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The Effect of Values on Classroom Achievement

Neil John Webb
Loyola University Chicago

THE EFFECT OF VALUES ON CLASSROOM ACHIEVEMENT

by

Neil John Webb

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LIFE

Neil John Webb was born in Fond du Lac, Wisconsin, June 21, 1929. He was graduated from Waupaca High School, Waupaca, Wisconsin, June, 1947, and from Marquette University, June, 1952, with the degree of Bachelor of Science.

From 1952 to 1954 the author served with the United States Army Medical Corps in the capacity of psychiatric technician. He began his graduate studies at Loyola University in August, 1954.

The writer has been engaged as a research psychologist by the Loyola Mental Health Project since June, 1957.

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CHAPTER I

INTRODUCTION

Until recently the study of values had been traditionally assigned to the moralist or the social scientist with most psychologists believing that values were out of their realm. The "pure" scientist, following the structuralist tradition, prided himself on his concern for fact and indifference to values. This attitude probably had its historical roots in the beginnings of modern psychology, when Wundt and Titchener, in their zeal to make psychology scientific, followed the classical physicist and thereby excluded values. This "hands off" dictum of the structuralist along with the strong behavioristic influence in our country has been reflected in the dearth of penetrating studies on values. Few good studies are available in the psychological literature and it has been difficult to find the term "value" in most psychology textbooks. Perhaps the most disabling aspect of the concept for many psychologists has been the connotation of self determination implicit in the term. As Gordon Allport states in his recent work, "psychology's new concern with values is at bottom a concern with choices, and therefore revives the problem of freedom." (1, p. 83).

Contemporary psychology seems to be more and more concerned with the problem of values. This newly aroused interest is reflected in the substantial increase in the studies on values in the psychological literature.

Perhaps the increased role of the psychologist in psychotherapy, the current emphasis on a dynamic orientation, and the rise of experimentation on perceptual sensitization and defense are factors of importance in this increase. Whatever the direction of contemporary psychology, it appears that more and more psychologists are following Fletcher, who states, "Psychology is one science which cannot consistently waive its responsibility for dealing with the problem of human values." (19, p. 259-260).

In accordance with the increased interest in values, there has been considerable study completed on the importance of values in man's cognitive life. It has been suggested, on the basis of experimentation, that values may either facilitate or interfere with learning. (8). The present study will explore the question of value congruence between student and instructor as related to scholastic achievement. The values of student and instructor will be studied to ascertain their importance in the acquisition of course matter. Stated more specifically, the purpose of this thesis is to investigate whether agreement or disagreement between the values of the student and those of his instructor reveal any significant influences on the learning of the student. This central problem may be stated in another way; would the student having the same general value orientation as that of his instructor more readily assimilate the matter of a general psychology course than those with values divergent from the instructor's?

It would seem to be of crucial importance to delimit what is meant by "values" in this study. Values, meaning moral worth or moral goodness, are out of the realm of positive science since this science declares "what is" and not "what ought to be." The psychologist who attempts to measure values is

confronted with more than the routine problems of psychometry. A number of standardized tests which measure values are available; however, the large majority of research has been done using the Allport-Vernon-Lindsey Study of Values. (2) The Study of Values appeared to be best suited for this study, and as a consequence "values" as used in this thesis must be restricted to that which is measured by the Study of Values. The Allport-Vernon appears to measure values as most nearly meaning "likes and dislikes" rather than intellectual judgements about goodness. It proports to measure the relative prominence of six basic values of personality: theoretical, economic, aesthetic, social, political, and religious. The test will be discussed more fully in Chapter III of this thesis.

CHAPTER II

REVIEW OF THE LITERATURE

An Analysis of the psychological literature related to this thesis suggests three pertinent divisions of the material; 1) those studies directly related to the present one, 2) those of an experimental nature more remotely related, and 3) those of a theoretical nature.

1) A study similar to the one proposed in this thesis is reported by Bills. (8) He attempted to test the theoretical position of Lecky (25) who held that values which have been accepted into the personality act as barriers to the acceptance of new opposing values. Following Lecky, this opposition is necessary in order that the individual might have a consistent set of values. Bills reasoned from this theoretical position that values either facilitate or interfere with learning in the human being. His thinking on this point was strengthened by a study he conducted in conjunction with McGehee (8) which revealed that attitude toward psychology had a significant influence on the learning of a group of students. Consequently, Bills set out to test the hypothesis, based upon the above theoretical and experimental indications, that agreement or disagreement between students' and instructors' values affect the learning of the students.

In his study Bills used two college classes in child psychology at the University of Kentucky. Child psychology classes were selected because the experimenter believed that the prevalent philosophies of child raising are

contradictory. The single value to be studied was the respect for the ability of another person to be responsible for his own behavior and act in a mature independent way. This value was measured using a course examination in counseling which was scored to yield the extent to which a person is willing to permit another person to take responsibility for his behavior. It was assumed that those above the mean on the counseling test had values similar to those of the instructor. Then Bills compared the student's final grade for the course and his counseling test score.

It was found in the final analysis that students scoring above the mean on the counseling test also scored significantly higher marks on the objective final examination. Since it was found that the counseling test and the objective final examination did not measure the same thing, Bills concluded that the results supported his hypothesis. As a result of this study, the author accepted the hypothesis that values have a significant influence on final class marks even when they are based upon an objective examination.

