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A STUDY OF THE BELIEFS AND ACADEMIC BEHAVIOR OF FRESHMAN
ENGINEERING STUDENTS AT PURDUE UNIVERSITY

By
WILLIAM STIELSTRA

AN ABSTRACT OF A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF EDUCATION

College of Education

1961



ABSTRACT

A STUDY OF THE BELIEFS AND ACADEMIC BEHAVIOR OF FRESHMAN ENGINEERING STUDENTS AT PURDUE UNIVERSITY

by William Stielstra

This study is primarily concerned with the beliefs of Purdue University freshman engineering students and the relationship of these beliefs to the subjects' perseverance in the engineering program, academic over-achievement and under-achievement and performance in terms of grade point averages. It is also concerned with the identifying of those specific items in the measurement instrument which are related to students staying in or leaving engineering, over-achievement or under-achievement and receiving high or low grades.

The Inventory of Beliefs, Form I was administered to approximately eight hundred beginning engineering students in the fall of 1958. Of these, seven hundred and twenty-seven were used in the study. The students were classified into the various personality syndromes identified by the Inventory of Beliefs and were assigned to one of the three sub-groups in each of the following three categories: (1) stay in engineering, transfer to another curriculum, withdraw from the university, (2) over-achievers, achievers, and under-achievers, and (3) high grades, medium grades, low grades. A chi square analysis was performed to determine the significance of the relationship of personality syndrome to the categories mentioned.

Section 1

Section 2

William Stielstra

An item analysis was made to determine which of the items in the instrument are related to staying in or leaving engineering, over-achievement or under-achievement and high grades or low grades. Another analysis was made to identify the items on which there was a consensus of student agreement and those on which there was a consensus of disagreement.

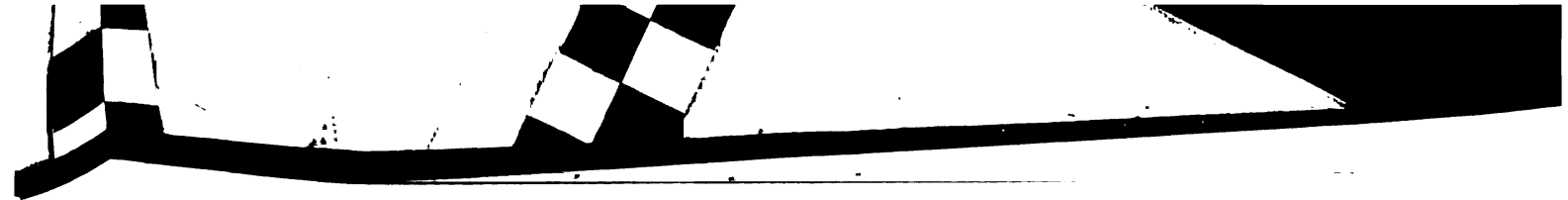
The study indicated that persistence in engineering studies, over-achievement and high grades are not related to the various personality syndromes identified by the Inventory of Beliefs.

A number of items in the Inventory of Beliefs do discriminate between those staying in and leaving the engineering curriculum, between those over-achieving and under-achieving and between those with high and low grades.

While the discriminating items are about equally divided between liberal and conservative beliefs there is a tendency for the students staying in engineering, over-achieving and receiving high grades to demonstrate skepticism (tend to disagree) and to support a "management", as contrasted with a "labor, viewpoint.

Composite scores based on items discriminating between students receiving high and low grades resulted in small but significant relationships with first semester grades for the two cross-validation groups (a hold-out group selected from the original sample and a second group tested one year later).

No significant relationship was found either year between the



William Stielstra

Over-achiever Beliefs Scales and classification of students as
over-achievers or under-achievers.

The Stay Beliefs Scale was significantly related to persistence in engineering for the hold-out group, but this relationship was not statistically significant for the group tested the following year.





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ENGINEERING STUDENTS AT PURDUE UNIVERSITY**

By

WILLIAM STIELSTRA

A THESIS

**Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of**

DOCTOR OF EDUCATION

Department of Administrative and Educational Services

1961

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ACKNOWLEDGMENTS

The author is deeply indebted to many people. Although it is not possible to give acknowledgment to all whose cooperation and interest have made possible this study, it is fitting that special recognition be given those who have made special contributions.

Dr. Walter F. Johnson, Chairman of the writer's Guidance Committee, has been a source of constant encouragement and invaluable guidance. His wise counsel and unstinting help are greatly appreciated.

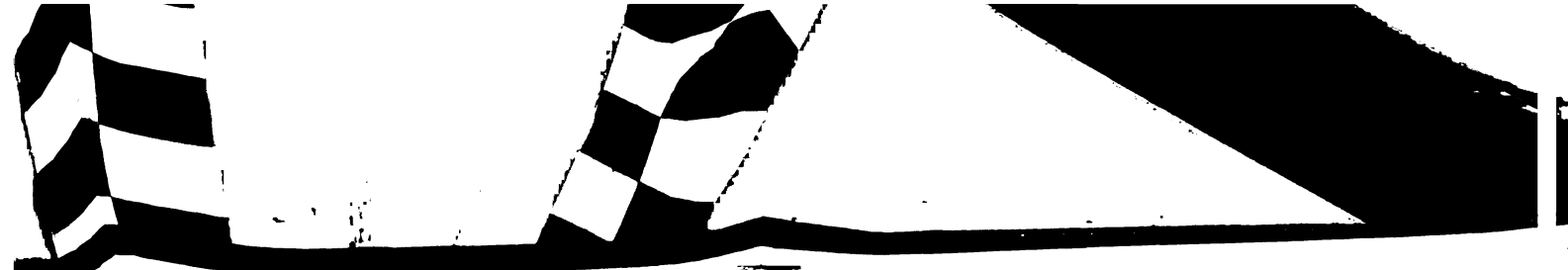
Dr. Raymond Hatch, Dr. Walker H. Hill and Dr. Madison Kuhn have been inspiring teachers, wise counselors and helpful critics. They have always been quick to lend assistance and give direction.

The writer wishes to express sincerest thanks to Dr. William LeBold whose enthusiasm was contagious and whose considerable help with the statistical treatment of the data was of great value.

Grateful acknowledgment is due Dr. George A. Hawkins, Dean of Engineering, Purdue University, Dr. Albert R. Spalding, Head of the Department of Freshman Engineering, Purdue University and Dr. Herman H. Remmers, Director of the Division of Educational Reference at Purdue, all of whom were actively interested in the study. Through their interest and efforts the financing of the study was made possible.

Thanks is due to the staff of the Purdue Statistical Laboratory for advice and assistance that went beyond the call of duty.

1. The first group of people who are interested in the results of the study are the researchers themselves. They want to know if the study was successful in achieving its objectives and if the results are consistent with their expectations.



The writer has deferred to last recognition of five people to whom he probably owes most: his wife, Angelyn, and his children, Diane, Jonathan, Philip and Ellen. They have inspired him. In a sense, it was for them the work was done.

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WILLIAM STIELSTRA

Candidate for the degree of

Doctor of Education

Final Examination: November 8, 1961, College of Education

**Dissertation: A Study of the Beliefs and Academic Behavior
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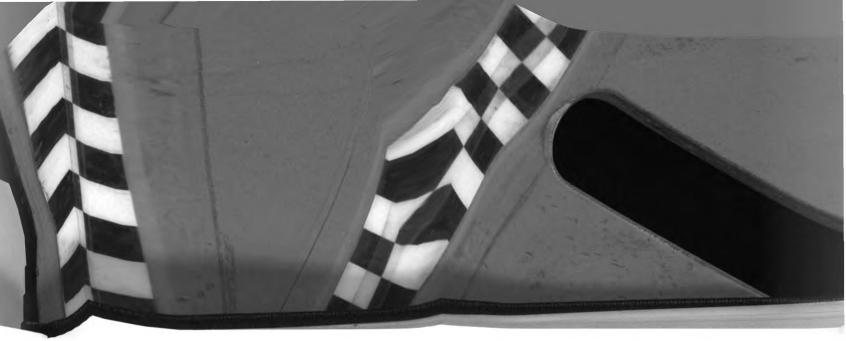
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CHAPTER I

INTRODUCTION

Purpose of Study

The many ancient scholars who sought the 'why' of human behavior have been eagerly joined in modern times by legions who, using more sophisticated techniques and refined tools and having available a greater body of functional knowledge, pursue essentially the same goal. The behavioral 'why' of prime concern to modern educators has to do with the causes of students' success and failure in academic activities. The problem has many facets, has been approached by psychologists, singly and in teams, from many angles.

It is the contention of some that the academic behavior of college students is closely related to the organized set of beliefs or values held by the students. It is further thought that the values and beliefs held by an individual reflect and give definition to his personality structure. Using a test designed to measure personality in terms of ideologies, it is the purpose of this investigation to study the relationship to academic behavior of the ideological syndromes of students in a freshman engineering curriculum.

Background of the Study

The sadomasochistic or authoritarian character has been the subject of study by modern scholars for more than three decades.

The struggle against fascism during World War II gave new impetus to the study. The comprehensive work by Adorno and colleagues (1), entitled the Authoritarian Personality, was published in 1950. The California F-Scale was devised by Adorno and associates as an instrument to measure the ethnocentrism or fascism of individuals. Fromm (27) in attempting to understand fascism contends that the authoritarian suffers from frustration and regression of dependency needs. Christie (17) claims that "cultural sophistication" reduces the individual's tendency to conformity and found, along with others (1, 21), that there is a low negative correlation between authoritarianism and intelligence and length or amount of education.

Rokeach, alone (60, 61, 62) and collaborating with others (63, 64, 65), extensively studied dogmatism and rigidity of thinking. These studies revealed that dogmatism and rigidity are related to the learning process, especially in problem solving confrontations. Obviously, these findings had special significance to those interested in the relationship of personality structure to the learning process.

The American Council on Education's Cooperative Study of Evaluation in General Education developed an 120-item questionnaire called the Inventory of Beliefs (19). It was the intention of this group to devise an instrument which would measure effectively the outcomes of general education. It was their contention that the beliefs which people hold are reflections of their values and that the feelings and responses prompted by basic beliefs help to define the personality of the individual. The Inventory of Beliefs was designed to measure the belief-reactions of students toward a wide

variety of topics including labor, business, modern art, literature, movies, international relations, nationalism, and religion. It was their intent that the personality dimension of a student could be determined by the nature of his responses to statements dealing with ideas and intellectual abstractions, with self, with others, and with social organizations. Studies of the differences between extreme low and extreme high scorers on the test supported the conclusion that the Inventory of Beliefs does indeed measure personality structure. Further, significant differences were found favoring the high scorers with respect to curricular choice in the areas of the Social Sciences, Humanities, and English; significant differences were found favoring the high scorers with respect to achievement in comprehensive examinations in the Social Sciences, and the Humanities; a significantly larger number of low scorers withdrew from school by the end of the first year; the interest of the high scorers was significantly higher than that of the low scorers in the Artistic, Musical, and Social Science areas (using the Kuder Preference Record), but lower for the computational and clerical areas; high scorers preferred occupations involving interpersonal, expressive, and abstract activity whereas the low scorers preferred more impersonal, concrete, status-oriented vocations such as engineering, medicine, or law; religiously, low scorers differed from high scorers in that they tended to be associated to a greater extent with orthodox or fundamentalist groups; high scorers seemed to prefer activities which involved independent behavior, abstract and analytical intellectual interests and aesthetic experiences while low scorers' preferences indicated aspiration towards

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security, financial status, compulsive orderliness and submissive behavior.

The Inventory of Beliefs, a generic descendant of the scales developed by Adorno and the California group, derives much of the form and substance of the stereopath syndrome from the characterization of the authoritarian personality by the California group. The Inventory of Beliefs went further in that its items sampled a much larger range of attitudes than those covered in the E, F, and PEC scales. Although the test was intended to measure personality along a stereopath-non-stereopath axis, it soon became apparent that whereas there seemed to be a high degree of homogeneity among those subjects who accepted the items of the inventory, there was no such sameness of characteristics among those who rejected them. Among those who were other than stereopathic there seemed to be two distinguishable groups with distinctive characteristics. Thus, in addition to the S (stereopath) syndrome and the N (non-stereopath) syndrome there emerged a group known as the R (rational) syndrome. Whereas the stereopaths endorsed items reflecting nativist-fundamentalist conservatism and the non-stereopaths, rejecting the ideas subscribed to by the stereopaths, contrarily held to or endorsed beliefs which were more liberal, urban, and relativistic, the rationals seemed to refuse either position, probably because of their extremism. Stern, Stein, and Bloom (74) modified the Inventory of Beliefs to compensate for what was to them a shortcoming in the earlier edition.

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The original form of the inventory was composed solely of the S-type generalized statements. Whereas it had been assumed that endorsement of such statements implied stereotypy and the rejection of them the opposite, non-stereotypy, it was the opinion of Stern and colleagues that the acceptance or rejection of the items might indicate no more than an indiscriminate proneness to acquiesce or to disagree. To the extent subjects were victims of response set (the tendency to agree or to disagree) the old edition of the Inventory would give a confused classification of the subject. In form T an effort was made to remove the influence of such possible response set so that such tendencies would not be confounded with the authoritarian or stereopathy dimension. In the new form T items were introduced with contents that represented the inverse of the authoritarian statements. Whereas half of the items of the new form were identical with the earlier form, the other half was now composed of statements which were acceptable only to the N syndrome. The new test contained 100 items. Quite neatly, the stereopathic subjects could be recognized by their acceptance of the authoritarian type items and rejection of the non-authoritarian type opposites. Conversely, the N subjects accepted the N-type statements while rejecting the S-type statements. The R syndrome rejected both kinds of extreme generalizations.

Form T of the Inventory of Beliefs was used in studies in different sections of the country in a wide variety of institutions

of learning. There was a considerable variance in terms of the preponderance of the different syndromes found at different institutions. Whereas, the highest percentages of R's were found at a northern college, a group dynamicists school, and a liberal seminary, the highest percentage of S's were found in a high school and a military academy. Stern et al. found that colleges known for their unique characteristics tend to attract students compatible with the goals and characteristics of the institution. Thus, the military academy, the engineering school, or the college of medicine would tend to attract those of the S syndrome, whereas the liberal arts school or the liberal seminary would tend to attract the student of the N or R syndrome. Consistent with this, it was found that the S who found himself in a liberal arts college was more apt to do poorly and was quicker to withdraw or transfer from that school than would be his opposite number. Likewise, the N syndrome attending the military academy or the technical school was more likely to receive poorer grades and to withdraw from such an institution. Further, it was hypothesized that R's are more likely to attend schools where there is a preponderance of N's rather than schools where S's are in the majority. That there are marked differences between colleges was attested to by Jacob (45) in his study of college values and the impact of college teaching.

