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Experimenter Influence in Psychological Testing: Religious Versus Layman

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EXPERIMENTER INFLUENCE IN PSYCHOLOGICAL TESTING:
RELIGIOUS VERSUS LAYMAN

by

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A Thesis Submitted to the Faculty of the Graduate School
of Loyola University in Partial Fulfillment of
the Requirements for the Degree of

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LIFE

The author was born in Cincinnati, Ohio, on July 7, 1941. After graduating from St. Xavier High School in 1958, he studied physics at Notre Dame for one year. He entered the Society of Jesus in September of 1959 at Milford, Ohio. His undergraduate degree was conferred by Xavier University in literature in 1963.

The next three years were spent in the study of philosophy and psychology at three different locations, each for one year: West Baden College, West Baden, Indiana; Bellarmine School of Theology, North Aurora, Illinois; and Loyola University, Chicago, Illinois. Academic interests center about the possibility of personally synthesizing the form of empiricism employed in modern philosophy and theology with the empiricism of psychology so that the two disciplines can enrich one another and the students who pursue them.

Presently the author is teaching at St. Ignatius High School in Chicago.

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CHAPTER I

Introduction

In order to better understand how this thesis came to be written, we should note that a wide-spread phenomenon presently threatens many existing sacred structures and methods. This complex phenomenon might be called simply the "recognition of fallibility" or the "understanding of interactions," to pick out two aspects of it. In the Roman Catholic Church priests find that they are not receiving the docile obedience and respect of the faithful. In fact, the faithful demand that there be "dialogue" with their religious guides, and this demand is blessed in the decrees of the Second Vatican Council. The laity have achieved new sophistication, seeing that many formerly mysterious things were simply temporal expediences, and understanding that they too could know God and the things of God. After the initial shock, open-minded priests found that this new laity affected their own mediation as priests. They found that what they had conceived as a one-sided relation as of teacher-pupil or knower-ignorant was really a reciprocal interaction so that both were involved in growth and change.

Likewise, the practitioners of psychology are finding that they are not infallible, that their "subjects" have become increasingly knowledgeable about the formerly sacred domain, and that the psychologist himself might be affected by his subject. Bakan (1965) wrote very well on how psychologists struggle to maintain the old order where

only they can understand the mysteries of man and only they are truly masters of themselves and others. But an attempt to maintain such a structure lies doomed to fail because the structure is false.

On two sides in psychology we have much to learn: from poets, philosophers, holy men we can try to better understand ourselves and man in general, try to keep our research grounded in some dimension beyond empiricism; from our "subjects" we can learn that our dealings with them are exceedingly complex, far removed from our imagined "objectivity." This second aspect, the interaction of experimenter or therapist and subject has become central in much present research.

This research is summarized and synthesized in Rosenthal's Experimenter Effects in Behavioral Research (1966). His search for understanding takes him into the experimenter-subject dyad, into an investigation of the psychologist as instrument. As he says,

To the extent that we hope for dependable knowledge in the social sciences generally, we must have dependable knowledge about the experimenter-subject interaction specifically. We can no more hope to acquire accurate information for our disciplines without an understanding of the data collection situation than astronomers and zoologists could hope to acquire accurate information for their disciplines without their understanding the effects of their telescopes and microscopes.

As we have seen, the social sciences earlier naively assumed the immutability of the investigator...the subject was totally responsible for his score on any test or his behavior in an interview. Now Rosenthal and many other social scientists have recognized the fact that innumerable aspects of the

of the investigator's status, appearance, and behavior affect the subject. Beginning with the analysis by Pfungst (1911) of how the horse, Clever Hans, used visual cues given unintentionally by his questioners to solve mathematical problems, Rosenthal summarizes more recent research and calls for continuing research so that we can better calibrate the investigators on many dimensions.

A dimension that has become increasingly important is that of the "clergyman." More and more clergymen of differing faiths are turning to the behavioral sciences for their life's work (Webb, 1962). What does a clergyman "look like" to a subject of the same religion? of a different religion? It would seem that he would gain prestige and authority from his role as holy man and leader of his community. With members of his own religious affiliation he should instill a confidence that permits expression of their difficulties and anxieties (priests were counselors for many years prior to the inception of psychology). The priest acquires much of his influence from a stereotype which is mediated by the distinctive clothing he wears. We do not deny (it would be self-incriminating to do so) that priests generally have conducted themselves intelligently and compassionately to earn the stereotype of being, among other things, a trusted listener. But what we do state is that this role is perhaps automatically acquired by the adoption of the distinctive garb of the priest or religious, especially for those outside the particular religious group and hence more ignorant of individual differences among the clergy. From personal experience and from previous research (Lartigue, 1967; Davis, 1967), this author does not believe that the stereo-

type significantly affects test responses given by members of the same religious affiliation as the examiner. Partially the influence mentioned previously of interaction between priest and laity and a demythologizing of things sacred, partially the lack of sensitivity of instruments to record what is involved in the subject's manifest response cause no significant difference between responses to priest (or religious) or to layman.

