

DOCUMENT RESUME

ED 075 915

EA 005 040

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TITLE Starting Point for Curricular Change. A
Predisposition and Suitability Measure for Client
Groups.
PUB DATE 27 Feb 73
NOTE 26p.; Paper presented at American Educational
Research Association Annual Meeting (58th, New
Orleans, Louisiana, February 26 - March 1, 1973)
EDRS PRICE MF-\$0.65 HC-\$3.29
DESCRIPTORS *Curriculum Development; *Educational Objectives;
Innovation; Instructional Materials; *Measurement
Instruments; Projective Tests; Research Methodology;
Role Models; Speeches; Statistical Analysis;
*Traditional Schools; Validity; *Values
IDENTIFIERS Assessment; *Process Education

ABSTRACT

A reliable instrument was developed to assess the value orientations of individuals toward four basic epistemological dimensions concerning the perceived nature of knowledge, the learner and learning activity, and the purpose of schooling. Earlier research has shown these four dimensions discriminate between curriculum materials and instructional roles designed for traditional or process education approaches to instruction. The study reports the development of the instrument and its preliminary use with various groups in determining their predispositions toward using specific educational curricular innovations. The instrument is seen as having utility in matching curriculum innovations to client group needs and values. (Author)

FORM 810
PRINTED IN U.S.A.

MAR 30 1973

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STARTING POINT FOR CURRICULAR CHANGE
A PREDISPOSITION AND SUITABILITY MEASURE FOR CLIENT GROUPS

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Presented at
the Annual Meeting
of the American Educational Research Association
on February 27, 1973
in New Orleans, Louisiana

The assistance of the following people is
gratefully acknowledged
Linda Francis and Edward Kifer in data analysis
Theodore Strickland, Ann Harvey, and Jack Rose in
in data collection and processing
Shirley Lynn Marcoionni in
secretarial services.

EA 005 040

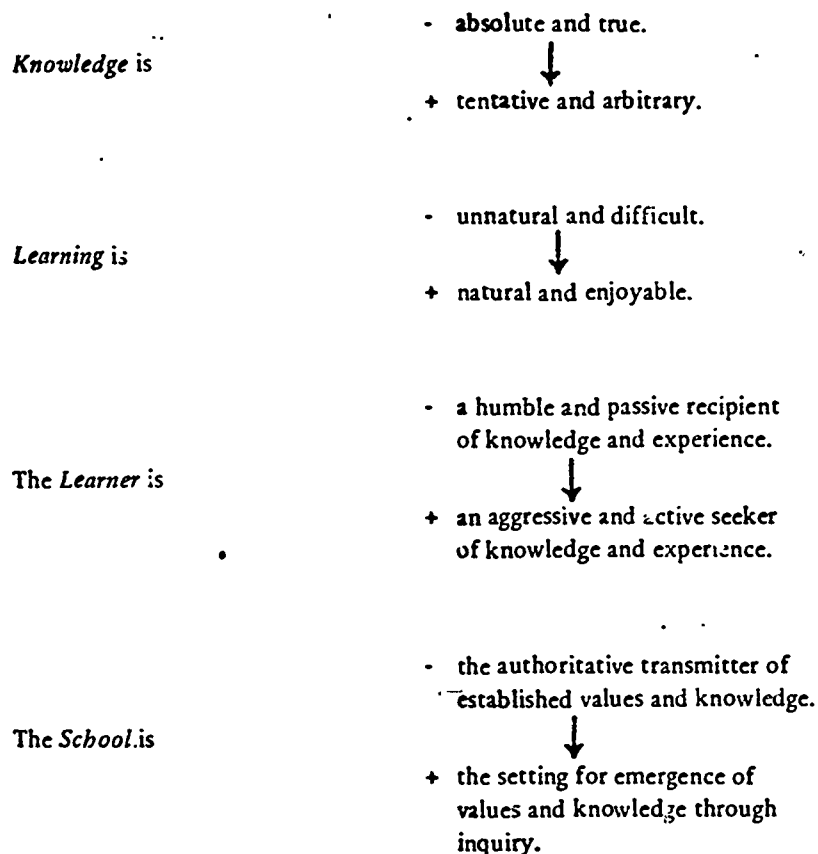
In a nationwide search for and analysis of curriculum materials designed to foster thinking and feeling skills related to the instruction of problem solving behavior, major differences have been noted in values held by educators and curriculum developers concerning the nature of knowledge, learning, the learner, and consequently the function of the school (Cole, 1972). There are two extreme value positions across these four dimensions held by various educators and other persons as represented in Figure 1. It appears that these value dimensions may be useful in describing the biases and preferences of various groups of students, teachers, parents, community and regional agencies and organizations toward various types of educational programs, materials and strategies (as well as predicting the effectiveness and impetus of the programs themselves) within given groups. It should be noted that the four logical dimensions stated in Figure 1 are not orthogonal. They are logically related but were found to be useful, nevertheless, in the categorizing of various types of curriculum materials.