In attempting to identify the source of creative and scientific talent Knapp (47) in the study of the student population of an

eastern university found that one-third of their scientists came from families whose livelihood was earned in non-white collar occupations and another sixty percent came from essentially low middle class homes while only approximately nine percent came from upper middle class or higher class families. In contrast to this, students graduating from the social studies area tended to be drawn from the upper middle class families and the families of professional men. The students of the humanities, arts, and literature were drawn from the socio-economic extremes. This holds significance if it is true that "beliefs" are related to economic, cultural and demographic factors.

In a study directed at measuring the change in students' beliefs, reactions, and attitudes in general, Howard (39) found that after one year's exposure to college teaching, of the several major groups studied, the groups showing the least amount of ideological change were the engineering group, the elementary education, and the group composed of pre-medical, pre-dental, pre-veterinarian, and pre-nursing students. He concluded that the students in the more inflexible and rigid curricula such as engineering and the pre-professions were those who gained the least from a year's exposure to a program of general education.

Using Form T of the Inventory of Beliefs Egner and Obelsky (25) studied the belief structures of 218 students at a small liberal arts college. Of this group, special study was made of 20 high and 20 low scorers who were equated for intelligence. It was the

purpose of the study to see if a significant correlation existed between the high and low scorers on this test and performance in the different subject areas. In this investigation the non-stereotype student clearly performed better in the humanities and in the social science subjects while the stereotype student was superior in mathematical and natural science studies. In the biological sciences both groups did about equally well. It was found that the students most likely to succeed in courses involving flexibility of outlook were the non-stereotype students. The stereotype student showed increasing evidence of frustration, and frequently academic failure, as studies involved a movement from the concrete to the abstract.

Howard and Warrington (40) were concerned with a measurement of change in beliefs and attitudes of students during exposure to four years of college instruction and also to determine the relationship between student beliefs and attitudes and academic success. This study was carried on at a large midwestern university. Using the Inventory of Beliefs, the sample was tested in the fall of their freshman year and again in the last term of their senior year. It was found that beliefs and attitudes changed significantly in both the male and female students during their freshman year and also between their freshman year and graduation. The study seems to indicate that students are receptive to new ideas and able to revise previously held concepts through the entire four years of a college program. The study indicated that there was no apparent relationship between the performance on the Inventory of Beliefs

and the academic performance of the senior male student and only a slight positive relationship for the female students. Similarly, there was no significant relationship between the change in the Inventory of Belief scores and the academic performance of the seniors. Using an unselected group drawn from several areas of study and not identified according to area of study, the authors concluded that there is little relationship between flexibility or adaptability and academic success.

In a doctoral research project Lorimer (53) studied twenty-four students who scored above average in aptitude and reading ability but half of whom scored low and half of whom scored high on the Inventory of Beliefs. They were asked to respond to literary selections which were appropriate for use in freshman courses in the humanities or literature. The selections were hand picked so as to provoke value reaction and individual attitude judgments toward intellectualism, practicality, authority, conformity, responsibility, social well being, behavior standards, etc. The outcomes of the study seemed to confirm much of the conclusions of Stern et al. in that the low scorers had a tendency to prefer practical vocations as opposed to intellectual vocations, to distrust theorists and trust the practical practitioner, to lean on authority, to avoid decision making, to conform to sanctions, and to resent criticisms. On the otherhand, high scorers indicated faith in the theorists and in higher education in general, respect for the intellectual, highly valued a hierarchy of values as a base for

judgments, sought independence of thought and appreciated criticism.

Statement of the Problem

The general concern of this study is the better understanding of the beginning student of engineering at Purdue University.

A fuller comprehension of the relationship of student personality factors and academic behavior may contain meaningful implications for the programs of admissions counseling and academic counseling and may give direction to curriculum evaluation and change.

Specifically the investigation attempts to find answers to the following questions:

1. Is there a relationship between the various Inventory of Beliefs ideologies and the students' persistence in Purdue's engineering program?
2. Is there a relationship between these ideologies and over- and under-achievement in engineering studies?
3. Is there a relationship between these ideologies and the grades received in engineering studies the first semester?
4. Which items in the Inventory of Beliefs are related to staying or leaving the engineering curriculum, over- or under-achieving, or receiving high or low grades?
5. With which items in the Inventory of Beliefs, if any, do engineering students have a consensus of agreement

1. The first thing I noticed when I stepped out of the plane

was the fresh air.

I had been told that the weather was perfect, and it was.

The sun was shining, the birds were singing, and the

flowers were in full bloom. It was exactly what I needed.

I had been feeling a bit down lately, and this was

just what I needed to cheer me up. I had been

feeling a bit down lately, and this was

just what I needed to cheer me up. I had been

feeling a bit down lately,

and this was just what I needed to cheer me up.

I had been feeling a bit down lately, and this was

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and with which do they have a consensus of disagreement?

6. Do composite scores based on discriminating items which differentiate students (those who stay in engineering versus those who leave, over-achievers versus under-achievers, those with high grades versus those with low grades) correlate with the status, achievement, and grades of a hold-out group selected from the original sample, and a second group of freshman engineering students tested and analyzed the following year?

Limitations of the Study

In this investigation no attempt is made to study possible differences of freshmen and more advanced students nor to measure the differences between the freshman engineer and the freshman of other schools within the university, nor yet to compare this population with a parallel group on another campus. The study is confined to a population drawn from a single class (Freshman), a single curriculum (Engineering), within a single educational institution (Purdue University). Because of these limitations the findings have most significance for the people whose concern is principally directed toward these restricted groups. The results should not be promiscuously generalized. What is true of Purdue engineering freshmen may not be true of those Purdue freshmen majoring in Art and Design or Forestry. What is characteristic of

the Purdue engineering freshman may not be characteristic, in kind or degree, of the Purdue engineering senior. Similarly, Purdue freshman engineers may differ significantly from their counterparts elsewhere.

The study was confined to students who were in the first semester of studies. They had been on campus about two months, thus had been exposed only briefly to the influences of college life.

The study is restricted to student ideologies as measured only by the Inventory of Beliefs Form T. No attempt is made to study the characteristics of the university within which these students find themselves nor yet to study the personality characteristics of the subjects through the use of other instruments of measurement.

The study makes no attempt to examine the home or community background from which the students come. It is recognized that sixty-four percent are residents of the state of Indiana and that the remaining thirty-six percent come from the other forty-nine states. A preponderance of the non-resident students are products of medium-to-large cities.

The study includes no data regarding the religio-socio-economic family background of the population.

The study may be influenced by shifting social phenomena and public moods. Economic and cultural problems on the regional and national level and political and ideological tensions in the sphere of international affairs may significantly affect the students' responses to the statements of the test instrument.

Definition of Terms

The Inventory of Beliefs is a diagnostic instrument designed by the Attitudes Sub-Committee of the Cooperative Study of Evaluation in General Education of the American Council on Education and has as its function the assessment of the degree of acceptance or rejection of a set of essentially anti-democratic attitudes and values. From a pool of more than 3,000 items the committee made its final selection of 120 items on the basis of the dimensions summarized by Dressel and Mayhew (23:217-218) in Table 1.

TABLE 1. A conceptual Framework for the Inventory of Beliefs

Level	Content	Variables or Dimensions
1. Ideas and institutions (ideocentrism)	1.1 Philosophy	1.11 Materialistic, manipulative, power, cynical
	1.2 Religion	1.21 Mystical, ritualistic, nonpersonal
	1.3 Arts	1.31 Romantic, antisensual, anti-intellectual, anticultural
	1.4 Sciences	1.41 Application, limitation, antirational
	1.5 Politics, economics	1.51 Dependence, adherence to outmoded ideas, distrust, denial of conflicts

CHAPTER I

The first part of the book is devoted to a general survey of the history of the world, from the beginning of time to the present day. The author discusses the various stages of human civilization, from the earliest primitive societies to the modern world. He also touches upon the major events and figures that have shaped the course of history.

The second part of the book is a detailed account of the life and times of the great men of the world. The author describes the lives of the most influential figures in history, from the ancient Greeks and Romans to the modern leaders of the world. He also discusses the major events and figures that have shaped the course of history.

TABLE 1 - Continued

Level	Content	Variables or Dimensions
2. Social groups (ethnocentrism)	2.1 Out-groups (Negroes, Jews, other minorities, foreigners)	2.11 Personal characteristics (offensive, immature, threatening, intrusive, seclusive) 2.12 Solutions (pseudo-democratic: segregation, limited participation; antidemocratic: elimination, exclusion; insoluble: fatalism, despair, cynicism.)
	2.2 In-groups (Americanism)	2.21 Uncritical acceptance of values, exclusive pride in memberships, blindness to or dismissal of shortcomings
3. Individuals, interpersonal relations (sociocentrism)	3.1 Family (parents) 3.2 School (teachers) 3.3 Church (ministers) 3.4 State (public officials) 3.5 Business and consumer relations (tradesmen) 3.6 Friends, peers, siblings	3.11 to 3.16 Irrational acceptance of external authority, unwillingness to assume personal responsibility to others, blaming others for failure (extra-punitive), resistance to departure from tradition, depersonalization of relationships, sentimentality (nominism, etc.)
	4.1 Self-concept, self-evaluation	4.11 Perception of external world as threatening, as manipulatable, submission and aggression, rigidity and compulsion, superstition and stereotype, destructiveness and cynicism, free-floating anxiety, preoccupation with health and sex; overspiritualization, denial, and fear (self, others), depersonalized sexuality

Form T of the Inventory of Beliefs was a modification of the original instrument (74:198-201) by Stern and others at the University of Chicago. It differed from the earlier version in that one-half of its items were new and it contained an equal number of S-type statements and N-type statements. In form T the response set is not confounded with the authoritarian or stereopathy dimension. Another characteristic of this modified instrument is the possibility of classifying respondents of extreme groups into a larger number of ideologies (Rational and Irrational as well as Stereopath and Non-Stereopath). A sample of the 100-item instrument may be found in Appendix A.

Stereopaths¹(S) are individuals who accept authority as absolute, prefer that social relationships be depersonalized and codified, deny or inhibit impulses, expect rigid conformity of behavior in themselves and others and otherwise exhibit nativist-fundamentalist conservatism.

Non-Stereopaths¹(N) are individuals who are polar to the stereopaths in that they reject authority figures, prefer social relationships that are personalized and informal, are impulsive and tend to be non-conforming, hold to beliefs that are urban and liberal.

Rationals¹(R) are those who reject the extremist beliefs of both the stereopaths and non-stereopaths, prefer social relation-

¹ Appendix B contains Stern, Stein and Bloom's (74:190,193,198) summaries of the main personality parameters for the Stereopath(S), Non-Stereopath(N), and Rational(R) syndromes.

ships that are detached and impersonal and prefer the companionship of ideas to that of people.

Irrationals(1) are those who without apparent reason indiscriminately embrace the beliefs of both the stereopaths and the non-stereopaths, seemingly not aware of the inconsistency of such behavior.

Score #1 in the scoring rationale of Form T indicates the measure of the stereotypy - non-stereotypy dimension according to the acceptance of the N items and rejection of the S items (non-stereotypy) or the acceptance of the S items and rejection of the N items (stereotypy).

Score #2 indicates the measure of the rationality-irrationality dimension, according to the rejection of both the S and N items (rationality) or the acceptance of both types of items (irrationality).

Stay students are those who remained in the engineering curriculum after the first semester.

Transfer students are those who left engineering to matriculate in some other program within the university.

Withdrew (leave) students are those who did not return to Purdue after the first semester.

Over-achievers (OA) are students whose first semester grade point averages (indexes) were 0.6 semester index points above that predicted by a regression equation based on high school rank in deciles and raw score on the Purdue Mathematics placement test.

1. The first of these is the fact that the
the (1) and (2) are not the same thing.
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the (1) and (2) are not the same thing.

Achievers are students whose first semester grade point averages were within 0.6 index points in either direction of their predicted indexes.

Under-achievers are those whose first semester grade point averages fell 0.6 of a grade point below the predicted performance.

High grade index is that which is 4.5 or higher on a scale where A equals 6.0.

Medium grade index is that which lies between 3.5 and 4.4.

Low grade index is that which falls below 3.5.

Plan of the Study

The first chapter states the purpose and examines the background of the study. It also contains a statement of the problem and notes the scope and limitation of the investigation. Basic terms are defined.

The second chapter treats the methods and procedures used.

The third chapter discusses the results and significance of the study.

The fourth chapter summarizes and contains suggestions for further research.

The bibliography contains a list of references germane to the study, some of which themselves contain exhaustive reference lists related to the subject.

The appendix contains materials important to the study.



CHAPTER II

METHODS AND PROCEDURES

Selection of the Sample

The sample population used for the purposes of this study was selected from the 1,573 students beginning their engineering studies at Purdue in the fall of 1958. Both men and women students were included. During the third week in November the Inventory of Beliefs, Form T was administered to the students of eleven sections in the required one credit hour orientation course "Engineering Lectures". Slightly more than sixty percent of the entire beginning freshman engineering population was enrolled in these eleven sections. These sections were chosen because of the familiarity of the section instructors with this type of testing program and their willingness to participate in it and because of scheduling convenience. The student population in these sections was not known to differ from that of other sections, all students having been assigned to sections indiscriminately by the datatron computer. From the eleven sections there were 828 respondents, of which eleven were women. Those respondents who did not complete the test, those who were inaccurate in the use of their answer sheets and those who were not classified as beginning freshmen were not included in the analysis. After the elimination of these, the remaining 727 were used in the study. This sample represents approximately forty-six percent of the total number of new students entering Purdue to begin their engineering studies.

Collecting the Data

The answer sheets were hand-scored for Score #1 and Score #2 and the scores were entered on the subjects' answer sheets. The classification of the subjects into ideological syndromes was determined by the plotting of the two scores of each subject on a classification grid which had been designed for use with the Inventory. Thus a subject was classified as Stereopath(S), Non-Stereopath(N), Rational(R), Irrational(I), Non-Stereopath/Rational(N/R), Non-Stereopath/Irrational(N/I), Stereopath/Irrational(S/I), Stereopath/Rational(S/R), or Unclassified(U). A sample copy of the scoring key and scoring rationale are included in the Appendix. After the subjects' classifications were determined they were recorded on their answer sheets.

