DOCUMENT RESUME

ED 049 948 24 SE 011 239

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TITLE	Statistical Report and Observations on Attitudes Toward S-APA Installation from Fourth and Fifth Grade Teachers in ERIE's Pilot Schools Prior to an Initial Workshop Session.
INSTITUTION	Eastern Regional Inst. for Education, Syracuse, N.Y.
SPONS AGENCY	Office of Education (DHEW), Washington, D.C. Bureau of Research.
BUREAU NO	BR-6-1440
PUB DATE	Jan 70
NOTE	77p.; First draft
EDRS PRICE	EDRS Price MF-$0.65 HC-$3.29
DESCRIPTORS	Elementary School Science, *Elementary School Teachers, Evaluation, Grade 4, Grade 5, Inservice Programs, *Teacher Attitudes
IDENTIFIERS	Eastern Regional Institute for Education, Science (A Process Approach)

ABSTRACT

Studied were attitudes of 54 fourth and fifth-grade teachers from 21 New York and Pennsylvania pilot schools prior to an initial summer workshop on Science-A Process Approach (AAAS) prior to installation of the AAAS during the 1969-70 school year. A questionnaire was mailed to each teacher. Data and conclusions were reported with regard to installation variables; AAAS curriculum characteristics; consultant functions and utilization; and student achievement. Results indicate older, experienced teachers and those with graduate work were most familiar with Science-A Process Approach and were most favorably impressed by the program. Mean values indicated New York teachers spent more time teaching science and subgrouped pupils for individualized instruction than did Pennsylvania teachers. Teachers with one to three years experience utilized manipulative equipment more regularly than other groups. Approximately 80 percent of the teachers from both states felt that skipping exercises was a disadvantage to students. Teachers from ages 31 to 40 tended to be the most concerned about student achievement. (JM)

EASTERN REGIONAL INSTITUTE FOR EDUCATION

"Statistical Report and Observations on Attitudes Toward S-APA Installation from Fourth and Fifth Grade Teachers in ERIE's Pilot Schools Prior to an Initial Workshop Session"

(First Draft)

Prepared By:
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January, 1970

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Prior to a preservice workshop held at Ithaca College, Ithaca, New York, during August, 1969, the enclosed document entitled "Ithaca College Science Workshop Information FORM" was mailed to fourth and fifth grade teachers of the Eastern Regional Institute for Education's (ERIE) twenty-one pilot schools. The pilot schools are geographically distributed throughout the states of New York and Pennsylvania. These schools have completed their second year of installing S-APA, which had been taught in grades kindergarten through three. The schools, their locations, and ERIE code numbers are as follows:

Code No.	School	Location
01	F. S. Banford Elementary School	Canton, N. Y.
02	Cedar Road Elementary School	E. Northport, N. Y.
03	Cortland Campus School	Cortland, N. Y.
04	Maple Elementary School	Williamsville, N. Y.
05	Nathaniel Rochester School #3	Rochester, N. Y.
06	General E. S. Otis School #30	Rochester, N. Y.
07	C. C. Ring Elementary School	Jamestown, N. Y.
08	Rosedale Elementary School	White Plains, N. Y.
09	Calvin Smith Elementary School	Painted Post, N. Y.
10	Ticonderoga Elementary School	Ticonderoga, N. Y.
11	Trumansburg Elementary School	Trumansburg, N. Y.
12	Westmere Elementary School	Albany, N. Y.
15	Blessed Sacrament School	Syracuse, N. Y.
20	J. Henry Cochran Elementary	Williamsport, Penna.
21	Fairview Elementary School	Fairview, Penna.
22	Wellsboro Elementary School	Wellsboro, Penna.
23	Abraham Lincoln Elementary	Pittsburgh, Penna.
24	Overlook Elementary School	Pittsburgh, Penna.
25	Shannock Valley Elementary	Rural Valley, Penna.
26	Washington Elementary School	Shamokin, Penna.
29	St. Cyril of Alexandria School	Pittsburgh, Penna.

The primary purpose of the questionnaire was to ascertain the attitudes of these pilot school teachers prior to S-APA installation in the fourth and fifth grades. A point worth mentioning, is that many of the teachers responding to the questionnaire have been physically present in a S-APA-oriented

atmosphere for the past two years. Although most, if not all, teachers approached the questions as candidly as possible, many preconceived notions may or may not have unconsciously biased their responses. The collected data have their foundations in the responses to the items on the questionnaire. The focal point of the discussion will be answers and comments to questions one through nineteen. The report is based on the responses of 54 pilot school teachers. As in any questionnaire-data gathering endeavor, many of the items are not answered, such is the case here.

The data represent a summary of the teachers' responses to the questions asked, signified by their mean numerical response on a one to seven continuum. The data have also been tabulated under four categories:

(1) States
(2) Age
(3) Years of Experience
(4) Highest Degree Received

There were 31 teachers from New York State and 23 teachers from Pennsylvania; there were 32 teachers between ages (twenty-one to thirty), 8 teachers between ages (thirty-one to forty), 13 teachers between ages (forty-one to fifty), 0 teachers between ages (fifty-one to sixty), and one teacher whose age was classified sixty-one plus; there were 10 teachers with zero years experience, 13 teachers with one to three years experience, 20 teachers with four to ten years experience, 7 teachers with eleven to twenty years experience, and 4 teachers with twenty - plus years experience; and finally there were 38 teachers with bachelor's degrees; 10 teachers with master's degrees, and 6 teachers with a master's - plus.

When the teachers were asked, "Right now, the degree to which I understand the nature and objectives of the elementary school science curricula known as Science--A Process Approach is:", they responded on the following continuum:

Have extensive knowledge about S-APA	1	2	3	4	5	6	7	Know nothing about S-APA

A mean numerical response of 4.8 with a standard deviation of 1.4 reflects average knowledge and understanding concerning the nature and objectives of Science--A Process Approach among the fourth and fifth grade teachers. Looking at the data by states finds:

Table #1:

Respondents	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
Penna. Educators	0	0%	1	5%	1	5%	7	39%	3	14%	6	27%	4	18%
N. Y. Educators	0	0%	3	9%	3	9%	9	28%	5	16%	10	31%	2	6%
All Educators	0	0%	4	7%	4	7%	16	30%	8	15%	16	30%	6	11%

The data reveal both Pennsylvania and New York educators being approximately equal with respect to familiarity and unfamiliarity of S-APA. Inspection of the data by age groupings finds:

Table #2:

Age Groupings	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
Ages (21 to 30)	0	0%	1	3%	3	9%	12	34%	5	14%	11	32%	3	9%
Ages (31 to 40)	0	0%	1	17%	0	0%	2	33%	1	17%	1	17%	1	17%
Ages (41 to 50)	0	0%	2	16%	1	8%	2	16%	2	16%	3	25%	2	16%
Ages (51 to 60)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ages (61 plus)	0	0%	0	0%	0	0%	0	0%	0	0%	1	100%	0	0%

The data indicate that teachers between thirty-one and fifty years of age are the most familiar with S-APA. A point worth mentioning is the unfamiliarity of S-APA among the youngest group of teachers (21 to 30). One would think this group to be the most familiar because of rather recent methods courses in elementary science. Examination of the data by number of teaching-years-experience finds:

Table #3:

Years of Experience Groupings	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
(0 years)	0	0%	0	0%	2	15%	2	15%	3	23%	3	23%	3	23%
(1 to 3 years)	0	0%	0	0%	1	9%	7	67%	0	0%	3	27%	0	0%
(4 to 10 years)	0	0%	3	16%	0	0%	5	26%	2	11%	8	42%	1	5%
(11 to 20 years)	0	0%	1	14%	0	0%	2	28%	2	28%	1	14%	1	14%
(20 plus years)	0	0%	0	0%	1	25%	0	0%	1	25%	1	25%	1	25%

The data reflect consistent thinking with that exhibited in Table #2. Teachers with four to ten years experience are the most familiar with S-APA, whereas those with no experience are the least familiar. Perhaps one of the reasons for unfamiliarity is the lack of exposure, not being physically present in a S-APA-oriented environment for the past two years. Scrutinization of the data by academic degrees and/or graduate course work of teachers finds:

Table #4:

Highest Degree Received	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
B.S. or B.A.	0	0%	1	3%	3	8%	14	35%	7	18%	13	33%	2	5%
M.S. or M.A.	0	0%	1	25%	0	0%	0	0%	1	25%	0	0%	2	50%
M.S.+ or M.A.+	0	0%	2	29%	0	0%	2	29%	0	0%	2	28%	1	14%

These data reveal a very interesting and significant piece of information. Teachers with master's degrees and/or advanced graduate work are much more familiar with S-APA than those with bachelor's degrees only. Inferentially speaking, graduate work contributes to S-APA exposure. It is quite possible that S-APA and other "new" elementary science programs are not taught during undergraduate methods courses because of time and scheduling considerations. These data tend to reinforce the need and continuance of ERIE's Regional Action Network of college professors. Perhaps their exposure and involvement as S-APA consultants may hopefully change philosophies and methodologies governing undergraduate elementary science methods courses.

When the educators were questioned as to how impressed they presently were with S-APA as an elementary school science program, they responded on the following continuum:

Very favorably impressed	1	2	3	4	5	6	7	Very unfavorably impressed

A mean numerical response of 2.8 was a standard deviation of 1.2 reflects that the teachers are rather favorably impressed with Science--A Process Approach. Looking at the data by states finds:

Table #5:

Respondents	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
Penna. Educators	1	5%	10	50%	5	25%	1	5%	2	10%	0	0%	1	5%
New York Educators	3	7%	12	29%	5	12%	10	24%	0	0%	0	0%	0	0%
All Educators	4	8%	22	44%	10	20%	11	22%	2	4%	0	0%	1	2%

The data indicate, percentage-wise, that Pennsylvania teachers are more impressed with S-APA than New York teachers. Inspection of the data by age groupings finds:

Table #6:

Age Groupings	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
Ages (21 to 30)	2	6%	15	47%	5	16%	8	25%	2	6%	0	0%	0	0%
Ages (31 to 40)	0	0%	1	20%	0	0%	3	60%	0	0%	0	0%	1	20%
Ages (41 to 50)	1	8%	6	50%	5	42%	0	0%	0	0%	0	0%	0	0%
Ages (51 to 60)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ages (61 plus)	1	100%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%

The data reveal that teachers (ages 41 to 50) are the most imprinted and the youngest group (ages 21-30) the least imprinted by S-APA. Examination of the data by number of teaching-years-experience finds:

Table #7:

Years of Experience Groupings	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
(0 years)	0	0%	6	60%	1	10%	3	30%	0	0%	0	0%	0	0%
(1 to 3 years)	1	9%	4	36%	4	36%	1	9%	1	9%	0	0%	0	0%
(4 to 10 years)	1	6%	9	50%	2	11%	5	28%	1	6%	0	0%	0	0%
(11 to 20 years)	0	0%	3	43%	1	14%	2	29%	0	0%	0	0%	1	14%
(20 plus years)	2	50%	0	0%	2	50%	0	0%	0	0%	0	0%	0	0%

The data reflect consistency of thinking among teachers within all years-of-experience groupings concerning impressiveness of S-APA. Scrutinization of the data by academic degrees and/or graduate course work of teachers finds:

Table #8:

Highest Degree Received	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
B.S. or B.A.	1	3%	18	47%	7	18%	10	26%	1	3%	0	0%	1	3%
M.S. or M.A.	0	0%	2	67%	0	0%	0	0%	1	33%	0	0%	0	0%
M.S.+ or M.A.+	1	17%	2	33%	2	33%	1	17%	0	0%	0	0%	0	0%

The data exhibit very little contrariety among the teachers. Those teachers with graduate study are slightly more impressed than those with a bachelor's degree only. Once again, the amount of exposure to S-APA is an important variable.