Design of the Instrument:

The Education Preference Scale (EPS) is being developed as a tool for assessing the existing stance of particular client groups (e.g. an elementary school faculty, PTA or other parent groups) relative to the four value dimensions used by staff of the Eastern Regional Institute for Education (ERIE) to categorize and logically evaluate curriculum materials. The EPS is designed to address itself to these value dimensions and, in addition, to be short, reliable and non-threatening to client groups. The work reported in this paper describes the present accomplishment toward this goal.

FIGURE 1

*Opposed Value Positions Underlying Process
and Conventional Educational Practice¹¹*



11. The value positions consistent with the justifications and assumptions of process education are indicated by a plus (+) sign. The opposed and prevailing value for current educational practice is indicated by a minus (-) sign. The desired direction of change for the implementation of process education is indicated by an arrow.

From Cole H.P. Process Education, Educational Technology Publications,
Englewood Cliffs, New Jersey, 1972

Using the Getzels Model to explain the interaction of cultural values with institutional role expectations and individual personality need-dispositions, the basic and opposing pairs of value positions shown in Figure 1 were used to generate descriptions of appropriate teacher and pupil roles under each position. These in turn were translated into some operational statements representative of specific behaviors and settings appropriate or inappropriate to process education values. The instrument itself grew out of this organization. It consists of a short story and a set of bipolar operational statements to which the subject is asked to respond. The story contains two complete descriptions of (1) traditional and (2) process education roles. Each description represents one side of the dichotomous value positions toward knowledge, learning and the learner, and the function of the school. The intent is to present these two role descriptions in a totally unbiased or neutral way. This was achieved by a content analysis of early versions of the story.* No attempt is made to influence the reader. Rather he is presented with two "equally wonderful" descriptions of two different pathways to knowledge as experienced through the eyes of a small child. Since both alternatives are equally logically attractive, subjective interpretations of the reader which favor one approach over the other are assumed to result from his bias toward or away from process education values.

The story is about a young boy, Ally, who upon encountering a Genie and being granted two wishes, wants very much to become wise. As his first wish, he requests advice about the different paths to this goal. The Genie explains that there are two routes to wisdom and then proceeds to show the boy both pathways.

* The authors wish to thank Dr. Jennifer Cook for her assistance with the content analysis.

One pathway represents the "best" in education under traditional values, the other the "best" in education under process education values. The boy in the story is presented as entirely non-judgmental and highly receptive to the information he receives from his explorations with the Genie of both pathways. The story ends with the boy having to decide which route he will choose. Having read the story, the subject is asked to make a series of decisions concerning what type of school, teacher, learning activities and programs Ally should select if he is to become wise. Both the story and the items to which subjects respond are designed to be balanced and equally appealing from a logical standpoint.

