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ABSTRACT

The study was designed to identify a broad range of desired outcomes for the common schools of Washington to serve as the basis for developing a statement of educational goals. A special Delphi technique was developed and put into operation. The sample of 866 (of which 360 returned all three questionnaires) was based on four sociogeographic and seven major occupational classifications. Results include: (1) Twenty-seven items met the criteria established to define desired educational outcomes for the public schools in Washington. (2) Although little difference was reflected by the responses of urban-rural sociogeographical categories, responses to 37 items were significantly different for the occupational groups. As participants moved to consensus on the third questionnaire, the significant response differences disappeared. (3) Responses to items stated as process statements generally showed greater variance than did responses to items stated as educational outcome. (4) The higher education representatives were most tenacious in their opinions and students the least. (5) The responses of those who returned all three questionnaires generally reflected higher medians and less variance than did those who dropped out. (The 22-page appendix includes tables which statistically analyze the data.) (Author/SC)

CONSENSUS FORMATION ON EDUCATIONAL OUTCOMES USING A MODIFIED DELPHI TECHNIQUE

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Introduction

This study was designed to identify a broad range of desired outcomes for the common schools of Washington to serve as the basis for developing a statement of educational goals.

In order to obtain data from a large number of respondents and gain consensus on a variety of school outcomes, a special Delphi technique was developed and put into operation. The actual process was modified from that used in a study conducted at the University of Virginia in 1969 and reported by Cyphert and Gant (1970).

Usually to gain consensus formation a group of people are called together to talk out a problem until a number of the more persuasive individuals agree to a representative or common response. Research evidence illustrates that often a consensus arrived at in this fashion does not reflect the full participation of all members of the group and may be weakened to the degree that this is true (Asch, 1951; Festinger et al, 1950; Newcomb, 1943; Walker and Heyns, 1962).

Delphi

In the words of Helmer and Rescher (1959) the Delphi process substitutes for face-to-face group activity a ". . . carefully designed program of sequential individual interrogations (best conducted by questionnaires) interspersed with information and opinion feedback . . .(p. 47)."

In the present investigation individuals were asked to participate in a three-part survey designed to identify desired educational outcomes for the common school system of the State of Washington. The first questionnaire encouraged respondents to consider what conditions are likely to be present in the decade 1975 to 1985, and to suggest possible program direction for the common schools in light of these conditions.

The second questionnaire was developed from the responses to the first and asked the respondents to indicate a priority rating for each of 67 items on the basis of a six-point scale.

The third questionnaire included the same statements as the second questionnaire, but gave additional information in the form of the modal response and the respondent's response for each item. Each participant was asked to consider revising his opinions in light of this information.

The three questionnaires were administered in one-month intervals beginning in the middle of March, 1971. (See Appendix A.)

The three-phase process was aimed at generating an expanded range of educational outcomes, a measurable degree of consensus on each outcome, and a minority report of individual reasons for not moving to consensus.

Sample

A representative sample based on sociogeographic criteria was selected. Occasional reports emitting from various legislative, executive, and educational agencies have implied differences in the State of Washington associated with urban-rural sociogeographic characteristics. School districts in the state, however, have never been systematically categorized on this basis. It was decided that for the purpose of this study a sample representative of the selected urban-rural criteria would

facilitate a series of comparisons not previously possible and provide a useful framework for the future organization of data. Four discrete categories were defined: urban metropolitan, urban non-metropolitan, suburban, and rural-small town. These categories provided the guidelines for selecting a representative sample for five of the seven major occupational groupings in the study.

The seven major occupation classifications for the study were: teacher, administrator, student, school director and PTA president, business-labor-professional, higher education, and office of the Superintendent of Public Instruction. The nature of the last two categories is such that no attempt was made to match them to the geographic criteria. (See Table 1.)

The total sample included 866 individuals who received both the first and second questionnaires. The third instrument, however, was sent only to those respondents who returned the second.

Research Questions

Five questions guided the investigation.

1. What are the desired educational outcomes for the common schools of Washington?
2. Do priority and consensus responses to the 52 questionnaire items stated as student outcomes differ on the basis of the sociogeographic area of residence of the respondents or occupational group membership?
3. Does the variability of responses to questionnaire items differ significantly when responses to items stated as educational outcomes (items 1-52) are compared with responses to process statements (items 53-67)?

4. Which of the occupational groups will hold most firmly to the priorities its members established on Questionnaire 2?
5. Will the participants who returned the third questionnaire represent a random sample of the same population as those who did not return Questionnaire 3?