After the conclusion of the first semester the status (stay, transfer, withdraw) and the grade point indexes of the subjects were obtained from the records of the Office of the Registrar. At this time the following information was gang-punched into IBM cards: the student's number, his Score #1 and Score #2, his grade point index for the semester, his status (stay, transfer or withdraw), his syndrome classification, his responses to the 100 items of the Inventory, the division number of the Engineering Lectures course in which he was enrolled, his raw score on the Purdue Mathematics Placement Test and his high school rank by decile.

Since the investigation is concerned with the relationships, if any, between the various ideologies and the over-achievement, achievement, and under-achievement of students in engineering studies

and also between the ideologies and the high, medium and low academic performances of these students it was operationally necessary to define the following sub-groups: over-achievers, achievers, and under-achievers, and high, medium and low grade point index subjects.

A regression equation developed and validated by the Freshman Engineering Department of Purdue University one year prior to the initiation of this study was used as the criterion for determining achievement. The formula for this equation is as follows:

$$Y = 1.523 + .0280 X_m + .01627 X_{hr}$$

X_m = raw score on the Purdue Mathematics Training Test - Arithmetic and Algebra.

X_{hr} = subjects' high school rank in deciles

Y = predicted index, which when correlated with the semester grade indexes had a multiple .R of .60.

On the basis of the above equation the subjects were placed in one of the three groups, over-achiever, achiever, or under-achiever. An over-achiever was a subject whose actual grade index for the semester was 0.6 index points above the index predicted for him. An under-achiever's index was 0.6 points below his predicted index and an achiever was one whose index was within 0.6 index points of that predicted for him. The 0.6 index point deviation was selected because it was thought that this would result in approximately twenty-five percent of the sample falling in the over-achievement and under-achievement groups, respectively.

The categories of high and low grade indexes were obtained by

placing those subjects with first semester indexes of 4.5 or better in the high index group and those with a first semester index of 3.4 or less in the low index group. This scheme was used because it was thought that it would result in approximately twenty-five percent being classified as high grade subjects and twenty-five percent as low grade subjects.

The stay-leave dichotomy was easily defined, the subjects assigned to the stay category being those who remained in the engineering program after the conclusion of the first semester and those assigned to the leave category being the students who transferred to another curriculum within the university and those who withdrew or did not enroll for further study at Purdue.

For the purpose of cross-validation a hold-out group of ten percent was extracted from the original sample by random procedures. Further, the Inventory was administered to a second cross-validation group of 103 beginning engineering students in the fall of 1959.

Methods of Analysis

The frequencies were determined for each of the ideological syndromes within the various sub-groups comprising the major groups identified as Status, Achievement and Grades. From these frequencies chi square values were calculated so as to obtain answers to the questions raised concerning the relationship of ideologies to students' perseverance in engineering studies, to students' achievement and to students' grades. For the purpose of analysis these questions were framed as null hypotheses in the following manner:

Hypothesis: There is no significant relationship between the Inventory of Beliefs ideologies and students' persistence in a freshman engineering program.

Hypothesis: There is no significant relationship between the Inventory of Beliefs ideologies and over-achievement and under-achievement in freshman engineering studies.

Hypothesis: There is no significant relationship between the Inventory of Beliefs ideologies and the grades received by students in a freshman engineering program.

The chi square technique was applied. The null hypotheses were tested by comparing observed frequencies with expected frequencies. Chi square measures the deviation from the expected frequency of the actual frequency. The following formula is used to obtain the expected frequencies for the cells:

$$fe_{ij} = \frac{(\sum fo_i)(\sum fo_j)}{N}$$

fe_{ij} = expected frequency of the cell in the i row and the j column

$\sum fo_i$ = the sum of the observed frequencies in row i

$\sum fo_j$ = the sum of the observed frequencies in column j

N = the total number of observations in the table

The chi square is obtained by the following formula:

$$\chi^2 = \sum \left[\frac{(fo_{ij} - fe_{ij})^2}{fe_{ij}} \right]$$

χ^2 = chi square

fo_{ij} = observed frequency of the cell in the i row and the j column

fe_{ij} = expected frequency of the cell in the i row and the j column

1. The first part of the report is a general introduction to the project, which includes the objectives, scope, and methodology.

2. The second part of the report is a detailed description of the project, which includes the background, the problem statement, and the proposed solution.

3. The third part of the report is a discussion of the results, which includes the findings, the conclusions, and the recommendations.

4. The fourth part of the report is a conclusion, which summarizes the main points of the report.

5. The fifth part of the report is a list of references, which includes the sources used in the report.

6. The sixth part of the report is an appendix, which includes additional information related to the project.

7. The seventh part of the report is a glossary, which includes the definitions of the terms used in the report.

8. The eighth part of the report is a list of figures, which includes the figures used in the report.

9. The ninth part of the report is a list of tables, which includes the tables used in the report.

10. The tenth part of the report is a list of abbreviations, which includes the abbreviations used in the report.

11. The eleventh part of the report is a list of acronyms, which includes the acronyms used in the report.

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14. The fourteenth part of the report is a list of formulas, which includes the formulas used in the report.

15. The fifteenth part of the report is a list of equations, which includes the equations used in the report.

16. The sixteenth part of the report is a list of diagrams, which includes the diagrams used in the report.

17. The seventeenth part of the report is a list of charts, which includes the charts used in the report.

18. The eighteenth part of the report is a list of graphs, which includes the graphs used in the report.

19. The nineteenth part of the report is a list of tables, which includes the tables used in the report.

20. The twentieth part of the report is a list of figures, which includes the figures used in the report.

Further analysis of the Inventory of Beliefs was made by observing those items which seemed to discriminate in a statistical sense between people who stayed in engineering and those who left, between the over-achievers and the under-achievers, and between those with high grades and those with low grades. This was done via the following procedure.

Starting with the stay and leave subjects of the original group, an item count was made for each of the 100 items in the Inventory. Those item counts, or numbers, were converted to percentages indicating the percentage of those staying in engineering who agreed with each item and similarly the percentage of those leaving the program who also agreed with the same items. Because the total number of subjects in each of the sets of dichotomies differed, a scale to test the significance of differences between two percentages, developed by Lawshe and Baker for use at Purdue University, was employed. Items concerning which there was difference of opinion significant at the .05 and .01 levels were drawn out and identified as discriminating items. Thus an Inventory of Beliefs Stay-Leave scale was obtained.

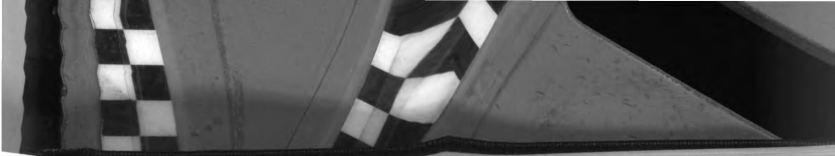
Items which discriminated between over-achievers and under-achievers, and between students receiving high grades and those receiving low grades were similarly identified and an Over-achievement-Under-achievement Scale and a High Grade-Low Grade Scale were constructed.

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As mentioned earlier, a ten percent random sample ($N = 70$) had been held out of the original population and the test had been administered to a second experimental group ($N = 103$) one year later. The answer sheets of these two cross-validation groups were scored using the three scoring keys derived from the discriminating item scales. Thus the answer sheets of the over-achievers and under-achievers in the cross-validation groups were scored with the over-achievement score key which contained items which had shown the ability to differentiate between the over-achievers and under-achievers in the item analysis of the original group. The other sub-groups of the two cross-validation samples were similarly scored with the scale keys which had been found to differentiate between their counterparts in the item analysis of the original group. The number of items chosen was correlated with the proper sub-group population which had chosen them. Three correlations were obtained. Because the Stay-Leave and the Over-achievement-Under-achievement groups were treated as dichotomies, biserial correlations were obtained. For the High-Grades-Low Grades group, however, the variability factor introduced by the wide range of first semester grades indicated a Pierson product moment correlation. The first semester indexes were correlated with the item scale scores and a product-moment correlation obtained.

Finally, an attempt was made to identify those items on which there was substantial agreement, both by the group as a whole and by each of the sub-groups, those items on which there was substantial disagreement and those items on which there was a substantial difference

of opinion. This was accomplished by observing the percentages of agreement discussed earlier. Items on which seventy-five percent or more of the students agreed were considered "substantial agreement" items. Items on which seventy-five percent or more of the students disagreed were considered "substantial disagreement" items. Those items on which forty-five to fifty-five percent of the students either agreed or disagreed were considered "controversial" items.



CHAPTER III

RESULTS

Discussion of the Results

In discussing the results of the study it is wise to begin by observing the characteristics of the population with which we are concerned. Table II shows the distribution of the original experimental sample into the various sub-groups of the three major divisions. Of special significance is the high rate of attrition in the freshman engineering program. Of the 727 subjects more than one-third either withdrew from school or transferred to another curriculum in the university.

Table III summarizes the results of the study of the various ideologies and their relationships to perseverance in the program. Using the chi square test of the null hypothesis stated earlier in this discussion, namely that there is no significant relationship between the Inventory of Beliefs ideologies and student persistence in the engineering curriculum at Purdue, we conclude that the hypothesis must be accepted because the calculated chi square, 11.73, is less than the actual number, 18.3, taken from the Table of Chi Square.

Table IV shows the relationship of the personality syndromes and over-achievement, average achievement and under-achievement. Again, applying the chi square test to the null hypothesis, namely, that there is no significant relationship between the Inventory of Beliefs ideologies and over-achievement, average achievement and

TABLE II. Distribution of Original Experimental Sample into Sub-Groups

N = 727

	<u>N</u>
STATUS GROUP	
Stay Sub-group -----	482
Transfer Sub-group -----	150
Withdraw Sub-group -----	95
ACHIEVEMENT GROUP	
Overachievement Sub-group -----	103
Average Achievement Sub-group -----	463
Underachievement Sub-group -----	161
GRADES GROUP	
High Grades Sub-group -----	262
Medium Grades Sub-group -----	327
Low Grades Sub-group -----	138

TABLE III. Relationship Between Personality Syndromes of
Freshman Engineering Students and Curricular
Persistence

SYNDROMES*	STATUS							
	Total F	%	Stayed F	%	Transf. F	%	Withdrew F	%
U(Unclassified)	293	40.5	182	37.8	61	40.7	50	52.6
S(Stereopaths)	55	7.5	34	7.1	14	9.3	7	7.4
R(Rationals)	134	18.5	96	19.9	26	17.3	12	12.6
S/R(Stereopath/ Rationals)	186	25.6	131	27.2	36	24.0	19	20.0
N/R(Non-Stereopath/ Rationals)	32	4.4	22	4.6	8	5.3	2	2.1
S/I(Stereopath/ Irrationals)	26	3.6	16	3.3	5	3.3	5	5.3
Number of Cases	726		482		150		95	
Percent of Total		100		66		21		13
Chi Square (Prob)	11.73 (P = .32)							

*No students were classified as N (non-stereopath) or as NI (non-stereopath/irrational) syndromes and only one case of the I (irrational) syndrome was observed but is not included in the analysis.

1. The first part of the report is a general introduction to the subject of the study. It discusses the importance of the study and the objectives of the research.

2. The second part of the report is a detailed description of the methodology used in the study. It includes information about the sample size, the data collection methods, and the statistical analysis techniques.

3. The third part of the report is a presentation of the results of the study. It includes tables and graphs showing the data and the findings of the research.

4. The fourth part of the report is a discussion of the results and their implications. It discusses the strengths and limitations of the study and the implications for future research.

5. The fifth part of the report is a conclusion and a summary of the findings. It provides a clear and concise statement of the results and the conclusions of the study.

6. The sixth part of the report is a list of references. It includes all the sources of information used in the study, such as books, articles, and websites.

7. The seventh part of the report is an appendix. It includes any additional information that is relevant to the study, such as raw data, questionnaires, and interview transcripts.

8. The eighth part of the report is a glossary. It defines the key terms and concepts used in the study, ensuring that the reader understands the terminology.

9. The ninth part of the report is a list of figures. It includes all the graphs and charts used in the study, providing a visual representation of the data.

10. The tenth part of the report is a list of tables. It includes all the tables used in the study, providing a structured way to present the data.

11. The eleventh part of the report is a list of abbreviations. It defines the abbreviations used throughout the report, ensuring that the reader can understand the shorthand.

12. The twelfth part of the report is a list of acknowledgments. It acknowledges the contributions of all the individuals and organizations that helped in the completion of the study.

13. The thirteenth part of the report is a list of appendices. It includes any additional information that is relevant to the study, such as raw data, questionnaires, and interview transcripts.

14. The fourteenth part of the report is a list of references. It includes all the sources of information used in the study, such as books, articles, and websites.

15. The fifteenth part of the report is a list of figures. It includes all the graphs and charts used in the study, providing a visual representation of the data.

16. The sixteenth part of the report is a list of tables. It includes all the tables used in the study, providing a structured way to present the data.

17. The seventeenth part of the report is a list of abbreviations. It defines the abbreviations used throughout the report, ensuring that the reader can understand the shorthand.

18. The eighteenth part of the report is a list of acknowledgments. It acknowledges the contributions of all the individuals and organizations that helped in the completion of the study.

TABLE IV. Relationship Between Personality Syndromes of
Freshman Engineering Students and Over-Achievement,
Achievement and Under-Achievement

SYNDROMES*	ACHIEVEMENT							
	TOTAL		Over-Achiev.		Achiev.		Under-Achiev.	
	F	%	F	%	F	%	F	%
U(Unclassified)	293	40.5	38	36.9	184	39.7	71	44.1
S(Stereopaths)	55	7.5	10	9.7	30	6.5	15	9.3
R(Rationals)	134	18.5	20	19.4	86	18.6	28	17.4
S/R(Stereopath/ Rationals)	186	25.6	24	23.3	126	27.2	36	22.4
N/R(Non-Stereopath/ Rationals)	32	4.4	7	6.8	17	3.7	8	5.0
S/I(Stereopath/ Irrationals)	26	3.6	4	3.9	19	4.1	3	1.9
Number of Cases	726		103		463		161	
Percent of Total		100		14		64		22
Chi Square (Prob)		8.18 (P = .64)						

*No students were classified as N (non-stereopath) or as NI (non-stereopath/irrational) syndromes and only one case of the I (irrational) syndrome was observed but is not included in the analysis.

under-achievement in freshman engineering studies, we conclude that the hypothesis is supported because the calculated chi square value, 8.18, is less than the actual number, 18.3 taken from the Table of Chi Square.