Our interest in the study of the clergyman variable in psychological testing is that of generalizing by using more experimenters and more subjects. To accomplish this aim, eight Jesuits studying for the priesthood will serve as administrators of Taylor's Biographical Inventory (1953). The Inventory yields three scores: anxiety (MAS), defensiveness (K), and lying (L). Our multiple hypotheses will be that over the eight experimenters no significant differences will be found in the MAS, K, or L responses to clergyman and to layman. Differences are individual rather than general, and we will look for a difference between experimenters rather than between role. Females will score higher on all three measures (e.g., Baur, 1966; Lartigue, 1967), but this is not central to the investigation. Since the testing will take place in high schools and no data were available for norms for high school, we do not know what differences will be found between ages and between schools.

CHAPTER II

Review of the Literature

The literature review must cover two topics. Primarily, the data related to experimenter variable generally and clergyman variable specifically will be considered. Secondly, the nature of the testing instrument and its relation to the variable under question receives some mention. Thus, it must be reasonably clear that the test will legitimately reflect the manipulation of the independent variable (cleric-layman).

We begin, then, with the literature pertinent to the experimenter variable. As previously noted, Rosenthal (1966) can serve as guide in this area. The first half of his book is a systematic review of the literature pertaining to variables in the experimenter and in the subject. Thus, he treats at some length the variables of sex, age, race, religion, anxiety, need for approval, birth order, hostility, authoritarianism, intelligence, dominance, warmth, and relative status of experimenter to subject. The conclusion for each section is a summary of the complexity found, an attempt to synthesize results which are not always uniform, and a plea for further research on the variable. The reasons for the complexity are apparent: every experimenter presents every variable to every subject, and an attempt to investigate any one aspect is faced with the very difficult task of controlling the other aspects. Can an investigator guarantee that experimenters differing in hostility, for example, will be matched on all other variables, thereby

making it possible to investigate the differential effects of hostility on subjects' responses? Our own solution to this problem in our study will be explained in the chapter on method.

The religious affiliation of both experimenter and subject has been shown (Robinson & Rhode, 1946) to be of significance in influencing test results. This variable will be involved in the present research since the examiners will be Roman Catholic students for the priesthood.

The status of the experimenter seems to be an important variable relative to this study. Pertinent studies have been made on formality of dress (Sarason & Minard, 1963), on academic standing (Birney, 1958), on military rank (Ekman & Friesen, 1960). In these studies it is found that subjects are more influenced by the more influential experimenters, which seems to agree with what we would expect.

Of the many variables which might be operative in the interaction between experimenter and subject in a test situation, only religion and status are given explicit mention here. Overall, Rosenthal has found that the experimenter who is "professional, competent, likeable, and relaxed while avoiding an overly personal tone of voice" is most capable of influencing his subjects' responses to conform to his expectancy. This is the general picture that has emerged from the research of Rosenthal and others; but the present research concerns itself with one possible source of influence...the "role" that accrues to wearing a black suit and Roman collar when conducting psychological research.

Consequently, for present purposes the studies conducted here at Loyola on the stimulus value of the clergy-

man and the nun are more relevant. The initial study was that of Walker and Firetto (1965), in which it was found that subjects tested by a priest were both more open (higher L score) and more anxious (higher MAS score) than a comparable group of subjects tested by the same man dressed as a layman. In her thesis, Baur (1966) expanded this study into a 2 x 2 x 2 design. Eighty subjects, 40 male and 40 female, were tested by a nun in the roles of nun and laywoman, and 80 subjects, 40 male and 40 female, were tested by a laywoman in the roles of nun and laywoman. No differences were found on the Taylor MAS. Significant differences were found on the K scale; males were less defensive than females in the testing situation, and both males and females were more defensive to experimenters wearing a habit. On the L scale males lied less than females in the testing situation.

In a study using the same design as that used by Baur but with a priest and a layman replacing the nun and laywoman, Walker, Davis, and Firetto (1966) found that the layman-priest variable was not relevant but that "true-role" versus "simulated-role" of the Es resulted in significant performance differences by the two sexes on the MAS and L scales. It is not readily apparent how this role variable is communicated to the subjects, but this study does show that the type of clothing and the stereotype believed to be connected with it did not influence the subjects' scores as significantly as the true-role vs. simulated-role dimension.

Davis (1967) has expanded to a four-factor design in an attempt to locate the variance that takes place in these experiments. The factors were: group versus individual administration, sex of subject, priest versus layman, and

the four experimenters. Preliminary analysis showed no significant difference on the MAS scale associated with any of the factors, but there was a strong trend for females to score higher. On both the K and the L scales, females were higher, significantly on K ($p .05$). The analysis also revealed significant main effect due to the examiner factor on both K and L. The negligible effect due to "role" and the notable effect due to individual differences among examiners seems to be indicating no general effect from clerical garb that is as important as the individual personality of the examiner.

The next question is that of knowing what it is we are testing with the Biographical Inventory. The items were chosen by clinical consensus: how well do the test results validate with clinical judgment? Some attempts at validation have yielded positive results (Buss, 1955; Hoyt, 1954), but others have yielded equivocal (Kendall, 1954) or negative (Bitterman, 1952) results. What does this mean? Some sense is made of the confusion by recognizing that we have nothing else on the test than what the subject is willing to tell us. Wirt (1956) believed that the test was measuring something other than what is denoted by the clinical concept of anxiety. As he said, "We believe the common factor underlying the relationships to be one of 'willingness to say deviant things about the self' or 'test-taking attitude' which factor is not necessarily highly related to anxiety as the concept is clinically used." The understanding of the MAS has not significantly changed during the past decade.

