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THE UNIVERSITY OF ALBERTA

A LIFE ORIENTATION SCALE: CORRELATES
OF BIOPHILIA AND NECROPHILIA

BY

 ELSWORTH EUGENE FOX

A THESIS
SUBMITTED TO THE FACULTY OF GRADUATE STUDIES
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FACULTY OF GRADUATE STUDIES

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled "A Life Orientation Scale: Correlates of Biophilia and Necrophilia" submitted by Elsworth Eugene Fox in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

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ABSTRACT

The writings of Erich Fromm with respect to life orientation were employed as a basis for the preparation of an instrument to measure life orientation. The instrument, termed the Life Orientation Test (LOT) was so designed that low scores reflect anti-life (necrophilous) tendencies and high scores reflect pro-life (biophilous) tendencies.

An initial 72-item version was prepared and administered to a sample of 200 individuals. This sample of 200 represented a wide occupational and age range (11 to 83). On the basis of an item analysis the test was shortened to 40 items. The 40-item version was then subjected to validation procedures involving over 800 testees.

Reliability estimates derived by the test-retest procedure (.83) and the odd-even method (.71) indicated an acceptable level of test consistency.

The relationship of the concept of life orientation to a number of other testable psychological constructs was discussed. Specific hypotheses were stated based on the general hypothesis that the biophilous-necrophilous continuum underlying the LOT would occur in a construct validation network.

Hypotheses testing and, hence, construct validation of the Life Orientation Test involved three related procedures. Firstly, the validation involved determining the relationship of the LOT to

several established psychological instruments. Secondly, validation entailed determining if differences existed between the LOT scores of known groups. Thirdly, the validation involved determining the relationship of the LOT to certain sociological and demographic variables.

Accordingly, tests were administered and personal information was collected.

An examination of differences through analyses of variance of the upper and lower 27% of LOT scorers on these variables permitted the following conclusions. High LOT scorers (biophils) as opposed to low LOT scorers (necrophils) are more conceptually complex, more openminded, less authoritarian, less socially acquiescent, more rejecting of institutions and less likely to embrace illogical ideas.

Student nurses are less biophilous than education students. Education students majoring in the social sciences are more biophilous than education students majoring in the physical sciences or mathematics.

LOT score variance was determined to be relatively independent of sex, verbal and performance IQ and written language ability. However, a predicted inverse relationship of the LOT with age was obtained.

Hypotheses predicting a relationship between the LOT and birth order and the LOT and creativity were not supported. Similarly, hypotheses concerning differences between groups (pupil personnel

workers, educational administrators and antique automobile owners) were not supported.

Findings were interpreted as evidence that the Life Orientation Test is a valid and reliable measure of Fromm's biophilous-necrophilous continuum. Implications for the use of the LOT in connection with counseling, personnel selection, vocational choice, human relation seminars, and personality research were explored.

DEDICATION

In memory of George C. Fox
(1892-1964), who possessed
and practiced great reverence
for life.

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CHAPTER I

INTRODUCTION AND STATEMENT OF THE PROBLEM

INTRODUCTION

In personality research there has been a transition away from the broad theorizing of Freud and the early social and industrial psychologists. The trend has been toward obtaining empirically derived answers to less global, operationally defined questions (Brown, 1954; Cattell, 1965; Maher, 1965).

One of the enduring concerns of psychologists has been the modes man employs in relating to his environment. Freud's pleasure and reality principles or Eros and Thanatos or Eysenck's introversion-extraversion continuum are examples of this concern (Deutsch and Krauss, 1965; Eysenck, 1965).

There are numerous more recent approaches to the problem of man's relatedness to his experiential and social world. The social learning theory of Bandura and Walters (1963), the behavior theory approach outlined by Miller (1965), the arousal theory of Berlyne (1960) and the more purely cognitive approaches of Luria (1961) and Luria and Yudovich (1959) are illustrative of the recent work. Still others such as Witkin (1965); Rokeach (1960); Schroder, Driver and Struefert (1967), and Schachtel (1959) could be cited to demonstrate the continuing interest in this area.

A similar, almost integrative approach toward the problem of man's relatedness to man and to objects is that offered by Fromm (1964a).

