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A comparative study of attitudes and values at different levels of optometric education

Abstract

The goals of this study were three-fold. First, the dominant values as measured by Spranger's Study of Values test were determined for optometry students as a group. Secondly, these values were compared within the group of optometry students to see if any differences existed among classes. Finally, the values were compared to both professional and undergraduate student groups. Optometry students as a group were found to have high aesthetic and low political and religious scores relative to the collegiate norms. The only significant difference found when the optometry classes were compared to each other was the social scale for the first versus the fourth year class. Several significant differences of values were seen between optometry and medical students.

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A COMPARATIVE STUDY OF ATTITUDES
AND VALUES AT DIFFERENT LEVELS
OF OPTOMETRIC EDUCATION

663

Senior Research Project

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This thesis is hereby submitted to the Faculty of the College of Optometry of Pacific University in partial fulfillment of the requirements for the degree of Doctor of Optometry.

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TABLE OF CONTENTS

	Page
DEFINITION OF VALUES	1
FACTORS AFFECTING INDIVIDUAL ATTITUDES	2
FACTORS AFFECTING CHANGE IN ATTITUDES	3
PREVIOUS STUDIES	3
LIMITATIONS OF THIS STUDY	5
PRESENT STUDY	6
METHODOLOGY	8
RESULTS	10
DISCUSSION	12
Dominant Values of Optometry Students	12
Value Differences Between Optometry Classes	14
Value Differences Between Optometry and Medical Students	15
SUMMARY	15
TABLE ONE	9
" " TWO	9
" " THREE	9
" " FOUR	11
" " FIVE AND SIX	11
" " SEVEN	17
REFERENCES	18-19

A COMPARATIVE STUDY OF ATTITUDES AND VALUES AT
DIFFERENT LEVELS OF OPTOMETRIC EDUCATION

ABSTRACT: The goals of this study were three-fold. First, the dominant values as measured by Spranger's Study of Values test were determined for optometry students as a group. Secondly, these values were compared within the group of optometry students to see if any differences existed among classes. Finally, the values were compared to both professional and undergraduate student groups. Optometry students as a group were found to have high aesthetic and low political and religious scores relative to the collegiate norms. The only significant difference found when the optometry classes were compared to each other was the social scale for the first versus the fourth year class. Several significant differences of values were seen between optometry and medical students.

DEFINITION OF VALUES

Edward Spranger assumed that men's personalities can best be defined through the value systems they hold or through their basic attitudes. (Allport, et. al., Study of Values). In Types of Men, Spranger assumed that values entailed the following six types of interests:

1. Theoretical. The discovery of truth is the dominant interest. The theoretical man is considered to be empirical, critical, and rational, and therefore an intellectualist.
2. Economic. This type is concerned with things which are useful and therefore is pragmatic and utilitarian. Often this economic interest will conflict with other basic interests, especially the aesthetic interest.
3. Aesthetic. The chief interest is in artistic happenings and there is concern with the diversity of life. As such, there are tendencies toward individualism and self-sufficiency.
4. Social. The social man is best described by love for people and is kind, sympathetic and unselfish.

5. Political. The need for power best characterizes this type and is often seen in a leader of any field who is involved in a great deal of competition and struggle.
6. Religious. The religious man's dominant value is unity and he seeks the mystical comprehension of the world as a whole and a personal relationship to it.

It is evident that Spranger did not expect a person to fit exactly any one of these types but rather a mixture of some or all of the types. Hence, these types represent only ideal men and are not found in the real world. (Ibid.)

FACTORS AFFECTING INDIVIDUAL ATTITUDES

There is no general agreement as to when a child's value system emerges. It is probably the case that an individual's values are formed over a period of many years and are flexible and changing with the situation and the age level. (Dukes, "Psychological Studies of Values"). Dukes discusses several factors which may influence the choice of value systems. Sex differences are a very important factor. Men have been shown to score significantly different on the scales in the Study of Values. The major academic interest of the individual can also influence value choices although the relationship is not as high as sex differences. Body and personality type seem to be related to values with endomorphs, mesomorphs, and ectomorphs all scoring significantly different on Spranger's six value scales. The religion, vocational interests, academic interests, intelligence and aptitude all were found to significantly correlate with the value system of the individual while the happiness and adjustment did not seem to be related.