Now, if we postulate that people feel more comfortable with a respected authority figure of their religion (a clergyman), then he should elicit more of that "willingness

to say deviant things about the self." Consequently, the MAS is the proper test both for the population employed and for the purpose of eliciting "manifest" anxiety.

There is sufficient basis from this review, especially of the studies here at Loyola, for further investigating the possibility of differences between roles (cleric-layman) and experimenters (eight of them) and sex of subject.

CHAPTER III

Method

Experimenters. To control for all the possibly relevant variables, the roles of religious and laymen were both played by the same individuals. These experimenters were eight Jesuits in training for the priesthood. Their ages range from 24 to 30 years. All have had some experience in teaching and thus were used to dealing with groups of people. None had done any work in psychology or psychological testing. As religious, they wore the Roman collar and a black suit. As laymen, they wore coats, ties, and white shirts. Under both conditions they referred to themselves as "mister," which is their correct title in religious life.

Subjects. The subjects were 386 Roman Catholic high school students enrolled in summer courses at three different high schools in the Chicago area. Their mean age was approximately 14.5 with a range from 13 to 18 years. Due to practical difficulties encountered, it was not possible to pre-match the subjects on anxiety or to guarantee that each experimenter would contact the same number of subjects or subjects of the same age. We depend for our conclusions on random sampling over a large number of subjects. Each experimenter contacted groups of an average size of 12 subjects. He tested a group of males and a group of females as a cleric, another group of males and of females as a layman. In school 1 the groups were mixed, male and female. In schools 2 and 3, the experimenters tested only girls or only boys respectively. The total N for each experimenter

ranged from 43 to 54.

Test Material. All subjects took the 90 item version of Taylor's Biographical Inventory (1953). It consisted of a 50 item Taylor Manifest Anxiety Scale (MAS), the 30 item MMPI K scale, and the 15 item MMPI L scale (Hathaway & McKinley, 1951). The MAS was originally prepared (for research in conditioning experiments) by extracting items from the MMPI thought to be indicative of anxiety. Taylor standardized the test on 1971 college students; Bendig (1954) later found it to show no significant differences relative to sex or to the age range of a college sample. A children's form (Castaneda, 1956) was developed for use in grades four through six. The use of the MAS rather than the CMAS seems justified by the fact that the present study was conducted on a population older than that for which the CMAS was designed; the lack of relevant literature on the MAS for high school students seems to show more the difficulty of obtaining these subjects than the inapplicability of the MAS for this population.

The experimenters also took the Biographical Inventory as well as the MMPI.

Procedure. The subjects were contacted in their classrooms by the experimenters. The experimenters were directed to greet the subjects and introduce themselves by name as a psychologist doing research in personality. They would then distribute copies of the Biographical Inventory and IBM answer sheets to the subjects, instructing them to fill in their name, the date, their school and city, their date of birth, age, sex, and grade. They were also directed to fill in their religion as Roman Catholic, Protestant, Jew, other,

or none. This was done so that the subjects could be matched on religion since some of the summer school students were not Roman Catholic.

The Es then read the directions from the front page of the Biographical Inventory:

The statements in this booklet represent experiences, ways of doing things or beliefs or preferences that are true of some people but are not true of others. Read each statement and decide whether or not it is true with respect to yourself. If it is true or mostly true, blacken the space in column T on the answer sheet in the row numbered the same as the statement you are answering. If the statement is not usually true or is not true at all, blacken the space in column F in the numbered row. Answer the statement as carefully and honestly as you can. There are no correct or wrong answers. We are interested in the way you work and in the things you believe.

The Es were directed to respond "non-directively" to all questions, with answers like "interpret it any way you like," or by referring to the introductory instructions. The Es did not enter into discussion with the subjects during testing. When testing was completed, they read:

What I have just administered to you is a widely used paper and pencil test that has been given by psychologists to thousands of people across the country as a test of emotional reactions. However, the test has typically been administered to college students or adult groups. Now we are beginning to do research on how high school students respond to this same test. If I have the data analysed before the end of your summer school session, I would like to return to your class and discuss the results with you. Thank you very much for your time and cooperation.

The Es contacted their subjects in counter-balanced order, four working first as clerics and four as laymen, in case the "experience-inexperience" variable found in other studies was important. No significance was found.

CHAPTER IV

Results

The number of subjects contacted by each experimenter in each condition is presented in Table 1. The grouping of means and standard deviations obtained by the subjects in these 32 cells on each of the three scales of the Biographical Inventory, and the analyses of variance on these data follow. The means (M) and standard deviations (SD) for the MAS data (Table 2) are further studied in an 8 x 2 x 2 analysis of variance (Table 3) in which only the main variable of "sex of subject" was found significant, females manifesting more anxiety than males ($p < .05$). The variation due to the other two main variables (experimenters and role) did not show significance. Table 4 presents the means and standard deviations for the K scale scores. Table 5 is the analysis of variance on K, in which we again find the significant sex difference, females scoring higher on K than males ($p < .01$). As with the MAS data, the difference between roles is in the expected direction (MAS higher, K lower for clerics) but was not statistically significant. The L scale did not show the differences found on the other scales; the means and standard deviations (Table 6) showed some variation, but the analysis of variance (Table 7) demonstrated no significant differences on any of the main variables or interactions. Again, the largest although non-significant difference is between sex of subject, females scoring higher on L than males.