Fromm is termed quite accurately by Brown (1961) as a Post-Freudian. While indebted to Freud, Fromm's ideas are also predicated upon his own sociological training, some gestaltist theory, vast clinical practice and an understanding of existentialist thought. Furthermore, his theory that man's responses are largely shaped as the result of his interaction with the environment (Fromm, 1964a) is consonant with social learning and behavioral principles (Deutsch and Krauss, 1965).

Specifically, Fromm is concerned with those factors in Western Society which promote mass conformity and, in turn, which hinder individuality in thought and action. Of particular concern is the personality of those socially manipulated persons who obey and conform often to the extent that they seriously circumscribe their own lives as well as the lives of others. Fromm is not alone in his analysis and interest in this area.

PERSPECTIVE

For some time, commentaries have been made upon the trends in the western world toward individual submission to authority, toward mass conformity and technical barbarism. Packard (1959) examines the role of the social structure and the advertising media in fostering conformity and attaining consumer manipulation. Whyte (1957) documents the role of industry and business in creating the acceptable organization man. Michaels (1962) examines the decay of man's individuality as automatic and cybernetic devices isolate him and obviate the necessity of human presence. Sloan (1965) chronicles the emergence of the corporate superstructure that has become the pattern for business

administration in dealing with the unpredictability of mankind. Galbraith (1967) deplores the decline of entrepreneurial skill in a morass of corporate complexity. He persuasively argues that a "technostructure" or executive hierarchy emphasizes the collective-decision--the team approach, and de-emphasizes the value of independent judgment. Skinner (1965, p. 333) provides a comprehensive view of the "controlling agencies" in our society. He shows how these agencies, government, law, religion, psychotherapy, economics and education control the consumption of ideology and information such that only conforming ideas and predictable behavior find social reinforcement.

Anderson (1968) applies Galbraith's insights to contemporary educational practice. The educational technostructure composed of specialists of narrow expertise (e.g. counsellors, administrators) are shown by Anderson to be capable of being agents, who collectively dictate the conforming behavior required by commerce and government. Bel Kaufman's (1964) humorous, yet pointed extrapolation of educational practices in Up the Down Staircase demonstrates that regulated behavior can become an overriding objective of school authorities. Friedenberg's (1959) The Vanishing Adolescent, provides further subjective evidence of the stance of school officialdom in this regard.

The absurd anti-life obedience which may emerge from the concerted effort of these agencies has been demonstrated by Milgram (1963). Milgram obtained adult volunteers for a research project through a newspaper advertisement. He conducted the volunteer individuals into an appropriately labelled room filled with authentic appearing electronic apparatus. The volunteer subjects were asked to administer electric

shocks to another individual if that individual's response to questions were incorrect. The pretext being that the project would determine the effect of punishment on learning rate. A large generator with a row of switches or buttons on a control panel formed the essential apparatus. Opposite each button was a voltage output figure (e.g. 10, 20, 30 ... 450). The volunteer (businessman, teacher, etc.) was told to administer a shock when an incorrect answer was given and to increase the voltage upon each such response. The "victim" under the electrodes was cued to give frequent wrong answers, to yell and kick convincingly at certain voltage readings and finally to twitch and cease all movement or response. Certainly, the apparatus was so contrived that no such voltage was conveyed to the electrode. Milgram stood by offering encouragement to the volunteer to complete the task.

Amazingly, 26 of the 40 volunteer subjects followed through the sequence to the highest shock even though the "victim" had ceased any movement. Many volunteers laughed hysterically, broke out into perspiration, but nevertheless completed a task which had all the overt signs of being destructive of life.

The above cited commentaries and the experimental evidence appear supportive of Fromm's view that there are social forces which promote unquestioning conformity or obedience to authority.

The outcome of the Milgram experiment is particularly congruent with Fromm's position that some individuals while under the direction of an authority (e.g. Milgram in a laboratory jacket in a "research center") are capable of actions which are extremely self-defeating or even destructive.

Of immediate concern in the present study are the personality variables which would be descriptive of those who conform or obey and those who resist such reactions.

THE PROBLEM

Essentially, the theme of Fromm's work for over a quarter of a century (1941 - 1967) has been the socio-psychological implications of man's transition toward dependence on technology and machines. A statement from Fromm (1964a) is indicative of his analysis.