The role of values in human learning was also studied by McGinnes and Bowles. (26) The authors proposed to study the role of personal values in perceptual fixation of learning. The hypothesis of Bruner and Goodman (26) was to be tested in this experiment. This hypothesis states:

> that perceptual behavior is characterized by three basic processes: selection, accentuation, and fixation. As used selection refers to the lowering of thresholds for objects of distinct personal reference to the individual. Objects that are selected frequently become accentuated; that is appear brighter, larger or more vivid. Fixation denotes the persistence and preferential retention of certain selected percepts. (26, p. 224).

McGinnes and Bowles selected a group of 24 undergraduate students in psychology as the subjects for their experimentation. The students were

administered the Allport-Vernon Study of Values as the initial step in the procedure. Symbolic representations of the six Allport-Vernon values were accomplished by assigning occupational titles to head and shoulder portraits from Time and Newsweek magazines. Each of the Allport-Vernon values was represented by two faces and presented by tachistoscope at 8 seconds between successive exposures. During the first presentation each portrait was prefaced by statements such as, "This is an artist," "This is a Congressman," etc. The subjects were instructed that they would be asked to identify the pictures on the next presentation. During the next trials correct identifications were acknowledged and faulty ones were corrected.

In analyzing the data the authors correlated the number of exposures required for each subject to fixate the faces representing each value and his own score on that value. The authors concluded that in general the individual rates of perceptual fixation correlated significantly with value scores. Subjects tended to fixate more readily the faces which symbolize their highest values and less readily the faces symbolizing their lowest values.

2) During the past decade considerable experimental work has been conducted on values as they function in the dynamics of personality. The greater part of these studies has investigated the cognitive processes of man, focusing primarily on perception. Osgood (30) analyzes the recent experimental work into three divisions:

> (1) Favorable motives, values, and attitudes will selectively sensitize the subject's perceptual system in such a manner as to lower his threshold for recognizing relevant objects and their signs. (2) Favorable motives, values, and attitudes will accentuate the phenomenal characteristics (such as apparent size) of relevant objects. (3) Unfavorable motives, values, and attitudes (such as anxiety and frustration) will desensitize the subject's perceptual system—

perceptual defense-- and thus will raise his threshold for recognizing relevant objects and their signs." (30, p. 295).

The application of these hypotheses to the problems of the present study is apparent. Perception as involved in learning would be expected to be influenced by the individual's values. One would suspect that favorable values and attitudes sensitize the subject's perceptual system in such a way as to lower his threshold for recognizing relevant materials in the classroom. Conversely, assuming unfavorable values, the subject's perceptual system would become desensitized and learning would be made more difficult because of perceptual defense. At the present time research on values and the cognitive processes of man lacks completeness and consistency. However, on the basis of the studies to date, it seems safe to accept that values can function in a dynamic way in perceiving and learning. Thus, a summary of current research on these topics will be included.

Bruner and Goodman (9) have been modern pioneers in working with values as a central dynamic of perception. Working from their hypothesis "that the greater the value of an object for an individual, the more it will be susceptible to organization by behavioral determinants" (30, p. 289) they conducted a number of valuable experiments.

A now famous and controversial experiment was conducted on size estimation of coins in a group of 30 ten year old children. (9) Ten rich children, ten poor children, and ten children acting as a control were asked to estimate the size of various valued coins and gray discs. The estimation of coins was accomplished under two conditions, with actual coins present and from memory. When actual coins were present the results were that "all children significantly

overestimated their size, the amount of estimation increasing regularly with their value but not their real size." (9, p. 39). They also found that with coins present the poor children tended to overestimate more than rich children. However, with coins absent they discovered that "poor children showed less overestimation than when coins were actually present." (9, p. 41). The authors concluded that these findings supported the hypothesis that valued objects are susceptible to organization by behavioral determinants in proportion to their value.

Carter and Schooler (12) took issue with the Bruner-Goodman results and seriously doubted their validity. Repeating the experiment, with some modification, they failed to find results consistent with the previous study. They found little difference in the accuracy of judgement between the groups and that errors varied with size rather than value. They found, furthermore, that there were no differences of significance between poor and rich children when coins were present; however, with coins not present poor children showed significantly greater overestimation than rich children.

After carefully considering the evidence from the Carter-Schooler experiment, Bruner teamed with Rodrigues to further pursue this problem. (11) As a result of this more carefully controlled study, they reported that relative accentuation is more characteristic of valued objects, that is, more overestimation would occur in going from a penny to a quarter than would be found in estimating disks of comparable size. Bruner and Rodrigues concluded, "the value of an object does not unequivocally affect their judged absolute size." (11, p. 24).

Accentuation has been studied systematically under conditions of immedi-

ate memory by Dukes and Bevan (7). Their results were in agreement with the theory of increasing accentuation with increasing monetary value. Using hypnotically induced states of economic privation, Ashley, Harper, and Runyon (4) produced results which support the Bruner-Goodman study. In a study employing symbolic values Bruner and Postman (11) discovered that in size estimation of discs, one set bearing the Nazi Swastika and another the dollar sign the discs bearing the dollar sign were judged larger than those bearing the swastika.