Since the data were collected in three schools and

over an age range from 13 to 18, some analysis of these differences was necessary before the results of the basic analyses of variance could be interpreted. Consequently, the means and standard deviations for all three variables for the subjects from the three schools were computed (Table 8). After a significant ($p < .05$) difference on the K scale between males from school 1 and males from school 2 was found with a t-test, further analyses of variance were conducted on each of the three variables. The data collected by 5 Es came from school 1, where the subjects were tested in mixed groups. Three Es tested in school 2 (all male) and school 3 (all female). Therefore, analyses of variance for MAS, K, and L were conducted for subjects from school 1 ($5 \times 2 \times 2$) and for schools 2 and 3 ($3 \times 2 \times 2$). These six additional analyses are presented in Appendix I. Table 13 presents the analysis of the MAS scores from school 1, Table 14 from school 2. School 1, where subjects were tested in mixed groups of males and females, showed less sex effect and an increased, though statistically non-significant, effect from role. Table 14 shows that the overall sex difference ($p < .05$) was generated primarily by schools 2 and 3 ($p < .01$), where the Ss were tested in separate groups. The same pattern continued when analysing K: school 1 data (Table 15) yielded a significant effect due to role of experimenter ($p < .05$) while schools 2 and 3 (Table 16) again showed the significant ($p < .01$) sex difference that accounted for the overall difference. Once again, the analyses of L (Tables 17 and 18) do not offer any significant results.

The second source of possible variation was the ages of the Ss. The means and standard deviations for males and females at each age level for MAS (Table 9), K (Table 10),

and L (Table 11). Analysis of the difference between ages did not yield any statistical significance.

The means and standard deviations for each experimenter were also computed. The 4 cells of data for each man were combined for each of the three variables (Table 12). The rank order (highest to lowest) of these scores elicited by the Es was included. Although the analyses of variance had not shown any significant difference connected with the experimenter variable, in Appendix II rank correlations between the means of the data each E had collected over the three variables (Table 12) and the E's own scores on the Biographical Inventory and MMPI (Table 19) were prepared. These Spearman rho correlations are presented in Table 20 in Appendix II. The correlations between Ss MAS scores and Es MAS, Pd, Pt, and Sc are the most significant that were obtained ($p < .01$).

TABLE 1

Number of Subjects contacted by Each Experimenter
in Each Experimental Condition

Experimenter	Role	Male	Female
1.	cleric	9	11
	layman	17	13
2.	cleric	10	10
	layman	19	11
3.	cleric	13	11
	layman	10	10
4.	cleric	20	8
	layman	15	11
5.	cleric	20	10
	layman	11	10
6.	cleric	11	14
	layman	8	12
7.	cleric	12	11
	layman	8	12
8.	cleric	10	18
	layman	10	11
Total	cleric	105	93
	layman	98	90

TABLE 2

Means and Standard Deviations for MAS
in Each Experimental Condition

Experimenter	Role	Male		Female	
		M	SD	M	SD
1.	cleric	21.33	8.35	20.09	7.30
	layman	15.88	6.74	16.00	7.14
	subtotal	17.77	7.78	17.87	7.50
2.	cleric	14.50	7.37	17.20	9.70
	layman	16.21	7.09	19.82	5.95
	subtotal	15.62	7.24	18.57	8.07
3.	cleric	18.23	9.20	19.28	8.51
	layman	17.80	7.76	16.20	7.87
	subtotal	18.04	8.60	17.81	8.35
4.	cleric	17.70	8.16	17.50	7.43
	layman	13.00	6.39	15.36	6.26
	subtotal	15.69	7.81	16.26	6.86
5.	cleric	15.25	7.32	14.90	6.20
	layman	11.82	7.34	16.60	4.54
	subtotal	14.03	7.51	15.75	5.50
6.	cleric	18.00	7.29	20.57	4.89
	layman	16.25	5.07	18.67	8.54
	subtotal	17.26	6.50	19.69	6.89
7.	cleric	14.75	6.42	17.36	7.83
	layman	15.88	5.35	18.00	7.35
	subtotal	15.20	6.04	17.70	7.59
8.	cleric	14.20	7.70	18.24	8.23
	layman	15.00	5.16	19.18	9.14
	subtotal	14.60	6.51	18.28	8.64
Total	cleric	16.67	8.04	18.08	8.07
	layman	15.18	6.81	17.49	7.43