The bureaucratic-industrial civilization that has been victorious in Europe and North America has produced a new type of man - a 'gadget man' deeply attracted to all that is mechanical and inclined against all that is alive. (p. 23)

Those with an orientation toward the mechanical, the inorganic, the dead, Fromm terms "necrophils." Those with an orientation toward all that is alive, who are tolerant of uncertainty, he terms "biophils." These "two polar attitudes" define modern man's fundamental relatedness to his society (Fromm, 1964a, p. 23). That is, at the one end of Fromm's life style continuum is the necrophilous, anti-life orientation and at the other end is the biophilous, love of life orientation. Fromm suggests many of the possible personality correlates of biophilia and necrophilia (1963; 1964a; 1964b; 1965; 1967a). However, an empirical program of investigation remains to be done to substantiate the Frommian "insights."

The purpose of the present study is to create an instrument to measure the existence of the necrophilous and biophilous orientations. The instrument, a 40-item, paper-and-pencil test, is termed, the Life

Orientation Test or LOT hereafter. Low scores reflect necrophilia and high scores reflect biophilia. Secondly, the study is so structured as to provide a rather extensive validation network for the Life Orientation Test.

In order that the instrument have wide applicability, actual items are framed at or below a grade eight readability level. Administration of an initial version of the instrument (72 items) involved 200 persons representing a wide range of age, occupation and educational background. From an analysis of the responses of these subjects to the items on the initial form of the LOT, a final form was prepared employing the 40 most discriminating items. This final 40-item LOT was then employed in all subsequent construct validation procedures.

Basically, three types of construct criterion are utilized. Firstly, the relationship between the LOT and established personality measures is examined. Specifically, sub-studies are undertaken to discern whether logically predicted relationships exist between life orientation as measured by the LOT and conceptual complexity, dogmatism, authoritarianism, creativity-originality and attitudes toward institutions. Secondly, specific criterion groups (e.g. student nurses, educational administrators and others) that could be logically argued to collectively hold differing life orientations are examined. Thirdly, variables other than those implicit in Frommian theory which might account for considerable test variance are investigated. In this latter category sex, age, verbal facility and intelligence are selected for scrutiny.

CHAPTER II

REVIEW OF THE LITERATURE

FROMMIAN SOCIO-ANALYSIS

Fromm views contemporary man against the backlog of mankind's social and psychic evolution. His approach, while indebted to earlier theorists, is novel in many aspects. He rejects the Freudian notion that sociological problems are explainable in terms of individual psychology. Secondly, he rejects the Marxian doctrine of the social genesis of the individual psyche.

Rather, he says, "passions, desires, anxieties; do change and develop as a result of the social process, but . . . in their turn become productive forces molding the social process" (1965, p. 28). Thus, at the end of the Middle Ages man's quest for fame, success and work gave rise to modern capitalism. In turn, modern commerce and industry require these same human forces but new ones as well.

Therefore, Fromm concludes that the fundamental problem of psychology is the specific kind of relatedness of the individual toward his world. To compound the problem for the investigator, this relationship between man, nature and society is in ceaseless developmental flux. However, the historical evolution of man's present mode of relatedness to his world may be traced. Fromm believes that early man lived in a state of close harmony, "cosmic unity" with nature and society. That is, primitive man was only vaguely aware of his existence as a separate being apart from his social and physical setting.

This feeling of "oneness" with the physical universe diminished as man conquered nature, so that man began to emerge as an entity with the advent of the Middle Ages. Nonetheless, man during the medieval era still retained his "social solidarity." To the medieval mind, the social order was of divine origin and as such went unquestioned. The rules and obligations of the Church and the Feudal State bound man to his society. The "individual" did not exist. By the late Middle Ages individualism emerged with the rise of the merchant class. Feudalism perished and with it the "static unity" or fixedness of feudal society. The individual human being became a solitary dynamic unit. The Renaissance represented the assertion of individuality in the creative sphere. The reformation represented individual interpretation in the religious sphere. Capitalism meant individual enterprise in the economic sphere. Out of this trend toward individuality, the modern industrial society evolved. Man, at the present juncture in time, is "isolated" and has become an individual entity or a "self" apart from the physical and social universe.

His attempts to impose rational order on the universe become a life orientation which depending upon its direction can be either "non-productive" or "productive" (Fromm, 1965). Figure 1 provides a graphic summary of Fromm's concept of the emergence of the individual.