When the teachers were asked to estimate the number of minutes they spent in teaching science per week to their class last year (1968-69), their responses were grouped into the following categories:

(A) Zero to forty minutes
(B) Forty-one to eighty minutes
(C) Eighty-one to one hundred twenty minutes
(d) One hundred twenty minutes - plus

The mean time spent per week by all teachers was 114 minutes with a standard deviation of 81.33. The range for the time distribution was 0 minutes to

300 minutes. This mean appears rather high; but one must remember the "middle-school-concept," where things are departmentalized allowing for lengthy mandated science time. The extremely large range represents eleven teachers who could not find time to teach science. Looking at the data by states finds:

Table #9:

Respondents	Time Spent On Teaching Science per Week							
	(0-40) minutes		(41-80) minutes		(81-120) minutes		(120^{+}) minutes	
	f	%	f	%	f	%	f	%
Penna. Educators	7	58%	1	8%	3	25%	1	8%
N. Y. Educators	1	4%	5	18%	12	43%	10	36%
All Educators	8	20%	6	15%	15	38%	11	28%

The data indicate that New York teachers spend much more time on the teaching of science than Pennsylvania teachers in the fourth and fifth grades. Most New York teachers spend from eighty-one to one hundred twenty minutes per week, whereas most Pennsylvania teachers spend from zero to forty minutes per week. Inspection of the data by age groupings finds:

Table #10:

Age Groupings	Time Spent On Teaching Science per Week							
	(0-40) minutes		(41-80) minutes		(81-120) minutes		(120^{+}) minutes	
	f	%	f	%	f	%	f	%
Ages (21 to 30)	6	19%	3	9%	5	16%	18	56%
Ages (31 to 40)	2	33%	0	0%	3	50%	1	17%
Ages (41 to 50)	0	0%	3	25%	6	50%	3	25%
Ages (51 to 60)	-	-	-	-	-	-	-	-
Ages (61 plus)	0	0%	0	0%	1	100%	0	0%

The data imply that the youngest group of teachers (ages 21 to 30) spend the most time on teaching science per week, whereas the group (ages 31 to 40) spend the least amount of time. Perhaps the youngest group have not matured to the point where they value the teaching of reading as deserving the greatest time allotment in the elementary curriculum! Examination of the data by number of teaching-years-experience finds:

Table #11:

Years of Experience Groupings	Time Spent On Teaching Science per Week							
	(0-40) minutes		(41-80) minutes		(81-120) minutes		(120^{+}) minutes	
	f	%	f	%	f	%	f	%
(0 years)	5	50%	1	10%	2	20%	2	20%
(1 to 3 years)	0	0%	0	0%	3	27%	8	73%
(4 to 10 years)	2	11%	2	11%	3	16%	12	63%
(11 to 20 years)	1	14%	1	14%	5	71%	0	0%
(20 plus years)	0	0%	2	50%	2	50%	0	0%

The data denote that teachers with one to three years of experience spend the most time teaching science. Nearly three-fourths of the teachers within this grouping utilize more than 120 minutes per week for science instruction. Analysis of the data by academic degrees and/or graduate course work of teachers finds:

Table #12:

Highest Degree Received	Time Spent On Teaching Science Per Week							
	(0-40) minutes		(41-80) minutes		(81-120) minutes		(120^{+}) minutes	
	f	%	f	%	f	%	f	%
B.S. or B.A.	7	18%	4	10%	9	27%	18	47%
M.S. or M.A.	1	33%	1	33%	1	33%	0	0%
M.S.$^{+}$ or M.A.$^{+}$	0	0%	0	0%	3	43%	4	57%

The data reflect that teachers with a master's degree - plus allocate the most time for science teaching. These data appear inconsistent with those found in Table #11 (years of experience groupings), where teachers with one to three years spend the most time; but, however during recent years many beginning teachers pursue graduate work and/or master's degrees very early in their careers.

When the educators were asked, "Considering the need to teach reading, arithmetic, composition, art, etc., as well as science to children, I feel that the time devoted to teaching science in my school building

is presently:" they were to check one of the responses below:

(A) Entirely too much time given to science
(B) A little too much time given to science
(C) Just the right amount of time given to science
(D) Not quite enough time given to science
(E) Entirely too little time given to science

Looking at the data by states:

Table #13:

Respondents	Responses									
	Entirely Too Much		Little Too Much		The Right Amount		Not Quite Enough		Entirely Too Little	
	f	%	f	%	f	%	f	%	f	%
Penna. Educators	0	0%	0	0%	2	22%	6	67%	1	11%
New York Educators	1	4%	4	15%	19	70%	3	1%	0	0%
All Educators	1	3%	4	11%	21	58%	9	25%	1	3%

The data indicate that the greatest percent of Pennsylvania teachers feels not quite enough time is devoted to teaching science, whereas the greatest percent of New York teachers feel the right amount of time is presently devoted to science. As a point of interest, nineteen percent of the New York teachers signified that entirely too much or a little too much time is devoted to teaching science. Inspection of the data by age groupings finds:

Table #14:

Age Groupings	Responses									
	Entirely Too Much		Little Too Much		The Right Amount		Not Quite Enough		Entirely Too Little	
	f	%	f	%	f	%	f	%	f	%
Ages (21 to 30)	0	0%	1	3%	21	72%	5	17%	1	3%
Ages (31 to 40)	0	0%	1	20%	4	80%	0	0%	0	0%
Ages (41 to 50)	1	8%	2	17%	6	50%	3	25%	0	0%
Ages (51 to 60)	-	-	-	-	-	-	-	-	-	-
Ages (61 plus)	0	0%	0	0%	0	0%	1	100%	0	0%

The data reveal that greatest percent of teacher response within three of the age groupings (ages 21 to 50) falls in "the-right-amount" category. Very few responses fell into the "entirely-too-much" category (1) or the entirely too little category (1). Teachers, ages thirty-one to forty, recorded the highest percentage-response into "the right-amount" category. Examination of the data by number of teaching-years-experience finds:

Table #15:

Years of Experience Groupings	Responses									
	Entirely Too Much		Little Too Much		The Right Amount		Not Quite Enough		Entirely Too Little	
	f	%	f	%	f	%	f	%	f	%
(0 years)	0	0%	1	17%	3	50%	2	33%	0	0%
(1 to 3 years)	0	0%	0	0%	8	73%	2	18%	1	9%
(4 to 10 years)	0	0%	0	0%	16	89%	2	11%	0	0%
(11 to 20 years)	0	0%	2	29%	4	57%	1	14%	0	0%
(20 plus years)	1	25%	1	25%	0	0%	2	50%	0	0%

The data are rather consistent with those found in Table #14. The greatest percent of teacher response within the five years-of-experience groupings falls into the "right amount" category. Only one response within the five groups fell into the entirely-too-much" category and the "entirely-too-little" category. Analysis of the data by academic degrees and/or graduate course work possessed by teachers finds:

Table #16:

Highest Degree Received	Responses									
	Entirely Too Much		Little Too Much		The Right Amount		Not Quite Enough		Entirely Too Little	
	f	%	f	%	f	%	f	%	f	%
B.S. or B.A.	0	0%	3	9%	23	70%	6	18%	1	3%
M.S. or M.A.	0	0%	1	33%	1	33%	1	33%	0	0%
M.S.+ or M.A.+	0	0%	0	0%	7	100%	0	0%	0	0%

Once again the data signify the greatest percent of teacher response falling into the "right-amount" category. Reiteration of a previously mentioned point may shed some light on why there was such a congruous response by the teachers in last four tables. Most, if not all, of the teachers have been physically present in a school building where the S-APA atmosphere has prevailed during past two years. As a result of such, many schools had to make extensive time-scheduling adjustments which caused the "right amount" of time concept to come to the forefront.

When the educators were questioned as to what degree do they employ

subgrouping of pupils within their classroom for purposes of "individual" instruction, they responded on the following continuum:

Only subgrouping on occasion for some special learning activity	1	2	3	4	5	6	7	Subgroup every day in all curricular areas

A mean numerical response of 3.9 with a standard deviation of 1.6 implies that teachers do an average amount of subgrouping during their daily teaching routine. Much of this subgrouping, as indicated verbally by the teachers, occurs as a result of their reading programs. Looking at the data by states finds:

Table #17:

Respondents	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
Penna. Educators	3	16%	1	5%	7	37%	4	21%	1	5%	2	10%	1	5%
N. Y. Educators	1	3%	5	17%	2	7%	10	34%	4	14%	7	24%	1	3%
All Educators	4	8%	6	12%	9	18%	14	28%	5	10%	9	18%	2	4%

The data indicate that New York teachers subgroup their pupils within the classroom for the purpose of individualized instruction more often than Pennsylvania teachers. Inspection of the data by age groupings finds:

Table #18:

Age Groupings	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
Ages (21 to 30)	0	0%	3	9%	6	19%	9	28%	3	9%	9	28%	2	6%
Ages (31 to 40)	1	20%	0	0%	2	40%	1	20%	1	20%	0	0%	0	0%
Ages (41 to 50)	3	25%	2	17%	3	25%	3	25%	1	8%	0	0%	0	0%
Ages (51 to 60)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ages (61 plus)	0	0%	1	100%	0	0%	0	0%	0	0%	0	0%	0	0%

The data represent the youngest group of teachers as being the greatest subgroupers of children. The group (ages 41 to 50) of teachers subgroups the least often, only subgrouping on occasion for some special learning activity. The youngest group of teachers are probably more familiar with the "subgroup-concept" because of its prominent position in the hierarchy of preferences found in undergraduate elementary methods courses during the last ten years. Examination of the data by number of teaching-years-experience finds:

Table #19:

Years of Experience Groupings	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
(0 years)	0	0%	0	0%	3	33%	3	33%	1	11%	2	22%	0	0%
(1 to 3 years)	1	9%	2	18%	2	18%	3	27%	0	0%	1	9%	2	18%
(4 to 10 years)	1	5%	1	5%	3	16%	4	21%	4	21%	6	32%	0	0%
(11 to 20 years)	1	14%	2	29%	1	14%	3	43%	0	0%	0	0%	0	0%
(20 plus years)	1	25%	1	25%	1	25%	1	25%	0	0%	0	0%	0	0%

The data reveal that teachers with four to 10 years experience exhibit the highest frequency of subgrouping in all elementary curricular areas. Teachers with eleven to twenty years subgroup the least frequent. Analysis of the data by academic degrees and/or graduate course work of teachers finds:

Table #20:

Highest Degree Received	Frequency & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
B.S. or B.A.	2	5%	3	8%	9	24%	12	32%	3	8%	6	16%	2	5%
M.S. or M.A.	0	0%	1	33%	0	0%	1	33%	0	0%	1	33%	0	0%
M.S.+ or M.A.+	1	14%	1	14%	0	0%	1	14%	2	29%	2	29%	0	0%

The data reflect that teachers with master's degrees and/or graduate course work tend to subgroup more regular than teachers with a bachelor's degree only. Additional professional course work in elementary education appears to facilitate "subgroup concept" implementation.