Similarly, the third hypothesis, namely, that there is no significant relationship between the Inventory of Beliefs Ideologies and the grades received by students in a freshman engineering program, is supported by the chi square test. The calculated chi square value, 13.9, being less than actual value, 18.3, taken from the Table of Chi Square, the hypothesis must be accepted. Table V summarizes the relationships of the ideologies to subjects with high grades, medium grades and low grades.

It is interesting to note that the data shown in Tables III, IV and V do confirm one of the contentions of Stern, et al, namely that institutions do tend to attract students of either the N or S syndrome, but not both. Not a single student of the entire sample had scores such that he should be classified as an N syndrome or as an N/I. Only about twenty-six percent fit into the extreme categories of S (7.5%) and R (18.5%).

Further analysis of the Inventory of Beliefs was made by observing which items discriminate between people who stay in engineering and those who leave it, those who over-achieve and those who under-achieve and those who receive high grades and those who receive low grades. The results of this analysis can be found in entirety in appendix C.

TABLE V. Relationship Between Personality Syndromes of
Freshman Engineering Students and Grades

SYNDROMES*	GRADES IN INDEX GROUPINGS							
	TOTAL		4.5+		3.5-4.4		3.4-	
	F	%	F	%	F	%	F	%
U(Unclassified)	293	40.5	88	33.6	141	43.1	64	46.4
S(Stereopaths)	55	7.5	20	7.6	26	8.0	9	5.8
R(Rationals)	134	18.5	57	21.8	55	16.8	22	16.0
S/R(Stereopath/ Rationals)	186	25.6	79	30.2	74	22.6	33	23.9
N/R(Non-Stereopath/ Rationals)	32	4.4	12	4.6	14	4.3	6	4.3
S/I(Stereopath/ Irrationals)	26	3.6	6	2.3	16	4.9	4	2.9
Number of Cases	726		262		327		138	
Percent of Total		100		36		45		19
Chi Square (Prob)	13.96 (P = .19)							

*No students were classified as N (non-stereopath) or as NI (non-stereopath/irrational) syndromes and only one case of the I (irrational) syndrome was observed but is not included in the analysis.

1. *Chlorophyll a* (Chl *a*)

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Table VI gives the items which discriminate between students who stay in engineering and those who leave the curriculum. It is interesting to note that nine out of the twelve items are keyed "Disagree", indicating the Rationalism dimension. The three exceptions are:

"The main thing about good music is lovely melody"
(Item 2)

"The best assurance of peace is for the United States to have the strongest army, navy, and air force, as well as the atom and hydrogen bombs."
(Item 28)

"Business enterprise, free from government interference, has given us our high standard of living."
(Item 37)

(See Table VI). They are, however, about equally divided between the Stereopath and Non-Stereopath dimension, hence do not represent extreme liberal or conservative views.

Table VII gives the items discriminating between students receiving high grades and low grades during their first semester in Engineering. Results of Table VII are similar to those of Table VI in that thirteen of the seventeen items are keyed "Disagree", the exceptions being:

"Lowering tariffs to admit more foreign goods into this country tends to raise our standard of living."
(Item 3)

"Business enterprise, free from government interference, has given us our high standard of living." (Item 37)

"The minds of many youth are being poisoned by bad books." (Item 45)

"Labor unions don't appreciate all the advantages which business and industries have given them." (Item 57)

1. The first part of the paper is devoted to the study of the properties of the function $f(x)$ defined by the equation $f(x) = \int_0^x f(t) dt$. It is shown that $f(x)$ is a constant function, and its value is determined by the initial condition $f(0)$.

2. In the second part, we consider the problem of finding the maximum value of the function $f(x)$ on the interval $[0, 1]$. It is shown that the maximum value is attained at $x = 0$ and is equal to $f(0)$.

3. The third part of the paper is devoted to the study of the properties of the function $f(x)$ defined by the equation $f(x) = \int_0^x f(t) dt$. It is shown that $f(x)$ is a constant function, and its value is determined by the initial condition $f(0)$.

4. In the fourth part, we consider the problem of finding the maximum value of the function $f(x)$ on the interval $[0, 1]$. It is shown that the maximum value is attained at $x = 0$ and is equal to $f(0)$.

5. The fifth part of the paper is devoted to the study of the properties of the function $f(x)$ defined by the equation $f(x) = \int_0^x f(t) dt$. It is shown that $f(x)$ is a constant function, and its value is determined by the initial condition $f(0)$.

6. In the sixth part, we consider the problem of finding the maximum value of the function $f(x)$ on the interval $[0, 1]$. It is shown that the maximum value is attained at $x = 0$ and is equal to $f(0)$.

7. The seventh part of the paper is devoted to the study of the properties of the function $f(x)$ defined by the equation $f(x) = \int_0^x f(t) dt$. It is shown that $f(x)$ is a constant function, and its value is determined by the initial condition $f(0)$.

8. In the eighth part, we consider the problem of finding the maximum value of the function $f(x)$ on the interval $[0, 1]$. It is shown that the maximum value is attained at $x = 0$ and is equal to $f(0)$.

9. The ninth part of the paper is devoted to the study of the properties of the function $f(x)$ defined by the equation $f(x) = \int_0^x f(t) dt$. It is shown that $f(x)$ is a constant function, and its value is determined by the initial condition $f(0)$.

10. In the tenth part, we consider the problem of finding the maximum value of the function $f(x)$ on the interval $[0, 1]$. It is shown that the maximum value is attained at $x = 0$ and is equal to $f(0)$.

11. The eleventh part of the paper is devoted to the study of the properties of the function $f(x)$ defined by the equation $f(x) = \int_0^x f(t) dt$. It is shown that $f(x)$ is a constant function, and its value is determined by the initial condition $f(0)$.

12. In the twelfth part, we consider the problem of finding the maximum value of the function $f(x)$ on the interval $[0, 1]$. It is shown that the maximum value is attained at $x = 0$ and is equal to $f(0)$.

TABLE VI. Inventory of Beliefs Items Discriminating Between Students Staying in an Engineering Curriculum and those leaving it

Item	% Agreeing		Stay Score Key
	Stay	Leave	
1. Literature should not question the basic moral concepts of society.	24	34**	Disagree
2. The main thing about good music is lovely melody.	47	38*	Agree
17. Europeans condemn the United States for being too materialistic, but such criticism is only to cover up their realization that American culture is far superior to their own.	38	48**	Disagree
25. Raising our standard of living requires government regulation of business enterprise.	30	44**	Disagree
27. Foreigners usually have peculiar and annoying habits.	20	30**	Disagree
28. The best assurance of peace is for the United States to have the strongest army, navy and air force, as well as the atom and hydrogen bombs.	45	35**	Agree
37. Business enterprise, free from government interference, has given us our high standard of living.	61	49**	Agree
38. Art cannot exist for its own sake, independent of social issues.	37	46*	Disagree
42. You can't do business on friendship: profits are profits, and good intentions are not evidence in a law court.	38	48*	Disagree

*Significant Difference at .05 level.

**Significant Difference at .01 level.

TABLE VI. Continued

<u>Item</u>	<u>% Agreeing</u>		<u>Stay Score Key</u>
	<u>Stay</u>	<u>Leave</u>	
50. Ministers, priests and rabbis should not preach about economic and political problems.	25	35**	Disagree
54. No intelligent man today can really believe in God.	3	7**	Disagree
91. As young people grow up, they ought to get over their radical ideas.	46	54*	Disagree

*Significant Difference at .05 level.

**Significant Difference at .01 level.

TABLE VII. Inventory of Beliefs Items Discriminating Between Engineering Students with High Grades and Low Grades

<u>Item</u>	<u>% Agreeing</u>		<u>High Grade Score Key</u>
	<u>High</u>	<u>Low</u>	
1. Literature should not question the basic moral concepts of society.	19	36**	Disagree
3. Lowering tariffs to admit more foreign goods into this country tends to raise our standard of living.	23	15*	Agree
9. No task is too great or too difficult when we know that God is on our side.	75	85*	Disagree
10. A work of art which provides only entertainment is useless.	10	19*	Disagree
15. Organized labor has done more to further economic progress than business and industry.	23	39**	Disagree
19. The scientist who really counts is the one who turns theories into practical use.	45	65**	Disagree
25. Raising our standard of living requires government regulation of business enterprise.	30	43*	Disagree
33. Being a successful wife and mother is more a matter of instinct than of training.	26	39*	Disagree
37. Business enterprise, free from government interference, has given us our high standard of living.	66	50**	Agree
38. Art cannot exist for its own sake, independent of social issues.	30	45**	Disagree

*Significant Difference at .05 level.

**Significant Difference at .01 level.

▲ 1997年12月，在江蘇省江浦縣，一名男子因患肺結核，在醫院內死亡。死者的家屬向醫院索賠，醫院拒絕。家屬遂向法院起訴，要求醫院賠償。法院判決醫院賠償死者家屬精神損失費。此案在江蘇省引起轟動。

● 1998年12月，在江蘇省江浦縣，一名男子因患肺結核，在醫院內死亡。死者的家屬向醫院索賠，醫院拒絕。家屬遂向法院起訴，要求醫院賠償。法院判決醫院賠償死者家屬精神損失費。此案在江蘇省引起轟動。

TABLE VII. Continued

<u>Item</u>	<u>% Agreeing</u>		<u>High Grade Score Key</u>
	<u>High</u>	<u>Low</u>	
45. The minds of many youth are being poisoned by bad books.	64	54*	Disagree
57. Labor unions don't appreciate all the advantages which business and industries have given them.	72	60*	Agree
74. A lot of teachers, these days, have radical ideas which need to be carefully watched.	38	49*	Disagree
85. Both beauty and purpose can be found in all modern paintings.	27	40**	Disagree
86. There may be a few exceptions, but, in general, members of a racial group tend to be pretty much alike.	41	60**	Disagree
91. As young people grow up, they ought to get over their radical ideas.	41	55**	Disagree
97. If a person is honest, works hard, and trusts in God, he will reap material as well as spiritual rewards.	70	80*	Disagree

*Significant Difference at .05 level.

**Significant Difference at .01 level.

Again discriminating items are about equally divided between liberal and conservative views.

Table VIII gives items discriminating between over-achievers and under-achievers in their first semester of engineering studies. Again, a similar pattern results, with items equally divided between liberal and conservative views. On six of the eight items the over-achievers tended to disagree more often than the under-achievers, the two exceptions being:

"Strikes are caused by the unwillingness of an employer to meet the needs of his employees."
(Item 31)

"There are too many people in this world who do nothing but think about the opposite sex." (Item 87)

The discriminating items suggest a "middle of the road" type of orientation with a slight skepticism apparent (note the disagreement responses). There is in evidence in each of the groups a marked tendency to support a "management" position as contrasted with a "labor" viewpoint.

Using the discriminating items in Tables VI, VII, and VIII as keys for obtaining composite scores on the Inventory of Beliefs three scale scores were obtained, respectively, "Stay Beliefs", "Over-achiever Beliefs", and "High Grade Beliefs" for two cross-validation groups. Table IX summarizes the results of the cross-validation studies. A very significant positive relationship was found between the Stay Beliefs Scale and the Stay-Leave status of the hold-out group. The relationship was not significant, however,

TABLE VIII. Inventory of Beliefs Items Discriminating Between Over-Achievers and Under-Achievers in an Engineering Curriculum

<u>Item</u>	<u>% Agreeing</u>		<u>Over-Achievement Score Key</u>
	<u>OA</u>	<u>UA</u>	
3. Lowering tariffs to admit more foreign goods into this country tends to raise our standard of living.	27	16*	Agree
15. Organized labor has done more to further economic progress than business and industry.	23	37*	Disagree
31. Strikes are caused by the unwillingness of an employer to meet the needs of his employees.	37	25*	Agree
33. Being a successful wife and mother is more a matter of instinct than of training.	21	36**	Disagree
53. The successful merchant can't allow sentiment to affect his business decisions.	38	50*	Disagree
85. Both beauty and purpose can be found in all modern paintings.	26	40*	Disagree
87. There are too many people in this world who do nothing but think about the opposite sex.	50	36*	Agree
91. As young people grow up, they ought to get over their radical ideas.	39	52*	Disagree
98. The welfare of others is more important than one's own self-interests.	40	58**	Disagree

*Significant Difference at .05 level

**Significant Difference at .01 level

1. The first part of the report is a general introduction to the project, which includes the objectives, scope, and methodology.

2. The second part of the report is a detailed description of the project, which includes the objectives, scope, and methodology.

3. The third part of the report is a detailed description of the project, which includes the objectives, scope, and methodology.

4. The fourth part of the report is a detailed description of the project, which includes the objectives, scope, and methodology.

5. The fifth part of the report is a detailed description of the project, which includes the objectives, scope, and methodology.

6. The sixth part of the report is a detailed description of the project, which includes the objectives, scope, and methodology.

7. The seventh part of the report is a detailed description of the project, which includes the objectives, scope, and methodology.

8. The eighth part of the report is a detailed description of the project, which includes the objectives, scope, and methodology.

9. The ninth part of the report is a detailed description of the project, which includes the objectives, scope, and methodology.

10. The tenth part of the report is a detailed description of the project, which includes the objectives, scope, and methodology.

11. The eleventh part of the report is a detailed description of the project, which includes the objectives, scope, and methodology.

12. The twelfth part of the report is a detailed description of the project, which includes the objectives, scope, and methodology.

TABLE IX. Summary of the Results of Cross-Validation of the Scales

Scale	Statistic	Cross-Validation Group	
		1958-59 Holdout Group	1959-60 Experiment Group
Inventory of Beliefs Stay-Leave Scale	Bi Serial Correlation ¹	.52*** (N=70)	.13 (N=103)
Inventory of Beliefs Over-Under-Achievement Scale	Bi Serial Correlation ¹	.24 (N=23)	-.04 (N=34)
Inventory of Beliefs High Grade-Low Grade Scale	Pearson Product Moment Correla- tion ²	.28* (N=70)	.22* (N=103)

Ref: 1. Guilford, J. P., Fundamental Statistics in Psychology and Education,
2nd. Ed., p. 326

2. Guilford, J. P., Fundamental Statistics in Psychology and Education,
2nd. Ed., p. 157

*Significant Difference at .05 level
 **Significant Difference at .01 level
 ***Significant Difference at .001 level

for the group tested the following year.