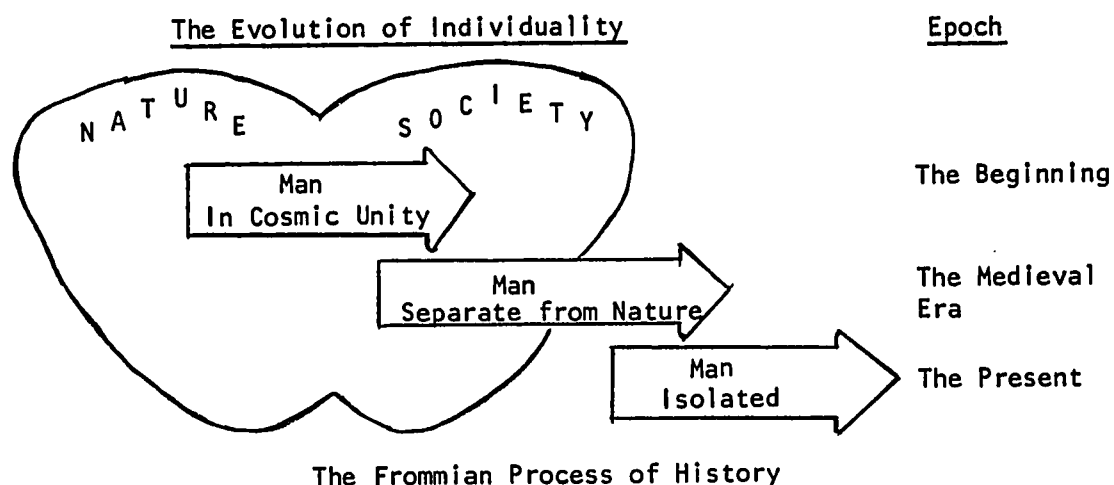


FIGURE I

THE NONPRODUCTIVE OR NECROPHILOUS ORIENTATION

The main "psychic mechanisms" that Fromm groups under the necrophilous or nonproductive orientation are authoritarianism, destructiveness and automaton conformity. Prior to examining these mechanisms or socialization methods, it should be noted that use of these methods does not preclude social efficiency. Therefore, according to Frommian theory, these efforts at relating to the world are extended by normal man and not necessarily by neurotic or abnormal individuals (Fromm, 1965).

Authoritarianism

Fromm places sadism and masochism under the same heading of authoritarianism. In both instances "the integrity of the individual self is lost." In the case of sadism, the personal power of the self is dissolved in another. With masochism, the personal power of the self is enlarged. Because the need to merge the self with something or someone

and gain relatedness is operative for both the sadist and masochist, Fromm sees sadism-masochism as the "symbiotic-relationship." People, he contends, are not sadistic or masochistic per se, but are constantly oscillating between the active and passive side of authoritarianism (Fromm, 1965, pp. 163-202).

Destructiveness

Destructiveness differs from authoritarianism fundamentally in its aim. The symbiotic complex leads to a submissive or active relationship, while the destructive tendency is toward elimination. That is, destructiveness is an attempt to escape from the feeling of powerlessness one feels before the world. By destroying or overwhelming the outside world the individual is not reminded of his weakness. The objects with which he makes adverse self-comparisons are removed.

Automaton Conformity

The above mechanisms reduce an individual's sense of loneliness or insignificance by a merging of the self with that of others or by "destroying" externals which provide a basis of adverse comparison. Automaton conformity, on the other hand, is a psychic mechanism wherein the individual ceases to be himself. Instead, the personality, the role offered by his cultural setting dictates his pattern of existence. As Fromm (1965) states it, "the discrepancy between the 'I' and the world disappears and with it the conscious fear of powerlessness" (p. 209). A pseudo-self replaces the real self with consequent suppression of

critical thinking, personal decision making and spontaneity. In short, individuality is given over to conformity.

THE PRODUCTIVE OR BIOPHILOUS ORIENTATION

Fromm's biophilous orientation, unlike the necrophilous orientation, is descriptive of a productive mode of relatedness to mental, emotional, and sensory responses; to others, to oneself and to things. That is, the accent is on development, rather than curtailment of the potential of the self and others. Fromm variously terms such relatedness, "love" or "productiveness." How does man relate to the world when he uses his powers productively? Fromm answers:

The world outside oneself can be experienced in two ways: reproductively by perceiving actuality in the same fashion as a film makes a literal record of things photographed (although even mere reproductive perception requires the active participation of the mind); and generatively by conceiving it, by enlivening and re-creating this new material through the spontaneous activity of one's own mental and emotional powers. (1967a, p. 95).