The story is not intended to be representative of actual classroom environments found in public schools today, but rather is designed as a projective technique to accomplish several purposes related to the instrument's non-threatening nature. First, it is meant to create a mood and to remind the reader subliminally about the nature of the values in question. The item scales are Likert in nature with a neutral center response mode provided. Use of the story lends more meaning to this center response by making it less probably that the respondent was either ignorant of, indifferent toward, or ambivalent about the value in question (Newcomb, Turner, & Converse 1965).

Secondly, the story is designed to reinforce whatever attitudes or "set" the subject may have about the value positions. The story message itself is neutral and balanced. However every reader (except those who are confused, indifferent, or ignorant of the values in question) will perceive the message as slanted toward one path or another. But the direction of the perceived slant depends solely on the reader's existing attitudes toward the value positions, not on the message. The reader's attitudes are, of course, what we wish to measure both in degree and direction. A person in agreement with process education values

should immediately "see through" path one and interpret the positive adjective in the description as "sarcasm" or "irony". Persons with the opposite bias should make the corresponding opposite interpretation. The story should in no way effect the results. It's sole purpose is to direct the reader's awareness toward the value positions to make him aware of the problem, to give him a referent to think about before completing the 30 items in the scale.

A third point is that the instrument is designed so that the subject feels he is making objective decisions for someone else rather than subjective responses about his own preferences.

The combination of these three instrument attributes plus the fact that no technical words or difficult to understand language is used in the story or items blend to form a highly specific and very non-threatening scale that can be quickly assimilated and responded to.

Scoring of the EPS is relatively straight-forward. Each item is a balanced dichotomous five-position Likert scale, bounded at each end and with a neutral center position provided (See Figure 2). In the present version, twelve randomly chosen items were reversed to enhance the subjects interest and prevent habituation to a response pattern. Each item involves a bipolar statement related to aspects of the traditional or process form of education. The subject's total score is the unweighted arithmetic sum of each item score after correcting for responses on the twelve items which are reversed scaled. The total score is a measure of the subject's cumulative bias toward or against process education values. In addition sub-scores on separate categories of items may be interpreted to indicate the subject's bias on each of the four educational value dimensions, although these may not be orthogonal.

FIGURE 2

RESPONSE INSTRUCTIONS GIVEN THE SUBJECT AND SAMPLE ITEMS FROM THE EPS

In addition Ally needs to be aware, that

15) history is the study of:

- A) events, when and how they happened
- E) people's approaches to problems confronting them

16) science is:

- A) the setting forth and determination of the laws of the universe
- E) the ordering and interpreting of man's experience in ways he can understand

The wisdom Ally obtains in school should be primarily

- 29) A) his own gained from experience
E) that of his teachers and great scholars

The schools should primarily

- 30) A) shape, channel, and direct the students' energies
E) gratify, please, and motivate student effort

Sample question:

1) Ally should remember the genie was:

- A) a very good genie
- E) a very tricky genie

Mostly agree with A	Moderately agree with A	Agree 1/2 & 1/2 with both A & E	Moderately agree with E	Mostly agree with E
<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>

Use the A - E scale on the answer sheet to mark your preference.
Columns A and B on the answer sheet refer to the first choice. Column C
indicates a blend of both choices. Columns D and E refer to the second
choice.

Refinement of the Instrument:

Two pilot studies using preservice teachers as subjects were conducted prior to the main study. The first sample contained 56 subjects and the later sample 21. The purpose of these early studies was twofold: To test the reliability of the scale and to detect and adjust individual item imbalances. After each study the story itself and the items that exhibited marked skewness were modified. The final instrument, which is still undergoing modification, is the third version of the EPS. The early studies produced reliability estimates of $r = .730$ and $.897$ respectively using the split-halves method and Pearson product-moment correlation. The means, standard deviations, and reliability coefficients for the various test versions on different population samples in both initial pilot studies and later studies are reported in Tables 1 and 2.