Bruner and his associates at Harvard University have also led the way in studies on perceptual sensitization. These studies have investigated the tendency for a valued object to be selected perceptually from a group of objects. Bruner with McGinnes and Postman (32) investigated personal values as "demonstrable determinants" of what the individual selects perceptually from his environment. They hypothesized that value orientation sensitizes the individual to perceive valued objects and leads him to defend against inimical stimuli. Using the Allport-Vernon, they found that the higher the rank of a value the more rapid was the speed of recognition of words relevant to that value. Words representing values ranked high were found to have a lower visual recognition threshold than those ranked low. As a result of this experiment the authors were able to conclude that value orientation both sensitizes by lowering visual recognition thresholds, and defends by raising perceptual recognition thresholds. Other experiments conducted independently corroborated these findings. (20). The validation of the perceptual sensitization hypothesis in auditory perception was attempted by Vanderpas and Blake (41). Their study was similar to that of Bruner-McGinnes-Postman with the exception

that auditory stimuli were substituted for visual stimuli. The experimenters selected 36 words as representative of the six Allport-Vernon values. These words were presented orally to a group of 22 college students under controlled conditions. For each group of words used recognition thresholds were computed in the six value areas and compared statistically with the Allport-Vernon scores. The correlations led the authors to accept the results as a demonstration of perceptual sensitization with auditory stimuli. They concluded that values clearly play a selective role as a determinant in recognition efficiency since subjects had perceived words representing their high value areas at a significantly lower intensity than words representing their low value areas.

Solomon and Howes were critical of the study by Bruner and associates, (38) maintaining that word frequency was not considered. In an experiment corrected for relative word frequency Solomon and Howes found little difference in threshold of recognition. Postman and Schneider (33) joined in the investigation including both a recognition and recall test. They discovered that under conditions of recognition frequency is important; however, under conditions of recall value is the only significant influence discernible. These results indicate that value operates selectively in recall, but not in recognition. The negative results obtained by Siegel and Mausner (28) in conjunction with the results mentioned above emphasize the necessity for further study before a definitive answer can be given to the role of values in selection and accentuation.

Response variability has been another area for study by contemporary psychologists. Dukes and Bevan (7, 15) in two related studies found that valued objects presented visually (7) and kinesthetically (15) were less liable

to variability when judged by a group of subjects.

Several interesting studies have been conducted on the influence of values on the perception of other people. In the classroom learning situation the interplay of values is directly related to the personal components involved in the student-teacher relationship.

Precker (34) believed that an individual tends to select associates and authority figures with values similar to his own. His data led him to conclude, we choose associates who demonstrate value similarity in one or more areas of behavior, and second we fill the gap, so to speak, by attributing to them value-similarity in other areas." (34, p. 361). Fensterhiem and Tresselt (18) also questioned experimentally whether values would influence the perception of people. A total of 28 subjects were asked to judge 24 portrait type photographs as either liked or disliked, and to describe the person using Allport-Vernon values. The photographs which were most liked by the subjects were attributed values which most clearly resembled the subjects own values as measured by the Allport-Vernon. Furthermore, the more the value system projected into the portraits resembled the subjects' own values the more was the liking, and the less they resembled them the more the dislike for the photograph.

After surveying the literature on values and the cognitive processes of man, it becomes evident that this research is still in its early stages of development. Results, as we have seen, are many times contradictory and often inconclusive. Certainly one might say that this area of investigation is fruitful for psychology and that values probably do play an important, if unknown, part in perception.

3) Many prominent psychologists recognize the importance of values in their theories of personality. A few mention values in such a way as to imply their importance in learning. (1, 25, 29, 5, 35).

Lecky (25) postulates that values which have been taken into the personality and accepted by the individual act as barriers to the acceptance of new and opposing values. In his theory of personality, Lecky maintains that this opposition is necessary in order that the individual might have a consistent set of values which constitute the core of his personality. Lecky believes that it is not possible to understand the human personality without reference to an organized system of values which are consistent with one another.

According to Lecky's theory of self consistency there are several ways in which values are accepted into the personality. He postulates that new values which are opposed to the values already accepted by the individual may not be incorporated into the personality and may be rejected. It is also possible that these new values may be modified so that they no longer oppose old values and in this way are acceptable. Finally, he suggests that old values might be modified so that new values can be accepted.

This value resistence, necessary for self consistency, is for Lecky a necessary aspect of learning. It follows that values may either facilitate or interfere with learning under this hypothetical position.

Rogers (35) accepts some of the tenets of Lecky's theory and expands on the importance of values in his theory of self. He introduces values as important in the individual's process of becoming aware of "self." He states:

> As a result of interaction with the environment, and particularly as a result of evaluational interaction with others the structure of the self is formed--an organized, fluid, but consistent conceptual pattern

> of perceptions of characteristics and relationships of the 'I' or the 'me' together with the values attached to these concepts. (35, p. 498).

In his system values may also be taken over from others through a process called introjection, the values being perceived as if the person directly experienced them. As more and more of the true values of an individual are replaced by the introjected values he becomes uncomfortable and divided within himself. Therefore, the fluid but consistent organization of the self does not permit the intrusion of a percept at variance with it. Thus, "as experiences occur in the life of the individual they are either (a) symbolized, perceived, and organized into some relationship with self, (b) ignored because there is no perceived relationship to the self structure, (c) denied symbolization or given a distorted symbolization because the experience is inconsistent with the structure of the self." (35, p. 503).