Analysis

Since the sampling process used in the study did not lend itself to rigorous parametric statistical analysis to determine the significance of differences, special consideration was given to both data processing and computer programming; and measures of central tendency and variability were calculated to facilitate non-parametric response comparisons. Five basic operations were carried out. Desired outcomes were determined. The responses of the urban-rural categories and occupational groups were analyzed to determine the significance of response differences. A variability score was developed to investigate the differences between responses to items stated as outcomes in terms of student performance and responses to items stated as educational processes. A tenacity rate was developed to compare how strongly occupational groups held to original priorities. Statistical procedures were performed to determine whether those participants responding to the third questionnaire were a sample of the same population as those who did not return that questionnaire.

Findings

The major findings were organized and presented in relationship to the five research questions described in the design of the study.

1. Twenty-seven items met the criteria established to define desired educational outcomes. (See the circled items on the Final Distribution of Responses in Appendix A.)

2. On questionnaire 2 outcome items, although little difference was reflected by the responses of urban-rural categories, responses to 37 items were significantly different for the occupational groups. As participants moved to consensus on the third questionnaire, the significant response differences disapeared. (See Tables 2 and 3.)
3. Responses to items stated as processes generally showed greater variance than did responses to outcome items. (See Tables 4 and 5.)
4. The higher education representatives were most tenacious in their opinions and students the least. (See Table 6.)
5. The responses of the 360 participants who returned all three questionnaires generally reflected higher medians and less variance than did those who dropped out. (See Table 7.)

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APPENDIX A

STATE OF WASHINGTON

Superintendent of Public Instruction

LOUIS BRUNO
STATE SUPERINTENDENT

March 17, 1971

P. O. BOX 527
OLYMPIA 98501

The State Board of Education of Washington is interested in the continuing improvement of the public common school system. As a first step in establishing goals or targets for 1975 and beyond, a broad sampling of persons interested in education is being asked to respond to a three-part survey to help identify desired educational outcomes of the future.

The process we will follow involves the use of three questionnaires:

1. The first questionnaire, which is included with this letter, asks you to suggest possible outcomes or targets for the public common school system.

2. The second questionnaire, which you will receive in April, will ask you to indicate a priority rating for a number of targets or outcomes developed from the first questionnaire.

3. The third and final questionnaire in May will show the average response to each item as indicated by the ratings on the second questionnaire. You will be asked to consider revising your response in light of this additional information.

The consensus forming procedure was used quite successfully to help the School of Education at the University of Virginia establish target goals for the decade of the 1970's. We are convinced that this technique of gaining expert opinions about the future without the expense of bringing people together in a face-to-face contact situation is an appropriate path to follow during this period of economic flux in our state.

I would appreciate it if you would take the time to involve yourself in this important process.

Cordially,

Louis Bruno

Louis Bruno
State Superintendent
of Public Instruction

LB:pw
Enclosure

March 17 1971

Name_____*

Questionnaire 1

As you respond to the question below, think in terms of what conditions are likely to be present in the decade 1975 to 1985 and what the educational outcomes of the K-12 public common school system should be in view of these conditions. Please be brief with each response--not more than five or six words for each item. Direct your thinking toward a specific educational outcome which will be desired in the years ahead. Broad philosophical statements will <u>not</u> be as helpful in the study as a concise focus on outcomes in terms of student performance.

Please complete the following statement. Space is provided for you to add a fifth outcome.

IN THE DECADE 1975 TO 1985 THE WASHINGTON PUBLIC COMMON SCHOOL SYSTEM SHOULD DEVELOP PROGRAMS WHICH MOVE IN THE DIRECTION OF:

INCREASING_____

MAINTAINING_____

REDUCING_____

DEVELOPING_____

( )_____

Please return this form in the enclosed envelope by March 31, 1971.

Alfred Rasp, Jr., Supervisor
Secondary Education
P.O. Box 527
Olympia, Washington 98501

*Names will be withheld from published tabulations.

FINAL DISTRIBUTION OF RESPONSES

July 10, 1971

The left-hand column shows the modal responses for each item. The special right-hand column shows the percentage of distribution for each item.