When the educators were asked, "To what extent will you be introducing other new curricula programs in your room during the coming academic year - do not include S-APA?", they were to check one of the responses below:

(A) No new curriculum program - Interval One
(B) One new curriculum program - Interval Two
(C) Two new curriculum programs - Interval Three
(D) Three new curriculum programs - Interval Four
(E) Four or more new curriculum programs - Interval Five

The following was a stated operational definition of a new curriculum program: A new program could be in any curricula area, and would demand a minimum of one additional hour per week of planning time to be effective in your class. A mean numerical response of 1.9 with a standard deviation of 0.9 signifies that all teachers, in the most generalized sense, will be teaching one new curriculum program along with Science--A Process Approach. Looking at the data by states finds:

Table #21:

Respondents	Number of Other New Curricula Programs									
	No New Programs		One New Program		Two New Programs		Three New Programs		Four or More New Programs	
	f	%	f	%	f	%	f	%	f	%
Penna. Educators	6	24%	8	32%	1	4%	2	8%	0	0%
N. Y. Educators	11	39%	13	46%	4	14%	0	0%	0	0%
All Educators	17	38%	21	47%	5	11%	2	4%	0	0%

The data denote that New York Educators will be installing in our pilot schools more new curricular programs than Pennsylvania educators. No schools will be implementing four or more new programs along with S-APA. Inspection of the data by age groupings finds:

Table #22:

Age Groupings	Number of Other New Curricula Programs									
	No New Programs		One New Program		Two New Programs		Three New Programs		Four or More New Programs	
	f	%	f	%	f	%	f	%	f	%
Ages (21 to 30)	13	43%	12	40%	4	13%	1	3%	0	0%
Ages (31 to 40)	2	50%	1	25%	0	0%	1	25%	0	0%
Ages (41 to 50)	2	18%	8	73%	1	9%	0	0%	0	0%
Ages (51 to 60)	-	-	-	-	-	-	-	-	-	-
Ages (61 plus)	0	0%	1	100%	0	0%	0	0%	0	0%

The data indicate little as to whom, by age groupings, will be teaching the most new curricular programs. As a rule, when schools adopt new programs, they usually include several grade levels and many teachers in their plans. Examination of the data by number of teaching-years-experience finds:

Table #23:

Years of Experience Groupings	Number of Other New Curricula Programs									
	No New Programs		One New Program		Two New Programs		Three New Programs		Four or More New Programs	
	f	%	f	%	f	%	f	%	f	%
(0 years)	5	62%	2	25%	1	12%	0	0%	0	0%
(1 to 3 years)	5	45%	6	55%	0	0%	0	0%	0	0%
(4 to 10 years)	5	28%	9	50%	3	17%	1	6%	0	0%
(11 to 20 years)	1	17%	3	50%	1	17%	1	17%	0	0%
(20 plus years)	1	33%	2	67%	0	0%	0	0%	0	0%

Once again, the data indicate little. The data is rather consistent to those found in Table #22. Generally speaking, teachers with eleven to twenty years experience appear to be the busiest group. Analysis of the data by academic degrees and/or graduate course work of teachers find:

Table #24:

Highest Degree Received	Number of Other New Curricula Programs									
	No New Programs		One New Program		Two New Programs		Three New Programs		Four or More New Programs	
	f	%	f	%	f	%	f	%	f	%
B.S. or B.A.	14	41%	16	47%	2	6%	2	6%	0	0%
M.S. or M.A.	0	0%	2	67%	1	33%	0	0%	0	0%
M.S.+ or M.A.+	2	29%	3	43%	2	29%	0	0%	0	0%

The data reveal that teachers with some graduate work will be participating in more new curricular programs than teachers with bachelor's degrees only. Exposure to these programs during graduate course work may have been one of the contributing factors which led to their adoption. Whether the adoption of many other new curricular programs will or will not interfere with the S-APA installation, is to be seen.

When the educators were asked, "To what extent were you involved in the selection of the S-APA program for your school?", they responded on the following continuum:

No participation in selection	1	2	3	4	5	6	7	Was directly involved in selection

The responses to this question were extremely interesting. A mean numerical response of 1.7 with a standard deviation of 1.6 tends to indicate that a "goodly" number of teachers had little or no participation in the selection of the S-APA program. Looking at the data by states finds:

Table #25:

Respondents	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
Penna. Educators	15	88%	0	0%	0	0%	0	0%	0	0%	0	0%	2	12%
N. Y. Educators	24	78%	1	3%	3	9%	1	3%	0	0%	0	0%	2	6%
All Educators	39	81%	1	2%	3	7%	1	2%	0	0%	0	0%	4	8%

The data imply that teachers from both states had little or no participation in the selection of the S-APA program. Teachers from New York State were slightly more involved than their Pennsylvania counterparts. Inspection of the data by age groupings finds:

Table #26:

Age Groupings	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
Ages (21 to 30)	28	90%	0	0%	1	3%	0	0	0	0%	0	0%	2	7%
Ages (31 to 40)	2	50%	0	0%	2	50%	0	0%	0	0%	0	0%	0	0%
Ages (41 to 50)	9	75%	0	0%	0	0%	1	8%	0	0%	0	0%	2	17%
Ages (51 to 60)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ages (61 plus)	0	0%	1	100%	0	0%	0	0%	0	0%	0	0%	0	0%

The data denote that teachers within the age group (31-40) played the greatest role in the selection of the S-APA program. Perhaps this is the group that many administrators feel is the most pliant and adaptable. Examination of the data by number of teaching-years-experience finds:

Table #27:

Years of Experience Groupings	Frequencies and Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
(0 years)	8	89%	0	0%	0	0%	0	0%	0	0%	0	0%	1	11%
(1 to 3 years)	10	91%	0	0%	0	0%	0	0%	0	0%	0	0%	1	9%
(4 to 10 years)	15	83%	0	0%	2	11%	0	0%	0	0%	0	0%	1	6%
(11 to 20 years)	4	67%	0	0%	1	16%	1	17%	0	0%	0	0%	0	0%
(20 plus years)	2	50%	1	25%	0	0%	0	0%	0	0%	0	0%	1	25%

The data reflect that teachers with eleven or more years of experience were more directly involved in the selection than those with fewer years experience. Teachers with zero to three years experience had very little to say about the selection of S-APA. Scrutinization of the data by academic degrees and/or graduate course work of teachers finds:

Table #28:

Highest Degree Received	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
B.S. or B.A.	30	86%	0	0%	3	9%	0	0%	0	0%	0	0%	2	5%
M.S. or M.A.	2	67%	0	0%	0	0%	1	32%	0	0%	0	0%	0	0%
M.S.+ or M.A.+	6	86%	0	0%	0	0%	0	0%	0	0%	0	0%	1	14%

The data reveal that teachers possessing a master's degree only, participated more in the selection of S-APA than the other two groups. A point worth mentioning is, why the highly sophisticated teachers with a master's - plus were not involved more with the selection process? It will be very interesting to see, if lack of teacher participation in the selection process is a deterring variable in the light of installation success.

In sequel to the previous question, the educators were asked to respond on the following continuum to: "To what extent was any teacher you know involved in the selection of the S-APA program for your school?"

No teacher participation in selection	1	2	3	4	5	6	7	Teachers were directly involved in selection

The teachers were to respond on the continuum according to their perceptions concerning the involvement of other teachers in the selection process from the same building. A mean numerical response of 3.8 with a standard deviation of 2.1 indicates that the teachers perceive some of their colleagues as having passable involvement in the S-APA selection procedure. Looking at the data by states finds:

Table #29:

Respondents	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
Penna. Educators	7	54%	0	0%	1	7%	1	7%	0	0%	2	15%	2	15%
N. Y. Educators	6	23%	2	7%	3	12%	5	19%	2	7%	5	19%	3	12%
All Educators	13	33%	2	5%	4	10%	6	15%	2	5%	7	18%	5	13%

The data tell us that teachers in New York perceive their colleagues as being more involved in the selection process than their Pennsylvania counterparts. Their perceptions as indicated by the percentages, are slightly more favorable concerning teacher involvement in the selection procedure. Inspection of the data by age groupings finds:

Table #30:

Age Groupings	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
Ages (21 to 30)	7	29%	1	4%	3	13%	5	20%	1	4%	5	20%	2	8%
Ages (31 to 40)	2	50%	0	0%	0	0%	0	0%	1	25%	0	0%	1	25%
Ages (41 to 50)	4	40%	1	10%	1	10%	1	10%	0	0%	1	10%	2	20%
Ages (51 to 60)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ages (61 plus)	0	0%	0	0%	0	0%	0	0%	0	0%	1	100%	0	0%

The data signify that many more teachers in all age groupings are participating in the selection of S-APA than were indicated in Table #26.

Examination of the data by number of teaching-years-experience finds:

Table #31:

Years of Experience Groupings	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
(0 years)	2	29%	0	0%	1	14%	1	14%	0	0%	1	14%	2	29%
(1 to 3 years)	2	25%	1	13%	0	0%	1	13%	0	0%	4	50%	0	0%
(4 to 10 years)	7	47%	0	0%	2	13%	3	20%	1	6%	0	0%	2	13%
(11 to 20 years)	1	17%	0	0%	1	16%	1	17%	1	16%	1	16%	1	17%
(20 plus years)	1	34%	1	33%	0	0%	0	0%	0	0%	1	33%	0	0%

The data once again elicit favorable trends concerning greater teacher involvement in the selection process. Analysis of the data by academic degrees and/or graduate course work of teachers finds:

Table #32:

Highest Degree Received	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
B.S. or B.A.	10	36%	1	3%	3	11%	4	14%	2	7%	5	18%	3	11%
M.S. or M.A.	1	33%	0	0%	1	33%	1	33%	0	0%	0	0%	0	0%
M.S.+ or M.A.+	1	20%	0	0%	0	0%	1	20%	0	0%	1	20%	2	40%

The data continue to reflect more involvement of teachers directly in the S-APA selection procedure than previously indicated in Table #28. Teachers with a master's plus are seen participating more, whereas in Table #28

those with a master's degree only were the most actively involved. A more intensive study comparing the responses of the educators, to "the extent to which they, the teachers, were involved in the selection of the S-APA program" and "the extent to which any teachers they know were involved in the selection of the S-APA program," may prove fruitful both statistically and inferentially.

When the teachers were asked, "Does your district have a curriculum organization that includes teachers in the group that screens and selects new curricula programs?", their responses were indicated in a positive-negative fashion. Looking at the data by states finds:

Table 33:

Respondents	Yes		No	
	Frequencies	Percentages	Frequencies	Percentages
Penna. Educators	17	85%	3	15%
N. Y. Educators	24	88%	3	12%
All Educators	41	87%	6	13%

The data tell us that teachers from both states have district-curriculum selection organizations, where teachers are considerably involved with the choosing of new curricula programs. Inspection of the data by age groupings finds:

Table #34:

Age Groupings	Yes		No	
	Frequencies	Percentages	Frequencies	Percentages
Ages (21 to 30)	25	89%	3	11%
Ages (31 to 40)	5	100%	0	0%
Ages (41 to 50)	9	75%	3	25%
Ages (51 to 60)	-	-	-	-
Ages (60 plus)	1	100%	0	0%

The data represent teachers from all age groupings signifying that their district has some type of curriculum selection organization, where teachers screen and select new curricula programs. Examination of the data by number of teaching-years-experience finds:

Table #35:

Years of Experience Groupings	Yes		No	
	Frequencies	Percentages	Frequencies	Percentages
(0 years)	7	86%	1	14%
(1 to 3 years)	10	91%	1	9%
(4 to 10 years)	15	88%	2	12%
(11 to 20 years)	6	85%	1	15%
(20 plus years)	3	75%	1	25%

The data, once again, reveal that teachers from all categories answer quite positively in relation to their district possessing a curricula-selecting organization. Analysis of the data by academic degrees and/or graduate course work of teachers finds:

Table #36:

Highest Degree Received	Yes		No	
	Frequencies	Percentages	Frequencies	Percentages
B.S. or B.A.	31	91%	3	9%
M.S. or M.A.	1	33%	2	67%
M.S.+ or M.A.+	7	100%	0	0%

The data continue to exhibit the fore-mentioned trend, where teachers signify their districts having a teacher-involved-curricula-selecting organization.