No significant relationship was found either year between the "Over-Achiever Beliefs" scale and classification of students into either the over-achievement or under-achievement groups.

Small but significantly positive relationships were found between the "High Grade Belief" scale and grades received during the first semester for both the hold-out group and the new group tested the following year.

Table X contains those items on which there is substantial agreement, seventy-five percent or more of the total group agreeing.

These views tend to reflect what others have referred to as a pattern of small-town conservatism and fundamentalism. (8,72)

Table XI contains those items on which there is substantial disagreement, seventy-five percent or more of the total group disagreeing.

Table XII represents those items on which there is considerable difference of opinion, forty-five to fifty-five percent of the students agreeing or disagreeing with the statements.

There is considerable opposing opinion on topics that are concerned with science and religion, traditionalism and modernity and social goals and personal goals. The responses to many items dealing with morality indicate a considerable difference of opinion.

TABLE X. Items on Which Seventy-Five Percent or More of Students Agree

"No task is too great or too difficult when we know that God is on our side." (Item 9)

"Any man can find a job if he really wants to work". (Item 30)

"There is only one real standard in judging art works - each to his own tests." (Item 36)

"Each man is on his own in life and must determine his own destiny." (Item 51)

"In our society, a person's first duty is to protect from harm himself and those dear to him." (Item 65)

"Foreign films emphasize sex more than American films do." (Item 78)

"Other countries don't appreciate as much as they should all the help that America has given them." (Item 96)

"If a person is honest, works hard, and trusts in God he will reap material as well as spiritual rewards." (Item 97)

TABLE XI. Items on which Seventy-Five Percent or More of Students Disagree

- "Lowering tariffs to admit more foreign goods into this country tends to raise our standard of living." (Item 3)
- "Science is infringing upon religion when it attempts to delve into the origin of life itself." (Item 5)
- "A work of art which provides only entertainment is useless." (Item 10)
- "Young people today are in general more immoral and irresponsible than young people of previous generations." (Item 12)
- "More playgrounds and fewer strict fathers would eliminate juvenile delinquency." (Item 13)
- "There is only one real standard in judging a novel or play—that it convey a message of social significance." (Item 20)
- "The United States doesn't have to depend on the rest of the world in order to be strong and self-sufficient." (Item 26)
- "Foreigners usually have peculiar and annoying habits." (Item 27)
- "American films emphasize sex more than foreign films do." (Item 32)
- "The only way to eliminate prejudice is through forceful legislation." (Item 34)
- "Picket lines ought to be respected and never crossed." (Item 41)
- "A person has troubles of his own; he can't afford to worry about other people." (Item 43)
- "Peace can only be achieved when the United States abandons its attempt to establish military superiority." (Item 48)
- "Honesty, hard work, and trust in God insure neither material nor spiritual rewards." (Item 49)
- "No intelligent man today can really believe in God." (Item 54)

1. The first step is to identify the problem. In this case, the problem is that the company is not meeting its sales targets.

TABLE XI. (Continued)

- "What a person gets in this life has little to do with whether he believes in God or not." (Item 63)
- "Europeans have no faults as bad as the provincial smugness and intolerance of Americans." (Item 66)
- "A belief in divine guidance is of little help in meeting difficulties." (Item 68)
- "Those who can, do; those who can't, teach." (Item 69)
- "Prayer does little toward relieving one's problems." (Item 76)
- "The actions of the United States in world politics clearly demonstrate its unfitness for world leadership." (Item 84)
- "Members of religious sects who refuse to salute the flag should be punished for their lack of patriotism." (Item 90)
- "The twentieth century has not had leaders with the vision and capacity of the founders of this country." (Item 92)
- "Nothing but profit to our country would result from the relaxation of our present strict immigration laws." (Item 99)
-

... (1) ... (2) ... (3) ... (4) ... (5) ... (6) ... (7) ... (8) ... (9) ... (10) ... (11) ... (12) ... (13) ... (14) ... (15) ... (16) ... (17) ... (18) ... (19) ... (20) ... (21) ... (22) ... (23) ... (24) ... (25) ... (26) ... (27) ... (28) ... (29) ... (30) ... (31) ... (32) ... (33) ... (34) ... (35) ... (36) ... (37) ... (38) ... (39) ... (40) ... (41) ... (42) ... (43) ... (44) ... (45) ... (46) ... (47) ... (48) ... (49) ... (50) ... (51) ... (52) ... (53) ... (54) ... (55) ... (56) ... (57) ... (58) ... (59) ... (60) ... (61) ... (62) ... (63) ... (64) ... (65) ... (66) ... (67) ... (68) ... (69) ... (70) ... (71) ... (72) ... (73) ... (74) ... (75) ... (76) ... (77) ... (78) ... (79) ... (80) ... (81) ... (82) ... (83) ... (84) ... (85) ... (86) ... (87) ... (88) ... (89) ... (90) ... (91) ... (92) ... (93) ... (94) ... (95) ... (96) ... (97) ... (98) ... (99) ... (100) ...

... (1) ... (2) ... (3) ... (4) ... (5) ... (6) ... (7) ... (8) ... (9) ... (10) ... (11) ... (12) ... (13) ... (14) ... (15) ... (16) ... (17) ... (18) ... (19) ... (20) ... (21) ... (22) ... (23) ... (24) ... (25) ... (26) ... (27) ... (28) ... (29) ... (30) ... (31) ... (32) ... (33) ... (34) ... (35) ... (36) ... (37) ... (38) ... (39) ... (40) ... (41) ... (42) ... (43) ... (44) ... (45) ... (46) ... (47) ... (48) ... (49) ... (50) ... (51) ... (52) ... (53) ... (54) ... (55) ... (56) ... (57) ... (58) ... (59) ... (60) ... (61) ... (62) ... (63) ... (64) ... (65) ... (66) ... (67) ... (68) ... (69) ... (70) ... (71) ... (72) ... (73) ... (74) ... (75) ... (76) ... (77) ... (78) ... (79) ... (80) ... (81) ... (82) ... (83) ... (84) ... (85) ... (86) ... (87) ... (88) ... (89) ... (90) ... (91) ... (92) ... (93) ... (94) ... (95) ... (96) ... (97) ... (98) ... (99) ... (100) ...

TABLE XII. Items on Which Forty-Five Percent of Students Agree or Disagree

- "Despite the material advantages of today, family life now is not as wholesome as it used to be." (Item 24)
- "Many social problems would be solved if we did not have so many immoral and inferior people." (Item 40)
- "Books and movies should start dealing with entertaining or uplifting themes instead of the present unpleasant, immoral, or tragic ones." (Item 44)
- "Science will eventually explain the origin of life." (Item 73)
- "Now that America is the leading country in the world, it's only natural that other countries should try to be like us." (Item 75)
- "There may be a few exceptions, but, in general, members of a racial group tend to be pretty much alike." (Item 86)
- "As young people grow up, they ought to get over their radical ideas." (Item 91)
- "Books on tragic and sordid themes help youth to face the world of reality." (Item 93)
- "The welfare of others is more important than one's own self-interests." (Item 98)
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Significance of the Results

Perhaps the most significant outcome of this study is the apparent lack of a positive relationship between the various personality syndromes as determined by the Inventory of Beliefs and over- and under-achievement, persistence in engineering and the receiving of high or low grades by those students in the freshman engineering program. This is at odds with the conclusions of Stern, Stein and Bloom and others, as discussed in the introductory section of this paper. If it was hoped that this test could confidently be employed as a predictive instrument such hopes are not to be substantiated by the results of this investigation.

While the discriminating items are about equally divided between liberal and conservative beliefs there is a tendency for the students staying in engineering, those receiving high grades and those over-achieving in their studies to demonstrate skepticism, as shown by their tendency to disagree. This segment of the sample tended to support a "management", as contrasted with a "labor", point of view.

The study revealed that there are items in the Inventory of Beliefs that do significantly discriminate. If additional items similar to those which do discriminate could be substituted for those which do not an instrument might be devised which would accomplish the prediction objective of this inventory.

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CHAPTER IV

SUMMARY AND SUGGESTIONS FOR FURTHER RESEARCH

The Problem

In this study a number of objectives were of real concern and spurred the investigation of the relationship of student beliefs to student academic behavior. Specifically, the belief patterns of students were studied and related to the students' continuance in the engineering curriculum, to his grades and to the level of the realization of his potential academic achievement. If significant relationships did exist many benefits might result. Admissions counseling, the counseling of students already in the program and the counseling of college students in a "non-preference" curriculum could be greatly enhanced and refined. Curriculum change might be an outgrowth. It was hoped that the investigation would provide information about students generally, and Purdue freshman engineering students particularly, which would provide insight into the young learners who have been put in our charge. It was further hoped that the instrument used to obtain this information would itself be established as an accurate and useful device of measurement.

The Findings

Using the chi square technique the null hypotheses concerning the relationship of Inventory of Beliefs ideologies and student perseverance in engineering studies, over- or under-achievement in

the program and the receiving of good or bad grades was tested and the null hypothesis of "no significant relationship" was confirmed. There was no significant difference noted in the proportion of students in each of the syndromes and their distribution into the various categories.

A number of items in the Inventory of Beliefs do discriminate between those staying and those leaving, between over- and under-achievers and between those with high grades and those with low grades.

It was observed that students with high grades, those who over-achieve and those who stay in engineering have a greater tendency to disagree on the discriminating items than do their opposite numbers. This indicates a skeptical characteristic.

The composite scores based on items discriminating between students receiving high grades and those receiving low grades indicated small but significant relationships with grades received by the two cross-validation groups.

No significant relationship was found either year between Over-achiever Beliefs Scales and classification of students as over-achievers or under-achievers.

The cross validation study indicated that whereas a significant relationship existed between the Stay Beliefs Scale and persistence in the engineering program for the hold-out sample, there was no significant relationship between this scale and the group of freshmen tested one year later.

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Implications for Further Study

Since the number of discriminating items is shown to be small the reliability of the test is necessarily limited. It seems that a study of the content and nature of the discriminating items could profitably lead to a desired proliferation of additional items, similar in nature which could be substituted for the items which did not prove useful.

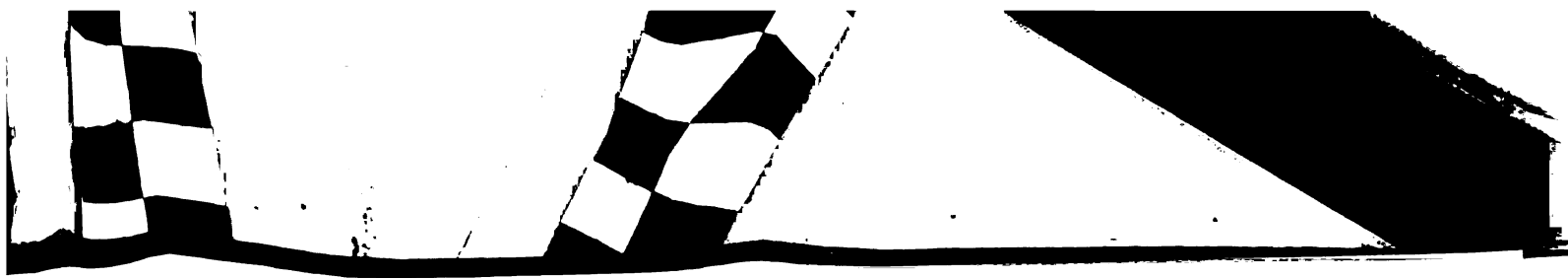
Further study seems indicated to determine a wider range of beliefs which might be profitably included in an instrument of the kind used in this study. A "modernizing" of the topics and the semantics used in the test seems in order. Beliefs related to technological, scientific, social, economic and political topics, both broader in scope, more contemporary in application and more current in parlance would provide greater insight into the value orientation of college students seeking general and professional education.

Whereas this study included only first semester freshmen, a follow-up study performed three years later using the same population might afford new insights and give additional information regarding the effects of a prolonged exposure to the study of engineering on students' belief structures.

This study made no attempt to relate vocational goals and belief structures to the socio-economic orientation of the population studied. An investigation of the relationship of family and community orientation to the beliefs of students and their academic behavior might prove insightful. Similarly, a study of a student's beliefs and the characteristics of the college he attends might be

related to student academic behavior.

This study was not concerned with students other than those in the engineering program. A broader study including samples from each of the several schools within the university might reveal important relationships.



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THEORY

- 1. The first part of the theory is the definition of the system. The system is defined as a set of elements that are interconnected in a specific way. The elements are represented by nodes, and the connections are represented by edges. The system is then analyzed in terms of its properties and behavior.
- 2. The second part of the theory is the definition of the system's components. The components are defined as the individual elements that make up the system. These components are then analyzed in terms of their properties and behavior.
- 3. The third part of the theory is the definition of the system's structure. The structure is defined as the way in which the components are interconnected. This structure is then analyzed in terms of its properties and behavior.
- 4. The fourth part of the theory is the definition of the system's dynamics. The dynamics are defined as the way in which the system changes over time. This dynamics is then analyzed in terms of its properties and behavior.
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- 10. The tenth part of the theory is the definition of the system's conclusion. The conclusion is defined as the way in which the system is summarized. This conclusion is then analyzed in terms of its properties and behavior.

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1. The first part of the paper is devoted to a discussion of the various methods which have been proposed for the determination of the rate of reaction between a radical and a molecule.

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1. The first step in the process of the scientific method is to make an observation or ask a question.
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1. The first step in the process of identifying a problem is to define the problem clearly. This involves identifying the symptoms of the problem and determining the scope of the problem. Once the problem is defined, the next step is to identify the causes of the problem. This involves identifying the factors that are contributing to the problem and determining the underlying causes of the problem. Once the causes are identified, the next step is to develop a plan of action to address the problem. This involves identifying the steps that need to be taken to solve the problem and determining the resources that are needed to implement the plan. Once the plan is developed, the next step is to implement the plan. This involves carrying out the steps that have been identified in the plan and monitoring the progress of the implementation. Once the plan has been implemented, the next step is to evaluate the results of the implementation. This involves determining whether the problem has been solved and whether the resources have been used effectively. If the problem has not been solved, the next step is to re-evaluate the plan and make any necessary adjustments. If the problem has been solved, the next step is to document the results of the implementation and share the results with others who may be interested in the problem.
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1. The first part of the report deals with the general situation of the country and the position of the various groups of the population.