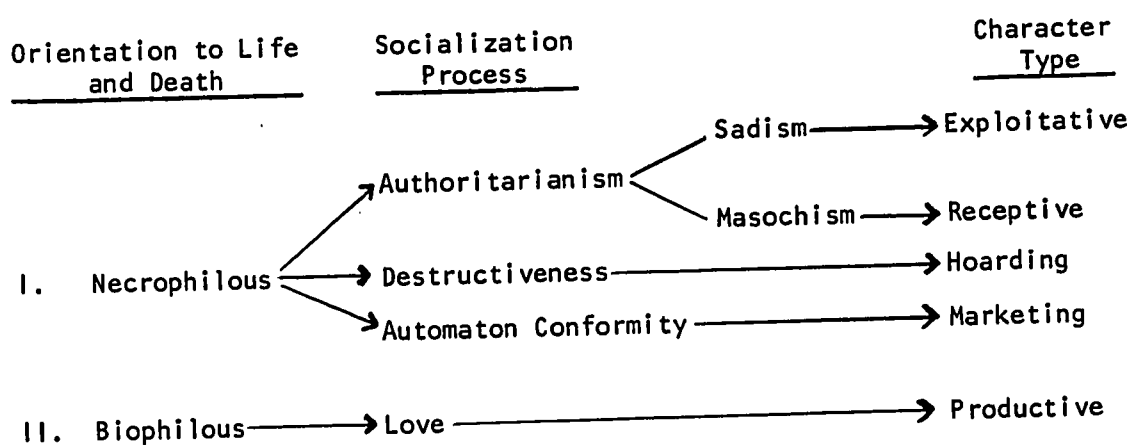
The biophilous approach is the opposite to an approach by force. The biophilous person tries to understand, to love, to convince, to stimulate and in doing so he constantly transforms himself. He becomes "more sensitive, more observing, more productive, more himself" (Fromm, 1965, p. 110).

SUMMARY

In the Frommian scheme, then, there are four main "psychic mechanisms" for relating oneself to others: (1) authoritarianism, (2) destructiveness, (3) automaton conformity, and (4) love. Arising from

these socialization methods are corresponding processes of assimilation, each of which creates a character type: (1) the receptive-exploitative; (2) the hoarding; (3) the marketing, and (4) the productive.

While each character type does have relatively unique qualities, they are really basically representative of only two polar attitudes toward life and death as is depicted in Figure II (Fromm, 1965).



The Frommian Genesis of Character
(After Fromm, 1965, p. 116)

FIGURE II

Thus, essentially there are two polar attitudes toward life and death which lie at the root of the behavior of contemporary man (1964a).

The necrophilous person is attracted to darkness and night, to the inorganic, to the past. He fears the future, the unpredictable, the organic. He is orderly, obsessive, possesses the power to kill, is pre-occupied with sickness, death, corpses, blood, dirt, feces, sadism. The necrophil worships force. His interests center around the mechanical such as cars, television, space travel and gadgets often to the exclusion

of love, sex, nature, food.

In contrast, the biophilous person loves life, all that enhances life such as joy or living things. A biophil is capable of wondering, he prefers the new; to construct rather than to retain or confirm the old. He loves the adventure of living more than certainty. The biophil has a functional and variable approach to life rather than a set and mechanical approach. He sees structures rather than summations--the whole rather than just the parts. He influences by love, molds by his example. Force or bureaucratic dictation is foreign to his life style.

The necrophil is a "destroyer;" the biophil is a "creator," and therein according to Fromm, lies the critical difference between the two orientations (1964a).

RELATED PERSONALITY FORMULATIONS

Introduction

Aware of the inferential nature of his theory, Fromm has suggested that steps be taken to validate the existence of the necrophilous-biophilous personality dimension (1964a, p. 25). Such is the direction of the present study with the procedural guidelines derived from Cronbach and Meehl's (1955) discussion of construct validation.