The scale of priority is:

Schools ought not be involved at all	Lowest priority	Low priority	Some priority - after higher priorities are achieved.	High priority	Highest priority - a must
1	2	3	4	5	6

Response (Lowest ... Highest)	Item	FINAL DISTRIBUTION - 360 RESPONSES					
	As a result of the experiences provided by the public common school system, each student should:	1	2	3	4	5	6
1 2 3 4 **[5]** 6	(1.) Have an understanding of alternative political and economic systems.	.3	.6	1.9	2.8	91.7	2.8
1 2 3 4 **[5]** 6	(2.) Recognize attempts to influence behavior through advertising and other forms of mass persuasion.	.8	1.4	2.5	2.5	88.6	4.2
1 2 3 4 **[5]** 6	(3.) Be able to read the daily newspaper with understanding.		.6	1.1	2.2	87.2	8.9
1 2 3 **[4]** 5 6	4. Be able to compare the basic beliefs of the major world religions.	3.9	3.9	2.5	85.8	2.8	1.1
1 2 3 4 **[5]** 6	(5.) Be able to distinguish between fact and opinion as presented in newspapers, magazines, and television.			.3	1.4	88.3	9.4
1 2 3 4 5 **[6]**	(6.) Understand the ingredients of good personal hygiene.	.3	.6	3.6	8.3	4.4	82.8
1 2 3 4 5 **[6]**	(7.) Recognize the importance of cultural, racial, and ethnic differences as contributing positively to our nation's future.	.3	.3	3.1	6.4	3.1	86.4
1 2 3 4 **[5]** 6	(8.) Be able to present a positive image to a potential employer.	.8	1.7	3.9	2.5	84.7	6.4
1 2 3 4 **[5]** 6	(9.) Be skilled in obtaining information from a variety of sources (printed materials, observations, films, etc.).			.3	1.7	91.9	6.1

Response	Item	FINAL DISTRIBUTION - 360 RESPONSES					
Lowest Highest	As a result of the experiences provided by the public common school system, each student should:	1	2	3	4	5	6
1 2 3 [4] 5 6	10. View competition in all things as healthy.	3.1	4.4	5.8	72.8	5.8	3.1
1 2 3 [4] 5 6	11. Be skilled in the techniques of some style of artistic expression.	.6	4.4	4.4	85.8	3.6	1.1
1 2 3 4 [5] 6	(12.) Have a knowledge of occupational and educational alternatives; their requirements, performance expectations, and rewards.		.3	.8	1.1	92.2	5.6
1 2 3 [4] 5 6	13. Demonstrate the ability to develop novel solutions to problems.	.6	1.7	3.3	82.2	6.4	5.8
1 2 3 4 5 [6]	(14.) Demonstrate competency in the basic skills commonly known as the 3 R's.			.8	2.8	4.2	92.2
1 2 3 [4] 5 6	15. Understand the contributions of the arts to an enhanced enjoyment of life.	.3		1.9	90.3	3.3	4.2
1 2 3 [4] 5 6	16. Be able to apply basic survival techniques.	2.2	3.6	2.2	83.6	4.4	3.3
1 2 3 4 5 [6]	(17.) Know the probable effects of drug use.	.3	.3	1.9	8.1	3.9	85.6
1 2 3 4 [5] 6	(18.) Understand the benefits of a nutritionally balanced diet.	.3	.6	2.2	1.9	91.9	3.1
1 2 3 4 [5] 6	(19.) Be able to pursue leisure-time activities which are interesting and enjoyable.	1.7	1.4	4.7	3.3	86.7	3.1
1 2 3 4 5 [6]	(20.) Feel good about himself.	1.7	1.4	3.3	4.4	2.5	86.7
1 2 3 [4] 5 6	21. Desire to pursue a formal education beyond the high school.	3.6	3.6	4.2	82.5	4.4	1.7
1 2 3 [4] 5 6	22. Be able to communicate an idea using a variety of techniques like drawings, photographs, and movie film.	.3	4.2	2.2	87.5	2.8	2.2
1 2 3 [4] 5 6	23. Focus attention on contemporary events rather than past history.	1.9	2.2	2.5	84.2	5.3	3.3
1 2 3 [4] 5 6	24. Have knowledge of the advantages and limitations of computers.	1.9	4.2	1.9	88.3	2.2	1.4