In effect Rogers holds that perception is selective and the criterion for selection is the individual's self concept at that moment. If the experiences are not consistent with the individual's self structure it is denied acceptance into the personality.

Gordon Allport (1) accords a place of prominence to values in his theory of personality. He explains that the healthy individual develops under the influence of value schemata whose fulfillment he regards as desirable even though it may never be attained. The individual selects his perceptions and inhibits irrelevant or contrary lines of conduct in agreement with his values. Gasson (5) maintains that we acquire habitual modes of evaluating and that these values influence the direction of our activities in situations. Things have meaning for us almost as we perceive them; this meaning is the result of

past experiences with similar things and is acquired over a period of time. Our values influence our interpretation of a given situation and determine our activity.

The theories of the above mentioned psychologists are in essential agreement that values could play an important part in learning. They state, either implicitly or explicitly, that values may either facilitate or interfere with learning.

CHAPTER III

PROCEDURE

1) Design of the research:

a. The research hypothesis has been suggested on the basis of previous experimentation and current psychological theory. The hypothesis is that a relationship exists between the value congruence of a student with his instructor and the scholastic achievement of the student.

b. The null or chance hypothesis is that value similarity between student and his instructor and scholastic achievement are related only by chance.

c. The procedure will be to select two independent samples, collect the data, and test for significance of the results. This method, using a cross sampling technique and selecting the two independent samples, sets the condition that the chance hypothesis must be rejected at the .05 level in both cases. That is, for each of the independent samples chosen the chance hypothesis must be rejected at the .05 level of confidence. This design follows the probability mathematics theory which states, "the probability that all of a set of independent events will occur is the product of the separate probabilities of each event." (17, p. 216). Applying this theorem to the selected samples, the chance hypothesis will either be accepted or rejected at .05 times .05 or the .0025 product of the separate probabilities.

d. The dependent variable in the study is the relationship between value similarity and scholastic achievement. Value similarity will be based upon a

statistical comparison between the Allport-Vernon value profile of each student and the value profile of his instructor. The criterion of scholastic achievement will be each student's final mark on an objective, departmental examination of the Department of Psychology. Therefore, the independent variable will be the objective examination in general psychology.

e. On logical grounds it would seem that academic potential might be an important accidental variable to be controlled. The correlation resulting from the comparison of value similarity and achievement might be influenced by the individuals academic potential. In order to minimize the possibility of accidental interference with the dependent variable, scholastic potential will be controlled. The condition is set that the accidental variable will either be held constant, using a partial correlation technique, or rejected as not significant and eliminated from consideration. Again the .05 level will be selected as the criterion of significance. The American Council on Education Psychological Examination was selected to be representative of academic potential.

f. The final step in the study will be to compute the necessary correlations and on the basis of the data either accept or reject the chance hypothesis.

2) Materials and subjects:

a. The psychological instrument used in this study to assess values is the Allport-Vernon-Lindsey Study of Values (revised edition). (2) The conditional nature of value judgements and their subjective aspects makes the application of mathematics difficult in this area. Though a number of standardized tests have been constructed to measure values the majority of investigators use the

Allport-Vernon. This test was originally published in 1931; the present revised edition was completed in 1951 and has been altered considerably in content and method of scoring. The Allport-Vernon, as it is popularly called, was designed to measure the relative prominence of six basic values of personality. These values are based directly on Eduard Spranger's Types of Men. (39) The value categories may be described as follows:

> Theoretical: characterized by a dominant interest in the discovery of truth and by an empirical, critical, rational, 'intellectual' approach.
>
> Economic: emphasizing useful and practical values; conforming closely to the prevailing stereotype of the 'average American business man.'
>
> Aesthetic: placing the highest values on form and harmony; judging and enjoying each unique experience from the standpoint of its grace, symmetry, or fitness.
>
> Social: originally defined as love of people, this category has been more narrowly limited in the revised form of this test to cover altruism and philanthropy.
>
> Political: primarily interested in personal power, influence, and renown; not necessarily limited to the field of politics.
>
> Religious: mystical, concerned with the unity of all experience, seeking to comprehend the cosmos as a whole." (3, p. 589).

The Allport-Vernon does not attempt to provide absolute strengths; a high score on one value would be compensated by a lower score elsewhere in the test. The items are arranged in random order in the test booklet, with no clues regarding the categories according to which they will be scored. In the entire test there are 120 items, each item requiring a preferential rating of either two (part I) or four (part II) alternatives falling in different categories.

This test is primarily used as a research instrument; however, at times it has been found valuable in vocational guidance and clinical work. The general

norms are based upon a college population. The split-half reliability of the six scores range from .73 to .90. A one month retest in a small group yielded reliabilities between .77 and .92. The validity of the test has been checked mainly by studies with contrasted groups. Commercial and business students score above the test norm in the economic value. Literature and drama students score high in aesthetic, science students high on theoretical, and other such groups have been found to excel in the expected direction. (3, 13, 14, 2).

b. The subjects of the present study were 78 members of two undergraduate courses in general psychology at Loyola University. Two classes of the same size were selected, each class having a different instructor. There were 39 students in each class and the total membership was equally divided between men and women.