2. The second part of the report deals with the economic situation of the country and the position of the various groups of the population.

3. The third part of the report deals with the social situation of the country and the position of the various groups of the population.

4. The fourth part of the report deals with the political situation of the country and the position of the various groups of the population.

5. The fifth part of the report deals with the cultural situation of the country and the position of the various groups of the population.

APPENDIX A

INVENTORY OF BELIEFS

Form T

This inventory consists of 100 statements which range over a wide variety of topics. As you read each statement, you are asked to indicate quickly your agreement or disagreement with it in terms of the key given at the top of each page. People have different reactions to these statements. This is not a test in which there are "right" and "wrong" answers. What is wanted here is your own quick personal reaction. You should be able to finish taking the inventory in 30 minutes or less.

In responding to these statements, you will notice that there is no way provided for indicating a neutral position. It is desired that you indicate a tendency toward either agreement or disagreement even though you may prefer to remain undecided. It is important that you respond to every one of the 100 statements.

Before beginning work, put your name, student number, today's date, and Inventory of Beliefs on your answer sheet.

When the proctor gives the signal, open your examination booklet and begin work. The key you are to use is reproduced at the top of each page. Note that you will never use the E response on your answer sheet.

Adapted in part by G. G. Stern, Department of Psychology, Syracuse University, from the Inventory of Beliefs copyrighted by the Cooperative Study of Evaluation in General Education of the American Council on Education, 1951.

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KEY: A. I strongly agree or accept the statement.
B. I tend to agree or accept the statement.
C. I tend to disagree or reject the statement.
D. I strongly disagree or reject the statement.

1. Literature should not question the basic moral concepts of society.
2. The main thing about good music is lovely melody.
3. Lowering tariffs to admit more foreign goods into this country tends to raise our standard of living.
4. When things seem black, a person should not complain, for it may be God's will.
5. Science is infringing upon religion when it attempts to delve into the origin of life itself.
6. Literature which questions the basic moral concepts of our society is good.
7. In our present society only a wartime economy can provide full employment.
8. A man's conscience is an unreliable guide to right and wrong.
9. No task is too great or too difficult when we know that God is on our side.
10. A work of art which provides only entertainment is useless.
11. A person gets what's coming to him in this life if he doesn't believe in God.
12. Young people today are in general more immoral and irresponsible than young people of previous generations.
13. More playgrounds and fewer strict fathers would eliminate juvenile delinquency.
14. The many different kinds of children in school these days force teachers to make a lot of rules and regulations so that things will run smoothly.
15. Organized labor has done more to further economic progress than business and industry.
16. Poverty can be eliminated.
17. Europeans condemn the United States for being too materialistic, but such criticism is only to cover up their realization that American culture is far superior to their own.
18. The worst danger to real Americanism during the last 50 years has come from foreign ideas and agitators.
19. The scientist who really counts is the one who turns theories into practical use.

- KEY: A. I strongly agree or accept the statement.
B. I tend to agree or accept the statement.
C. I tend to disagree or reject the statement.
D. I strongly disagree or reject the statement.

20. There is only one real standard in judging a novel or play--that it convey a message of social significance.
21. Nudist colonies are a threat to the moral life of a nation.
22. Allowing more immigrants of all kinds into this country will improve our culture.
23. No world organization should have the right to tell Americans what they can or cannot do.
24. Despite the material advantages of today, family life now is not as wholesome as it used to be.
25. Raising our standard of living requires government regulation of business enterprise.
26. The United States doesn't have to depend on the rest of the world in order to be strong and self-sufficient.
27. Foreigners usually have peculiar and annoying habits.
28. The best assurance of peace is for the United States to have the strongest army, navy, and air force, as well as the most atom and hydrogen bombs.
29. It is only natural and right for each person to think that his family is better than any other.
30. Any man can find a job if he really wants to work.
31. Strikes are caused by the unwillingness of an employer to meet the needs of his employees.
32. American films emphasize sex more than foreign films do.
33. Being a successful wife and mother is more a matter of instinct than of training.
34. The only way to eliminate prejudice is through forceful legislation.
35. A person often has to get mad in order to push others into action.
36. There is only one real standard in judging art works--each to his own taste.
37. Business enterprise, free from government interference, has given us our high standard of living.
38. Art cannot exist for its own sake, independent of social issues.
39. The existence of poverty is an infallible sign of a poorly organized society.

KEY: A. I strongly agree or accept the statement.
B. I tend to agree or accept the statement.
C. I tend to disagree or reject the statement.
D. I strongly disagree or reject the statement.

40. Many social problems would be solved if we did not have so many immoral and inferior people.
41. Picket lines ought to be respected and never crossed.
42. You can't do business on friendship: profits are profits, and good intentions are not evidence in a law court.
43. A person has troubles of his own; he can't afford to worry about other people.
44. Books and movies should start dealing with entertaining or uplifting themes instead of the present unpleasant, immoral, or tragic ones.
45. The minds of many youth are being poisoned by bad books.
46. Speak softly, but carry a big stick.
47. Military service should be by choice rather than by conscription.
48. Peace can only be achieved when the United States abandons its attempt to establish military superiority.
49. Honesty, hard work, and trust in God ensure neither material nor spiritual rewards.
50. Ministers, priests and rabbis should not preach about economic and political problems.
51. Each man is on his own in life and must determine his own destiny.
52. The moral good or evil of people has little bearing on any possible destruction of the world by divine intervention.
53. The successful merchant can't allow sentiment to affect his business decisions.
54. No intelligent man today can really believe in God.
55. The United States should make no attempt to exercise control over any world organization.
56. Religious leaders who preach socialistic ideas are a disgrace to their church.
57. Labor unions don't appreciate all the advantages which business and industries have given them.
58. We should impose a strong censorship on the morality of books and movies.
59. European criticism of the United States is quite justified.

KEY: A. I strongly agree or accept the statement.
B. I tend to agree or accept the statement.
C. I tend to disagree or reject the statement.
D. I strongly disagree or reject the statement.

60. If we allow more immigrants into this country, we will lower our standard of culture.
61. Modern paintings look like something dreamed up in a horrible nightmare.
62. The greatest contribution to real Americanism during the last fifty years has come from the intermingling of foreign immigrants and native-born.
63. What a person gets in this life has little to do with whether he believes in God or not.
64. Voting determines whether or not a country is democratic.
65. In our society, a person's first duty is to protect from harm himself and those dear to him.
66. Europeans have no faults as bad as the provincial smugness and intolerance of Americans.
67. Members of so-called racial minorities are no more alike than any other group of American citizens.
68. A belief in divine guidance is of little help in meeting difficulties.
69. Those who can, do; those who can't, teach.
70. Philosophers on the whole act as if they were superior to ordinary people.
71. We would be better off if people would talk less and work more.
72. Most intellectuals would be lost if they had to make a living in the realistic world of business.
73. Science will eventually explain the origin of life.
74. A lot of teachers, these days, have radical ideas which need to be carefully watched.
75. Now that America is the leading country in the world, it's only natural that other countries should try to be like us.
76. Prayer does little toward relieving one's problems.
77. Capital punishment does not serve to lower the crime rate.
78. Foreign films emphasize sex more than American films do.
79. Our rising divorce rate is a sign that we should return to the values which our grandparents held.
80. Pride in craftsmanship and in doing an honest day's work is a rare thing these days.

KEY: A. I strongly agree or accept the statement.
B. I tend to agree or accept the statement.
C. I tend to disagree or reject the statement.
D. I strongly disagree or reject the statement.

81. The United States may not have had much experience in international dealings, but it is the only nation to which the world can turn for leadership.
82. A sexual pervert is an insult to humanity and should be punished severely.
83. Labor, since it represents the majority, should be given a greater voice in a democracy than capital.
84. The actions of the United States in world politics clearly demonstrate its unfitness for world leadership.
85. Both beauty and purpose can be found in all modern paintings.
86. There may be a few exceptions, but, in general, members of a racial group tend to be pretty much alike.
87. There are too many people in this world who do nothing but think about the opposite sex.
88. Modern people are superficial and tend to lack the finer qualities of manhood and womanhood.
89. It is more important for a book or movie to be realistic than to be pleasant.
90. Members of religious sects who refuse to salute the flag should be punished for their lack of patriotism.
91. As young people grow up, they ought to get over their radical ideas.
92. The twentieth century has not had leaders with the vision and capacity of the founders of this country.
93. Books on tragic and sordid themes help youth to face the world of reality.
94. There are a lot of things in this world that will never be explained by science.
95. The world will get so bad that some of these times God will destroy it.
96. Other countries don't appreciate as much as they should all the help that America has given them.
97. If a person is honest, works hard, and trusts in God, he will reap material as well as spiritual rewards.
98. The welfare of others is more important than one's own self-interests.
99. Nothing but profit to our country would result from the relaxation of our present strict immigration laws.
100. No censorship on the presumed morality of books and movies can be justified.



Inventory of Beliefs
Form T

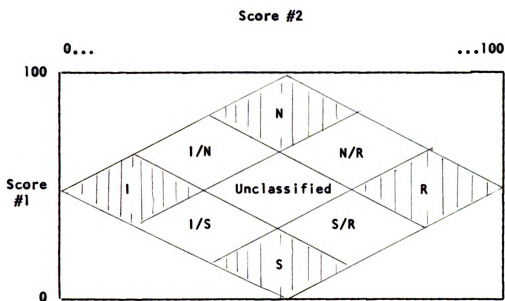
Scoring Rationale

Score #1

Non-Stereotypy (N): Rejection of S items, acceptance of N items
Stereotypy (S): Acceptance of S items, rejection of N items

Score #2

Rationality (R): Rejection of S and N items
Irrationality (I): Acceptance of S and N items



Inventory of Beliefs
Form T
Key

Score No. 1 - Score AB or CD, as keyed (Maximum: 100)

Score No. 2- Score all C or D responses (Maximum: 100)

1. CD	31. AB	61. CD	91. CD
2. CD	32. AB	62. AB	92. CD
3. AB	33. CD	63. AB	93. AB
4. CD	34. AB	64. CD	94. CD
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FORM T

5093 #2

Score #1 60

[illegible]

INSTRUCTIONS TO THE INSTRUCTOR

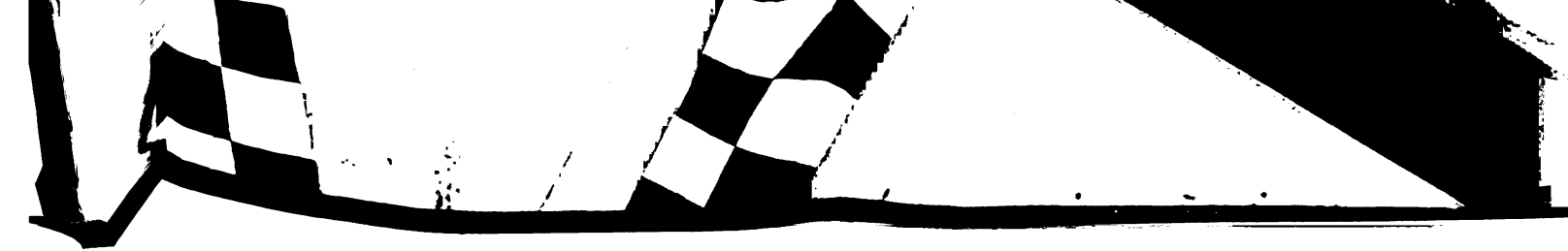
- A. The Inventory of Beliefs is to be administered in class, preferably during the last thirty minutes of the class period.
- B. Before any testing materials are distributed the following preliminary announcement should be made:

"Purdue University constantly seeks ways of improving the educational program it offers its students. In order that we may do so, we are interested in obtaining a better understanding of you and your interests, your values, your beliefs. From time to time you will be asked for information about yourselves. Today we plan to administer an instrument frequently used to obtain a better understanding of college students and their values. The information you give is confidential and will only be related to other data for research purposes. We urge you to be as sincere and as honest as possible. By doing this you can help to improve Purdue's educational program, not only for yourselves but also for those who will come after you."

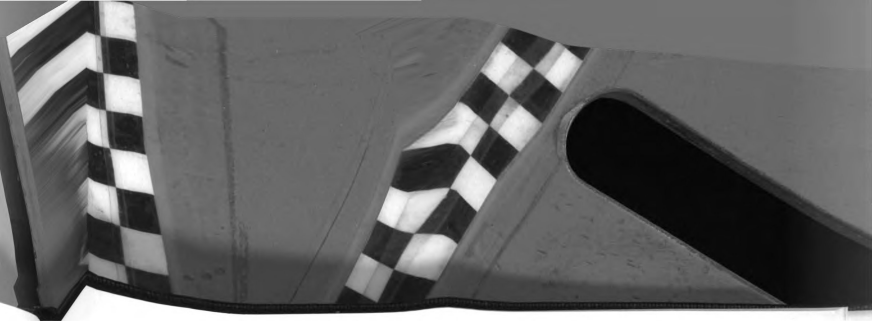
- C. Distribute the materials. (The inventories, answer sheets and pencils have been arranged in groups of thirteen to facilitate distribution).
- D. After materials are distributed, make the following announcements:
 - 1. Please do not mark on the test booklets. Mark only on the answer sheets.
 - 2. Please use only the special marking pencils provided.
 - 3. Fill in as completely as possible the information requested on the top of the answer sheet (including name, date, school choice, home town, date of birth, age, sex, classification, instructor, and name of the test "Inventory of Beliefs").
 - 4. Indicate your student number in the upper left hand corner of the answer sheet, above your name. (Your student number is a six digit number that can be found on your passport or number four schedule card.)
 - 5. After you have completed the inventory, please turn in your marking pencil, answer sheets and test booklets.
 - 6. After you have read the instructions on the cover page, open the booklets and begin.

- E. Please collect the inventories, answer sheets, and pencils separately.

The pencils and inventories will be used again.