TABLE 3

Analysis of Variance for Experimenter, Role,
and Sex on MAS

Source	SS	df	MS	F
Experimenter (8)	535.93	7	76.56	1.31
Role (Cleric-Layman)	115.96	1	115.96	1.98
Sex (Male-Female)	346.05	1	346.05	5.91 *
Experimenter x Role	463.17	7	66.17	1.13
Experimenter x Sex	92.07	7	13.15	-
Role x Sex	18.24	1	18.24	-
Experimenter x Role x Sex	154.52	7	22.07	-
Error	20712.34	354	58.51	
Total	22438.28	385		

* significant at .05 level

TABLE 4

Means and Standard Deviations for K
in Each Experimental Condition

Experimenter	Role	Male		Female	
		M	SD	M	SD
1.	cleric	12.67	2.31	13.09	2.23
	layman	14.00	4.49	14.38	3.05
	subtotal	13.54	3.92	13.79	2.78
2.	cleric	13.60	4.52	14.50	4.90
	layman	13.95	3.35	14.27	3.98
	subtotal	13.86	3.85	14.38	4.45
3.	cleric	12.62	3.97	13.82	3.16
	layman	12.80	3.57	15.60	4.29
	subtotal	12.70	3.80	14.67	3.85
4.	cleric	12.60	3.98	15.37	5.98
	layman	15.40	3.32	14.64	3.91
	subtotal	13.80	3.96	14.95	4.90
5.	cleric	13.55	4.36	14.30	3.95
	layman	16.09	4.03	16.10	3.81
	subtotal	14.45	4.42	15.20	3.98
6.	cleric	11.82	4.45	14.21	4.38
	layman	12.13	3.55	14.16	3.91
	subtotal	11.95	4.10	14.19	4.17
7.	cleric	12.75	3.74	15.55	3.96
	layman	11.88	2.32	14.00	3.96
	subtotal	12.40	3.28	14.74	4.03
8.	cleric	12.20	3.71	14.89	4.12
	layman	12.90	3.88	13.81	5.73
	subtotal	12.55	3.81	14.48	4.83
Total	cleric	12.78	4.04	14.46	4.20
	layman	13.89	3.91	14.58	4.18

TABLE 5

Analysis of Variance for Experimenter, Role,
and Sex on K

Source	SS	df	MS	F
Experimenter (8)	72.98	7	10.43	-
Role (Priest-Layman)	40.43	1	40.43	2.33
Sex (Male-Female)	139.49	1	139.49	8.05 **
Experimenter x Role	107.20	7	15.31	-
Experimenter x Sex	88.33	7	12.62	-
Role x Sex	22.27	1	22.27	1.29
Experimenter x Role x Sex	28.50	7	4.07	-
Error	6131.80	354	17.32	-
Total	6631.00	385		

** significant at .01 level

TABLE 6

Means and Standard Deviations for L
in Each Experimental Condition

Experimenter	Role	Male		Female	
		M	SD	M	SD
1.	cleric	3.11	1.97	4.00	2.29
	layman	4.18	2.62	3.31	1.54
	subtotal	3.81	2.47	3.63	1.95
2.	cleric	4.20	1.83	3.80	1.66
	layman	3.26	1.37	3.36	2.53
	subtotal	3.59	1.61	3.57	2.17
3.	cleric	2.69	2.07	3.73	1.86
	layman	4.30	2.05	3.60	1.20
	subtotal	3.39	2.06	3.67	1.58
4.	cleric	3.95	2.22	5.00	2.55
	layman	3.47	2.25	5.09	2.19
	subtotal	3.74	2.25	5.05	2.35
5.	cleric	3.00	2.05	4.30	2.79
	layman	3.82	1.69	4.00	1.67
	subtotal	3.29	1.97	4.15	2.31
6.	cleric	3.27	1.81	3.21	1.11
	layman	2.75	1.64	4.08	2.12
	subtotal	3.05	1.76	3.62	1.62
7.	cleric	3.17	1.77	3.91	2.39
	layman	3.00	1.73	3.83	3.07
	subtotal	3.10	1.76	3.87	2.77
8.	cleric	3.00	1.79	3.50	2.34
	layman	3.80	1.40	4.00	2.37
	subtotal	3.40	1.66	3.69	2.37
Total	cleric	3.31	2.01	3.84	2.21
	layman	3.61	1.99	3.90	2.22

TABLE 7

Analysis of Variance for Experimenter, Role,
and Sex on L

Source	SS	df	MS	F
Experimenter (8)	20.02	7	2.86	-
Role (priest-layman)	3.46	1	3.46	-
Sex (male-female)	16.24	1	16.24	3.56
Experimenter x Role	19.84	7	2.83	-
Experimenter x Sex	28.14	7	4.02	-
Role x Sex	1.20	1	1.20	-
Experimenter x Role x Sex	24.93	7	3.56	-
Error	1615.65	354	4.56	-
Total	1729.48	385		

TABLE 8

Means and Standard Deviations on MAS, K, L
in the Three Schools Tested

School	Sex of Ss	N	MAS		K		L	
			M	SD	M	SD	M	SD
1	male	144	16.07	7.90	13.73	4.05	3.58	2.10
	female	94	16.98	7.38	14.73	4.16	3.98	2.13
2	male	59	15.66	6.45	12.31	3.75	3.18	1.72
3	female	89	18.64	8.07	14.29	4.21	3.78	2.29