Accordingly, an instrument (the LOT) has been prepared to reflect Fromm's life orientation theory. To establish this test as a measure of the life orientation construct, certain associations and interpretations are offered which lead to testable hypothesis. Specifically, life orientation appears to be logically related to such psychological

constructs as conceptual complexity, dogmatism, creativity, social acquiescence, irrationality and institutional regard.

Conceptual Complexity Theory

Conceptual complexity and theoretically related dichotomous constructs of cognitive functioning variously termed analytical versus global, articulated versus vague, active versus passive, Wallach (1962, pp. 208-209) points out, have an extended history of acceptance in psychology. Conceptual complexity has been investigated and discussed by many (e.g. Harvey, Hunt and Schroder (1961); Barron (1963); Vannoy (1965); Beiri, Atkins, Briar, Leaman, Miller and Tripodi (1966). A recent extensive presentation, is that of Schroder, Drive and Struefert (1967). Essentially, what Schroder et al. suggest is that individuals may be differentiated in accordance with the "complexity" or "simplicity" of their conceptual structure. A person of low conceptual complexity is characterized as possessing:

1. few dimensions along which a stimulus situation can be located,
2. little discrimination within these dimensions and
3. a few absolute rules to govern integration of impinging stimuli. (pp. 16-17)

The individual of high conceptual complexity in contrast demonstrates:

1. a multi-dimensional system with which to order or combine incoming stimuli,
2. finer discrimination along these dimensions,

3. complex integration rules for impinging stimuli and
4. the potential to generate alternate patterns of interaction (p. 23).

Thus, level of conceptual structure is a functional determinant of the individual's information-processing system. It follows, therefore, that the "way" or structure of thought is more significant than the "what" or content of thought. Static trait theory is rejected by Schroder et al. and beliefs, needs, concepts, and attitudes are seen as emanating from the structure that is basic to information integration. Therefore, for any two persons a mutually held attitude may emerge from almost totally disparate structural variables and hence very different overt responses could result. The low-level person with a simple black-white dimension and few rules or one relatively fixed rule for information integration would perform differently than those with high-level conceptual structure, who possess abundant rules, associative linkages, and the power to generate novel relations.

Conceptual Complexity and Life Orientation

The Schroder group depict the individual of low conceptual complexity as a "categorical black-white thinker" or as one who "resolves ambiguity by exclusion" (p. 16). Similarly, Fromm says of the unproductive individual that he is "filled with expectations of order which is after all a category of his own mind." Further, he adds, if the desire for order is strong enough he will try to force life into orderly patterns (Fromm, 1967a, p. 111). Secondly, the Schroder investigations point out that individuals with low conceptual integration are

"maximally controlled by external stimulus conditions" (p. 17). Again, Fromm appears to be saying the same thing about the necrophil when he states, "the individual ceases to be himself; he adapts entirely the kind of personality offered to him by cultural patterns" (Fromm, 1965, p. 209). In short, he becomes an "automaton conformist."

At the other end of the complexity continuum those of a high level of conceptual integration Schroder et al. point out are, "highly effective in adapting to a complex situation" (p. 23). Instead of depending on concrete external conditions for building rules for integration, their abstract orientation permits a cognitive generation of related alternatives. They are not tied to the past for predicting events. Thus, they can cope with situational change. This is almost exactly the opposite of the functioning of the necrophilous personality in Fromm's formulations. The unproductive individual is a "Homo mechanicus" who tends "to cut each individual down to the proper size making it possible for him to become one of the group" (1967b, p. 110). These are the people for whom an experience which they have had such as an artistic performance or a political meeting, "becomes real only after they have read about it in a newspaper" (1965, p. 217). The "unproductive organization" man cannot, Fromm makes clear, cope with the changing situation without "bureaucratization" of the activity (i.e. quantification, abstractification). Hence, the industrial administrator has his personnel inventories, organizational charts, production tables, graphs, etc.; the educational administrator has his teacher-pupil ratios, his I.Q. scores, his percentile ranks, etc. From these static criteria of the past, the

unproductive individual structures the present.

As Schroder et al. put it, "stimuli are evaluated more or less unidimensionally," in the concrete structures of the individual of low conceptual complexity (p. 16). Considerable change in the situation is ignored because the categorization is complete. It is only when the stimulus changes abruptly that it is perceived in a drastically different way. Even then, a new cognitive structure as simple as the former is employed to integrate the changed stimulus. Only black-white, good-bad dimensions exist (p. 17).