APPENDIX B



The S Syndrome*

1. Reactions to Others
Depersonalization of relationships. Perception of authority figures as omnipotent, threatening, and impregnable.
2. Coping Mechanisms
Submission to authority. Overwhelming unconscious hostility, displaced externally. Aggression expressed extrapunively in attempted dominance and control.
3. Impulse Acceptance
Inhibition and denial of id impulses. Depersonalized sexuality.
4. Impulse Control
Strong, punitive superego structure, not necessarily internalized. Anxiety and guilt associated with unconscious hostility. Control of unacceptable impulses in order to avoid criticism or disapproval of parent or parent-surrogate is incomplete, resulting in impulse-ridden physical outbursts. Such explosions are non-cathartic, only increasing anxiety and guilt.
5. Energy Level
Ineffectual liberation of effective tension and continual free-floating anxiety drains off energy otherwise available for goal-directed activity. Compensated for by autistic thinking in goal-behavior and fantasied achievement.
6. Autonomous-Homonomous Balance
Predominantly exocathective-extracceptive: manipulating things and people as external objects through practical, concrete physical action. Conformity and adaptation to reality as given for more-or-less immediately tangible ends, emphasizing money and property. Counter-cathective rejection of sensuality, introspection, intracception, and verbal-emotional-artistic expressiveness. Egocentric (infantile) perception: animism, anthropomorphism, mysticism, superstition.
7. Self-maintenance
Repression, inhibition, projection, paranoia, escapism, masochism, sadism. Denial of negative aspects of self. Concern with physical symptoms, appearance.
8. Organization and Integration
Sphincter morality, emphasizing obedience, order, punctuality. Despite stress on arrangement and detail, activities tend to be diffused and conflicted due to uncontrolled anxiety. Rigid set and outlook; inaccessible to new experience. Resistance to departure from tradition. Rigid and compulsive.

*Reproduced from *Methods in Personality Assessment*, by Stern, G. G., Stein, M. I., and Bloom, B. S., Glencoe, Illinois; The Free Press, 1956

1. The first part of the paper discusses the importance of understanding the cultural context of the research. It emphasizes that researchers must be aware of their own biases and the potential influence of their cultural background on their findings. This is particularly relevant in cross-cultural research, where differences in values and norms can significantly impact the interpretation of data.
2. The second part of the paper focuses on the methodological challenges of conducting research in a non-Western context. It highlights the need for flexibility and adaptability in research design, as well as the importance of building trust and rapport with the research participants. The author argues that a more participatory approach, where the research community is involved in the decision-making process, can lead to more valid and reliable results.
3. The third part of the paper discusses the ethical considerations of research in a non-Western context. It emphasizes the need for researchers to be sensitive to the local customs and norms, and to obtain informed consent from the research participants. The author also discusses the potential for exploitation and the need for researchers to ensure that their research is for the benefit of the community.
4. The fourth part of the paper discusses the importance of communication and dissemination of research findings. It emphasizes that researchers must be able to communicate their findings in a way that is accessible and understandable to the research community. This may involve using local languages and idioms, as well as involving community members in the dissemination process.
5. The fifth part of the paper discusses the future of research in a non-Western context. It argues that there is a need for more research on the cultural context of research, and that researchers must continue to be sensitive to the local customs and norms. The author also discusses the potential for research to be used for the benefit of the community, and the need for researchers to be aware of their social responsibilities.

The N Syndrome*

- 1. Reactions to Others**
Highly personalized relationships. Perception of authority figures realistically, frequently as overprotective or overpossessive.
- 2. Coping Mechanisms**
Identification with cathected objects. Conscious rebellion and overt rejection of negative or ambivalent cathexes. Aggression expressed freely and directly in attempt to maintain inviolacy, autonomy, and independence. Generally characterized by maintenance of good contact and rapport with others.
- 3. Impulse Acceptance**
Acceptant of id impulses. Capable of direct sentient and sexual representations, as well as their sublimations.
- 4. Impulse Control**
Balanced ego-id-superego demands. Anxiety associated with conscious hostility more focussed, more readily verbalized and dissipated. Internalized superego. Conflict conscious and verbalized. Capable of responsibility and emotional maturity.
- 5. Energy Level**
Capable of sustained effort for remote goals.
- 6. Autonomous-Homonomous Balance**
Predominantly other-directed, placing great emphasis on interpersonal relationships. Identification with "underdog", and capacity for dramatic, idealistic social action. Sensuous, introspective, intraceptive. Verbal-emotional-artistic sublimations.
- 7. Self-Maintenance**
Counteraction. Exhibitionism and self-dramatization. Capacity for realistic self-appraisal, introspection.
- 8. Organization and Integration**
Behavior plastic and labile. Capacity for spontaneity, impulsiveness. Mobile and intense emotional responsiveness. Flexible, adaptable to changing circumstances.

*Reproduced from *Methods in Personality Assessment*, by Stern, G. G., Stein, M. I., and Bloom, B. S., Glencoe, Illinois; The Free Press, 1956

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The R Syndrome*

1. **Reactions to Others**
Little emotional involvement in personal relationships. Perception of authority figures as distant, vulnerable and fallible.
2. **Coping Mechanisms**
Passivity, autonomous detachment. Hostility expressed verbally, in cynicism and criticism.
3. **Impulse Acceptance**
Passive resignation to id impulses, frequently sublimated following conscious inhibition.
4. **Impulse Control**
Weak ego-id resolution. Highly intellectualized control. Diffuse anxiety.
5. **Energy Level**
Moderate to strong, directed chiefly toward abstract pursuits, sometimes impractical in content.
6. **Autonomous-Homonomous Balance**
Predominantly inner-directed, placing major stress on endocathective processes. This may be oriented extra-receptively, taking the form of speculative abstraction and discussion about external objects, events and systems, emphasizing data collection, experimentation, and inductive reasoning. Alternatively the orientation may be in terms of an intrareceptive preoccupation with private experience; psychological, spiritual, esthetic, or metaphysical truth; introspective and deductive reasoning. The major emphasis in either event is on disinterested intellectualization: analysis, abstraction, and synthesis for the sake of conceptualization rather than action.
7. **Self-Maintenance**
Avoids situations which might result in frustration or failure, or submits with resignation and passivity. Blows to self-esteem parried with rationalization of futility of opposition. Open conflict concerning adequacy.
8. **Organization and Integration**
Behavior alternately purposeful and integrated, uncoordinated and diffuse. Restrained emotional responsiveness, affect frequently flattened.

*Reproduced from *Methods in Personality Assessment*, by Stern, G. G., Stein, M. I., and Bloom, B. S., Glencoe, Illinois; The Free Press, 1956

1. The first step in the process of the scientific method is to make an observation or ask a question.
2. The second step is to do background research to learn what is already known about the topic.
3. The third step is to form a hypothesis, which is a prediction or an educated guess about the outcome of the experiment.
4. The fourth step is to design and conduct an experiment to test the hypothesis.
5. The fifth step is to analyze the data and draw a conclusion based on the results of the experiment.
6. The sixth step is to communicate the results of the experiment to others.
7. The seventh step is to repeat the experiment to verify the results.
8. The eighth step is to use the results of the experiment to make a prediction about the future.
9. The ninth step is to use the results of the experiment to make a decision about the hypothesis.
10. The tenth step is to use the results of the experiment to make a conclusion about the hypothesis.
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57. The fifty-seventh step is to use the results of the experiment to make a decision about the hypothesis.
58. The fifty-eighth step is to use the results of the experiment to make a conclusion about the hypothesis.
59. The fifty-ninth step is to use the results of the experiment to make a prediction about the future.
60. The sixtieth step is to use the results of the experiment to make a decision about the hypothesis.
61. The sixty-first step is to use the results of the experiment to make a conclusion about the hypothesis.
62. The sixty-second step is to use the results of the experiment to make a prediction about the future.
63. The sixty-third step is to use the results of the experiment to make a decision about the hypothesis.
64. The sixty-fourth step is to use the results of the experiment to make a conclusion about the hypothesis.
65. The sixty-fifth step is to use the results of the experiment to make a prediction about the future.
66. The sixty-sixth step is to use the results of the experiment to make a decision about the hypothesis.
67. The sixty-seventh step is to use the results of the experiment to make a conclusion about the hypothesis.
68. The sixty-eighth step is to use the results of the experiment to make a prediction about the future.
69. The sixty-ninth step is to use the results of the experiment to make a decision about the hypothesis.
70. The seventieth step is to use the results of the experiment to make a conclusion about the hypothesis.
71. The seventy-first step is to use the results of the experiment to make a prediction about the future.
72. The seventy-second step is to use the results of the experiment to make a decision about the hypothesis.
73. The seventy-third step is to use the results of the experiment to make a conclusion about the hypothesis.
74. The seventy-fourth step is to use the results of the experiment to make a prediction about the future.
75. The seventy-fifth step is to use the results of the experiment to make a decision about the hypothesis.
76. The seventy-sixth step is to use the results of the experiment to make a conclusion about the hypothesis.
77. The seventy-seventh step is to use the results of the experiment to make a prediction about the future.
78. The seventy-eighth step is to use the results of the experiment to make a decision about the hypothesis.
79. The seventy-ninth step is to use the results of the experiment to make a conclusion about the hypothesis.
80. The eightieth step is to use the results of the experiment to make a prediction about the future.
81. The eighty-first step is to use the results of the experiment to make a decision about the hypothesis.
82. The eighty-second step is to use the results of the experiment to make a conclusion about the hypothesis.
83. The eighty-third step is to use the results of the experiment to make a prediction about the future.
84. The eighty-fourth step is to use the results of the experiment to make a decision about the hypothesis.
85. The eighty-fifth step is to use the results of the experiment to make a conclusion about the hypothesis.
86. The eighty-sixth step is to use the results of the experiment to make a prediction about the future.
87. The eighty-seventh step is to use the results of the experiment to make a decision about the hypothesis.
88. The eighty-eighth step is to use the results of the experiment to make a conclusion about the hypothesis.
89. The eighty-ninth step is to use the results of the experiment to make a prediction about the future.
90. The ninetieth step is to use the results of the experiment to make a decision about the hypothesis.
91. The ninety-first step is to use the results of the experiment to make a conclusion about the hypothesis.
92. The ninety-second step is to use the results of the experiment to make a prediction about the future.
93. The ninety-third step is to use the results of the experiment to make a decision about the hypothesis.
94. The ninety-fourth step is to use the results of the experiment to make a conclusion about the hypothesis.
95. The ninety-fifth step is to use the results of the experiment to make a prediction about the future.
96. The ninety-sixth step is to use the results of the experiment to make a decision about the hypothesis.
97. The ninety-seventh step is to use the results of the experiment to make a conclusion about the hypothesis.
98. The ninety-eighth step is to use the results of the experiment to make a prediction about the future.
99. The ninety-ninth step is to use the results of the experiment to make a decision about the hypothesis.
100. The hundredth step is to use the results of the experiment to make a conclusion about the hypothesis.

APPENDIX C

The Percentage of Subjects Agreeing with Each Item

Item	Group, T H	Engr. Status S Lv.	Achv. Oa. Ua.	Grades Hi Lo
1. Literature should not question the basic moral concepts of society. (D)	28 7*	24 34**	23 34	19 36**
2. The main thing about good music is lovely melody. (D)	44 40	47 38*	48 42	44 39
3. Lowering tariffs to admit more foreign goods into this country tends to raise our standard of living. (A)	22 33	23 18	27 16*	23 15*
4. When things seem black, a person should not complain, for it may be God's will. (D)	59 40	58 62	60 65	56 59
5. Science is infringing upon religion when it attempts to delve into the origin of life itself. (D)	21 0**	19 25	25 26	18 20
6. Literature which questions the basic moral concepts of our society is good. (A)	72 80	73 71	76 71	71 68
7. In our present society only a wartime economy can provide full employment. (A)	27 33	28 25	21 28	25 25

*Significant Difference at .05 level.

**Significant Difference at .01 level.

1 Group "H" represents the total group of the original sample (N = 727) and group "H" represents an honors group of freshman engineers (N = 13) not otherwise included in this investigation.

1. The first part of the report is a general introduction to the subject.

2. The second part is a detailed description of the methods used in the study.

3. The third part is a discussion of the results of the study.

4. The fourth part is a conclusion and a list of references.

5.

6.

7. The first part of the report is a general introduction to the subject.

8. The second part is a detailed description of the methods used in the study.

9. The third part is a discussion of the results of the study.

10. The fourth part is a conclusion and a list of references.

11. The first part of the report is a general introduction to the subject.

12. The second part is a detailed description of the methods used in the study.

The Percentage of Subjects Agreeing with Each Item

Item	Group		Engr. Status		Achv. Os. Ua.		Grades	
	T	H	S	Lv.			Hi	Lo
8. A man's conscience is an unreliable guide to right and wrong. (A)	30	20	29	33	24	29	33	30
9. No task is too great or too difficult when we know that God is on our side. (D)	80	67	80	80	77	84	75	85*
10. A work of art which provides only entertainment is useless. (A)	15	0**	14	18	11	18	10	19*
11. A person gets what's coming to him in this life if he doesn't believe in God. (D)	26	0**	28	22	24	22	28	23
12. Young people today are in general more immoral and irresponsible than young people of previous generations. (D)	20	20	20	20	18	19	25	19
13. More playgrounds and fewer strict fathers would eliminate juvenile delinquency. (A)	17	13	16	19	24	18	19	20
14. The many different kinds of children in school these days force teachers to make a lot of rules and regulations so that things will run smoothly. (D)	66	67	66	64	67	65	67	61

*Significant Difference at .05 level.

**Significant Difference at .01 level.

The Percentage of Subjects Agreeing with Each Item

Item	Group		Engr. Status		Achv. Oa. Ua.	Grades	
	T	H	S	Lv.		Hi	Lo
15. Organized labor has done more to further economic progress than business and industry. (A)	33	27	31	36	23 37*	23	39**
16. Poverty can be eliminated. (A)	41	40	41	41	39 31	34	40
17. Europeans condemn the United States for being too materialistic, but such criticism is only to cover up their realization that American culture is far superior to their own. (D)	41	20	38	48**	35 46	37	42
18. The worst danger to real Americanism during the last 50 years has come from foreign ideas and agitators. (D)	44	33	42	45	52 42	40	47
19. The scientist who really counts is the one who turns theories into practical use. (D)	55	40	54	59	54 60	45	65**
20. There is only one real standard in judging a novel or play - that it convey a message of social significance. (A)	22	20	20	24	21 24	16	22
21. Nudist colonies are a threat to the moral life of a nation. (D)	32	0**	32	31	34 32	34	32

*Significant Difference at .05 level.