TABLE 9

Means and Standard Deviations of MAS
According to Age and Sex

Age in years	Males			Females		
	N	M	SD	N	M	SD
13 *	40	16.00	7.69	52	17.00	7.29
14	67	14.61	7.23	56	16.55	7.60
15	40	17.40	7.71	36	18.58	8.08
16	25	15.80	7.63	30	19.60	6.72
17	23	17.30	7.27	9	20.78	10.60
18	8	15.13	6.27			
Total	203	15.95	7.51	183	17.85	7.63

* includes six 12-year olds

TABLE 10

Means and Standard Deviations of K
According to Age and Sex

Age in years	Males			Females		
	N	M	SD	N	M	SD
13 *	40	13.46	4.07	52	14.13	4.67
14	67	14.45	4.19	56	15.30	4.04
15	40	12.78	3.89	36	13.92	3.21
16	25	13.08	3.01	30	14.83	4.12
17	23	11.22	3.30	9	13.22	4.89
18	8	13.25	4.29			
Total	203	13.32	4.02	183	14.52	4.19

* includes six 12-year olds

TABLE 11

Means and Standard Deviations of L
According to Age and Sex

Age in years	Males			Females		
	N	M	SD	N	M	SD
13 *	40	3.54	1.92	52	3.96	2.27
14	67	3.98	2.15	56	4.27	2.18
15	40	2.95	1.86	36	3.17	1.79
16	25	2.36	1.38	30	3.97	2.59
17	23	4.22	1.84	9	3.33	1.41
18	8	2.75	1.39			
Total	203	3.46	2.01	183	3.87	2.21

* includes six 12-year olds

TABLE 12

Combined Means and Standard Deviations for
MAS, K, L for each Experimenter (ranked)

Experimenter	MAS		K		L	
	M	SD	M	SD	M	SD
1	(3)17.82	7.65	(5)13.66	3.43	(2)3.72	2.24
2	(4)16.86	7.74	(3)14.08	4.12	(4)3.58	1.87
3	(2)17.93	8.49	(7)13.64	3.95	(6)3.52	1.85
4	(7)15.89	7.49	(2)14.20	4.35	(1)4.20	2.37
5	(8)14.71	6.85	(1)14.75	4.27	(3)3.63	2.15
6	(1)18.67	6.83	(8)13.24	4.29	(8)3.38	1.70
7	(6)16.53	7.02	(6)13.65	3.88	(7)3.51	2.39
8	(5)16.78	8.05	(4)13.69	4.54	(5)3.57	2.11

CHAPTER V

Discussion

The purpose of the experiment was to broaden the base from which to generalize about clerical influence on test responses by expanding the number of experimenters. In this regard, it is noted that there may be rather impressive differences, with one or another experimenter, in the results achieved when testing as a clergyman and when testing as a layman (e.g., experimenter 1). But the differences tend to level somewhat when the group of 8 Es is considered as a whole. The differences do remain, and they are in the directions found in previous research, i.e., cleric elicits higher MAS, lower K and L than layman, but the differences were not statistically significant.

The hypothesized sex differences were found, females scoring higher on all three scales, significantly so on the MAS ($p < .05$) and K ($p < .01$) with a strong trend on L. Since the same kinds of things have appeared before, though not always at a statistically significant level, we can conclude that this is a general phenomenon whereby females are more manifestly anxious (high MAS) and simultaneously more interested in making a good appearance (high K). This does not appear to be an effect of the sex of examiner since it was also found in the Baur study (1966) on the K and L scales.

The general results from Tables 3, 5, and 7 were, then; the 8 Es did not show the hypothesized individual differences among Es in the analysis of variance for any of the three scales; the strong trend for the cleric "role" to elicit

higher MAS and lower K and L did not reach statistical significance; the sex difference was evident, females exhibiting higher MAS ($p < .05$) and higher K ($p < .01$).

Table 8 represents an important turn in the investigation. Among the differences noted there between schools, only the difference between K for males at school 1 and at school 2 was significant with a t-test ($p < .05$). But this difference demanded further study. Appendix I, Tables 13 through 18, has revealed that the sex difference originated primarily in schools 2 and 3, where the test was administered to separate groups of males and females rather than mixed groups as in school 1. There appears to be a definite leveling effect as a result of testing males and females together -- when they are together they are more alike than when separate. How this is mediated is not clear. It may be fear of having one's answer seen by a member of the opposite sex; it may be a more pervasive personality change that is revealed by the responses.

And yet this, too, must remain tentative since there were roughly estimated differences in socio-economic level among the schools, especially between 1 and 2. Perhaps this is the area where research might turn next, to a controlled study of the effect of socio-economic background on test responses to cleric and to layman. The continued research into this variable of cleric-layman would be demanded by the increased effect of "role" on scores in school 1 as shown in the analyses of variance in Tables, 13, 15, and 17, an effect which reached significance for K ($p < .05$). If, after control of other factors such as testing situation (mixed or separate groups) and socio-economic background, no significant differ-

ences were found in test responses to cleric or to layman, then research on this variable could take a different approach or be laid to rest. Right now the leveling effect due to mixed groups should be further studied, as should the socioeconomic background of the subjects.