Fromm's productive person like the high conceptual complexity individual sees the whole structure and does not exclude information. The biophil prefers to construct rather than to retain or confirm the old. On this basis, conceptual complexity appears related to biophilia and conceptual simplicity to necrophilia.

Correlates of Conceptual Complexity

The correlates of conceptual complexity which would also appear to be correlates of life orientation are: conflict resolution (i.e. integrative ability), creativity and aggressive tendencies.

Suedfeld and Hagen (1966) found high complexity subjects to have greater capacity to integrate disparate information and hence greater conflict-resolving ability. Several studies by Schroder and Streufert (1962) indicate that the high complexity individual is a superior social perceiver and information processor. Work by Leventhal and Singer (1964) is supportive of the greater conflict resolution capacity of the conceptually complex individual. They report that cognitively simple Ss

as opposed to complex Ss changed and vacillated more in their impressions upon receipt of discrepant information. Reviews of structural complexity investigations (Beiri et al., 1966; Bonarius, 1966; Crockett, 1966; Schroder et al., 1967) consistently report that conceptually simple persons are less capable of integrating discrepant information and that they conform to the present situational exigencies to a greater extent than do conceptually complex persons.

This tendency toward conformity appears related to the lower incidence of creativity found among the conceptually simple. Schroder et al. suggest that the non-creative conceptually simple individual invokes a familiar learned rule in the presence of most cues regardless of the cue or rule complexity. On the other hand, the more abstract thinking conceptually complex person generates new information from novel rule combinations (p. 23). Work by Barron (1963); Tuckman (1966); Stager (1967); Karlins and Lamm (1967); Harvey, Prather, White and Hoffmeister (1968) demonstrates that complex individuals arrive at more creative, novel or resourceful solutions than do conceptually simple individuals.

More rigid behavior, thus, is associated with lower conceptual or integrative ability. The research of Driver (1962) with regard to complexity and aggression provides experimental support. Driver found that under experimental conditions integratively simple persons performed serious aggressive acts with greater frequency than their complex counterparts. Moreover, aggressive acts by groups composed of members of known conceptual levels could be predicted under varied levels of situational stress. Authoritarianism (F scale) has been found related

to conceptual level (White and Alter, 1965; White and Harvey, 1965; Schroder et al., 1967).

It would seem logical to conclude, therefore, that a measure of conceptual or integrative complexity (low to high) should be positively related to a measure of life-orientation (necrophilous to biophilous).

Dogmatism Theory

Taking direction from the accumulated research concerning the California F Scale of Adorno Frenkel-Brunswik, Levinson and Sanford (1950), Rokeach (1960) developed a more pervasive theory of open or closed belief systems.

Rokeach's position is that authoritarianism or intolerance "cuts across specific context; that is, it is not uniquely restricted to any one particular ideology or religion or philosophy or scientific viewpoint... It is not so much what you believe that counts, but how you believe" (1960, p. 6).

The extent to which an individual's belief system is open or closed governs in a very generalized way that individual's behavior. As Rokeach puts it, "we organize the world of ideas, people and authority basically along the lines of belief congruence" (1960, p. 395). Friendship and credence are accorded those with similar beliefs and are withheld from those with dissimilar beliefs. The actual extent to which others are accepted or rejected on this basis is an index of the openness or closedness of one's belief system.

Rokeach developed scales to measure "dogmatism" and "opinion-ation." The scales represent an attempt to measure the "openness" or

"closedness" of the believer. Authoritarianism was hypothesized to be a reflection of "closedmindedness." Rokeach's subsequent investigations indicate that highly opinionated persons tended to be dogmatic. Moreover, the open-minded Ss were found, in experimental situations, to be more able to integrate new beliefs into novel cognitive systems.

Dogmatism and Life Orientation

Many of the correlates of Rokeach's concept of dogmatism are those one would also anticipate as being related to the Frommian concept of authoritarianism. High dogmatics (closed mind) exhibit low ability to form new belief systems upon confrontation with novel conditions (Rokeach, 1960, p. 211). The necrophilous individual is similarly described by Fromm (1965, p. 216). Rokeach also found the incidence of anxiety greater among the high dogmatics (1960, p. 211). Similarly, Fromm suggests that the authoritarian personality is ever questing "inner peace and tranquility" (1965, p. 176). Other investigators, Vacchiano, Strauss and Schiffman (1968) employing five instruments containing 59 sub-scales report the following correlates of dogmatism.