Each class member and both instructors were given the Allport-Vernon during the early weeks of the fall semester. The tests were administered in group setting with instructor and students completing the tests at the same time. The testing was introduced without prior warning as part of a research project. It was emphasized before the test administration that the results would have nothing to do with their course grade. The Allport-Vernon is self administering, but verbal instructions were also given to avoid confusion or misunderstanding. Special cautions were given in explaining the method for assigning numerical equivalents to the items in the two sections of the test. The subjects were urged to guess on items of which they were uncertain since past experience with the test has shown that guesses are often significant. There were no time restrictions for the test; all subjects were able to complete the test within thirty minutes.

The tests were hand scored by the examiner. The Allport-Vernon has a series of checks which prevents incorrect scoring or tabulation. Each of the verification procedures for transcriptions and additions was employed.

As part of the course in general psychology the student is routinely given a departmental examination which covers the materials presented during the semester. The examination was collectively prepared by members of the psychology department for the purpose of providing an objective measure of course achievement. It should be noted that the instructors involved in this study were not involved in the test construction. The test consists of sixty multiple choice items based primarily on material covered in class. A numerical score is obtained from the examination and is usually obtained by counting the number of correct answers.

The criterion of academic potential has been suggested as having possible importance in this study. The American Council on Education Psychological Examination for College Freshman is routinely administered to incoming freshmen by the Office of Student Personnel. Scores for many of the students on this examination are on file with the Director of Student Personnel. The policy for administering this test is that each student within the greater Chicago area will be given the test before admittance to the university. Due to this policy, the scores for 48 students were available.

The A.C.E. has extensive nation wide norms for college freshmen and is primarily used for prediction of academic potential. The test yields separate linguistic (L) and quantitative scores (Q) as well as a total score which compares the individual's performance with the total sample of college freshmen. The total score is a percentile norm and was used in this study as an

approximation of scholastic potential.

The test correlates highly with such intelligence tests as the Stanford-Binet, Form L. (13) The most direct source pertaining to the validity of the A.C.E. is found in correlations between test scores and subsequent college grades. Although the results vary widely, Anastasi (3) reports correlations average around .45 for the four years of college. Reliability has been checked on earlier forms, since a new form is put out each year, and an odd-even coefficient of .95 has been obtained. (3, 13).

3) Statistical procedures:

a. The method of scoring the Allport-Vernon yields a quantitative representation of the relative prominence of the six values. These scores represent the dispersion of values in numerical terms and permit a statistical comparison between the general value orientation of the student and his instructor. The value profile for each student was correlated with that of his instructor using the numerical equivalents for each value. In an effort to get an approximation of value similarity and to avoid ties, the Pearson product moment coefficient of correlation was used. The formula is:

$$Rxy = \frac{\Sigma xy}{\sqrt{\Sigma(x^2)(\Sigma y^2)}}$$ (40, p. 238)

b. The correlations obtained from the operation described above were expressed in equivalents between a plus one and a minus one. For each of the students in the two classes a numerical equivalent of their value similarity was obtained. The correlations were then ranked with the student having values most like his instructor, as represented by the highest correlation, given the rank of one. Accordingly, the student who had the lowest correlation was given the rank of 39. Non-parametric statistics were used because of the necessity

for comparing examination grades and value similarity. The limitations of a study of this type make it impossible to use parametric statistics. The reasons for using non-parametric statistics are three: first, in using non-parametric statistics it is not necessary to assume that the scores under analysis are drawn from a normally distributed population, and final examination scores at least can not be assumed to be normally distributed. Second, non-parametric statistics are more effective in smaller samples. (36) Third, the data to be compared are more logically compared by ranking the individuals on the variables in question.

c. Final examination grades were obtained from the instructors following the end of the fall semester. The examination grades were expressed in whole numbers representing the number correct out of 60 questions. The students were ranked with the student receiving the highest examination grade being assigned the rank of one and the student with the lowest grade the rank of 39. The same procedure was followed for each of the two classes.

d. The ranking of students by value similarity and class achievement provided the necessary data for the final correlation. However, before computation of the final correlations for the two independent samples the influence of the accidental variable, academic potential, was to be ascertained. This was accomplished by means of four correlations. The first correlation between examination grade and A.C.E. score necessitated a ranking of A.C.E. scores. Value similarity and A.C.E. scores were ranked and, using the Kendall rank correlation coefficient, corrected for ties; this correlation was completed separately for the two samples. The formula is:

$$\tau = \frac{S}{\sqrt{\frac{1}{2}N\,(N-1) - t_x}\ \sqrt{\frac{1}{2}N\,(N-1) - t_y}}$$ (36, p. 219)

Following this correlation a similar correlation was completed between final examination grades and the A.C.E. scores. The Kendall rank correlation coefficient was again used and corrected for ties.

e. The next step was to determine the significance of the correlations and to decide whether either of these variables should be controlled using a partial correlation technique. The significance of the four correlations described above was tested using Kendall's formula for significance of rank correlated data. The formula is:

$$z = \frac{r}{\sqrt{\frac{2(2N+5)}{9N(N-1)}}} \qquad \text{(36, p. 221)}$$

The significance of z was obtained from a table of probabilities. As a result of these tests of significance it was discovered that a control of the accidental variables was not necessary.

f. The final correlation was computed between value similarity and class achievement using the Kendall rank correlation coefficient. Each of the independent samples was correlated separately and tested for significance using the Kendall formula described above.