Tables 9-11 show that there are age differences, although none of them reached statistical significance. The most noticeable effect of age is the increasing MAS scores for females of increasing age. The opposite effect, decreasing K and L with increasing age, is not as evident. What this means is not clear since Bendig (1954) did not find age differences with a college population, and since the mean that Taylor obtained (1953) with college students (14.65) was more like that of the 14-year olds tested than it was of 17-year olds. Two possible explanations are offered: 1) younger Ss just have not had some of the experiences asked about in the Biographical Inventory and hence could not report them; 2) today's Ss are generally more knowledgeable and also more open about their "psychological" selves than were Ss of 15 years ago. These explanations are not based on any research and they do not help explain the fluctuation in scores by males, but they do fit the data obtained from females.

Although the hypothesized difference among experimenters was not substantiated in the analyses of variance, it did appear very significantly in a corollary analysis of the data from Tables 12 and 19. Here the ranks of Ss scores obtained by each E were compared with E's own scores on the Biographical Inventory and the MMPI (Table 20). The correlations between Ss MAS scores and Es MAS, Pd, Pt, and Sc subscales were all significant at the .01 level.

Rosenthal (1966) reviewed five studies concerned with E's anxiety. The effects of E's anxiety on S's performance in conditioning tasks, in intelligence tests, and in photo-rating tasks were highly ambiguous: "From the evidence presented, this constellation of experimenter behavior seems sometimes to increase, sometimes to decrease, and sometimes not to affect the subjects' performance at all."

In another study more directly related to the present one, Matarazzo (1955) found correlations between the MAS and the validity scales of the MMPI taken by the same 119 male medical students to be significant at the .01 level of confidence. MAS correlated with L (-.32), with F (.46), and with K (-.71). Brackbill and Little (1954) found a .92 correlation of MAS with the Pt scale of the MMPI. Wohl and Hyman (1959) again found the negative correlation between MAS and K (-.65), as did Martin (1959) at -.62. These studies all discuss relationships between these tests taken by the same Ss; none of them deals with the correlations of Es' scores and their Ss' scores.

An interpretation of the four correlations must necessarily be somewhat involved and tentative. Es scoring high on the MAS not only have a given level of anxiety but are also willing to manifest it. This given level of anxiety is reflected in the higher Pt and Sc scales, and the willingness to manifest it is shown in the higher Pd scale. Such an experimenter, manifestly anxious (but within a normal range), may come across to his Ss as more open and honest, as interested in them and their responses, rather than too calm and disinterested. The Ss could thus feel more willing to express themselves to such a concerned and imperfect E, thereby also

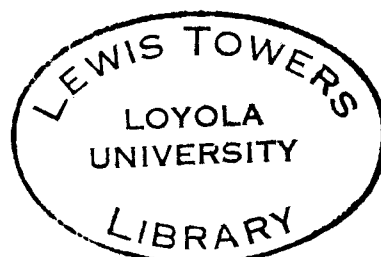
scoring higher on the MAS.

The analysis of the results of this experiment lead us into at least three paths. We should first of all attempt to better understand this testing instrument or perhaps seek another that is more sensitive to changes in anxiety level. Second, the research into the cleric-layman variable should be continued under more carefully controlled conditions as regards Ss socio-economic background, and as regards the testing situation itself (mixed versus separate groups). Thirdly, the leads into the effect of E's manifest anxiety on S's own manifest anxiety should be followed in an attempt to establish some parameters more decisive than rank order, and to understand why and how these scores between Es and their Ss come to be so highly correlated. And lastly, when the parameters involved in this research are more clearly defined, the investigation could move outside the pale of Roman Catholicism to find the effect on the general populace who come into contact with clerics working in clinics and hospitals as well as in rectory and parish.

CHAPTER VI

Summary

105 high school boys were tested on the Taylor MAS, MMPI K scale, and MMPI L scale in groups by eight Jesuits dressed as clerics; 98 boys by the same Jesuits dressed as laymen; 93 girls by the clerics; and 90 girls by the laymen. Analysis of the total data showed no significant difference among Es or between roles on any of the three scales. Sex of subject was significant on the MAS ($p < .05$) and K ($p < .01$), females scoring higher on both, with a strong but statistically nonsignificant trend in the same direction on L. None of the interactions were significant. Further breakdown of the data revealed that the sex difference came primarily from the two schools where Ss were tested in separate male and female groups rather than mixed groups. Role difference (cleric-layman) was more important in raising MAS and lowering K at the school where mixed groups were tested. Correlations between Ss' MAS scores and Es' Mas, Pd, Pt, and Sc scales were all significant at the .01 level.