Attempts were made in the pilot studies to correlate scores on the EPS with scores obtained on other instruments, notably the Rokeach D Scale and the Teaching Situation Reaction Test (TRST) administered to the same sample groups. While the results were not significant, due perhaps to the small size and vagaries of the samples, they were in the hypothesized direction. These studies were repeated in the main study on a control sample of 64 people taking the EPS and several other instruments as well. These results will be reported in the next section. It is enough to note here that the later results were clearly significant and in the right direction for the purpose of construct validity estimation.

Use of Likert type response scales and standard item score summation techniques to produce a test score for each individual always entails some degree of uncertainty regarding the proper interpretation of the data. One such problem is how to treat individuals who may be very different but whose total test scores are the same. For example it is easy to see that a person who alternately selects in turn the

TABLE 1

MEANS, STANDARD DEVIATIONS, AND RELIABILITY COEFFICIENTS
FOR THE SEVERAL VERSIONS OF THE EPS ACROSS
SEVERAL POPULATIONS FOR RAW DATA

Version	Sample	N	Mean*	STD DEV	Reliability
Original	(Pilot Study #1) Preservice Teachers	56	65.279	10.866	.730
First Revision	(Pilot Study #2) Preservice Teachers	21	65.040	12.852	.897
Second Revision	(Main Study) Preservice Teachers	86	64.932	11.524	.719
	Typical teachers	149	63.942	12.424	.770
	MACOS teachers	16	70.205	11.058	N. Avail.
	Process Educators	26	79.167	11.393	.814
	All Main Study Groups Combined	277	66.039	12.767	.786

*Scaled 0 - 100, traditional to process

TABLE 2

MEANS, STANDARD DEVIATIONS, AND RELIABILITY COEFFICIENTS
FOR THE SEVERAL VERSIONS OF THE EPS ACROSS
SEVERAL POPULATIONS FOR TRANSFORMED DATA

Versions	Sample	N	Mean**	STD DEV	Reliability
Original	(Pilot Study #1) Preservice Teachers	56	49.979	11.099	.750
First Revision	(Pilot Study #2) Preservice Teachers	21	50.000	13.167	.902
Second Revision	(Main Study) Preservice Teachers	86	49.999	12.422	.759
	Typical Teachers	149	50.407	12.395	.788
	MACOS Teachers	16	N. Avail.	N. Avail.	N. Avail.
	Process Educators	26	50.000	13.609	.869
	All Main Study Groups Combined	277	50.222	13.094	.810

**Scaled 0 - 100, transformed mean is always 50.0

most positive and then the most negative response modes on each individual item will have the same total score as the person who responded middle-of-the-road on all items. Another and more subtle problem is how to treat item scores from items whose discriminatory power within the sample is varied (i.e. items whose frequency of response curves across the possible response categories are negatively, normally, or positively skewed). Again it is easy to see that an item that elicited an equal number of responses in each category from "Strongly Agree" to "Strongly Disagree" is quite different and more meaningful than one where every subject in the sample responded most positively.

As a result of the problems just mentioned and others as well, a new statistical procedure was devised to transform the ordinary discreet test score continuum, after summing to many tied total scores, into a continuous scale wherein the subjects are rank ordered in their proper sequence while maintaining the interval quality of the continuum. This procedure is based on three assumptions about the nature of the raw item responses. These concern: (1) the discreet and bounded nature of the Likert type item scale, (2) the frequency of any given response to a particular item across the entire sample, and (3) the skewness and kurtosis of the individual item frequency distribution. The whole effect of the transformation process is to maximize whatever meaning there is in the raw test data as it is reflected by the individual's test score (Lacefield, 1972). A new set of transformed item and test scores are produced. This result is quite useful in norming studies and in cases where Likert scales are employed with small sample sizes and items of questionable value or relevance. In addition to other features, the method more accurately reflects the true variance in the sample and the reliability of the instrument (See Table 2).

This statistical procedure was used to help identify imperfectly balanced

items with respect to the samples to which the EPS was administered during the pilot studies. Individual items were subsequently adjusted to improve their discriminatory power.

