464	0.1738	0.1244	0.3702	-0.0180	0.3047
2	0.0504	0.4539	-0.0854	0.2013	-0.1157	0.3866	0.1049	0.3498
3	-0.1673	0.3733	-0.0430	0.0437	0.1516	0.3588	-0.0354	0.3150
4	-0.0110	0.7061	0.0984	0.0453	-0.1217	0.4293	0.1823	-0.0469
5	0.0072	0.4544	-0.0285	0.2384	0.2350	0.1997	0.2763	0.1733
6	-0.0585	0.5658	-0.2026	0.1241	-0.1016	0.2713	0.1870	0.0254
7	0.1317	0.3907	-0.0238	0.2629	-0.1150	0.3846	0.0785	0.2685
8	0.0087	0.4668	-0.0491	0.2932	-0.1117	0.3971	0.0604	0.1581
9	-0.0739	0.4381	0.1140	0.0435	0.2335	0.4862	-0.1144	0.4421
10	-0.0372	0.4083	0.1416	0.1800	0.0138	0.4256	0.0910	0.3852
11	0.0469	0.4372	0.0124	0.1339	-0.0635	0.4045	-0.0410	0.2234
12	0.3550	0.2864	-0.0183	0.3352	0.1724	0.2124	0.3552	0.1971
13	-0.2428	0.3210	-0.0431	0.2289	0.6166	-0.0983	0.3178	-0.1800
14	-0.0897	0.2140	0.0052	0.3687	0.4884	-0.0100	0.3292	0.0300
15	0.2739	0.1306	0.1574	0.1499	0.2580	0.1974	0.0785	0.0515
16	0.1731	0.4625	-0.1357	0.2227	-0.0037	0.4174	0.1475	0.0628
17	0.2635	0.2316	0.0297	0.2556	0.2850	0.1997	0.1460	0.1639
18	0.1368	0.1249	0.8046	-0.0857	-0.0283	0.0670	0.0232	-0.1015
19	0.0689	0.0953	0.7736	-0.0318	-0.0072	0.0607	-0.0131	0.0063
20	0.0595	0.0058	0.7668	0.0098	-0.1075	0.0621	0.0168	-0.0224
21	0.0203	0.0902	0.8357	-0.0591	0.0886	0.0922	-0.0647	0.0447
22	0.0767	0.0666	0.7458	0.1889	-0.0436	0.1457	0.0228	0.0272
23	0.0001	0.0907	0.7673	-0.0323	0.1940	0.0388	-0.0082	-0.0224
24	-0.1059	0.1619	0.8576	0.1081	-0.0704	0.1640	-0.0704	0.0528
25	-0.1523	0.1505	0.7685	0.1910	0.0984	0.1618	0.0291	0.1050
26	-0.1240	0.0316	0.7323	0.1079	-0.1441	0.0408	-0.0022	-0.0553
27	-0.0073	0.2293	0.6394	0.2290	0.0160	0.1368	0.1941	-0.0581
28	0.6225	0.1716	0.0156	0.2391	-0.0496	0.2657	0.1237	0.1743
29	0.6953	-0.0381	-0.0048	0.3364	-0.3797	0.1833	0.1737	0.1843
30	0.7197	0.1831	0.0419	0.2914	-0.2927	0.1610	0.3489	0.0163
31	0.4928	-0.0384	0.0706	0.3525	0.1643	0.2240	0.0212	0.2721
32	0.3180	0.4686	-0.0687	0.4317	-0.1563	0.2034	0.4348	-0.1178
33	0.5658	0.3131	0.0179	0.3046	-0.1592	0.2850	0.3066	0.0133
34	0.4350	0.3694	0.0473	0.2255	-0.1197	0.2149	0.3297	-0.0989
35	0.3149	0.3498	0.1829	0.2700	0.0770	0.2175	0.3629	-0.0359
36	0.5695	0.2503	0.0149	0.1750	0.2043	0.1605	0.3298	0.0884
37	0.6710	0.0931	0.0311	-0.0544	0.0096	0.1739	0.1982	0.1133
38	0.6517	0.2179	-0.2016	0.1709	0.1336	0.1985	0.2934	0.0844
39	0.4512	0.2481	-0.0492	0.3577	-0.1874	0.3578	0.1527	0.1970
40	0.4821	0.0296	0.1358	0.3130	-0.1637	0.1647	0.3331	0.0189

Transformed 87 Item Teacher Matrix(con't)