APPENDIX A

Analyses of Variance on MAS, K, and L
for School 1 (mixed groups) and Schools 2
and 3 (separate groups of male and female Ss)

TABLES 13-18

TABLE 13

Analysis of Variance for Experimenter, Role,
and Sex on MAS at School 1

Source	SS	df	MS	F
Experimenter (5)	366.10	4	91.53	1.53
Role	170.41	1	170.41	2.85
Sex	92.66	1	92.66	1.55
Experimenter x Role	355.20	4	88.80	1.49
Experimenter x Sex	54.21	4	13.55	-
Role x Sex	21.69	1	21.69	-
Experimenter x Role x Sex	141.15	4	35.29	-
Error	13672.80	229	59.71	-
Total	14874.22	248		

TABLE 14

Analysis of Variance for Experimenter, Role,
and Sex on MAS at Schools 2 and 3

Source	SS	df	MS	F
Experimenter (3)	122.64	2	61.32	1.95
Role	.06	1	.06	-
Sex	285.61	1	285.61	9.08 **
Experimenter x Role	54.06	2	27.03	-
Experimenter x Sex	5.74	2	2.87	-
Role x Sex	.03	1	.03	-
Experimenter x Role x Sex	9.64	2	4.82	-
Error	3934.12	125	31.47	-
Total	4411.87	136		

** significant at .01 level

TABLE 15

Analysis of Variance for Experimenter, Role,
and Sex on K at School 1

Source	SS	df	MS	F
Experimenter (5)	40.86	4	10.22	-
Role	87.52	1	87.52	5.23 *
Sex	42.10	1	42.10	2.51
Experimenter x Role	46.72	4	11.68	-
Experimenter x Sex	27.64	4	6.91	-
Role x Sex	3.14	1	3.14	-
Experimenter x Role x Sex	32.94	4	8.24	-
Error	3833.47	229	16.74	-
Total	4114.39	248		

* significant at .05 level

TABLE 16

Analysis of Variance for Experimenter, Role,
and Sex on K at Schools 2 and 3

Source	SS	df	MS	F
Experimenter (3)	5.61	2	2.81	-
Role	6.21	1	6.21	-
Sex	156.21	1	156.21	8.49 **
Experimenter x Role	7.18	2	3.59	-
Experimenter x Sex	1.88	2	.94	-
Role x Sex	7.39	1	7.39	-
Experimenter x Role x Sex	7.31	2	3.65	-
Error	2298.31	125	18.39	-
Total	2490.10	136		

** significant at .01 level

TABLE 17

Analysis of Variance for Experimenter, Role,
and Sex on L at School 1

Source	SS	df	MS	F
Experimenter (5)	15.63	4	3.91	-
Role	.71	1	.71	-
Sex	10.28	1	10.28	2.25
Experimenter x Role	15.22	4	3.81	-
Experimenter x Sex	21.08	4	5.27	1.16
Role x Sex	5.83	1	5.83	1.28
Experimenter x Role x Sex	16.46	4	4.12	-
Error	1044.34	229	4.56	-
Total	1129.55	248		

TABLE 18

Analysis of Variance for Experimenter, Role,
and Sex on L at Schools 2 and 3

Source	SS	df	MS	F
Experimenter (3)	.89	2	.45	-
Role	3.05	1	3.05	-
Sex	9.48	1	9.48	2.07
Experimenter x Role	2.12	2	1.06	-
Experimenter x Sex	1.34	2	.67	-
Role x Sex	1.13	1	1.13	-
Experimenter x Role x Sex	4.91	2	2.46	-
Error	571.31	125	4.57	-
Total	594.23	136		

APPENDIX B

Experimenters' Scores on the Biographical
Inventory and the MMPI, and Correlations Between
Experimenters' and Subjects' Scores

TABLES 19 & 20

TABLE 19

Experimenters' Scores on Biographical Inventory
and MMPI Code

Experimenter	Age	MAS	K	L	MMPI Code
1	27	17	1	0	849 ⁸ 7361-02(61)1:4:18
2	30	9	22	1	9 ⁸ 84637-21(65) 2:4:18
3	25	11	22	3	312 ⁸ 74689-0(67) 3:1:22
4	24	7	20	3	'36987-1420(69) 4:3:19
5	25	4	21	4	'6347 189-20(69)4:3:20
6	25	26	15	2	7284 ⁸ 360-91(63) 2:3:15
7	29	9	14	2	'93874-62 10(71)1:3:12
8	27	13	15	1	6 ⁸ 8237410-9(71) 1:4:15
	M	12.00	16.25	2.00	
	SD	6.42	6.55	1.22	

TABLE 20

Rank Correlations Between Experimenters'
Biographical Inventory and MMPI Scores and Their Subjects'
Scores on the Biographical Inventory

Experimenters	S u b j e c t s		
	MAS	K	L
MAS	.86**	-.79*	-.46
K	-.03	.30	.07
L	-.40	.26	.03
Hs	.19	.04	.31
D	.42	-.18	-.56
Hy	.39	-.40	.04
Pd	.86**	-.56	-.27
Mf	-.65*	.31	-.08
Pa	.20	.26	.45
Pt	.90**	-.68*	-.45
Sc	.85**	-.61	-.38
Ma	.10	.02	.24
Si	-.20	.03	-.21
L	-.27	.46	.37
F	.06	.36	.38
K	-.10	.37	.50

* significant at .05 level ** at .01 level

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APPROVAL SHEET

The thesis submitted by Mr. Robert F. Weickert, S.J. has been read and approved by the director of the thesis. Furthermore, the final copies have been examined by the director 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 and form.

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

September 12, 1967

Date

Ronald E Walker

Signature of Advisor