Main Study:

Central to preliminary analysis of the data that has been collected in the main study is the construct validity of the instrument and the initial estimation of its discriminatory power (i.e. its sensitivity to various differences both within a particular sample and between samples). In conjunction with another study of differences within a sample of preservice teachers (college sophomores), a small sample of 64 subjects was obtained who had responded to multiple measures including the EPS. In this case the relationship was examined between performance on this instrument and measures of dogmatism (Rokeach D Scale), traditionalism and progressivism in education (the Education Scale), and a third measure (the Urban Education Scale) which can perhaps best be described as a test of information regarding particular problems in the urban education area.

Table 3 shows the resulting inter-correlation matrix among these variables and the EPS. Correlations with the Urban Education Scale are not significant with the exception of the EPS. The EPS does correlate moderately and significantly, and in the hypothesized direction with all the other instruments. High scores on EPS are taken to mean a cumulative process bias toward the value positions shown in Figure 1. High scores on the Education Scale indicate progressive attitudes toward education, while high Rokeach scores indicate the high-dogmatism personality generally associated with conservative attitudes toward education.

It is interesting to note that the correlation between the Urban Education Scale and the Rokeach Scale for this sample is nearly zero. Since the Urban Ed.

TABLE 3
CONSTRUCT VALIDITY STUDY INTER-CORRELATION MATRIX

Test \ Test	Rokeach	Ed Scale	Urban Ed. S
EPS	-.340	.451	.281
Rokeach	1.0	-.387	-.020 (N.S.)
Ed. Scale		1.0	.209 (N.S.)

n = 64

p = .05 for $r \geq .249$
p = .01 for $r \geq .325$

Scale is essentially a measure of an individual's exposure to and factual recall about the problems peculiar to urban education, there is no reason to expect any particular degree of correlation between this specialized knowledge and dogmatism. However it is not unreasonable to suppose that people who have progressive attitudes in general toward education and strong specific attitudes concerning the values of process education might well also be more widely informed about educational problems such as difficulties in urban areas than their peers who exhibit more conservative, "all's well in Denmark" tendencies. Many studies have shown that persons who are highly creative, productive and expressive are also more broadly and well informed on a wide range of topics (Williams, 1968).

Additional Validity Studies:

It was hypothesized that if the EPS actually measures the degree toward which individuals are biased toward process education values, it should discriminate between samples of persons known to be biased towards process education and other groups not so biased. Consequently, Professor Richard Ripple and the second author of this paper generated a list of curriculum developers and teacher educators known to be biased toward process education values. Professors Ripple and Cole have both had extensive involvement with many process education oriented programs and projects. A sample of 55 process educators was selected. Most of the people in this sample have actually designed process curricula and/or designed and conducted teacher training programs to develop process education values and practices among teachers. A copy of the EPS scale was sent to each of these 55 individuals. Twenty-six completed scales were returned. Samples of three other groups were obtained for comparison. These included 86 preservice teachers enrolled in several sections of a sophomore level education course, 16 teachers with from 1/2 to 5

years experience in teaching the Man: A Course of Study Program and 148 teachers drawn from all 12 grade levels in 8 randomly selected schools in a large district in a prosperous Kentucky urban area. The latter sample of 148 teachers was used as a reference group against which to compare the other three groups. It was felt that the teachers in this sample were typical of teachers generally. The schools involved had not been involved in systematic or major use of process curricula or been trained in process education methods. The sample was predominantly female in composition.

The preservice sample of 86 individuals was included because both Walberg (1970) and Hoy (1970) report and review studies which strongly suggest that preservice teachers are initially more oriented toward process education values, but become more traditionally oriented as a function of from 2 to 5 years of teaching experience. For this reason it was hypothesized that the preservice sample would be more process biased on the EPS than the regular teacher sample.