Response	Item	FINAL DISTRIBUTION - 360 RESPONSES					
Lowest Highest	As a result of the experiences provided by the public common school system, each student should:	1	2	3	4	5	6
1 2 3 4 5 [6]	(25.) Know the basic principles and values of the American democratic heritage.			2.2	3.9	4.7	89.2
1 2 3 [4] 5 6	26. Have skills in the careful observation and judging of television programs.	2.2	3.6	1.9	86.9	4.4	.8
1 2 [3] 4 5 6	27. Be familiar with the basic laws of nuclear physics.	1.9	4.2	90.0	2.2	1.4	.3
1 2 3 4 [5] 6	(28.) Feel free to fully express his individuality.	1.7	5.9	6.9	4.2	79.2	4.2
1 2 3 4 [5] 6	(29.) Be able to predict likely consequences of selected courses of action.	.6		.8	2.2	90.3	6.1
1 2 3 [4] 5 6	30. Be able to use a scientist's style of investigation.	.8	2.2	2.2	87.2	4.2	3.3
1 2 3 4 5 [6]	(31.) Be able to interact meaningfully with people from different cultures, races, generations, and life styles.	.6	1.1	2.2	5.0	1.9	88.9
1 2 3 4 [5] 6	(32.) Be aware of issues of local, national, and world interest.			.6	1.1	94.4	3.9
1 2 3 4 [5] 6	(33.) Understand the methods by which human reproduction may be controlled.	1.7	1.7	3.6	3.6	86.1	3.3
1 2 3 [4] 5 6	34. Understand the contributions literature can make in explaining human behavior.		1.1	1.4	91.9	3.3	2.2
1 2 3 4 5 [6]	(35.) Have a saleable job entry skill, whether or not he plans on college.	.8	1.7	4.4	11.4	3.3	78.3
1 2 3 4 [5] 6	(36.) Have a capacity for dealing with surprise and uncertainty.	.3	.3	2.2	.6	92.8	2.8
1 2 3 [4] 5 6	37. Be able to use a variety of language forms, selecting words and grammar appropriate to the given situation.	.6	1.4	.8	88.6	4.4	4.2
1 2 3 4 [5] 6	(38.) Be able to provide logical arguments based on available evidence to support decisions regarding public policy.	.3	.3	1.9	1.4	93.1	2.5

Response	Item	FINAL DISTRIBUTION - 360 RESPONSES					
Lowest Highest	As a result of the experiences provided by the public common school system, each student should:	1	2	3	4	5	6
1 2 [3] 4 5 6	39. Be able to carry on an informal conversation in at least one foreign language.	4.4	4.7	83.1	3.9	2.8	1.1
1 2 3 [4] 5 6	40. Have experiences in team sports and/or performing groups.	1.4	1.7	1.7	86.7	4.2	4.4
1 2 3 [4] 5 6	41. Know the roles different members of the family are expected to play and the reasons for these roles.	3.6	2.2	1.9	83.6	2.2	6.4
1 2 [3] 4 5 6	42. Be able to develop logical proofs in geometry.	3.6	1.7	90.3	2.5	1.4	.6
[1] 2 3 4 5 6	43. Understand the importance of and be willing to participate in nonviolent demonstrations.	69.4	3.6	9.7	9.7	6.7	.8
1 2 3 [4] 5 6	44. Be able to "kill time" in a way that is personally satisfying.	12.2	5.6	1.1	78.6	1.1	1.4
[1] 2 3 4 5 6	45. Develop an ability to "beat the system."	88.1	1.7	5.3	2.8	.6	1.7
1 2 3 4 [5] 6	(46.) Possess a commitment to the American way of life.	4.4	2.5	6.1	1.9	81.1	3.9
1 2 3 4 5 [6]	(47.) Know and apply the principles of safe driving.	.8	2.2	4.7	4.7	1.9	85.6
1 2 3 [4] 5 6	48. Be able to read a technical book in a field of interest.	.3	1.1	.6	93.6	2.5	1.9
1 2 3 [4] 5 6	49. Have developed hobby skills such as sewing, woodworking, etc.	1.1	2.2	1.7	89.2	3.1	2.8
1 2 3 [4] 5 6	50. Have skill in at least one life-long sport such as golf or tennis.	4.7	4.7	1.9	83.9	2.2	2.5
1 2 3 4 [5] 6	(51.) Understand the complex relationships that exist between human activities and the physical environment.	.6	.6	.8	.6	93.6	3.9
1 2 3 4 [5] 6	(52.) Be able to work in groups in order to attain group goals.	.6	.6	1.1	.8	92.8	4.2

ON THE NEXT PAGE YOU WILL BE ASKED TO CONSIDER FOURTEEN STATEMENTS INVOLVING EDUCATIONAL PRACTICES.