Perhaps a more direct and significant question asked to the educators was: "Have you ever participated in one of these selection groups?" Their responses were of the yes-no type. Looking at the data by states finds:

Table #37:

Respondents	Yes		No	
	Frequencies	Percentages	Frequencies	Percentages
Penna. Educators	4	29%	15	79%
N. Y. Educators	12	42%	16	58%
All Educators	16	34%	31	66%

The data denote that teachers from both states, percentage-wise, have participated very little on one of these curricula selection groups. Teachers from New York State have been considerably more involved than their Pennsylvania counterparts. Inspection of the data by age groupings finds:

Table #38:

Age Groupings	Yes		No	
	Frequencies	Percentages	Frequencies	Percentages
Ages (21 to 30)	8	25%	24	75%
Ages (31 to 40)	3	60%	2	40%
Ages (41 to 50)	4	44%	5	56%
Ages (51 to 60)	-	-	-	-
Ages (61 plus)	1	100%	0	0%

The data indicate that teachers have not participated as much as anticipated, when thinking in retrospect to their responses to the previous question. Teachers (ages, twenty-one to thirty) and teachers (ages, forty-one to fifty) were not extensively involved on selection committees, whereas those (ages, thirty-one to forty) signified they were slightly involved. Examination of the data by number of teaching-years-experience finds:

Table #39:

Years of Experience Groupings	Yes		No	
	Frequencies	Percentages	Frequencies	Percentages
(0 years)	0	0%	10	100%
(1 to 3 years)	2	20%	8	80%
(4 to 10 years)	8	44%	10	56%
(11 to 20 years)	5	71%	2	29%
(20 plus years)	1	50%	1	50%

The data reflect, once again, the teachers personally having very little involvement on curricula selection committees. Teachers with eleven to twenty years experience, however, have participated more extensively than any other group. Analysis of the data by academic degrees and/or graduate course work of teachers finds:

Table #40:

Highest Degree Received	Yes		No	
	Frequencies	Percentages	Frequencies	Percentages
B.S. or B.A.	9	25%	27	75%
M.S. or M.A.	1	33%	2	67%
M.S.+ or M.A.+	5	83%	1	17%

The data reveal that the degree of participation of a teacher is directly proportional to the amount of schooling possessed by a teacher. The less

schooled teachers participate less, whereas those with a goodly amount of sophistication participate more. All in all, it appears that the most important criterion for participation on a district-wide curricula selection committee is pretentious wisdom obtained by way of formal graduate course work.

The next six questions posed to the teachers are concerned with specific characteristics of the S-APA program and process education in general. When the educators were asked, "To what extent have you utilized manipulative materials and equipment with children while teaching any curricular programs?", they responded on the following continuum:

Seldom use manipulative equipment	1	2	3	4	5	6	7	Use manipulative equipment daily in all curricular areas

A mean numerical response of 4.5 with a standard deviation of 1.4 tends to indicate slightly above-averageness on the part of teachers concerning the manipulation of materials and equipment with children while teaching other curricular programs. Looking at the data by states finds:

Table #41:

Respondents	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
Penna. Educators	0	0%	1	5%	3	16%	5	26%	7	37%	2	11%	1	5%
N. Y. Educators	1	3%	1	3%	4	14%	9	31%	4	14%	8	28%	2	7%
All Educators	1	2%	2	4%	7	15%	14	29%	11	22%	10	21%	3	6%

The data represent teachers from both states utilizing manipulative materials and equipment with approximately the same degree of frequency. Inspection of the data by age groupings finds:

Table #42:

Age Groupings	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
Ages (21 to 30)	0	0%	1	3%	4	13%	10	32%	10	32%	6	19%	0	0%
Ages (31 to 40)	0	0%	0	0%	1	25%	0	0%	0	0%	2	50%	1	25%
Ages (41 to 50)	1	8%	1	8%	2	17%	4	33%	0	0%	2	17%	2	17%
Ages (51 to 60)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ages (61 plus)	0	0%	0	0%	0	0%	0	0%	1	100%	0	0%	0	0%

The data denote that teachers (ages, thirty-one to forty), as indicated by seventy-five percent of their responses in the last two intervals, use manipulative equipment quite frequently in all curricular areas. Examination of the data by number of teaching-years-experience finds:

Table #43:

Years of Experience Groupings	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
(0 years)	0	0%	1	13%	2	25%	1	13%	3	38%	1	13%	0	0%
(1 to 3 years)	0	0%	1	9%	0	0%	4	36%	5	45%	1	9%	0	0%
(4 to 10 years)	0	0%	0	0%	3	16%	7	37%	2	11%	5	26%	2	11%
(11 to 20 years)	1	17%	0	0%	1	17%	2	33%	0	0%	2	33%	0	0%
(20 plus years)	0	0%	0	0%	1	25%	0	0%	1	25%	1	25%	1	25%

The data reflect that teachers with one to three years experience utilize manipulative equipment more regular than those in other groups. Analysis of the data by academic degrees and/or graduate course work of teachers finds:

Table #44:

Highest Degree Received	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
B.S. or B.A.	0	0%	2	6%	7	21%	7	21%	10	29%	7	21%	1	3%
M.S. or M.A.	1	25%	0	0%	0	0%	3	75%	0	0%	0	0%	0	0%
M.S.+ or M.A.+	0	0%	0	0%	0	0%	4	57%	0	0%	2	29%	1	14%

The data exemplify a direct relationship between the amount of academic preparation a teacher possesses and the degree to which he utilizes manipulative materials and equipment daily in all curricular areas. The quantity of academic preparation is directly proportional to the amount of utilization of manipulative materials and equipment.

Current thinking in curriculum development, as it may be, focuses on the establishment of behavioral objectives for each program. When confronted with the question, "Have you ever used a program that incorporated behaviorally stated objectives, but do not count S-APA?", the teachers responded on the following continuum:

No program 1 2 3 4 5 6 7 Many programs More than four

A mean numerical response of 2.9 with a standard deviation 1.7 reflects that teachers, for the most part, have not used or have used only a few programs that incorporated behaviorally stated objectives. Looking at the data by states finds:

Table #45:

Respondents	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
Penna. Educators	6	29%	3	16%	4	19%	3	14%	4	19%	0	0%	1	5%
N. Y. Educators	10	34%	5	17%	5	17%	5	17%	3	10%	0	0%	1	3%
All Educators	16	32%	8	16%	9	18%	8	16%	7	14%	0	0%	2	4%

The data indicate that Pennsylvania teachers have used slightly more behaviorally-stated-objectives programs than New York teachers. Inspection of the data by age groupings finds:

Table #46:

Age Groupings	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
Ages (21 to 30)	7	22%	4	13%	8	25%	6	19%	6	19%	0	0%	1	3%
Ages (31 to 40)	2	33%	2	33%	0	0%	1	17%	0	0%	0	0%	1	17%
Ages (41 to 50)	7	64%	2	18%	1	9%	1	9%	0	0%	0	0%	0	0%
Ages (51 to 60)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ages (61 plus)	0	0%	0	0%	0	0%	0	0%	1	100%	0	0%	0	0%

The data reveal that teachers (ages, twenty-one to thirty) possess the most experience with behavioral-objective-stated programs. Examination of the data by number of teaching-years-experience finds:

Table #47:

Years of Experience Groupings	Frequencies and Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
(0 years)	5	50%	2	20%	1	10%	2	20%	0	0%	0	0%	0	0%
(1 to 3 years)	2	18%	1	9%	3	27%	1	9%	3	27%	0	0%	1	9%
(4 to 10 years)	5	26%	3	16%	4	21%	4	21%	3	16%	0	0%	0	0%
(11 to 20 years)	3	43%	1	14%	1	14%	1	14%	0	0%	0	0%	1	14%
(20 plus years)	1	33%	1	33%	0	0%	0	0%	1	33%	0	0%	0	0%

The data reflect that teachers with one to three years experience have used more programs emphasizing behavioral objectives than those of any other group. One teacher within this group has utilized more than four programs. Analysis of the data by academic degrees and/or graduate course work of teachers finds:

Table #48:

Highest Degree Received	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
B.S. or B.A.	9	25%	7	19%	7	19%	7	19%	4	11%	0	0%	2	5%
M.S. or M.A.	3	75%	0	0%	0	0%	0	0%	1	25%	0	0%	0	0%
M.S.+ or M.A.+	3	43%	0	0%	2	29%	1	14%	1	14%	0	0%	0	0%

The data tell us something different than what was anticipated. Teachers with a bachelor's degree have participated in the teaching of more behavioral objective oriented programs than teachers with more advanced graduate study. All in all, pilot school teachers have a moderate exposure and command of behavioral objectives.

Closely akin to the previous question, "To what extent do you plan the activities of your class in terms of behaviorally stated objectives?", was asked of the educators. Their responses were recorded on the following continuum:

Do you have time to write behavioral objectives	1	2	3	4	5	6	7 Always write or identify behavioral objectives

A mean numerical response of 3.9 with a standard deviation of 1.3 indicates that teachers do not have or have very little time to write behavioral objectives for their classroom activities. Looking at the data by states finds:

Table #49:

Respondents	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
Penna. Educators	0	0%	3	16%	5	26%	5	26%	4	21%	2	11%	0	0%
N. Y. Educators	1	3%	5	17%	3	10%	11	38%	4	14%	4	14%	1	3%
All Educators	1	2%	8	17%	8	17%	16	33%	8	17%	6	13%	1	2%

the data tend to reflect that Pennsylvania educators find slightly more time to write or identify behavioral objectives for their daily teaching and learning activities than their New York counterparts. Inspection of the data by age groupings finds:

Table #50:

Age Groupings	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
Ages (21 to 30)	0	0%	4	13%	5	16%	11	35%	6	19%	5	16%	0	0%
Ages (31 to 40)	0	0%	2	50%	0	0%	1	25%	0	0%	1	25%	0	0%
Ages (41 to 50)	1	8%	2	17%	3	25%	3	25%	2	17%	0	0%	1	100%
Ages (51 to 60)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ages (61 plus)	0	0%	0	0%	0	0%	1	50%	1	50%	0	0%	0	0%

The data exhibit much consistency among the age groups with no one group showing any strong tendency toward always writing or identifying behavioral objectives for daily classroom activities. Examination of the data by number of teaching-years-experience finds:

Table #51:

Years of Experience Groupings	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
(0 years)	0	0%	2	25%	1	13%	1	13%	2	25%	2	25%	0	0%
(1 to 3 years)	0	0%	1	9%	3	27%	5	45%	1	9%	1	9%	0	0%
(4 to 10 years)	0	0%	2	10%	3	16%	7	16%	4	21%	3	16%	0	0%
(11 to 20 years)	1	17%	1	17%	1	17%	2	33%	1	17%	0	0%	0	0%
(20 plus years)	0	0%	2	50%	0	0%	1	25%	0	0%	0	0%	1	25%

The data reveal unusual findings. Teachers without any previous teaching experience exhibit the greatest tendency to write or identify behavioral objectives for everyday learning situations. Perhaps this paradoxical insight is the result of this group's most recent student teaching experience, where one is usually under constant supervision by college education department personnel. Analysis of the data by academic degrees and/or graduate course work of teachers finds:

Table #52:

Highest Degree Received	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
B.S. or B.A.	0	0%	7	21%	7	21%	10	29%	5	15%	5	15%	0	0%
M.S. or M.A.	1	25%	0	0%	0	0%	1	25%	1	25%	1	25%	0	0%
M.S.+ or M.A.+	0	0%	0	0%	1	14%	4	57%	2	29%	0	0%	0	0%

The data, once again, exhibit much consistency among the three groups with no one group showing any sharp tendency toward always writing or identifying behavioral objectives when planning daily activities.