CHAPTER IV

RESULTS AND CONCLUSIONS

As planned, the Allport-Vernon Study of Values was administered to 78 members of two classes in general psychology; the two instructors were given the test at the same time.

Table I shows the mean scores on the six values which were obtained from an analysis of the students' Allport-Vernon records in the two classes.

TABLE I

MEAN SCORES ON THE ALLPORT-VERNON STUDY OF VALUES FOR SEVENTY-EIGHT STUDENTS OF GENERAL PSYCHOLOGY

	Means of the Six Values					
Class	Theoretical	Economic	Aesthetic	Social	Political	Religious
Class A (N=39)	36.66	33.13	39.43	41.33	40.40	49.90
Class B (N=39)	36.33	32.92	37.35	42.05	40.38	51.07

A comparison of the mean scores for each class with the scores of their instructor is presented in Figures 1 and 2. From this graphic presentation it is possible to compare the values of the individual instructor with those of the mean for his class.

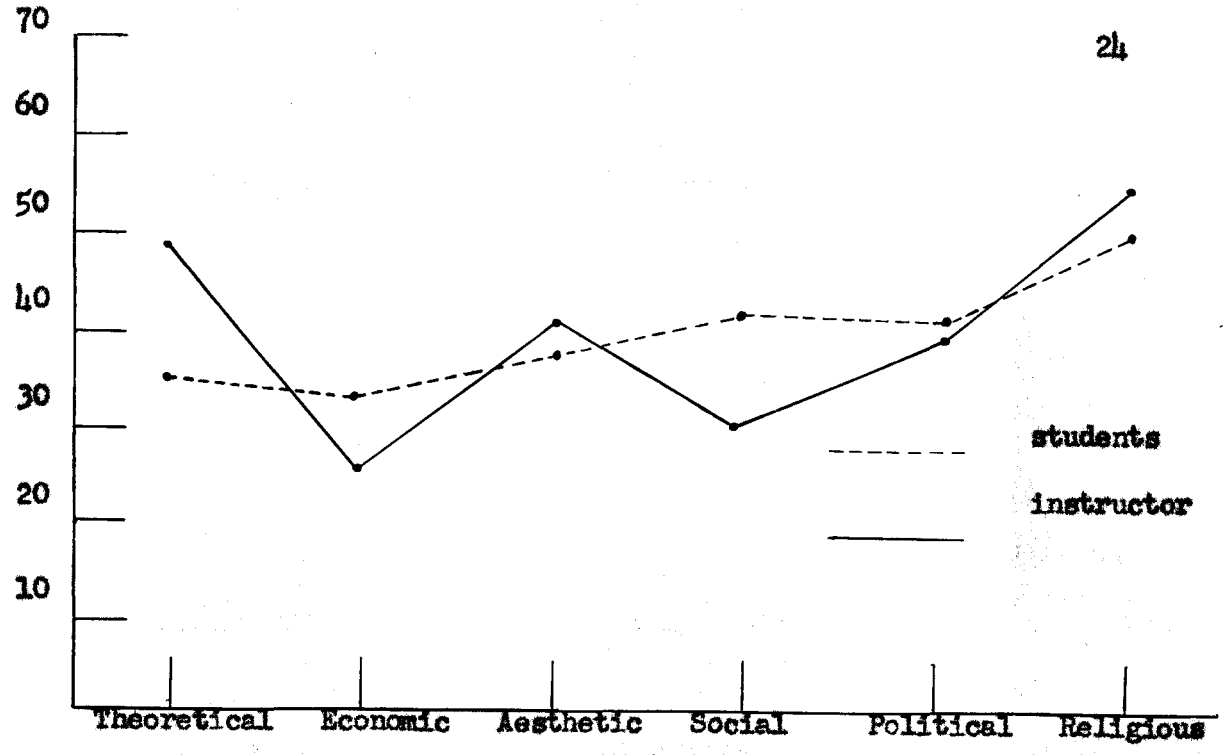

Fig. 1: Instructor's Allport-Vernon Value Profile as Contrasted with the Mean Value Profile of the Students in His Class (Class A).