FACTORS AFFECTING CHANGE IN ATTITUDES

Arsenian at the United States International University found several significant factors which influenced a change in students' values in a longitudinal study done on a college population and alumni twenty-five years later. (Arsenian, "Change in Evaluative Attitudes During Twenty-Five Years). The curricular emphasis of the college, the major study, as well as the level of expectancy of the college all were found to influence the shift of values reported in freshmen, seniors, and alumni twenty-five years later. He found that values were never fully determined for an individual but were constantly in a state of change. The study confirms both a stability and a change in values over time. He concludes that the forces responsible for the change in values come "from a complex interrelationship of individual idiosyncrasy, college emphasis, and cultural climate." (Ibid., p. 304).

PREVIOUS STUDIES

In 1960 the Allport, Vernon, and Lindzey Study of Values was administered to high school students (659 men, 259 women), all National Merit Scholarship finalists with a mean I. Q. of 150 and minimum I. Q. of 130, to determine what relationship existed between values and scholastic aptitude. (Warren and Heist, "Personality Attributes of Gifted College Students"). The results were that a significant difference was found between the gifted students and a comparative "average" student sample on the six different personality scales. The gifted students scored significantly higher on the theoretical and aesthetic

scales than did the comparative student sample. The authors concluded that high scores on the theoretical and aesthetic scales indicated high intellectual and scholastic interests.

However, Kemper McCue et. al., found that "above a minimal level, intelligence may have little to do with the selection of one's values or life approach. Rather the dynamics of choice may be found in over-riding needs." (McCue, et. al., "Rorschach Variables in Two 'Study of Values' Types," p. 172). More studies are needed in this area before any final conclusions are made.

The 1960 Arsenian longitudinal study cited earlier as evidence for factors in changes of values and evaluative attitudes in college students also found several other important factors relevant to our present study. A college selects students who have similar value systems. While it was mentioned there was a significant change in values from freshman to senior and on to alumni twenty-five years later, they also found there was a high correlation of values between freshmen and seniors (.85) and also between freshmen and alumni twenty-five years later (.79). They concluded also that the college changes the values in the special orientation of the school with an increase in the theoretical, economic, and aesthetic values and a decrease in the remaining three values on Spranger's scale. To reiterate, both stability and a change in values were found over time.

Several studies at the professional level have been done to see if a shift of values is noted at different levels of education, especially with medical students. Eron (1955), Becker and Geer (1958), and Gee and Cowles (1957) all discovered a shift of values as education progressed from an idealistic care for human welfare toward cynicism, realism, and economic values. Gordon and Mensh (1970) also confirmed these findings with a study in which they administered the Survey of Interpersonal Values test to 208 first through fourth year medical students. All were males since the female sample was small. With the scales of their test they found a decrease in benevolence and conformity and an increase in the values of support recognition and independence. The largest change in values occurred between the first and the second years which was consistent with earlier findings suggesting that personality changes tend to take place early in college. (Freedman, 1961).

LIMITATIONS

Basic to this study is the assumption that the values of each class tested are similar in nature upon entering optometry school. While only a longitudinal study would completely substantiate this, we feel justified in comparing the four classes for differences in attitudes since it was shown by Arsenian as stated earlier, that a college tends to select individuals with values similar to its own values.

One caution must be noted. In no way is this study trying to set up a standard of values which could be used as a predictive test for measuring interests in pursuing optometry as a

career. Dukes stated that values should not be used to predict such pursuits since "the order of the differences for any single value is so low and the possible variation in other values, as well as in 'alien factors', so great that prediction of major academic pursuit from value scores would not be very efficient." (Dukes, Op. cit., p. 28). However, Dukes does relate that there are positive relationships between values and academic achievement even though wide variations exist among individuals. He found that some of the values significantly correlated with aptitude tests in specific areas.

Finally, it must be warned that interpretation of individual values must be done cautiously. The values can only be interpreted with any significant meaning by looking at the entire value profile and not any single isolated value. For instance, Lurie (1937), Brogden (1952), and Gordon (1972), all found Spranger's Economic Man and Political Man to be one and the same. Others have found the theoretical and aesthetic values to be made up of many of the same attributes. Therefore one should not make any generalizations concerning only one value on the test.

PRESENT STUDY

For the purpose of the current study, the Allport, Vernon, and Lindzey test was chosen. Although there are many non-projective personality tests available, the Study of Values is among the most widely used. The test consists of twenty questions with two choices each and fifteen questions with four choices each. For each of the six values measured there are only

twenty questions which apply to that particular value.

Based on the 1951 revision, the Study of Values demonstrated satisfactory internal consistency. (Allport, et. al., Op. cit.). An item analysis showed a positive correlation between each question and the total score on each of the six item scales (N=780, $p=.01$, both sexes, six different colleges). Repeat reliability was determined at both a one month and a two month interval. For the one month retest study (N=34) the mean repeat reliability coefficient was only slightly lower at .88. Both computations used the z-transformation.