Process education has been receiving a new focus in American Education. Researchers like Robert Gagné and Jerome Bruner have been talking about the necessity of developing process centered curricula. When the pilot school teachers were asked, "According to the best of your knowledge, process education is more like:", they responded on the following continuum:

Time proven knowledge needed by children	1	2	3	4	5	6	7 Intellectual skills needed by children

A mean numerical response of 5.0 with a standard deviation of 1.6 indicates that the teachers, as a group, are rather cognizant of the functions associated with process education. Looking at the data by states finds:

Table #53:

Respondents	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
Penna. Educators	0	0%	2	10%	3	15%	5	25%	3	15%	5	25%	2	10%
New York Educators	1	3%	2	7%	1	3%	8	27%	3	10%	6	20%	9	30%
All Educators	1	2%	4	8%	4	8%	13	26%	6	12%	1	22%	11	22%

The data reveal that New York teachers are slightly more aware of the provinces of process education than Pennsylvania teachers. Inspection of the data by age groupings finds:

Table #54:

Age Groupings	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
Ages (21 to 30)	0	0%	2	6%	3	9%	8	24%	5	15%	10	30%	5	15%
Ages (31 to 40)	0	0%	0	0%	1	17%	3	50%	1	17%	0	0%	1	17%
Ages (41 to 50)	1	10%	2	20%	0	0%	2	20%	0	0%	1	10%	4	40%
Ages (51 to 60)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ages (61 plus)	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	1	100%

The data reflect that teachers (ages, twenty-one to thirty) are the most informed group concerning the operations of process education. This is probably a result of their most recent formal schooling. Examination of the data by number of teaching-years-experience finds:

Table #55:

Years of Experience Groupings	Frequencies and Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
(0 years)	0	0%	2	18%	3	27%	1	9%	2	18%	1	9%	2	18%
(1 to 3 years)	0	0%	1	9%	1	9%	2	18%	2	18%	4	36%	1	9%
(4 to 10 years)	0	0%	0	0%	0	0%	7	39%	1	6%	5	28%	5	28%
(11 to 20 years)	0	0%	0	0%	0	0%	3	50%	1	17%	0	0%	2	33%
(20 plus years)	1	25%	1	25%	0	0%	0	0%	0	0%	1	25%	1	25%

The data identify those teachers with four to twenty-years of teaching experience as the group being most familiar with the faculties of process education. Perhaps this is accountable to the fact that these teachers may have had recent graduate course work or exposure via professional journals. Analysis of the data by academic degrees and/or graduate course work of teachers finds:

Table #56:

Highest Degree Received	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
B.S. or B.A.	0	0%	3	8%	4	11%	7	19%	6	16%	11	30%	6	16%
M.S. or M.A.	0	0%	0	0%	0	0%	3	75%	0	0%	0	0%	1	25%
M.S.+ or M.A.+	0	0%	0	0%	0	0%	3	50%	0	0%	0	0%	3	50%

The data imply that the cognizance of process education exhibited by teachers is directly proportional to the pursuance of advanced study in the field of education.

When the teachers were asked, "How important do you think it is that children receive S-APA exercises in planned, hierarchical sequence rather than receiving ten exercises one year, skip twelve exercises, and then start off in the syllabus for the next higher grade level in September?", their responses were recorded on the following continuum:

Skipping many exercises is not a disadvantage	1	2	3	4	5	6	7 Skipping exercises is a great disadvantage to the students

A mean numerical response of 5.3 with a standard deviation of 1.6 indicates that teachers feel skipping many exercises puts students to somewhat of a disadvantage. Most teachers, because of their physical presence in a S-APA-oriented environment for the past two years, are quite aware of the trails and tribulations associated with not teaching the exercises in a planned, hierarchical sequence. Looking at the data by states finds:

Table #57:

Respondents	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
Penna. Educators	0	0%	3	14%	0	0%	4	19%	2	10%	9	43%	3	14%
N. Y. Educators	0	0%	1	3%	2	6%	5	17%	5	17%	4	13%	12	41%
All Educators	0	0%	4	8%	2	4%	9	18%	7	14%	13	26%	15	30%

The data tell us that teachers from both states are rather consistent in their thinking. Approximately eighty percent of the teachers from both states feels that skipping exercises is a definite disadvantage to the students. Inspection of the data by age groupings finds:

Table #58:

Age Groupings	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
Ages (21 to 30)	0	0%	3	9%	2	6%	5	16%	5	16%	9	28%	8	25%
Ages (31 to 40)	0	0%	0	0%	0	0%	1	17%	0	0%	2	33%	3	50%
Ages (41 to 50)	0	0%	1	9%	0	0%	2	18%	2	18%	2	18%	4	36%
Ages (51 to 60)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ages (61 plus)	0	0%	0	0%	0	0%	1	100%	0	0%	0	0%	0	0%

The data denote that teachers (ages, thirty-one to forty) are the most concerned with skipping exercises and the disadvantages it creates for students. Examination of the data by number of teaching-years-experience finds:

Table #59:

Years of Experience Groupings	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
(0 years)	0	0%	0	0%	1	8%	0	0%	2	17%	6	50%	3	25%
(1 to 3 years)	0	0%	1	9%	0	0%	2	18%	4	36%	2	18%	2	18%
(4 to 10 years)	0	0%	0	0%	0	0%	3	16%	0	0%	5	26%	11	58%
(11 to 20 years)	0	0%	0	0%	0	0%	2	29%	1	14%	1	14%	3	43%
(20 plus years)	0	0%	1	25%	0	0%	1	25%	0	0%	0	0%	2	50%

The data reveal that teachers within all years-of-experience categories feel skipping exercises is a considerable hindrance to student development. Analysis of the data by academic degrees and/or graduate course work of teachers finds:

Table #60:

Highest Degree Received	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
B.S. or B.A.	0	0%	3	8%	1	3%	4	11%	6	17%	12	33%	10	28%
M.S. or M.A.	0	0%	0	0%	0	0%	1	25%	0	0%	0	0%	3	75%
M.S. or M.A.	0	0%	0	0%	1	14%	3	43%	1	14%	1	14%	1	14%

The data continue to elicit teachers' attitudes toward the importance of planning and teaching S-APA exercises in a hierarchical sequence. Aside from the many administrative and social ills related to skipping exercises, the data reflect that teachers really believe skipping exercises will hinder student development. Whether they put into practice what they believe and feel, remains to be seen.

When the educators asked, "During your week of inservice training many ideas and techniques will be introduced to you: Do you feel that inservice training is a necessary prerequisite for effective use of a curriculum program?", they responded on the following continuum:

Completely unnecessary	1	2	3	4	5	6	7	Completely necessary

A mean numerical response of 6.3 with a standard deviation of 1.1 indicates that teachers feel inservice training for S-APA is a must, if the installation effort is to be a success. Of all the continua questions asked, the response to this one is the most positive or favorable (1 to 7 continuum: mean = 6.3). Looking at the data by states finds:

Table #61:

Respondents	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
Penna. Educators	0	0%	1	5%	0	0%	3	14%	0	0%	7	32%	11	50%
N. Y. Educators	0	0%	0	0%	0	0%	2	6%	1	3%	10	31%	19	59%
All Educators	0	0%	1	2%	0	0%	5	9%	1	2%	17	31%	30	56%

The data reflect that teachers from both states agree that workshop training is imperative for effective use of the curriculum program. Inspection of the data by age groupings finds:

Table #62:

Age Groupings	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
Ages (21 to 30)	0	0%	0	0%	0	0%	4	11%	1	3%	15	43%	15	43%
Ages (31 to 40)	0	0%	0	0%	0	0%	0	0%	0	0%	1	17%	5	83%
Ages (41 to 50)	0	0%	1	8%	0	0%	1	8%	0	0%	2	17%	8	67%
Ages (51 to 60)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ages (61 plus)	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	1	100%

The data tell us that teachers within all age groupings believe inservice training will introduce them to many new ideas and techniques. The older teachers really perceive themselves needing inservice training as indicated by the rather high percentages at the extreme right of the continuum. Examination of the data by number of teaching-years-experience finds:

Table #63:

Years of Experience Groupings	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
(0 years)	0	0%	0	0%	0	0%	1	8%	0	0%	6	46%	6	46%
(1 to 3 years)	0	0%	1	9%	0	0%	1	9%	1	9%	5	45%	3	27%
(4 to 10 years)	0	0%	0	0%	2	11%	3	16%	6	32%	4	21%	4	21%
(11 to 20 years)	0	0%	0	0%	0	0%	0	0%	0	0%	1	14%	6	86%
(20 plus years)	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	4	100%

The data reveal, once again, that teachers within all groups feel workshop training is completely necessary. Teachers with eleven to twenty years of teaching experience exhibit the greatest need to be introduced to new ideas and techniques. Analysis of the data by academic degrees and/or graduate course work of teachers finds:

Table #64:

Highest Degree Received	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
B.S. or B.A.	0	0%	1	3%	0	0%	3	8%	1	3%	15	38%	19	49%
M.S. or M.A.	0	0%	0	0%	0	0%	0	0%	0	0%	2	50%	2	50%
M.S.+ or M.A.+	0	0%	0	0%	0	0%	1	14%	0	0%	0	0%	6	86%

Once again the data denote a great need for inservice training. Teachers with advanced degrees tend to favor workshop training as more necessary than those with a bachelor's degree only. Perhaps those with graduate work have not had recent courses in elementary science.

The next seven questions posed to the teachers are concerned with consultant service and utilization. When the educators were asked, "Have you ever utilized the help of an outside consultant?", they responded on the following continuum:

Never 1 2 3 4 5 6 7 Many times more than 10 times per yr.