Response (Lowest 1 2 3 4 5 6 Highest)	Item	FINAL DISTRIBUTION - 360 RESPONSES					
	To achieve the desired educational outcomes, school systems should:	1	2	3	4	5	6
1 2 3 4 5 [6]	53. Reduce emphasis on report cards and competition for high grades.	3.9	5.6	8.3	5.8	4.7	71.7
1 2 3 4 [5] 6	54. Involve the community to a greater degree in setting goals and objectives for the educational programs.	.6	1.7	1.7	.3	93.3	2.5
1 2 3 [4] 5 6	55. Provide an open campus for secondary students so they can come and go freely during the day.	10.6	8.1	1.4	72.8	1.7	5.6
1 2 3 4 [5] 6	56. Provide high school credit for a wide variety of job-experience programs.	.3	.6	2.8	1.4	92.5	2.5
[1] 2 3 4 5 6	57. Increase public educational opportunities for children ages 3 to 5.	63.6	.8	5.3	9.4	9.7	11.1
1 2 3 4 [5] 6	58. Involve more non-credentialed resource persons in school instruction and use school funding to support this endeavor.	3.6	3.9	2.2	1.4	86.9	1.9
1 2 3 [4] 5 6	59. Provide parents a greater opportunity to select which schools their children will attend.	8.1	6.1	2.2	76.9	1.4	5.3
1 2 3 [4] 5 6	60. Increase the opportunity for students to enter and exit programs at any time during the school year.	5.0	4.2	.8	81.9	2.5	5.6
1 2 3 4 5 [6]	61. Operate buildings and programs year round.	3.6	4.4	5.6	6.1	1.7	78.6
1 2 3 [4] 5 6	62. Be held accountable for student success.	5.6	2.5	1.9	77.5	1.9	10.6
1 2 3 4 [5] 6	63. Provide special programs for gifted children.	1.7	.6	2.2	2.8	89.7	3.1
1 2 3 [4] 5 6	64. Provide youth the opportunity to become involved in administrative policy making.	5.8	3.3	1.4	83.6	1.9	3.9
1 2 3 4 [5] 6	65. Contract with local businesses to provide job orientation and supervise work experiences for students.	.8	.6	.8	1.9	94.7	1.1
1 2 3 4 [5] 6	66. Provide additional programs and specialized services for handicapped children.	.3	.8	2.8	2.2	92.2	1.7
1 2 3 4 5 [6]	67. Increase pupil self-direction and decision making in the selection of learning experiences.	1.4	.8	3.3	4.7	2.5	87.2

TABLE 1

Outline of Participants
Washington State Delphi Survey
To Establish Goals for the Common Schools

Occupational Categories	Urban Metropolitan	Urban Non-Metropolitan	Suburban	Rural Small Community	Total
Teachers	19	16	43	23	101
Administrators	22	16	45	20	103
Students	19	22	47	20	108
PTA Presidents School Directors	20	15	45	20	100
Business Labor Professionals	72	57	88	86	303
Higher Education	----------	---------- 73	----------	----------	73
SPI Staff	----------	---------- 78	----------	----------	78
TOTAL					866

Spring 1971

This representative sample was based on data which indicated that approximately 20 percent of the Washington common school children attend schools in the urban metropolitan areas of Seattle, Spokane, and Tacoma; 15 percent in non-metropolitan cities over 15,000 population; 45 percent in suburban school districts; and 20 percent in rural small community areas.

TABLE 2

Questionnaire 2 Responses to Outcome Items
Showing Significant Differences at .05 Level
by Sociogeographic Areas

Item	Above* Below Median	Urban Metropolitan	Urban Non-Metropolitan	Suburban	Rural Small Town	Chi Square Value
10. View competition in all things as healthy.	+	42	27	94	65	
	-	51	46	86	47	9.056
17. Know the probable effects of drug use.	+	39	28	96	66	
	-	55	45	84	45	11.455
21. Desire to pursue a formal education beyond the high school.	+	44	28	87	69	
	-	49	13	93	43	9.673
47. Know and apply the principles of safe driving.	+	40	35	81	74	
	-	55	38	101	38	16.191

The critical value of χ^2 at the .05 level of significance with 3 degrees of freedom is 7.851.

*Above includes values above or equal to the median.

TABLE 3

Questionnaire 2 Responses to Outcome Items
Showing Significant Differences at .05 Level by Occupational Groups

Questionnaire Items	Above Below Median	Educators				Non-Educators		Other	Chi Square Value
		Teacher	Admin.	High Ed.	SPI	PTA/DIR	B-L-P	Students	
1. Have an understanding of alternative political and economic systems.	+	27	50	36*	42*	20	65	45	
	-	35	41	16	19	35*	75	63	26.090
2. Recognize attempts to influence behavior through advertising and other forms of mass persuasion.	+	29	55*	36*	33	26	73	31	
	-	32	35	17	28	30	66	77*	32.037
3. Be able to read the daily newspaper with understanding.	+	29	57*	32	33	27	68	40	
	-	33	34	21	28	29	74	67*	15.902
5. Be able to distinguish between fact and opinion as presented in newspapers. magazines and television.	+	32	53	32*	32	27	72	39	
	-	30	38	21	29	30	70	69*	13.486
6. Understand the ingredients of good personal hygiene.	+	31	52	22	31	30	85*	35	
	-	31	39	31	30	27	58	73*	22.012
7. Recognize the importance of cultural, racial and ethnic differences as contributing positively to our nation's future	+	30	49	33*	40*	27	55	50	
	-	32	42	20	21	30	85*	56	16.628