Owing to the forced-choice nature of the test questions, the six values are not independent. Negative intercorrelations can be demonstrated. There are also small positive associations between some of the values. This is true between the social and religious values, the economic and political values, and to a smaller extent between the theoretical and aesthetic values.

The Study of Values has been used widely and standardized with collegiate populations. With a total sample of 3778 college students, the means and standard deviations are shown on Table 1. (Allport, et. al., Op. cit.). The same sample was also broken down by sex with these norms being shown in Table 2. (Ibid.)

The norms are established for a wide range of occupations and educations. Within this study the results of the optometry samples were compared with results from medical school tests also. Dr. Helen Hofer Gee supplied the data for the Study of

Values Manual listing norms for first and fourth year medical students. (See Table 3 for these data).

There were no studies found in the literature concerning the Study of Values which used optometry students for comparison. Within this study only medical student norms and general collegiate norms were directly referred to for comparison.

Differences in values within the samples among the different levels of education have also been elucidated. With respect to the assumption discussed earlier that each entering first year class has similar values an observation was made of the change in values from the first to the fourth year class. A proper longitudinal study without such an assumption awaits further testing however.

METHODOLOGY

The latest revision (third edition, 1960) of Allport, Vernon, and Lindzey's Study of Values test was given to each of four sample groups from Pacific University's College of Optometry. It was administered separately to each of the classes on a take-home basis. Factors such as age, race, background, etc., were controlled only by the college's administration policies. No time limit was imposed nor was any explanation of the test construction given before the test was administered. Plans had been made to administer the tests during the first week of the fall semester but due to a delay from the publishers the tests were not received until the second week of the session. Between the second and fourth weeks of the semester all the tests were administered. The variable of professional, academic, and

TABLE 1. UNDERGRADUATE NORMS : MEANS AND STANDARD DEVIATIONS

		THEORETICAL	ECONOMIC	AESTHETIC	SOCIAL	POLITICAL	RELIGIOUS
3775 COLLEGE STUDENTS	MEAN	39.75	40.33	38.88	39.56	40.39	41.01
	STD. DEV.	7.27	7.61	8.42	7.03	6.44	9.31

TABLE 2. SEX DIFFERENCES : MEANS AND STANDARD DEVIATIONS

		THEORETICAL	ECONOMIC	AESTHETIC	SOCIAL	POLITICAL	RELIGIOUS
2989 MALES	MEAN	43.75	42.78	35.09	37.09	42.94	38.20
	STD. DEV.	7.34	7.92	8.49	7.03	6.64	9.32
1289 FEMALES	MEAN	35.75	37.87	42.67	42.03	37.84	43.81
	STD. DEV.	7.19	7.30	8.34	7.02	6.23	9.40

TABLE 3. FIRST AND FOURTH YEAR MEDICAL STUDENTS: MEANS AND STANDARD DEVIATIONS

		THEORETICAL	ECONOMIC	AESTHETIC	SOCIAL	POLITICAL	RELIGIOUS
1000 MALE 4TH YEAR MEDICAL STUDENTS	MEAN	46.80	38.25	39.14	36.37	40.79	38.66
	STD. DEV.	6.95	8.63	9.33	6.84	6.48	10.84
1482 MALE 4TH YEAR MEDICAL STUDENTS	MEAN	46.89	37.83	39.50	36.62	40.77	38.29
	STD. DEV.	7.09	8.63	9.26	6.78	6.45	11.14
2492 MALE 1ST YEAR MEDICAL STUDENTS	MEAN	51.15	35.51	37.80	35.67	41.72	38.16
	STD. DEV.	6.75	7.00	8.26	5.53	5.71	8.38
145 FEMALE 1ST YEAR MEDICAL STUDENTS	MEAN	50.03	32.95	42.37	36.93	39.39	38.32
	STD. DEV.	7.49	6.95	7.29	5.61	5.88	8.08

ALL DATA FROM ALLPORT, ET AL., HANDBOOK, STUDY OF VALUES.

social value assimilation was not strictly controlled by such a delay, especially concerning the entering first year class. But value systems are stable over short periods and thus such a delay should not significantly alter these results.

Although the test was given to both male and female students the analyses were done separately due to the different scoring patterns traditionally found between the sexes. Analysis of the female samples was limited due to small number of female optometry students and limited responses. Means and standard deviations were tabulated for each class. T-tests were run to determine if any significant differences of the six value scales occurred in the comparisons.