A mean numerical response of 3.6 with a standard deviation 1.9 indicates that the teachers as a group have had some consultant service; but whether they maximally utilized it, cannot be ascertained. Looking at the data by states finds:

Table #65:

Respondents	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
Penna. Educators	0	0%	2	9%	3	14%	1	5%	5	23%	7	32%	4	18%
N. Y. Educators	6	20%	6	20%	2	7%	5	17%	6	20%	0	0%	5	17%
All Educators	6	12%	8	15%	5	10%	6	12%	11	21%	7	13%	9	17%

The data represent Pennsylvania teachers having had more outside consultant service than their New York counterparts. Nine teachers signified they had utilized outside consultant service more than ten times per year. Inspection of the data by age groupings finds:

Table #66:

Age Groupings	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
Ages (21 to 30)	7	22%	7	22%	0	0%	3	9%	12	38%	0	0%	3	9%
Ages (31 to 40)	1	17%	2	33%	0	0%	1	17%	2	33%	0	0%	0	0%
Ages (41 to 50)	3	25%	0	0%	2	17%	3	25%	1	8%	1	8%	2	17%
Ages (51 to 60)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ages (61 plus)	0	0%	0	0%	0	0%	1	100%	0	0%	0	0%	0	0%

The data reflect that teachers (ages, forty-one to fifty) possess the most past experience with the utilization of outside consultants. Examination of the data by number of teaching-years-experience finds:

Table #67:

Years of Experience Groupings	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
(0 years)	5	50%	3	30%	0	0%	0	0%	1	10%	0	0%	1	10%
(1 to 3 years)	1	9%	3	27%	0	0%	1	9%	4	36%	0	0%	2	18%
(4 to 10 years)	4	21%	2	11%	1	5%	2	11%	9	47%	1	5%	0	0%
(11 to 20 years)	0	0%	1	14%	1	14%	3	43%	1	14%	0	0%	1	14%
(20 plus years)	1	25%	0	0%	0	0%	0	0%	2	50%	0	0%	1	25%

The data reveal that teachers with eleven to twenty years service have had the most experience with the utilization of outside consultation. Analysis of the data by academic degrees and/or graduate course work of teachers finds:

Table #68:

Highest Degree Received	Frequencies & Percentages per Continuum Intervals													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
B.S. or B.A.	10	27%	8	22%	0	0%	4	11%	12	32%	1	3%	2	5%
M.S. or M.A.	1	25%	0	0%	1	25%	1	25%	0	0%	0	0%	1	25%
M.S.+ or M.A.+	0	0%	1	14%	1	14%	1	14%	3	43%	0	0%	1	14%

The data imply that teachers possessing a masters-plus tend to have had more of an exposure to consultant service. Perhaps, if one may infer, there appears to be a relationship between those teachers (ages, forty-one to fifty), those with eleven to twenty years experience and those with a masters-plus!

When the educators were asked, "To what degree of importance do you feel a consultant should assist the teacher in utilization of equipment and guides?", they responded on the following continuum:

Unimportant 1 2 3 4 5 6 7 Very important

A mean of 5.3 with a standard deviation of 1.5 indicates that teachers feel assisting in the utilization of equipment and guides as being important, but not very important. Looking at the data by states finds:

Table #69:

Respondents	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
Penna. Educators	0	0%	1	5%	3	14%	2	9%	5	23%	5	23%	6	27%
N. Y. Educators	1	3%	1	3%	1	3%	5	16%	6	19%	7	23%	10	32%
All Educators	1	2%	2	4%	4	7%	7	13%	11	21%	12	22%	16	30%

The data reflect that New York educators value assistance in the utilization of equipment and guides more than Pennsylvania teachers. Inspection of the data by age groupings finds:

Table #70:

Age Groupings	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
Ages (21 to 30)	1	3%	1	3%	4	12%	5	15%	10	29%	6	18%	7	21%
Ages (31 to 40)	0	0%	0	0%	0	0%	0	0%	1	17%	1	17%	4	67%
Ages (41 to 50)	0	0%	1	8%	0	0%	1	8%	1	8%	4	33%	5	42%
Ages (51 to 60)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ages (61 plus)	0	0%	0	0%	0	0%	0	0%	0	0%	1	100%	0	0%

The data denote that teachers (ages, thirty-one to fifty) feel the help from a consultant concerning the use of equipment and guides as rather important by the indication of percentages in the last three intervals. Examination of the data by number of teaching-years-experience finds:

Table #71:

Years of Experience Groupings	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
(0 years)	0	0%	0	0%	1	8%	2	17%	2	17%	3	25%	4	33%
(1 to 3 years)	0	0%	1	9%	2	18%	1	9%	5	45%	1	9%	1	9%
(4 to 10 years)	1	5%	1	5%	1	5%	2	11%	4	21%	4	21%	6	32%
(11 to 20 years)	0	0%	0	0%	0	0%	1	14%	1	14%	2	29%	3	43%
(20 plus years)	0	0%	0	0%	0	0%	0	0%	0	0%	2	50%	2	50%

The data tell us that teachers within two groupings, those with one to three years experience and those with four to ten years experience value the aid of a consultant, when utilizing equipment and guides, as an important function. Analysis of the data by academic degrees and/or graduate course work of teachers finds:

Table #72:

Highest Degree Received	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
B.S. or B.A.	1	3%	1	3%	3	8%	4	10%	12	31%	8	21%	10	26%
M.S. or M.A.	0	0%	0	0%	0	0%	2	50%	0	0%	1	25%	1	25%
M.S.+ or M.A.+	0	0%	1	14%	1	14%	0	0%	0	0%	1	14%	4	57%

The data reveal that teachers, regardless of how much formal training they possess, feel this consultant function to be rather important.

When the teachers were asked, "To what degree of importance do you feel a consultant should demonstrate S-APA instruction to children?", they responded on the following continuum:

Unimportant 1 2 3 4 5 6 7 Very important

A mean numerical response of 5.2 with a standard deviation 1.4 indicates that teachers value this function as rather important, but not very important. Of All the functions mentioned, the demonstration of S-APA instruction to children had the lowest mean numerical response. Looking at the data by states finds:

Table #73:

Respondents	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
Penna. Educators	0	0%	1	5%	3	14%	1	5%	6	27%	5	22%	6	27%
N. Y. Educators	0	0%	0	0%	4	13%	4	13%	8	26%	7	23%	8	26%
All Educators	0	0%	1	2%	7	13%	5	9%	14	26%	12	23%	14	26%

The data reveal that teachers from New York State favor demonstration lessons slightly more than their Pennsylvania counterparts. Inspection of the data by age groupings finds:

Table #74:

Age Groupings	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
Ages (21 to 30)	0	0%	1	3%	6	18%	3	9%	9	26%	8	24%	7	21%
Ages (31 to 40)	0	0%	0	0%	0	0%	0	0%	2	33%	1	17%	3	50%
Ages (41 to 50)	0	0%	0	0%	1	8%	2	17%	2	17%	3	25%	4	33%
Ages (51 to 60)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ages (61 plus)	0	0%	0	0%	0	0%	1	100%	0	0%	0	0%	0	0%

The data represent that teachers (ages, thirty-one to forty) value the consultant demonstrating S-APA instruction to children as being very important; whereas the other teachers think it is just rather important. Examination of the data by number of teaching-years-experience finds:

Table #75:

Years of Experience Groupings	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
(0 years)	0	0%	1	8%	2	17%	0	0%	1	8%	3	25%	5	42%
(1 to 3 years)	0	0%	0	0%	1	9%	1	9%	7	64%	2	18%	0	0%
(4 to 10 years)	0	0%	0	0%	3	16%	2	11%	4	21%	5	26%	5	26%
(11 to 20 years)	0	0%	0	0%	1	14%	2	29%	1	14%	1	14%	2	29%
(20 plus years)	0	0%	0	0%	0	0%	1	25%	0	0%	1	25%	2	50%

The data reflect that teachers with four to ten years experience value the teaching of demonstration lessons as being slightly more important than teachers within other groups. Analysis of the data by academic degrees and/or graduate course work of teachers finds:

Table #76:

Highest Degree Received	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
B.S. or B.A.	0	0%	1	3%	5	13%	3	8%	10	26%	9	23%	11	28%
M.S. or M.A.	0	0%	0	0%	1	25%	1	25%	0	0%	1	25%	1	25%
M.S.+ or M.A.+	0	0%	0	0%	1	14%	1	14%	3	43%	1	14%	1	14%

The data reveal that teachers regardless of the amount of formal academic preparation feel the teaching of demonstration lessons is rather important. Eleven teachers with bachelor's degrees only signified this consultant function to be very important.

When the educators were asked, "To what degree of importance do you feel a consultant should evaluate the effect of the S-APA curriculum upon student achievement?", they responded on the following continuum:

Unimportant 1 2 3 4 5 6 7 Very important

A mean numerical response of 5.3 with a standard deviation of 1.5 indicates that teachers feel evaluation of the effect of the S-APA program upon student achievement is a rather important consultant function. Looking at the data by states finds:

Table #77:

Respondents	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
Penna. Educators	5	24%	3	14%	0	0%	3	14%	9	43%	1	5%	0	0%
N. Y. Educators	0	0%	0	0%	5	16%	3	10%	5	16%	7	23%	11	35%
All Educators	5	10%	3	6%	5	10%	6	12%	14	27%	8	15%	11	21%

The data imply that New York teachers appraise more highly the consultant function of evaluating the effect of the S-APA program upon student achievement than their Pennsylvania counterparts. Five Pennsylvania teachers signified this consultant function to be totally unimportant. Inspection of the data by age groupings finds:

Table #78:

Age Groupings	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
Ages (21 to 30)	0	0%	2	6%	7	21%	3	8%	6	18%	8	24%	8	24%
Ages (31 to 40)	0	0%	0	0%	0	0%	0	0%	2	33%	2	33%	2	33%
Ages (41 to 50)	0	0%	0	0%	0	0%	1	8%	2	17%	4	33%	5	42%
Ages (51 to 60)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ages (61 plus)	0	0%	0	0%	1	100%	0	0%	0	0%	0	0%	0	0%

The data reveal that teachers (ages, thirty-one to forty) feel this consultant function to be rather important, whereas those (ages, twenty-one to thirty) consider it to be less important a function. Examination of the

data by number of teaching-years-experience finds:

Table #79:

Years of Experience Groupings	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
(0 years)	0	0%	0	0%	2	17%	0	0%	2	17%	3	25%	5	42%
(1 to 3 years)	0	0%	1	9%	0	0%	1	9%	5	45%	3	27%	1	9%
(4 to 10 years)	0	0%	1	5%	5	26%	2	11%	2	11%	5	26%	4	21%
(11 to 20 years)	0	0%	0	0%	0	0%	1	13%	1	13%	2	25%	4	50%
(20 plus years)	0	0%	1	25%	0	0%	0	0%	0	0%	1	25%	2	50%

The data reflect that teachers with eleven to twenty years service value the consultant evaluating the effect of the S-APA curriculum upon student achievement more than in any other experience group. Analysis of the data by academic degrees and/or graduate course work of teachers finds:

Table #80:

Highest Degree Received	Frequencies & Percentages per Continuum Intervals													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
B.S. or B.A.	0	0%	2	5%	5	13%	2	5%	9	23%	10	26%	11	28%
M.S. or M.A.	0	0%	0	0%	0	0%	2	50%	0	0%	0	0%	2	50%
M.S.+ or M.A.+	0	0%	0	0%	2	29%	0	0%	1	14%	3	43%	1	14%

The data denote that teachers regardless of the amount of formal academic preparation assess the functioning of a consultant as an evaluation of the effect of the S-APA program upon student achievement to be rather important.