	Questionnaire Items	Above Below Median	Educators				Non-Educators		Other	Chi Square Value
			Teacher	Admin.	High Ed.	SPI	PTA/DIR	B-L-P	Students	
8.	Be able to present a positive image to a potential employer.	+	31	56*	12	32	37*	76	41	
		-	31	35	41*	29	20	65	67*	33.034
10.	View competition in all things as healthy.	+	26	49	14	19	34	89*	55	
		-	36	42	39*	42*	24	51	52	34.738
14.	Demonstrate competency in the basic skills commonly known as the 3 R's.	+	30	45	26	29	35*	82	38	
		-	32	46	27	32	23	60	67*	14.135
15.	Understand the contributions of the arts to an enhanced enjoyment of life.	+	28	53	32*	37*	28	65	41	
		-	34	38	21	24	30	74	65*	14.185
17.	Know the probable effects of drug use.	+	31	48	15	20	38*	82	50	
		-	31	43	37*	41*	20	58	57	26.955
18.	Understand the benefits of a nutritionally balanced diet.	+	34	53	24	31	35*	75	34	
		-	27	38	29	30	23	66	73*	21.035
19.	Be able to pursue leisure-time activities which are interesting and enjoyable.	+	35	62*	27	45*	22	46	49	
		-	27	29	26	16	36*	94*	58	47.398
20.	Feel good about himself.	+	34	54	28	47*	25	59	37	
		-	28	37	25	14	33	80	69*	35.708
21.	Desire to pursue a formal education beyond the high school.	+	27	47	18	22	27	73	71*	
		-	35	43	34*	39*	31	67	35	23.628
23.	Focus attention on contemporary events rather than past history.	+	27	52	21	34	21	57	73*	
		-	34	39	32*	27	36*	84	33	29.958

	Questionnaire Items	Above Below Median	Educators				Non-Educators		Other	Chi Square Value
			Teacher	Admin.	High Ed.	SPI	PTA/DIR	B-L-P	Students	
25.	Know the basic principles and values of the American democratic heritage.	+	32	54	28	31	39*	82	22	
		-	30	37	24	30	19	60	86*	51.788
26.	Have skills in the careful observation and judging of television programs.	+	30	60*	33*	38*	31	64	29	
		-	32	31	19	23	27	77	78*	40.671
28.	Feel free to fully express his individuality.	+	27	41	26	37*	25	53	75*	
		-	34	50	25	24	32	88*	30	33.315
29.	Be able to predict likely consequences of selected courses of action.	+	33	58*	37*	40*	28	50	36	
		-	28	33	15	21	29	89*	68*	43.308
30.	Be able to use a scientist's style of investigation.	+	33	61*	34*	37*	24	53	44	
		-	29	30	19	24	34*	85*	64	30.680
31.	Be able to interact meaningfully with people from different cultures, races, generations, and life styles.	+	37	47	34*	40*	24	52	50	
		-	25	44	19	21	34*	88*	56	23.890
34.	Understand the contributions literature can make in explaining human behavior.	+	32	56*	31	34	23	60	49	
		-	30	35	22	27	35*	80	59	13.492
35.	Have a saleable job entry skill, whether or not he plans on college.	+	32	51	13	31	35*	79	45	
		-	30	40	40*	30	23	62	63	22.690
36.	Have a capacity for dealing with surprise and uncertainty.	+	32	51	30	37*	31	62	41	
		-	30	39	23	24	27	77	67*	13.497

	Questionnaire Items	Above / Below Median	Educators				Non-Educators		Other	Chi Square Value
			Teacher	Admin.	High Ed.	SPI	PTA/DIR	B-L-P	Students	
37.	Be able to use a variety of language forms, selecting words and grammar appropriate to the given situation.	+	32	48	32*	29	39*	70	35	
		-	29	43	21	32	19	72	71*	21.996
39.	Be able to carry on an informal conversation in at least one foreign language.	+	29	39	28	21	32	84*	54	
		-	33	52	25	40*	26	58	53	13.593
41.	Know the roles different members of the family are expected to play and the reasons for these roles.	+	32	59*	20	33	27	77	36	
		-	29	32	33*	27	31	65	71*	24.658
42.	Be able to develop logical proofs in geometry.	+	24	44	23	20	33	92*	50	
		-	37	47	30	41*	25	50	57	25.005
43.	Understand the importance of and be willing to participate in nonviolent demonstrations.	+	29	48	30	35	23	51	68*	
		-	33	42	23	25	34*	90*	39	24.012
45.	Develop an ability to "beat the system".	+	30	49	26	26	22	49	78*	
		-	31	40	25	35	36*	88*	29	39.168
46.	Possess a commitment to the American way of life.	+	30	63*	23	27	34*	79	26	
		-	32	26	28	30	24	59	80*	48.212
47.	Know and apply the principles of safe driving.	+	29	45	16	27	36*	77	57	
		-	33	46	37*	34	22	66	50	14.074