A sample of experienced Man: A Course of Study (MACOS) teachers was included because this particular curriculum is known to be very biased toward process education values. It was hypothesized that teachers working with the program would have a higher score on the EPS than more typical samples. This could be due to either one of two factors. First, schools and teachers selecting MACOS might already be biased toward process education values. Secondly, working with the MACOS program might change the bias of teachers initially neutral toward the process education values end of the four continua. It was intended to obtain a sample of 35 to 40 MACOS teachers with from 3 to 5 years experience. Unfortunately, only 16 MACOS teachers were obtained and many of these had only used the program from 1/2 to 2 years. All MACOS teachers were from schools in Newton or Falmouth, Massachusetts.

The last sample was the process educator groups of 26 persons known to be biased toward process education values. It was hypothesized that this group would score higher on the EPS than all other groups, especially the typical teacher sample.

The results of the empirical tests of these hypotheses are presented in Table 4. With the exception of the preservice sample all other logical hypotheses were empirically confirmed. No significant difference between the preservice teachers and the "typical teacher" sample EPS scores were observed, although the observed differences in the means of the two groups was in the right direction. The lack of a difference between these two groups may be due to the fact that preservice teachers in teacher colleges are socialized very early to the belief patterns of experienced teachers while this is not true for preservice teachers in liberal arts colleges (Guba, Jackson, & Bidwell, 1963).

Since the MACOS program is a fifth grade program it was decided to compare the 16 MACOS teacher's EPS scores with the subsample of fifth grade teachers in the typical teacher sample. Means and variances were calculated for each group and a t test for differences between means of small samples was calculated. The results are reported in Table 5. No differences were observed between the two groups. It should be noted, however, that the means of the two groups were nearly identical. Yet, compared to the entire "typical teacher" sample, the small MACOS sample was determined empirically to score significantly higher on the EPS. For some unexplained reason the fifth grade teachers in the typical teacher sample achieved relatively high scores on the EPS.

The second author of this paper and a number of his colleagues in working with teachers from various grade levels had over a period of years, noticed apparent differences in the bias of elementary and secondary teachers toward process

TABLE 4

DIFFERENCES IN EPS SCORES BETWEEN TYPICAL TEACHERS CONTRASTED WITH PRESERVICE TEACHERS, MACOS TEACHERS, AND PROCESS EDUCATORS*

Sample	N	Means	Standard Deviations	Differences Between Means of All Samples vs. Sample 1		
				Least Squares Estimate of Effects	Standard Error of Estimate	Significance Level p <
1 Typical teachers	148	63.76	12.33			
2 Preservice teachers	86	64.93	11.59	1.17	1.62	non-sig.
3 MACOS Fifth Grade teachers	16	70.20	11.06	6.44	3.14	.05
4 Process Educators	26	79.16	11.61	15.40	2.54	.0001

* A 1 way ANOVA was computed across all groups. The F ratio was calculated at 13.09, df 3, 272 (p < .0001).

TABLE 5

EPS SCORES FIFTH GRADE TYPICAL TEACHER SUBSAMPLE VS. FIFTH GRADE MACOS TEACHERS*

Grade Level	Sample	n	Mean	Variance
5	Typical Teacher	11	69.09	145.90
5	MACOS Teacher	16	70.21	122.27

* t ratio for observed difference between means = .24 (non-significant)

education values. It was assumed secondary teachers might generally be more traditionally oriented because of their interest in promoting the disciplinary content of the subjects they teach. As mentioned earlier it was also inferred, on the basis of studies by Walberg (1970) and Hoy (1970), that less experienced teachers might be more oriented toward process education values and more experienced teachers toward traditional educational values. To test these two logical hypotheses a two way ANOVA was carried out to determine the significance of grade level and years experience effects on EPS scores. For purposes of the analysis, grade level was divided into four groups which included primary (1 - 3), elementary (4 - 6), junior high (7 - 9) and high school (10 - 12). Experience was categorized into four groups which were 0 - 2 years, 3 - 4 years, 5 - 6 years, and 7 - n years. The results of this analysis are shown in Table 7. Observed cell frequencies and means are shown in Table 6.