RESULTS

The number of male responses from each optometry class ranged from fourteen per cent (N=11) to thirty-seven per cent (N=26) and from zero to forty-three per cent (N=9) for the females. Sample sizes and number of responses are shown in Table 4.

The number of responses from the males allowed comparisons to be made between classes but small sample responses from the females did not allow such comparisons. However, the means and standard deviations were calculated for both the male and female samples in each class. This data is summarized in Tables 5 and 6.

TABLE 4. CLASS SIZES AND NUMBER OF RESPONSES FROM PACIFIC UNIVERSITY OPTOMETRY STUDENTS

	MALES	MALE RESPONSES		FEMALES	FEMALE RESPONSES	
FIRST YEAR	64	20	(31%)	21	9	(43%)
SECOND YEAR	65	21	(32%)	13	3	(23%)
THIRD YEAR	81	11	(14%)	7	0	(0%)
FOURTH YEAR	70	26	(37%)	7	2	(29%)

TABLES 5 & 6. PACIFIC UNIVERSITY OPTOMETRY STUDENTS: MEANS AND STANDARD DEVIATIONS

MALES:

	THEORETICAL	ECONOMIC	AEETHIC	SOCIAL	POLITICAL	RELIGIOUS
MEAN	44.60	41.45	39.18	39.73	40.65	34.40
STD. DEV.	7.09	9.05	8.63	5.76	6.45	11.45
MEAN	42.60	42.10	41.50	39.24	37.76	36.81
STD. DEV.	5.58	7.18	6.61	5.85	7.63	12.82
MEAN	43.77	42.68	43.32	38.41	37.82	34.00
STD. DEV.	6.79	6.81	7.18	4.64	5.06	9.31
MEAN	45.38	43.38	39.69	36.27	38.62	36.65
STD. DEV.	7.74	6.70	8.01	7.41	8.15	11.69

FEMALES:

MEAN	42.17	39.72	46.11	39.72	36.56	35.72
STD. DEV.	8.12	8.58	5.88	4.40	7.21	14.47
MEAN	44.67	41.00	48.00	35.33	28.00	43.00
STD. DEV.	-	-	-	-	-	-
MEAN	-	-	-	-	-	-
STD. DEV.	-	-	-	-	-	-
MEAN	39.40	43.00	37.00	33.00	35.50	52.00
STD. DEV.	-	-	-	-	-	-

DISCUSSION

As stated earlier, the objectives of this study were: 1) to determine the dominant values of optometry students as a group, 2) to compare the values within the group to determine the differences between class levels, and 3) to compare optometry students to other professional groups. Since the optometry groups were small (less than thirty), considerable caution was exercised in interpretation of the data. Freund states that ". . . although we can make logically correct inferences on the basis of very small samples, our results are apt to involve considerable errors and our confidence intervals are apt to be very wide." (Freund, Modern Elementary Statistics, third ed., p. 227). Unless otherwise stated, throughout the discussion the term "significant difference" implies a degree of confidence of .95 or greater.

Dominant Values of Optometry Students

In comparing the values of optometry students as a group (i. e., composite of the four years) to undergraduate populations only male scores were used. Three significant differences were noted. The optometry males had higher aesthetic scores and lower political and religious scores than the undergraduate males (See Table 7). Theoretical, economic, and social scores showed no significant differences between the two groups. Based on Spranger's original definitions of the value scales, the optometry students had a profile which was more artistic and tended toward individualism and self-sufficiency. The three

relatively lower scores suggest that the optometry students had less need for power and less concern with mystical comprehension of the world. (Allport, et. al., Study of Values). Factors which may influence such differences between the two samples were discussed previously--major academic interest, vocational interest, intelligence, and aptitude. Due to optometry school admission criteria the optometry sample was assumed to have higher intelligence as measured by current methods. According to their studies, Warren and Heist expected gifted students (i. e., optometry students in this context) to have significantly higher scores on the theoretical and aesthetic scales. (Warren and Heist, "Personality attributes of gifted college students"). However, the optometry sample only partially substantiated their findings. Optometry students did score significantly higher on the aesthetic scale but no significant difference was noted on the theoretical scale. The human being is a complex organism and to actually isolate a single variable such as intelligence without introducing other variables is difficult. It was also cited earlier that the curricular emphasis of the college and the college's level of expectancy influenced a shift of values. If this assumption held then a change of values would be expected in the optometry sample.