When the educators were asked, "To what degree of importance do you feel a consultant should observe the classroom teacher, analyze and constructively discuss teacher performance during a mutual sharing session?", they responded on the following continuum:

Unimportant 1 2 3 4 5 6 7 Very important

A mean numerical response of 5.5 with a standard deviation of 1.6 indicates that teachers tend to deem classroom observation and an analysis of teacher performance during a mutual sharing session as being very important. This consultant function received one of the highest ratings by the teachers. Looking at the data by states finds:

Table #81:

Respondents	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
Penna. Educators	0	0%	1	5%	1	5%	3	14%	2	9%	6	27%	9	41%
N. Y. Educators	0	0%	0	0%	6	19%	3	10%	3	10%	7	23%	12	39%
All Educators	0	0%	1	2%	7	13%	6	11%	5	9%	13	25%	21	39%

The data tell us that Pennsylvania teachers value more highly this consultant function than do New York teachers. Inspection of the data by age groupings finds:

Table #82:

Age Groupings	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
Ages (21 to 30)	0	0%	1	3%	4	12%	5	15%	2	6%	9	26%	13	38%
Ages (31 to 40)	0	0%	0	0%	1	17%	0	0%	0	0%	2	33%	3	50%
Ages (41 to 50)	0	0%	0	0%	2	17%	1	8%	3	25%	1	8%	5	42%
Ages (51 to 60)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ages (61 plus)	0	0%	0	0%	0	0%	0	0%	0	0%	1	100%	0	0%

The data reveal that teachers (ages, thirty-one to forty) appraise the consultant function of classroom observation and an analysis of teacher performance during a mutual sharing session as being rather important, when compared to the other age groupings. Examination of the data by number of teaching-years-experience finds:

Table #83:

Years of Experience Groupings	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
(0 years)	0	0%	0	0%	1	8%	1	8%	0	0%	4	33%	6	50%
(1 to 3 years)	0	0%	0	0%	0	0%	2	18%	2	18%	4	36%	3	27%
(4 to 10 years)	0	0%	0	0%	3	16%	2	11%	4	21%	5	26%	5	26%
(11 to 20 years)	0	0%	0	0%	0	0%	1	14%	0	0%	2	29%	4	57%
(20 plus years)	0	0%	0	0%	1	25%	0	0%	2	50%	1	25%	0	0%

The data reflect that teachers within all groupings feel the utilization of this consultant function to be rather important. Analysis of the data by academic degrees and/or graduate course work of teachers finds:

Table #84:

Highest Degree Received	Frequencies & Percentages per Continuum Intervals													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
B.S. or B.A.	0	0%	1	3%	5	13%	4	10%	3	8%	12	31%	14	36%
M.S. or M.A.	0	0%	0	0%	0	0%	2	50%	0	0%	0	0%	2	50%
M.S.+ or M.A.+	0	0%	0	0%	1	14%	0	0%	1	14%	0	0%	5	71%

The data tend to exhibit tendencies where those teachers with more formal academic preparation deem more important the consultant function of classroom observation and an analysis of teacher performance during a mutual sharing session.

When the educators were asked, "To what degree of importance do you feel a consultant should interpret the program to various administrators, parents, visitors, and PTA's?", they responded on the following continuum:

Unimportant 1 2 3 4 5 6 7 Very important

A mean numerical response of 5.3 with a standard deviation of 1.7 indicates that teachers value the interpretation of S-APA to various administrators, parents, visitors, and PTA's as rather important, but not very important. Looking at the data by states finds:

Table #85:

Respondents	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
Penna. Educators	0	0%	0	0%	0	0%	2	9%	5	23%	7	32%	8	36%
N. Y. Educators	3	10%	1	3%	1	3%	6	19%	4	13%	7	23%	9	29%
All Educators	3	6%	1	2%	1	2%	8	15%	9	17%	14	26%	17	32%

The data represent Pennsylvania teachers assessing much higher the interpretation of S-APA to various administrators, parents, visitors, and PTA's by the consultant than their New York counterparts. Inspection of the data by age groupings finds:

Table #86:

Age Groupings	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
Ages (21 to 30)	1	3%	1	3%	1	3%	5	15%	6	18%	9	26%	11	33%
Ages (31 to 40)	0	0%	0	0%	0	0%	0	0%	0	0%	1	17%	5	83%
Ages (41 to 50)	2	17%	0	0%	0	0%	2	17%	3	25%	4	33%	1	8%
Ages (51 to 60)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ages (61 plus)	0	0%	0	0%	0	0%	1	100%	0	0%	0	0%	0	0%

The data reveal that teachers (ages, thirty-one to forty) value this consultant function very important, whereas some teachers (ages, thirty-one to

forty) value this consultant function very important, whereas some teachers (ages, forty-one to fifty) signify it as being totally unimportant. Examination of the data by number of teaching-years-experience finds:

Table #87:

Years of Experience Groupings	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
(0 years)	0	0%	0	0%	0	0%	2	17%	1	8%	3	25%	6	50%
(1 to 3 years)	0	0%	0	0%	0	0%	1	9%	2	18%	5	45%	3	27%
(4 to 10 years)	0	0%	1	5%	5	26%	2	11%	2	11%	5	26%	4	21%
(11 to 20 years)	1	14%	0	0%	0	0%	2	29%	0	0%	2	29%	2	29%
(20 plus years)	1	25%	0	0%	0	0%	1	25%	1	25%	1	25%	0	0%

The data reflect that all teachers deem interpretation of S-APA to others rather important, except two teachers with eleven to twenty-plus years of service who signify it as being totally unimportant. Analysis of the data by academic degrees and/or graduate course work of teachers finds:

Table #88:

Highest Degree Received	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
B.S. or B.A.	0	0%	1	3%	0	0%	4	10%	9	23%	11	28%	14	36%
M.S. or M.A.	1	25%	0	0%	0	0%	2	50%	0	0%	0	0%	1	25%
M.S.+ or M.A.+	1	14%	0	0%	1	14%	1	14%	0	0%	2	29%	2	29%

The data imply that teachers with advanced degrees and/or graduate course work do not value this consultant function as highly as those teachers with a bachelor's degree only.

When the educators were asked, "To what degree of importance do you feel a consultant should work with a small group of children in the classroom to evaluate the suitability and contribution of a given S-APA exercise?", they responded on the following continuum:

Unimportant 1 2 3 4 5 6 7 Very important

A mean numerical response of 5.5 with a standard deviation of 1.2 indicates that teachers feel the consultant working with small groups of children in the classroom as being very important. Of all the functions mentioned, this received the highest mean numerical response, thus attaining top priority among the teachers. Looking at the data by states finds:

Table #89:

Respondents	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
Penna. Educators	0	0%	0	0%	0	0%	3	14%	6	27%	7	32%	6	27%
N. Y. Educators	0	0%	0	0%	3	10%	5	16%	6	19%	8	26%	9	29%
All Educators	0	0%	0	0%	3	6%	8	15%	12	23%	15	28%	15	28%

The data reveal that Pennsylvania teachers value more highly this consultant function than do New York teachers. Inspection of the data by age groupings finds:

Table #90:

Age Groupings	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
Ages (21 to 30)	0	0%	0	0%	2	6%	6	18%	10	29%	9	26%	7	21%
Ages (31 to 40)	0	0%	0	0%	0	0%	0	0%	0	0%	2	33%	4	67%
Ages (41 to 50)	0	0%	0	0%	0	0%	2	16%	2	16%	4	33%	4	33%
Ages (51 to 60)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ages (61 plus)	0	0%	0	0%	1	100%	0	0%	0	0%	0	0%	0	0%

The data reflect that teachers (ages, thirty-one to forty) assess the consultant working with small groups of children as being very important. Many teachers signified this as indicated by the overwhelming appearance of scores in the seventh or last interval. Examination of the data by number of teaching-years-experience finds:

Table #91:

Years of Experience Groupings	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
(0 years)	0	0%	0	0%	0	0%	1	8%	2	16%	3	24%	6	49%
(1 to 3 years)	0	0%	0	0%	0	0%	2	18%	3	27%	5	45%	1	9%
(4 to 10 years)	0	0%	1	5%	5	26%	2	11%	1	5%	2	11%	8	42%
(11 to 20 years)	0	0%	0	0%	0	0%	2	29%	0	0%	2	29%	3	43%
(20 plus years)	0	0%	0	0%	1	25%	0	0%	1	25%	1	25%	1	25%

The data denote that teachers within all groups rate this consultant function as rather important but not very important. Teachers with one to three years experience deem this service the least important when comparing them to the other groups. Analysis of the data by academic degrees and/or graduate course work of teachers finds:

Table #92:

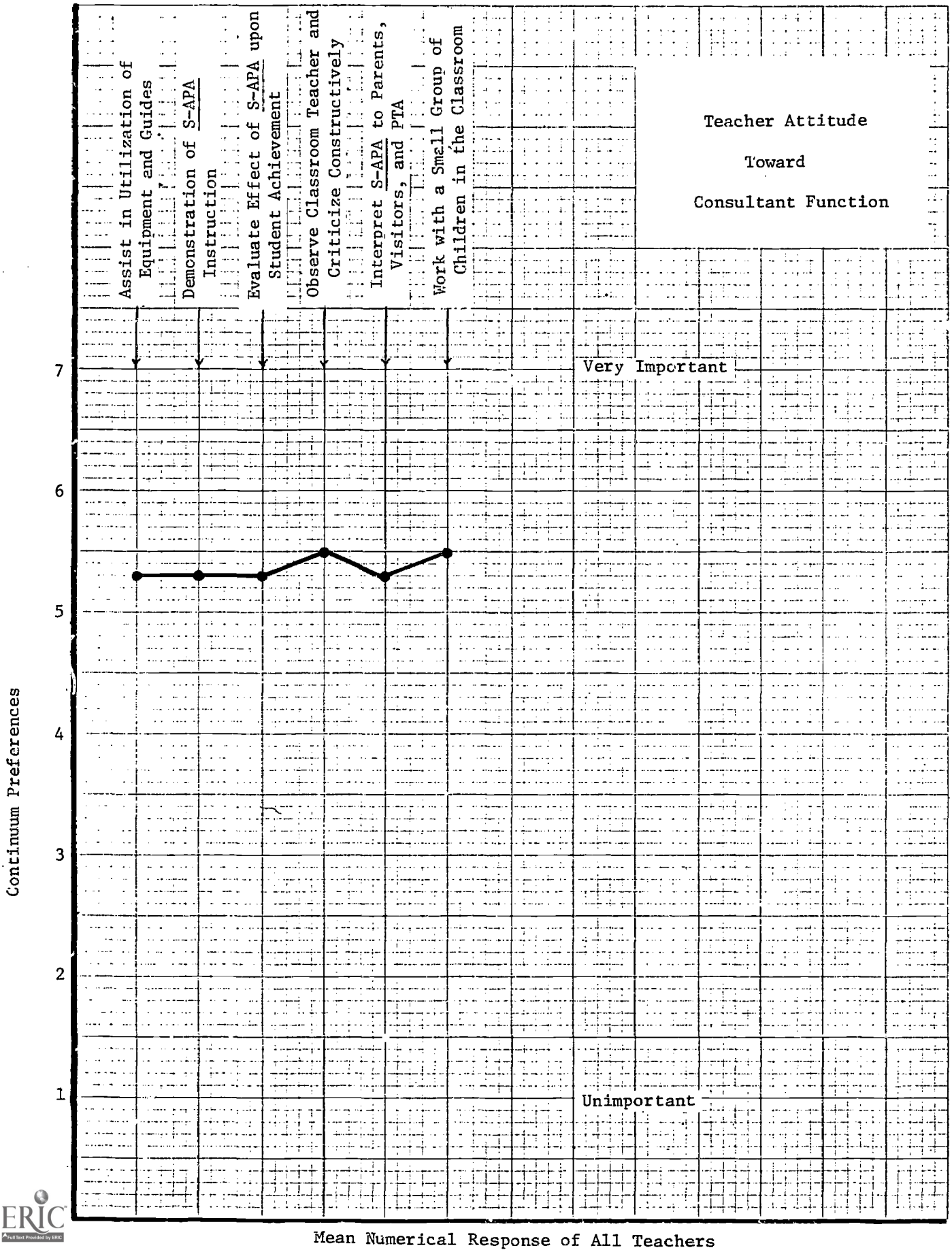
Highest Degree Received	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
B.S. or B.A.	0	0%	0	0%	1	3%	5	13%	11	28%	11	28%	11	28%
M.S. or M.A.	0	0%	0	0%	0	0%	2	50%	0	0%	0	0%	2	50%
M.S.+ or M.A.+	0	0%	0	0%	1	14%	1	14%	1	14%	3	43%	1	14%

The data tell us that teachers within all categories do not consider the consultant working with a small group of children in the classroom to evaluate the suitability and contribution of a given S-APA exercise as too important an activity. Graph #1 has been provided for a general review and overview of the mean numerical response of all teachers toward the six previously mentioned consultant functions.