As can be seen from Table 7, the EPS was sensitive to experience effects. However, the effects observed were different from those expected on the basis of Walberg's (1970) and Hoy's (1970) findings. It was expected that the 0 - 2 years experience group would be the most process education biased. All other groups were compared to this novice group. Interestingly it is teachers with from 3 to 4 years experience in teaching which are the most biased toward process education values. Thereafter EPS scores decline. Individual comparison of experience level means to the novice teacher group showed the only significant difference to exist between group 1 and group 2 (e.g. teachers with 0 - 2 years experience and teachers with 3 - 4 years experience). The overall difference between the 4 experience groups was found to be significant at $p < .05$.

It should be noted that the age of the subjects in this sample was highly correlated with years experience. Experience effects may in reality be age

TABLE 6

OBSERVED CELL FREQUENCIES AND MEANS IN THE TYPICAL TEACHER SAMPLE
GRADE LEVEL X EXPERIENCE

Grade Level	0 - 2		3 - 4		5 - 6		7 - n	
	f	\bar{x}	f	\bar{x}	f	\bar{x}	f	\bar{x}
1 - 3	14	65.17	8	62.70	5	63.16	17	57.64
4 - 6	6	62.36	11	69.69	6	71.11	10	69.33
7 - 9	10	58.83	8	71.04	7	61.54	10	65.75
10 - 12	13	59.16	7	72.61	5	60.33	12	61.04

TABLE 7

GRADE LEVEL X EXPERIENCE EFFECTS OBSERVED IN EPS SCORES
ON A SAMPLE OF 149 TYPICAL TEACHERS

Grade	Grade Level Effects				Year Experience Effects			
	\bar{X}_s	Contrasts between Means*			\bar{X}_s	Contrasts between Means**		
		Least Squares Estimate	Standard Error Estimate	Significance p <		Least Squares Estimate	Standard Error Estimate	Significance p <
1 - 3	61.59				0 - 2	61.49		
4 - 6	68.51	5.88	2.85	.05	3 - 4	68.97	6.47	2.84
7 - 9	64.14	2.17	2.78	non. sig.	5 - 6	64.13	1.84	3.17
10 - 12	62.47	0.85	2.72	non. sig.	7 - n	62.51	0.76	2.55

* An overall univariate F ratio for grade level effects was calculated as $F = 2.27$, d.f. 3, 142 ($p < .08$).

** An overall univariate F ratio for experience effects was calculated as $F = 2.73$, d.f. 3, 142 ($p < .05$)

effects. The work of Guba, Jackson and Bidwell (1963) which describes large differences on the Edwards Personality Preference Scale in beginning teachers and "veteran" teachers with more than 5 years experience is much less impressive if one assumes the "veteran" teachers are from 5 to 10 years older than the pre-service and novice teachers studied. In short, it may be, as the Edwards Personality Preference Scale norms indicate, that the general population of adults the same age as teachers with from 5 to 10 years experience are, in fact, the "veteran teacher personality" types as described by Guba, Jackson and Bidwell (1963). Recent work by Rappoport (1972) strongly supports this latter hypothesis. The EPS should be administered to a large number of people of varying occupations and backgrounds and age levels to determine if years experience of teaching effects are not simply age effects.

Overall significance in grade level effects were found to be significant at the $p < .08$ level. Comparison of individual grade level category means to the grades 1 - 3 category revealed that a significant difference existed only between the comparison group and 5 - 6 grade teachers. Teachers from grades 5 and 6 were the most process oriented. Teachers in the other higher grade level categories (e.g. 7 - 9 and 10 - 12) did not significantly differ from the grade level 1 - 3 group.

Conclusions:

The above observations are offered as a preliminary demonstration of the construct validity of the EPS. Further and more conclusive studies are presently being planned. At this point the factor analytic structure of the instrument has only been tentatively explored. Factor studies to date indicate at least two orthogonal and logically identifiable factors, one relating to attitudes regarding the nature of knowledge and the second to attitudes relating to the

nature of the learning process. The four value dimensions upon which the scale was constructed were never assumed to be orthogonal and perhaps two factors are sufficient. Much further work remains to be done in this area.