Value Differences Between Optometry Classes

A second objective of this study was to show if any significant value differences occurred between optometry classes. In the comparisons drawn between respective classes, only one significant value difference at a .95 degree of confidence was found. This was the social scale between the first and fourth year classes with the fourth being lower. Several other comparisons showed significant differences at a .90 degree of confidence: the aesthetic scale for the first versus third years and the third versus fourth years, and the theoretical and social scales for the second versus fourth years. (See Table 7). These findings, especially at the .95 confidence level suggested that the College of Optometry tended to select students with value systems similar to each other and to its own system. Arsenian found the same in his study of undergraduates. (Arsenian, "Changes in evaluative attitudes during four years of college"). The same studies showed that the theoretical, aesthetic and economic values tended to increase while the political, religious and social values decreased as the student progressed from the first to the fourth year. The fourth year class did score significantly lower than the first (.95 level) or the second year class (.90 level) on the social scale and significantly higher than the second year class on the theoretical scale (.90 level). While these specific changes support Arsenian's study, the overall impression is one of similarity and stability of values among the classes rather than diversity and change. Such

similarity of value systems could possibly be attributed to similar educational and cultural backgrounds.

Value Differences Between Optometry and Medical Students

The last comparison involved optometry and medical student samples. An overall difference in values was found between the two professional groups in contrast to the similarity found within the optometry groups. (See Table 7) There were significant differences on four out of the six value scales on comparison of first year students. The first year optometry students scored higher on the economic and social scales but lower on the theoretical and religious scales than the first year medical students. Two significant differences were found in the fourth year comparison. The optometry group scored higher on the economic scale and lower on the political. As mentioned earlier, Eron, et. al., found that medical students' values shifted from being predominantly idealistic with high theoretical scores to being realistic with high economic scores. This is not evident with the optometry group.

SUMMARY

A similarity and stability of values was found upon comparison of optometry classes to each other. Medical and optometry student samples differed significantly in economic, social, theoretical, and religious values at the first year level and in economic and political values at the fourth year level. The optometry students as a group differed significantly on the aesthetic, political, and religious scales from the

undergraduate population. Research in this area at other schools of optometry as well as continuing longitudinal studies at Pacific University are needed to further substantiate the data and trends found in this study.

TABLE 7. † TESTS BETWEEN SAMPLES

CONFIDENCE LEVELS: * = 95%
 ⊕ = 99.5%
 Δ = 97.5%
 ◇ = 90.0%

OPTOMETRY CLASS MALES VERSUS UNDERGRADUATE MALES

	THEORETICAL	ECONOMIC	AESTHETIC	SOCIAL	POLITICAL	RELIGIOUS
FIRST YEAR	+ .516	- .750	+ 2.15 ^Δ	+ 1.68 [◇]	- 1.54 [◇]	- 1.82 [*]
SECOND YEAR	- .70	- .38	+ 3.40 [⊕]	+ 1.37 [◇]	- 3.50 [⊕]	- .66
THIRD YEAR	+ .01	+ .05	+ 3.29 [⊕]	+ .63	- 2.56 ^Δ	- 1.50 [◇]
FOURTH YEAR	+ 1.14	+ .40	+ 2.79 [⊕]	- .60	- 2.50 ^Δ	- .855

OPTOMETRY CLASS MALES VERSUS MEDICAL CLASS MALES

FIRST YEARS	- 4.33 [⊕]	+ 3.78 [⊕]	+ .75	+ 3.28 [⊕]	- .84	- 2.00 [*]
FOURTH YEARS	- 1.03	+ 3.03 [⊕]	+ .30	- .74	- 1.69 [*]	- .94

COMPARISONS BETWEEN OPTOMETRY CLASSES (MALES)

1 ST VS. 2 ND	+ 1.01	- .26	- .97	+ .27	+ 1.31	- .63
1 ST VS. 3 RD	+ .318	- .459	- 1.35 [◇]	+ .65	+ 1.26	+ .099
1 ST VS. 4 TH	- .35	- .834	- .208	+ 1.73 [*]	+ .92	- .66
2 ND VS. 3 RD	- .523	- .221	- .718	+ .406	- .016	+ .642
2 ND VS. 4 TH	- 1.380 [◇]	- .631	+ .831	+ 1.497 [◇]	- .369	+ .045
3 RD VS. 4 TH	- .598	- .289	+ 1.296 [◇]	+ .883	- .713	- .666

OPTOMETRY MALES (ALL FOUR YEARS) VERSUS UNDERGRADUATE MALES

	- .14	- .380	+ 5.7 [⊕]	+ 1.48 [◇]	- 5.5 [⊕]	- 2.32 ^Δ
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