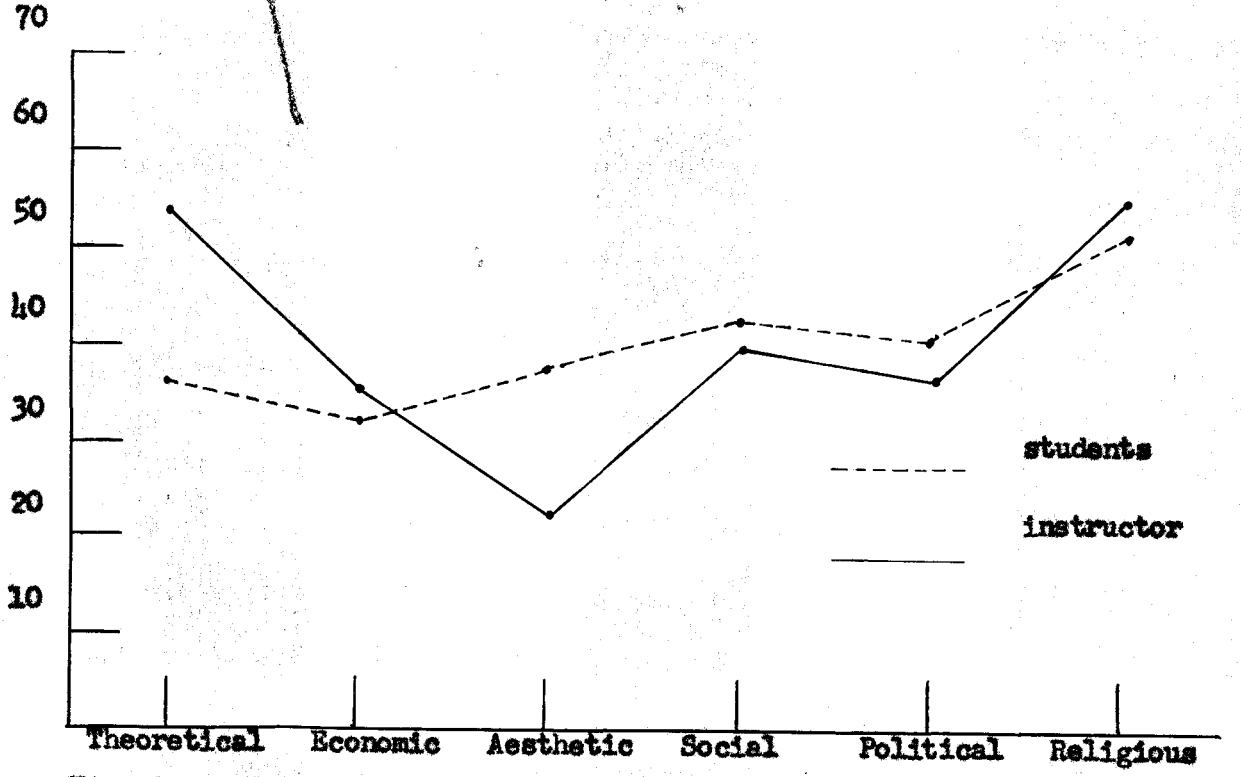

Fig. 2: Instructor's Allport-Vernon Value Profile as Contrasted with the Mean Value Profile of the Students in His Class (Class B).

It is of incidental interest to notice the similarity of the two classes which were selected as independent samples. In both classes the Religious value is high and the Economic value is low. Also, the instructors are both higher than the average student in the Theoretical value.

The data for the statistical analysis of value similarity is included in Appendix I for class A and in Appendix II for class B. The Pearson product moment correlations between the students' values and those of his instructor ranged in class A from +.95 to -.47 and in class B from +.84 to -.20.

The correlations between A.C.E. scores and final examination grades were completed using the Kendall rank coefficient correlation as outlined in the research design. The results of these correlations are presented in Table II.

TABLE II

RELATIONSHIP BETWEEN FINAL EXAMINATION GRADE AND A.C.E. SCORES OF FORTY-EIGHT STUDENTS OF GENERAL PSYCHOLOGY

Class	Kendall τ.	Level of Significance
Class A (N=23)	.09	.27
Class B (N=25)	.01	.47

In the design of research, the condition was set that academic potential would be eliminated from consideration as an accidental variable if the correlations (A.C.E.-final examination) failed to be significant within the .05 level. The correlations between A.C.E. and final examination scores were not significant within the .05 level in either class. On the basis of these considerations, academic potential was eliminated as not significantly

influencing the relationship between value congruence with instructor and final examination grades.

Correlations were also computed between value similarity and A.C.E. scores in order to eliminate the possibility of academic potential being significantly related to value congruence. That is, perhaps the brighter student would tend to have values more like the instructor and hence influence the final correlation. As seen from Table III the correlations were again found not to be significant, and the factor can be eliminated from consideration.

TABLE III

RELATIONSHIP BETWEEN VALUE CONGRUENCE WITH INSTRUCTOR AND A.C.E. SCORES OF FORTY-EIGHT STUDENTS OF GENERAL PSYCHOLOGY

Class	Kendall τ	Level of Significance
Class A (N=23)	.14	.17
Class B (N=25)	.08	.28

After eliminating the necessity of a first order partial correlation, the final correlations were completed using the Kendall correlation as prescribed in the procedure. The results of these correlations are presented in Table IV.

The correlations obtained were low, but significant in both of the independent samples. On the basis of these correlations both within the .05 level of significance, the chance hypothesis is rejected at the .0025 level of confidence. The research hypothesis is accepted that a significant relation-

ship exists between value congruence of the student with his instructor and the scholastic achievement of the student.

TABLE IV

RELATIONSHIP BETWEEN VALUE SIMILARITY WITH INSTRUCTOR AND FINAL EXAMINATION SCORES OF SEVENTY-SEVEN STUDENTS OF GENERAL PSYCHOLOGY

Class	Kendall τ.	Level of Significance
Class A (N=38)	.18	.05
Class B (N=39)	.21	.03

The correlations of .18 for class A and .21 for class B are too low to be of practical or predictive significance. However, the consistency of the correlations in both samples and the statistical significance of the correlations indicate that the relationship is a real one. On the basis of the present data, values appear to be of relatively minor importance in the achievement of students in the classroom situation.