	Questionnaire Items	Above Below Median	Educators				Non-Educators		Other	Chi Square Value
			Teacher	Admin.	High Ed.	SPI	PTA/DIR	B-L-P	Students	
48.	Be able to read a technical book in a field of interest.	+	24	48	28	22	35*	81	48	
		-	38*	43	24	39*	23	62	59	14.612
49.	Have developed hobby skills such as sewing, woodworking, etc.	+	28	55*	18	38*	24	75	49	
		-	34	36	35*	23	34*	67	58	16.620
50.	Have skill in at least one life-long sport such as golf or tennis.	+	25	58*	24	40*	18	68	53	
		-	37	33	29	21	40*	74	53	24.177
51.	Understand the complex relationships that exist between human activities and the physical environment.	+	31	52	34*	41*	24	58	46	
		-	31	39	19	20	34*	83	51	21.589

The critical value of χ^2 at the .05 level of significance with 6 degrees of freedom is 12.592.

*Indicates group responses contributing most to the overall significance of differences. The selection is based on those cells in which 60 percent or more of the group response total is found above or below the total median.

TABLE 4

A Comparison of Responses to Items Stated as Outcomes and Processes Using the Median Test

	Outcome Items	Process Items	Total
Number of Items above the Total Median	22 1/2	11	33 1/2
Number of Items below the Total Median	29 1/2	4	33 1/2
Total	52	15	67

$\chi^2 = 3.095$

The critical value of χ^2 at the .05 level of significance with 1 degree of freedom is 3.841.

TABLE 5

Comparison of Responses to Items Stated as Processes to a Theoretical Distribution Using the Kolmogorov-Smirnov One Sample Test

	Quartile 1	Quartile 2	Quartile 3	Quartile 4
Theoretical Cumulative Distribution of Choices	$\frac{3.75}{15}$	$\frac{7.5}{15}$	$\frac{11.25}{15}$	$\frac{15}{15}$
Observed Cumulative Distribution of Choices	$\frac{1}{15}$	$\frac{4}{15}$	$\frac{6}{15}$	$\frac{15}{15}$
Differences Between Theoretical and Observed	$\frac{2.75}{15}$	$\frac{3.5}{15}$	$\frac{5.25}{15}$	0

$D = \frac{5.25}{15} = .350$

The critical value of D at the .05 level of significance when N = 15 is .338.

TABLE 6

Tenacity Rates for
Occupational Groups

Occupational Categories	Sum of Modal Deviations		Tenacity Rate
	Questionnaire 2	Questionnaire 3	
Higher Education	84.45	59.60	71
Staff of SPI	81.89	52.10	64
Business, Labor, Professions	91.75	53.70	59
Teachers	83.41	48.39	58
PTA Presidents School Directors	90.25	49.84	55
Administrators	76.90	38.86	52
Students	102.91	47.76	46

FORMULA 1
Tenacity Rate

$$\text{Group Tenacity Rate} = \left[1 - \left(\frac{\text{Group Sum of Modal Deviations on Questionnaire 2} - \text{Group Sum of Modal Deviations on Questionnaire 3}}{\text{Group Sum of Modal Deviations on Questionnaire 2}}\right)\right] 100$$

TABLE 7

Participants and Dropouts:
A Comparison of Response Differences on Questionnaire 2

Questionnaire Item***	Total Median	Above** Below Median	Returned Questionnaire 2 and Questionnaire 3	Returned Questionnaire 2 Only	Chi Square Value
1	4.62	+	209	78	
		-	151	137	24.670*
2	4.45	+	314	72	
		-	146	141	34.177*
3	5.20	+	175	111	
		-	185	103	.447
4	3.68	+	196	91	
		-	164	123	7.160*
5	5.27	+	172	115	
		-	188	100	1.535
6	5.00	+	230	58	
		-	130	158	72.600*
7	5.14	+	228	57	
		-	132	155	69.445*
8	4.94	+	185	101	
		-	175	113	.783
9	5.11	+	181	106	
		-	179	108	.007