Directions for Future Research:

There remains much work to be done on the EPS scale as well as effort directed toward other methods of gauging the stance of prospective client groups on basic value positions reflected in competing curriculum materials and instructional methodologies. Additional norming studies across large and varied samples need to be carried out. Additional groups studied should include theological students and clergy, business and professional men, PTA groups and other parent organizations, larger and more heterogeneous samples of teachers at the elementary, secondary and college level, as well as teachers specifically involved in developing and implementing effective process curricula such as the Man: A Course of Study program, the Children's Museum Materials and Activities for Teachers and Children, and the AAAS Science: A Process Approach. It is also important that additional samples of educational developers and researchers and other process education experts be included in the samples studied. Perhaps most interesting of all would be studies in which the instrument or parallel forms of it would be administered to students. All these groups have strong interest and feelings about the value positions measured by the EPS. The EPS and similar scales and/or procedures might prove very useful to the membership of communities planning their educational programs. Self administration of scales like the EPS to the varied membership of such a community might lead to a clearer recognition of basic value differences and preferences for educational patterns. Such basic differences often go unrecognized and unresolved time after time in community - school crises as new

programs are considered, adopted, attacked and withdrawn. Such decisions are usually made on highly irrational bases rather than upon thoughtful reflections about basic differences in values and ways in which to insure such differences can coexist peacefully and productively. While the EPS presently shows high reliability and a good degree of validity, additional studies must investigate its utility in helping groups to recognize, deal with, and build upon their differences in the basic value domains.

The contention that the best education follows proper coordination between user - agencies needs and values, and the curriculum materials and methods they select, might be ascertained in this manner. The existing operational curricula in particular schools might be examined and rated using an observational system somewhat like the Vincent Indicators of Quality procedures (Vincent, 1969). Secondly, the EPS or similar scales could be administered to parents, teachers or other persons concerned with a given school to determine the degree of fit between the ongoing operational curriculum and the value structure of parent and teacher groups. More often than not many of the individuals involved might find themselves to be operationally practicing ideals that they do not hold themselves (Cole, 1971). Postmen and Weingartner suggest this is the case in many schools (1969). Finally, the quality of education received by the child could be measured, perhaps using standard achievement scores, toward relating the level of knowledge and skills obtained and the degree of fit between the client groups, value structure, and the operational values of the curriculum in use.

A second area of inquiry originating from this study is the nature and generalizability of the statistical transformation technique mentioned earlier in the paper. This method shows much promise in several areas. It is applicable to any Likert type scaling procedure or to any other method using a bounded discreet interval

scale. It tends to maximize, without loss or distortion, whatever meaning or information is contained in the data, and as a consequence improves the discriminatory power of the items and the instrument.

As cultural norms change, old instruments and items tend to lose their discriminatory power. Scale norms and distributions change with changes in populations. The transformation technique described earlier may have utility for restoring those scales with items which have become badly skewed to make the information obtained more meaningful and more easily compared to data collected in the past. The technique is presently being used with the Rokeach D Scale and several other interval scales in the hopes of producing a better distribution of responses across each individual scale thus maximizing the discriminatory power of the instrument. Much further work is needed to ascertain the generalizability of the method and the limits of its usefulness. Questions regarding predictive validity of the transformed scores with multiple regression techniques and effects of unusual samples distributions (Monte Carlo studies) need to be further researched.

One other possible utility of the EPS or related scales is curriculum evaluation. There are currently in use many curriculum materials and instructional methods devoted to promoting thinking and feeling skills. Many of these programs endorse very strongly the values of process education. To the extent that the EPS or similar scales can be shown to be valid and reliable they can perform a useful function in determining the effects of such new curricula on students and teachers. Studies of this type using the EPS and some other scales such as the Torrance Ideal Child Check list (Torrance, 1970) are currently underway.

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