There appear to be two factors of importance in discussing the results. First, Kendall's rank correlation coefficient is not directly comparable to other methods of correlation. Siegel (36) explains that Spearman's rank method and Kendall's rank method yield different results from the same data. He gives sample correlations for the same data of .62 using Spearman's method as compared with .39 using the Kendall method. He continues, "the sampling distribution of both τ and r_s are such that with a given set of data both will reject the null hypothesis (that the variables are unrelated in the population) at the same level of significance." (36, p. 219). Therefore the interpreta-

tion of Kendall's tau must be different from that of Spearman's rank method. The primary reason for selecting Kendall's method was that it can easily be generalized to a partial correlation technique. Secondly, the use of the departmental examination as the criterion of class achievement should be considered. As previously stated the use of instructors involved in the preparation of the examination was purposely avoided in the present study. The reason for this choice was to increase objectivity in the measurement of achievement. Consequently one might argue that a higher more meaningful correlation would result from using a final examination prepared by the instructor. The basis for this argument is that the instructor would probably include in his examination items which in some way reflect his value orientation. This being true, the student with similar values would probably obtain higher grades. An essay examination constructed by the instructor would seem to offer the best possibility of a higher correlation.

CHAPTER V

SUMMARY

This thesis proposed to study the importance of values in human learning. The research hypothesis, suggested by previous experimentation and current psychological theory, is that congruence of value orientation between student and instructor is significantly related to academic achievement. The condition was set that the chance hypothesis, which states that value similarity and achievement are related only by chance, would either be accepted or rejected at the .0025 level of significance.

A cross sampling technique was employed utilizing two independent samples selected from the general psychology classes at Loyola University. The subjects were 78 students and two instructors; each of the two classes numbered 39 students. Both students and instructors were administered the Allport Vernon Study of Values in a group setting. The tests were scored and the resulting value profile for each student was statistically compared with that of his instructor. Students were ranked as to value similarity with their instructor, and the classes were treated separately as independent samples.

An objective, departmental examination for general psychology, routinely administered at the end of the semester, was selected to measure class achievement. Students were ranked on the basis of their examination grades. The ranking of students by value similarity with instructors and class

achievement provided the necessary data for the final correlations. Academic ability, as measured by the American Council on Education Examination, was considered as a possible accidental variable but was found to be insignificant.

The final correlations were computed using the Kendall rank correlation coefficient; tests for the significance of the correlations were also employed. The resulting correlations were low, being .18 for class A and .21 for class B, but were found to be consistently significant in both of the independent samples. Consequently, the chance hypothesis was rejected at the .0025 level of significance. The evidence pointed to the conclusion that values are one of many factors somehow influencing learning in the classroom. On the basis of the data it was further concluded that values probably are of relatively minor importance in the classroom achievement of the student.

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APPENDIX I

STATISTICAL DATA FOR CLASS A

Student	Correlations of value profile with instructor	Final Exam Score	A.C.E. (T) Scores
1A	.84	45	—
2A	.82	31	29
3A	.76	37	—
4A	.76	36	—
5A	.71	37	97
6A	.68	33	34
39A	.60	35	37
7A	.58	37	—
8A	.56	26	88
9A	.54	41	50
10A	.54	38	72
11A	.49	33	—
12A	.48	42	88
13A	.48	36	—
14A	.42	35	56
15A	.42	31	—
16A	.38	29	66
17A	.37	35	82
18A	.36	29	95
19A	.35	27	71
20A	.33	36	—
21A	.32	31	43
22A	.30	30	—
23A	.29	30	56
24A	.26	31	—
25A	.26	45	—
26A	.20	42	98
27A	.19	38	48
28A	.18	33	24
29A	.18	32	66
30A	.17	35	—
31A	.16	35	65
32A	.14	33	—
33A	.13	27	52
34A	.12	29	37
35A	.05	22	37
36A	.05	33	—
37A	-.04	33	78
38A	-.20	41	45

APPENDIX II
STATISTICAL DATA FOR CLASS B

Student	Correlations of value profile with instructor	Final Exam Score	A.C.E. (T) Scores
1B	.95	31	79
2B	.82	32	—
3B	.79	—	74
4B	.77	30	64
5B	.73	43	62
6B	.64	41	—
7B	.63	32	64
8B	.56	34	55
9B	.53	22	76
10B	.51	38	—
11B	.48	31	—
12B	.47	28	52
13B	.40	32	81
14B	.38	25	—
15B	.36	27	—
16B	.36	29	—
17B	.36	20	74
18B	.33	35	60
19B	.28	29	30
20B	.26	27	46
21B	.23	42	79
22B	.23	31	25
23B	.23	28	86
24B	.22	38	—
25B	.18	27	84
26B	.15	28	22
27B	.12	35	—
28B	.11	24	77
29B	.08	29	64
30B	.06	26	34
31B	.05	39	—
32B	.04	31	79
33B	.03	33	—
34B	.01	36	—
35B	-.04	24	—
36B	-.17	26	62
37B	-.22	26	—
38B	-.24	24	36
39B	-.47	34	—

APPROVAL SHEET

The thesis submitted by Neil John Webb has been read and approved by three members of the Department of Psychology.

The final copies have been examined by the director of the thesis and the signature which appears below verifies the fact that any necessary changes have been incorporated, and that the thesis is now given final approval with reference to content, form, and mechanical accuracy.

The thesis is therefore accepted in partial fulfillment of the requirements for the Degree of Master of Arts.

Feb. 7, 1958
Date

V V Herr Jr.
Signature of Adviser