	1	2	3	4	5	6	7	8
41	0.2550	0.0993	-0.0729	0.4913	0.2592	-0.0319	0.5538	0.0845
42	0.4386	0.3104	0.0835	0.2684	0.0934	0.1797	0.3396	-0.0885
43	0.1996	0.4001	0.0089	0.2405	0.1839	0.3453	0.2545	0.1048
44	0.2594	0.0241	-0.0661	0.4927	0.3719	-0.0694	0.5504	0.0642
45	0.5120	0.1965	0.1395	0.2336	0.3306	0.0830	0.4762	0.0323
46	0.4648	0.2656	-0.0947	0.3798	-0.0766	0.2162	0.3711	0.0639
47	-0.0406	0.1776	0.1578	0.0805	0.7103	-0.0952	0.1936	-0.0654
48	-0.0696	-0.0426	0.0152	0.1953	0.6777	0.0429	0.0447	0.4139
49	0.0064	-0.0324	-0.0121	0.1510	0.6618	0.1223	-0.1033	0.2620
50	-0.1349	0.1021	0.0648	0.2320	0.7567	0.0702	-0.0240	0.1557
51	-0.3753	0.1764	0.1366	0.1765	0.6943	-0.0233	0.1455	0.0740
52	0.2360	0.0929	0.2752	0.0060	0.5105	-0.1190	0.2874	-0.1235
53	0.0473	0.0728	0.0571	-0.0447	0.6115	-0.0915	0.2136	0.0294
54	0.3567	0.2916	0.0125	0.2042	-0.0856	0.4837	-0.0099	0.4612
55	0.2986	0.2984	0.0782	0.2572	-0.0823	0.3938	0.1999	0.3105
56	0.0663	0.3061	0.0357	0.1437	0.4671	0.3167	0.0441	0.2934
57	-0.0684	0.2711	0.0673	0.2072	0.4292	0.3027	0.0112	0.3279
58	0.1502	0.3367	0.0003	0.2386	0.0338	0.3717	0.0586	0.4396
59	0.0072	0.2031	-0.0081	0.2299	0.4879	0.2610	0.1137	0.3739
60	0.2433	0.2270	-0.1146	0.0964	0.4110	0.3169	0.0981	0.3919
61	0.3253	0.1658	0.0733	0.1487	0.3491	0.3679	-0.0030	0.3506
62	-0.0756	0.4535	0.0394	0.0792	0.0515	0.5520	-0.1604	0.3901
63	0.2026	0.4165	-0.1365	0.3237	-0.0085	0.2704	0.3217	0.1755
64	0.0747	0.4217	0.0497	0.2955	0.2266	0.2383	0.2140	0.0626
65	0.4445	0.1248	0.0030	0.2985	-0.0754	0.2268	0.0848	-0.2885
66	0.8668	0.1381	0.0107	-0.0735	-0.0998	0.2426	0.1998	0.0944
67	0.3719	0.1224	0.0340	0.4833	0.0450	0.1370	0.2968	0.0526
68	0.4319	0.2654	-0.1467	0.3048	-0.1840	0.2118	0.2008	0.1372
69	0.4568	0.1657	0.0340	0.2659	-0.2090	-0.0379	0.4324	-0.0728
70	0.3230	0.4022	-0.2370	0.2376	0.1425	0.2553	0.2882	-0.0603
71	0.2301	0.4363	-0.0744	0.0483	0.1090	0.1394	0.3172	-0.0544
72	0.1029	0.4846	0.1087	0.2792	0.1644	0.2389	0.3896	0.0044
73	0.1309	0.2418	0.0938	0.4038	0.2924	-0.0433	0.5062	-0.1094
74	0.0972	0.3855	-0.1552	0.4369	0.1645	0.0905	0.4441	-0.1043
75	-0.0311	0.2673	0.0848	0.4327	0.3625	0.0928	0.3905	-0.1225
76	0.1580	0.3384	0.0428	0.3609	0.2627	0.0864	0.4061	-0.1937
77	0.2299	-0.0120	-0.0280	0.5144	0.1416	-0.1055	0.5345	-0.0276
78	0.1380	0.3948	0.1686	0.1774	-0.0769	0.3221	0.2676	-0.0869
79	0.6533	0.1261	0.0767	0.2168	0.1648	0.0729	0.4460	0.1261
80	0.2361	0.3142	0.1954	0.2875	0.2531	0.2320	0.3367	0.0031

Transformed 87 Item Teacher Matrix(con't)

	1	2	3	4	5	6	7	8
81	0.3405	0.2977	0.2023	-0.0009	0.0168	0.1455	0.3449	-0.1170
82	0.5652	0.3361	-0.0547	0.3684	-0.1389	0.2376	0.5430	-0.0268
83	0.2552	0.4793	-0.0050	0.1713	0.0956	0.3821	0.1848	0.1701
84	0.3891	0.0452	-0.1130	0.3091	0.0158	0.0712	0.3306	0.1160
85	0.0059	0.3587	0.1765	0.0698	0.3244	0.1218	0.3298	0.0412
86	0.2448	0.4278	0.1088	0.2887	0.0101	0.2912	0.3731	0.0825
87	-0.0189	0.2376	0.0558	0.3136	0.2170	-0.1081	0.4928	-0.0716