Questionnaire Item***	Total Median	Above** Below Median	Returned Questionnaire 2 and Questionnaire 3	Returned Questionnaire 2 Only	Chi Square Value
10	3.92	+	184	102	
		-	176	111	.435
11	3.77	+	207	79	
		-	153	134	21.491*
12	5.00	+	180	107	
		-	180	107	.007
13	4.23	+	176	110	
		-	184	102	.367
14	5.65	+	212	75	
		-	148	139	29.572*
15	4.07	+	188	97	
		-	172	115	1.981
16	4.14	+	167	120	
		-	193	95	4.413*
17	5.27	+	220	66	
		-	140	147	47.381*
18	4.70	+	202	84	
		-	158	129	14.224*
19	4.50	+	207	80	
		-	153	134	20.929*
20	5.47	+	214	71	
		-	146	141	34.920*

Questionnaire Item***	Total Median	Above** Below Median	Returned Questionnaire 2 and Questionnaire 3	Returned Questionnaire 2 Only	Chi Square Value
21	4.01	+	179	108	
		-	181	106	.007
22	3.94	+	186	101	
		-	174	113	.902
23	4.10	+	174	112	
		-	186	102	.708
24	3.66	+	205	82	
		-	155	133	18.296*
25	5.13	+	233	55	
		-	127	162	82.402*
26	3.70	+	212	75	
		-	148	140	30.074*
27	3.06	+	187	101	
		-	173	115	1.252
28	4.68	+	187	99	
		-	173	113	1.267
29	4.91	+	192	93	
		-	168	118	4.198*
30	3.86	+	201	86	
		-	159	126	12.524*
31	5.15	+	229	58	
		-	131	156	70.103*

Questionnaire Items***	Total Median	Above** Below Median	Returned Questionnaire 2 and Questionnaire 3	Returned Questionnaire 2 Only	Chi Square Value
32	5.08	+	174	114	
		-	186	103	.795
33	4.65	+	197	88	
		-	163	123	8.502*
34	4.12	+	187	100	
		-	173	115	1.379
35	4.91	+	232	56	
		-	128	160	78.585*
36	4.52	+	215	73	
		-	145	143	35.267*
37	4.32	+	170	117	
		-	190	97	2.690
38	4.65	+	208	80	
		-	152	136	22.407*
39	3.04	+	183	105	
		-	177	111	.185
40	3.93	+	182	106	
		-	178	110	.067
41	4.22	+	177	110	
		-	183	106	.104
42	3.06	+	178	109	
		-	182	107	.023

Questionnaire Items***	Total Median	Above** Below Median	Returned Questionnaire 2 and Questionnaire 3	Returned Questionnaire 2 Only	Chi Square Value
43	2.77	+ -	134 226	153 62	60.676*
44	3.34	+ -	203 157	84 130	15.088*
45	1.34	+ -	153 207	134 80	20.929*
46	4.51	+ -	202 158	84 129	14.224*
47	4.95	+ -	232 128	56 161	79.311*
48	4.21	+ -	174 186	114 103	.795
49	4.10	+ -	176 184	111 105	.245
50	3.76	+ -	192 168	95 120	4.147*
51	4.80	+ -	198 162	89 126	9.429*
52	4.97	+ -	188 172	100 117	1.803
53	4.54	+ -	232 128	54 160	80.982*

Questionnaire Item***	Total Median	Above** Below Median	Returned Questionnaire 2 and Questionnaire 3	Returned Questionnaire 2 Only	Chi Square Value
54	4.93	+	184	103	
		-	176	112	.432
55	3.54	+	189	98	
		-	171	116	2.153
56	5.00	+	176	111	
		-	184	105	.245
57	3.39	+	129	158	
		-	231	57	74.846*
58	4.25	+	217	69	
		-	143	143	39.940*
59	3.63	+	187	100	
		-	173	115	1.379
60	3.60	+	198	87	
		-	162	125	9.853*
61	4.64	+	236	51	
		-	124	163	91.800*
62	4.20	+	183	101	
		-	177	108	.240
63	4.77	+	187	101	
		-	173	115	1.252
64	4.03	+	170	117	
		-	190	98	2.508

Questionnaire Item***	Total Median	Above** Below Median	Returned Questionnaire 2 and Questionnaire 3	Returned Questionnaire 2 Only	Chi Square Value
65	4.91	+	185	102	
		-	175	113	.688
66	4.90	+	180	107	
		-	180	108	.001
67	5.02	+	225	62	
		-	135	152	59.017*

*The critical value of χ^2 at the .05 level of significance with 1 degree of freedom is 3.84.

**Above includes values above or equal to the median.

***The complete wording of the questionnaire items appears in Appendix A.