Finally, when the educators were asked, "To what extent do you feel it important to know the improvement in student achievement in S-APA during the year?", they responded on the following continuum:

Unimportant 1 2 3 4 5 6 7 Very important

Table No. 1


Teacher Attitude
Toward
Consultant Function
Assist in Utilization of Equipment and Guides
Demonstration of S-APA Instruction
Evaluate Effect of S-APA upon Student Achievement
Observe Classroom Teacher and Criticize Constructively
Interpret S-APA to Parents, Visitors, and PTA
Work with a Small Group of Children in the Classroom
Very Important
Unimportant
7
6
5
4
3
2
1
Continuum Preferences
Mean Numerical Response of All Teachers

A mean numerical response of 6.2 with a standard deviation of 1.2 indicates that teachers are extremely concerned with knowing the improvement of student achievement in S-APA. Looking at the data by states finds:

Table #93:

Respondents	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
Penna. Educators	0	0%	1	5%	1	5%	0	0%	2	9%	5	23%	13	59%
N. Y. Educators	0	0%	0	0%	0	0%	3	9%	4	13%	9	28%	16	50%
All Educators	0	0%	1	2%	1	2%	3	6%	6	11%	14	26%	29	54%

The data tell us that teachers from both states tend to agree as to the importance of knowing how S-APA may improve student achievement. Inspection of the data by age groupings finds:

Table #94:

Age Groupings	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
Ages (21 to 30)	0	0%	1	3%	0	0%	2	6%	5	14%	8	23%	19	54%
Ages (31 to 40)	0	0%	0	0%	0	0%	0	0%	0	0%	1	17%	5	83%
Ages (41 to 50)	0	0%	0	0%	1	8%	1	8%	1	8%	5	42%	4	33%
Ages (51 to 60)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ages (61 plus)	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	1	100%

The data reflect that teachers (ages, thirty-one to forty) tend to be the most concerned about S-APA and student achievement. Examination of the data by number of teaching-years-experience finds:

Table #95:

Years of Experience Groupings	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
(0 years)	0	0%	0	0%	0	0%	0	0%	2	15%	4	31%	7	54%
(1 to 3 years)	0	0%	0	0%	1	9%	1	9%	0	0%	2	18%	7	64%
(4 to 10 years)	0	0%	0	0%	0	0%	0	0%	0	0%	1	25%	3	75%
(11 to 20 years)	0	0%	0	0%	0	0%	1	13%	0	0%	5	63%	2	25%
(20 years plus)	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	4	100%

The data reveal that teachers with four to ten years of service are the most concerned, whereas those teachers with eleven to twenty years of experience are the least concerned. Only twenty-five percent of the teachers in the least-concerned group signified student achievement as being very important. Analysis of the data by academic degrees and/or graduate course work of teachers finds:

Table #96:

Highest Degree Received	Frequencies & Percentages per Continuum Interval													
	1	%	2	%	3	%	4	%	5	%	6	%	7	%
B.S. or B.A.	0	0%	1	3%	1	3%	1	3%	4	10%	10	25%	23	58%
M.S. or M.A.	0	0%	0	0%	0	0%	1	25%	0	0%	0	0%	3	75%
M.S.+ or M.A.+	0	0%	0	0%	0	0%	2	29%	2	29%	2	29%	1	14%

The data denote little as what group feels most strong about S-APA and student achievement. Those teachers with a master's plus certainly do not consider it too important as indicated by only fourteen percent response in the seventh interval. Those teachers with a master's only tend to favor the importance of knowing about the improvement of student achievement because of the S-APA program.

The points elaborated upon and the data tables presented in this report are only a few of many that can be inferred from the multitude of existing possibilities. An appendix has been provided for those who wish to pursue a more thorough or comprehensive study.

#

APPENDIX

Questionnaire

"Ithaca College Science Workshop Information Form"

EXAMPLE ITEM A

As a site for a workshop, Ithaca College is:

Extremely beautiful and inspiring	1	(2)	3	4	5	6	7	Uninspiring and drab

*- You will notice that I have circled number "two" on the continuum. "Two" stands for a beautiful and inspiring workshop site. Many participants will probably agree that a low number should be circled for Example A. Ithaca College is beautiful!

Now please circle your frank response to each item below. Teachers should respond relative to their classroom, and administrators relative to their building or district.

1. Right now, the degree to which I understand the nature and objectives of the elementary school science curricula known as Science--A Process Approach (SAPA) is:

Have extensive knowledge about SAPA	1	2	3	4	5	6	7	Know nothing about SAPA

2. From what you presently know, how have you been impressed with SAPA as an elementary school science program?

Very favorably impressed	1	2	3	4	5	6	7	Very unfavorably impressed

3. Please estimate the number of minutes you spent in teaching science per week to your class last year (1968-69)_____minutes.

4. Check one response below. Considering the need to teach reading, arithmetic, composition, art, etc., as well as science to children, I feel that the time devoted to teaching science in my school building is presently:

_____ entirely too much time given to science.
_____ a little too much time given to science.
_____ just the right amount of time given to science.
_____ not quite enough time given to science.
_____ entirely too little time given to science.

5. To what degree do you employ subgrouping of pupils in your classroom for purposes of "individual" instruction?

Only subgrouping on occasion for some special learning activity.	1	2	3	4	5	6	7	Subgroup every day in all curricular areas.

6. To what extent will you be introducing other new curricula programs in your room during the coming academic year. Do not include SAPA.

1 - No new curriculum program *
2 - 1 new curriculum program
3 - 2 new curriculum programs
4 - 3 new curriculum programs
5 - 4 or more new curriculum programs

* A new program could be in any curricula area, and would demand a minimum of one additional hour per week of planning time to be effective in your class.

7. To what extent have you participated in the selection of any of the new programs (non SAPA) you are going to use next year (if any). (Please leave blank if no new programs are being installed.)

No participation - Program was selected for me 1 2 3 5 6 7 Extensive participation in planning and implementing

8. To what extent were you involved in the selection of the SAPA program for your school?

No participation in selection 1 2 3 4 5 6 7 Was directly involved in selection

9. To what extent was any teacher you know involved in the selection of the SAPA program for your school?

No teacher participation in selection 1 2 3 4 5 6 7 Teachers were directly involved in selection

10. Does your district have a curriculum organization that includes teachers in the group that screens and selects new curricula programs?

Yes_____ No_____

11. Have you ever participated in one of these selection groups?

Yes_____ No_____

12. To what extent have you utilized manipulative materials and equipment with children while teaching any curricular programs?

Seldom use manipulative equipment. 1 2 3 4 5 6 7 Use manipulative equipment daily in all curricular areas.

13. Current thinking in curriculum development focuses on the establishment of behavioral objectives for each program.

a) Have you ever used a program that incorporated behaviorally stated objectives? Do not count S-APA

No program 1 2 3 4 5 6 7 Many programs More than 4

b) To what extent do you plan the activities of your class in terms of behaviorally stated objectives?

Do not have time to write behavioral objectives 1 2 3 4 5 6 7 Always write or identify behavioral objectives

14. Process education has been receiving a new focus in American Education. Researchers like Robert Gagne and Jerome Bruner have been talking about the necessity of developing process centered curricula.

According to the best of your knowledge, process education is more like:

Time proven knowledge needed by children 1 2 3 4 5 6 7 Intellectual skills needed by children.

15. Have you ever utilized the help of an "outside consultant"?

Never 1 2 3 4 5 6 7 Many times More than 10 times per year

16. A consultant probably should serve several functions. On each of the following, mark the degree to which the function is important to you:

a) Assist teacher in utilization of equipment and guides:

Unimportant 1 2 3 4 5 6 7 Very Important

b) Demonstration of SAPA instruction with children:

Unimportant 1 2 3 4 5 6 7 Very Important

c) Evaluate effect of the SAPA curriculum upon student achievement:

Unimportant 1 2 3 4 5 6 7 Very Important

d) Observe classroom teacher, analyze and constructively discuss teacher performance during a mutual sharing session.

Unimportant 1 2 3 4 5 6 7 Very Important

e) Interpret the program to various administrators, parents, visitors, PTA:

Unimportant 1 2 3 4 5 6 7 Very Important

f) Work with a small group of children in the classroom to evaluate the suitability and contribution of a given S-APA exercise. (Evaluate the curriculum itself).

Unimportant 1 2 3 4 5 6 7 Very Important

Please list any other functions you feel the consultant should serve.

_____

_____

Unimportant 1 2 3 4 5 6 7 Very Important

17. During your week in inservice training many ideas and techniques will be introduced to you: Do you feel that inservice training is a necessary prerequisite for effective use of a curriculum program?

Completely unnecessary 1 2 3 4 5 6 7 Completely necessary

18. To what extent do you feel it important to know the improvement in student achievement in SAPA during the year.

Unimportant 1 2 3 4 5 6 7 Very Important

19. How important do you think it is that children receive S-APA exercises in planned, hierarchical sequence rather than receiving 10 exercises one year, skip 12 exercises, and then start off in the syllabus for the next higher grade level in September?

Skipping many exercises is not a disadvantage. 1 2 3 4 5 6 7 Skipping exercises is a great disadvantage to the students.

Computer Printout

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IEF285I   SYS1.FORTLIB                                          .KEPT
IEF285I   VOL SER NOS= SU1R17.
IEF285I   SYS69319.T1731CC.RFC69.A89058.LOADSET                  DELETED
IEF285I   VOL SER NOS= SUCC06.
IEF285I   SYS69319.T1731CC.RFC69.A89058.GOSET                   .PASSED
IEF285I   VOL SER NOS= SUOC06.
IEF285I   SYS69319.T1731CC.SFC69.A89058.R0000004                 DELETED
IEF285I   VOL SER NOS=.       .
IEF285I   SYS1.UT1                                              .KEPT
IEF285I   VOL SER NOS= SU2R17.
IEF236I ALLOC. FOR A89058   GO
IEF237I PGM=*.DD ON 130
IEF237I FTC1FC01 ON C8C
IEF237I FTC2FC01 ON C81
IEF237I FTC3FC01 ON C82
IEF237I SYSPLOTR ON C83
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TOTAL	AVERAGE	ST.DEV.
229.	4.771	1.372
136.	2.833	1.226
147.	3.063	1.040
155.	3.229	0.627
185.	3.854	1.624
92.	1.917	0.895
82.	1.708	1.624
184.	3.833	2.056
89.	1.854	0.357
67.	1.396	0.494
216.	4.500	1.353
141.	2.938	1.656
186.	3.875	1.347
240.	5.000	1.624
173.	3.604	1.876
256.	5.333	1.534
253.	5.271	1.395
255.	5.313	1.532
264.	5.500	1.557
254.	5.292	1.663
266.	5.542	1.202
301.	6.271	1.144
296.	6.167	1.191
237.	5.267	1.601