**Significant Difference at .01 level.

The Percentage of Subjects Agreeing with Each Item

Item	Group		Engr. Status		Achv. Oa. Ua.		Grades	
	T	H	S	Lv.	Oa.	Ua.	HI	Lo
22. Allowing more immigrants of all kinds into this country will improve our culture. (A)	28	27	27	31	30	28	29	29
23. No world organization should have the right to tell Americans what they can or cannot do. (D)	41	73**	42	38	40	43	38	39
24. Despite the material advantages of today, family life now is not as wholesome as it used to be. (D)	54	53	55	53	57	60	59	52
25. Raising our standard of living requires government regulation of business enterprise. (A)	34	20	30	44**	35	39	30	43*
26. The United States doesn't have to depend on the rest of the world in order to be strong and self-sufficient. (B)	16	7	14	18	18	20	17	18
27. Foreigners usually have peculiar and annoying habits. (D)	24	27	20	30**	18	23	21	28
28. The best assurance of peace is for the United States to have the strongest army, navy, and air force, as well as the most atom and hydrogen bombs. (D)	42	40	45	35**	48	38	45	39

*Significant Difference at .05 level.

**Significant Difference at .01 level.

The Percentage of Subjects Agreeing with Each Item

Item	Group		Engr. Status		Achv. Oa. Ua.		Grades	
	T	H	S	Lv.	Oa.	Ua.	Hi	Lo
29. It is only natural and right for each person to think that his family is better than any other. (D)	70	67	70	67	69	66	68	68
30. Any man can find a job if he really wants to work. (D)	89	80	88	89	90	84	90	89
31. Strikes are caused by the unwillingness of an employer to meet the needs of his employees. (A)	29	13	28	31	37	25*	25	29
32. American films emphasize sex more than foreign films do. (A)	11	13	10	13	11	11	9	12
33. Being a successful wife and mother is more a matter of instinct than of training. (D)	32	47	30	37	21	36**	26	39*
34. The only way to eliminate prejudice is through forceful legislation. (A)	8	0*	7	9	8	7	5	10
35. A person often has to get mad in order to push others into action. (D)	57	60	57	59	52	52	59	53

*Significant Difference at .05 level.

**Significant Difference at .01 level.

The Percentage of Subjects Agreeing with Each Item

Item	Group		Engr. Status S	Lv.	Achv. Oa. Ua.	Grades	
	T	H				Hi	Lo
36. There is only one real standard in judging art works - each to his own taste. (D)	80	93	80	81	77	84	81 81
37. Business enterprise, free from government interference, has given us our high standard of living. (D)	57	60	61	49**	63	52	66 50**
38. Art cannot exist for its own sake, independent of social issues. (A)	40	20	37	46*	38	46	30 45**
39. The existence of poverty is an infallible sign of a poorly organized society. (A)	31	33	30	33	38	27	26 32
40. Many social problems would be solved if we did not have so many immoral and inferior people. (D)	53	67	54	53	48	56	56 50
41. Picket lines ought to be respected and never crossed. (A)	19	7	17	22	24	23	17 24
42. You can't do business on friendship: profits are profits, and good intentions are not evidence in a law court. (D)	41	53	38	48*	40	48	36 44

*Significant Difference at .05 level.

**Significant Difference at .01 level.

The Percentage of Subjects Agreeing with Each Item

Item	Group		Engr. Status		Achv. Oa. Ua.		Grades	
	T	H	S.	Lv.	Oa.	Ua.	Hi	Lo
43. A person has troubles of his own: he can't afford to worry about other people. (D)	14	7	13	15	19	19	13	16
44. Books and movies should start dealing with entertaining or uplifting themes instead of the present unpleasant, immoral, or tragic ones. (D)	50	40	50	49	52	53	53	53
45. The minds of many youth are being poisoned by bad books. (D)	58	60	60	54	63	58	64	54*
46. Speak softly, but carry a big stick. (D)	74	87	74	74	74	76	74	71
47. Military service should be by choice rather than by conscription. (A)	31	27	29	35	40	34	34	33
48. Peace can only be achieved when the United States abandons its attempt to establish military superiority. (A)	7	20	6	9	4	9	6	7
49. Honesty, hard work, and trust in God ensure neither material nor spiritual rewards. (A)	15	33	15	16	16	18	14	17

*Significant Difference at .05 level.

**Significant Difference at .01 level.

The figure consists of a 4x4 grid of 16 small diagrams. Each diagram shows two particles, represented by dots, with lines and arrows indicating their interaction. The diagrams are arranged in four rows and four columns. The first row shows horizontal interactions with solid, dashed, and dotted lines. The second row shows vertical interactions with solid, dashed, and dotted lines. The third row shows diagonal interactions with solid, dashed, and dotted lines. The fourth row shows more complex interactions, including loops and multiple lines. The diagrams are labeled with letters A through P in the top right corner of each cell.

1. *What is the purpose of the study?*
 2. *What are the research objectives?*
 3. *What is the research design?*
 4. *What are the variables?*
 5. *What is the sample size?*
 6. *What are the data sources?*
 7. *What are the data collection methods?*
 8. *What are the data analysis methods?*
 9. *What are the results?*
 10. *What are the conclusions?*
 11. *What are the limitations?*
 12. *What are the recommendations?*

(continued)

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1

The Percentage of Subjects Agreeing with Each Item

Item	Group T H	Engr. Status S. Lv.	Achv. Oa. Ua.	Grades	
				Hi	Lo
50. Ministers, priests and rabbis should not preach about economic and political problems. (D)	28 33	25 35**	26 35	26	34
51. Each man is on his own in life and must determine his own destiny. (D)	78 87	77 79	80 74	75	78
52. The moral good or evil of people has little bearing on any possible destruction of the world by divine intervention. (A)	31 67**	32 29	31 26	30	31
53. The successful merchant can't allow sentiment to affect his business decisions. (D)	42 53	40 45	38 50*	37	44
54. No intelligent man today can really believe in God. (A)	4 7	3 7**	4 8	5	7
55. The United States should make no attempt to exercise control over any world organization. (A)	59 53	58 59	58 56	56	60
56. Religious leaders who preach socialistic ideas are a disgrace to their church. (D)	32 53	31 34	39 35	34	32

*Significant Difference at .05 level.

**Significant Difference at .01 level.

The Percentage of Subjects Agreeing with Each Item

Item	Group T H	Engr. Status S. Lv.	Achv. Oa. Ua.		Grades Hi. Lo	
57. Labor unions don't appreciate all the advantages which business and industries have given them. (D)	67 60	67 68	68 62	72 60*		
58. We should impose a strong censorship on the morality of books and movies. (D)	35 7**	33 39	35 34	35 38		
59. European criticism of the United States is quite justified. (A)	43 53	43 41	47 48	38 40		
60. If we allow more immigrants into this country, we will lower our standard of culture. (D)	27 20	25 31	28 28	25 25		
61. Modern paintings look like something dreamed up in a horrible nightmare. (D)	60 53	58 64	64 63	59 62		
62. The greatest contribution to real Americanism during the last fifty years has come from the intermingling of foreign immigrants and native-born. (A)	64 87*	65 63	63 61	63 58		

*Significant Difference at .05 level.

**Significant Difference at .01 level.

The Percentage of Subjects Agreeing with Each Item

Item	Group T H	Engr. Status S, LV.	Achv. Oa, Ua.	Grades	
				Hi	Lo
63. What a person gets in this life has little to do with whether he believes in God or not. (A)	25 60**	23 27	26 29	26	26
64. Voting determines whether or not a country is democratic. (D)	26 13	25 27	22 30	21	25
65. In our society, a person's first duty is to protect from harm himself and those dear to him. (D)	78 80	78 78	75 75	79	77
66. Europeans have no faults as bad as the provincial smugness and intolerance of Americans. (A)	9 0*	8 10	8 8	10	10
67. Members of so-called racial minorities are no more alike than any other group of American citizens. (A)	60 67	60 59	48 60	63	56
68. A belief in divine guidance is of little help in meeting difficulties. (A)	14 20	14 13	16 14	11	15

*Significant Difference at .05 level.

**Significant Difference at .01 level.

4. The fourth part of the document discusses the implications of the findings. It suggests that the results have significant implications for the field of study and may lead to further research in this area.

5. The fifth part of the document concludes the study. It summarizes the key findings and provides a final statement on the importance of the research.

6. The sixth part of the document includes a list of references to the literature cited in the study. It provides a comprehensive overview of the current state of the field.

7. The seventh part of the document includes a list of appendices. These appendices provide additional information and data that support the findings of the study.

8. The eighth part of the document includes a list of figures. These figures are used to illustrate the data and findings of the study.

9. The ninth part of the document includes a list of tables. These tables provide a detailed breakdown of the data and findings of the study.

10. The tenth part of the document includes a list of footnotes. These footnotes provide additional information and clarification on the findings of the study.

The Percentage of Subjects Agreeing with Each Item

Item	Group T H	Engr. Status S. Lv.	Achv. Oa. Ua.	Grades	
				Hi	Lo
69. Those who can, do; those who can't, teach. (D)	16 13	14 19	16 19	14	20
70. Philosophers on the whole act as if they were superior to ordinary people. (D)	36 33	35 37	37 34	42	34
71. We would be better off if people would talk less and work more. (D)	60 67	60 62	62 62	59	59
72. Most intellectuals would be lost if they had to make a living in the realistic world of business. (D)	36 7**	37 34	38 40	38	38
73. Science will eventually explain the origin of life. (A)	50 87**	49 51	50 48	52	48
74. A lot of teachers, these days, have radical ideas which need to be carefully watched. (D)	44 33	43 47	41 47	38	49*
75. Now that America is the leading country in the world, it's only natural that other countries should try to be like us. (D)	54 40	55 53	48 57	53	53

*Significant Difference at .05 level.

**Significant Difference at .01 level.

The Percentage of Subjects Agreeing with Each Item

Item	Group T H	Engr. Status S. Lv.	Achv. Oa. Ua.	Grades	
				HI	Lo
76. Prayer does little toward relieving one's problems. (A)	8 33*	7 9	13 12	8	10
77. Capital punishment does not serve to lower the crime rate. (A)	41 47	42 39	45 44	41	40
78. Foreign films emphasize sex more than American films do. (D)	80 80	80 80	75 80	82	79
79. Our rising divorce rate is a sign that we should return to the values which our grandparents held. (D)	44 20	45 40	41 40	45	42
80. Pride in craftsmanship and in doing an honest day's work is a rare thing these days. (D)	39 47	38 40	37 42	35	38
81. The United States may not have had much experience in international dealings, but it is the only nation to which the world can turn for leadership. (D)	42 40	43 40	43 44	41	43

*Significant Difference at .05 level.

**Significant Difference at .01 level.

The Percentage of Subjects Agreeing with Each Item

Item	Group T H	Engr. Status S. Lv.	Achv. Oa. Ua.	Grades	
				Hi	Lo
82. A sexual pervert is an insult to humanity and should be punished severely. (D)	37 20	35 41	38 39	36	39
83. Labor, since it represents the majority, would be given a greater voice in a democracy than capital. (A)	32 27	30 37	28 35	28	35
84. The actions of the United States in world politics clearly demonstrate its unfitness for world leadership. (A)	10 0*	9 13	13 14	9	12
85. Both beauty and purpose can be found in all modern paintings. (A)	37 27	36 37	26 40*	27	40**
86. There may be a few exceptions, but, in general, members of a racial group tend to be pretty much alike. (D)	52 47	50 54	52 60	41	60**
87. There are too many people in this world who do nothing but think about the opposite sex. (D)	43 33	44 40	50 36*	47	40

*Significant Difference at .05 level.

**Significant Difference at .01 level.

The Percentage of Subjects Agreeing with Each Item

Item	Group		Engr. Status		Achv. <u>Os. Ua.</u>		Grades	
	T	H	S.	Lv.			Hi	Lo.
88. Modern people are superficial and tend to lack the finer qualities of manhood and womanhood. (D)	37	27	38	35	39	34	41	33
89. It is more important for a book or movie to be realistic than to be pleasant. (A)	41	33	42	37	42	38	44	36
90. Members of religious sects who refuse to salute the flag should be punished for their lack of patriotism. (D)	23	13	22	24	27	21	24	27
91. As young people grew up, they ought to get over their radical ideas. (D)	48	40	46	54*	39	52*	41	55**
92. The twentieth century has not had leaders with the vision and capacity of the founders of this country. (D)	16	0**	17	14	18	17	17	19
93. Books on tragic and sordid themes help youth to face the world of reality. (A)	54	53	54	54	59	50	50	54
94. There are a lot of things in this world that will never be explained by science. (D)	70	40*	68	72	69	73	69	74

*Significant Difference at .05 level.

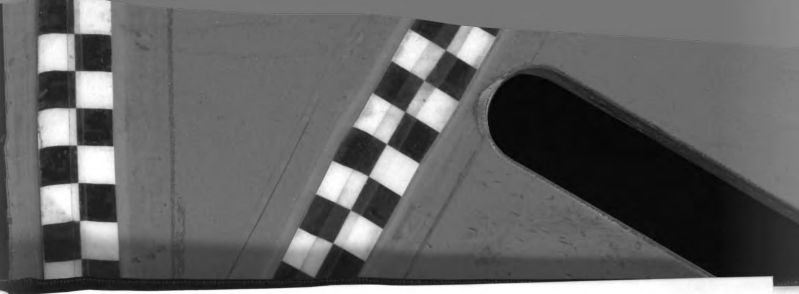
**Significant Difference at .01 level.

The Percentage of Subjects Agreeing with each Item

Item	Group T H	Engr. Status S. Lv.	Achv. Oa. Ua.	Grades	
				Hi	Lo
95. The world will get so bad that some of these times God will destroy it. (D)	30 7*	29 33	36 34	29	33
96. Other countries don't appreciate as much as they should all the help that America has given them. (D)	79 80	79 80	75 84	80	81
97. If a person is honest, works hard, and trusts in God, he will reap material as well as spiritual rewards. (D)	78 53	77 80	76 81	70	80*
98. The welfare of others is more important than one's own self-interests. (A)	52 40	50 55	40 58**	47	55
99. Nothing but profit to our country would result from the relaxation of our present strict immigration laws. (A)	12 7	11 15	13 14	10	16
100. No censorship on the presumed morality of books and movies can be justified. (A)	27 60**	27 28	29 34	26	28

*Significant Difference at .05 level.

**Significant Difference at .01 level.



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