Dogmatic subjects are low in ego strength (16 PF), frustrated by changeable conditions, submissive and conforming, restrained, diffident, timid, tense, impatient, and conservative and respecting of established ideas. In regard to their conservatism, the dogmatic subjects are confident in what they have been taught to believe, accept the tried and true despite inconsistencies, and are cautious and compromising in regard to new ideas, generally going along with tradition. (p. 84).

Fromm points out (1964, pp. 22-25) that the necrophil values "obedience," "order," "certainty" and "finding the old confirmed." It would appear that some of the constellation of behavioral correlates that reflect dogmatism (Vacchiano et al.) also reflect necrophilia.

Another facet of the necrophil is the tendency to submit to authority (Fromm, 1965, p. 163). Vidulich and Kaiman (1961), likewise, found that high dogmatics accepted information more readily from high-status communicators. Thus, dogmatism and Frommian authoritarianism do appear to be related. Indeed, Rokeach (1960, p. 11) suggests a strong association.

F-Scale Authoritarianism and Life Orientation

Lichtenstein, Quinn and Hover (1961) report a correlation of .70 between the dogmatism scale and the F-scale. Thus, with such a high correlation many of the arguments put forth above regarding possible common variance between dogmatism and necrophilia may apply to the F-scale, as well.

The well known F-scale of Adorno Frenkel-Brunswik, Levinson and Sanford (1950) generated a mass of complex research in the decade after its appearance. While exhibiting test construction shortcomings (Christie and Jahoda, 1954), it remains a well-validated measure of authoritarianism. The personality, attitudinal and sociological correlates germane to the present study are summed up succinctly by Deutsch and Krauss (1964) who draw freely from the extensive reviews of Titus and Hollander (1957) and Christie and Cook (1958):

...people who score high on authoritarianism are more likely to be low class, less educated, less intellectually sophisticated, less liberal, politically more prejudiced, less successful as patients in psychotherapy, more religious, and stricter in their child rearing practices than people who score low on authoritarianism. (p. 163)

Again, a considerable relationship should exist between high F-scale authoritarians and low scorers on the Life Orientation Test.

Fromm, very similarly depicts the necrophilous person as being intellectually unsophisticated (1967a, p. 94), not liberal politically (1964a, p. 22) and excessively strict in child rearing (1967b, p. 108).

Creativity and Life Orientation

It will be recalled that creativity has been repeatedly linked to cognitive complexity (e.g. Barron (1963); Tuckman (1966)). The complexity theorists (Schroder et al., 1967) view creative thinking in terms of the amount of information that can be generated by new rule combinations (p. 11). In general, other researchers concerned with creativity tend to agree although in less specifically information processing terms. For example, Ghiselin (1963, p. 43) says creative thought enables one to "transcend" the "established universe of meaning."

Bruner (1962, p. 19) suggests creativity resides in the ability to "combine formerly disparate elements." Fromm (1967a, p. 98) states that an individual with "generative capacity" penetrates below the surface to the essential and visualizes what is not yet apparent. In contrast, an individual without generative ability may be able only to "reproduce" the surface features of phenomena (pp. 95-96). This generative ability Fromm theorizes is more characteristic of the biophil than of the necrophil. Research conducted by Anderson and Cropley (1966) yielded significant correlations between originality (i.e. creative responses determined on the basis of statistical infrequency) and socio-economic status, impulse expression, category width and risk taking. The orderly, tradition-bound, conservative, compulsive necrophil of Fromm's conception does not appear to share the characteristics found typical of "original"

individuals.

The following quotation from Anderson (1966) juxtaposes the two poles of the originality-creativity continuum and at once summarizes the position taken herein:

Habitual conceptual systems are developed, especially by the lazy, the unconcerned, and the anxious... to help individuals cope with the uncertainties of an unknown and perhaps dangerous world... By contrast the original individual can generate a variety of plans while being organized for survival... (p. 285).

It would appear logical, therefore, to predict a lack of creativity or originality in necrophilous oriented persons and a greater presence or strength of creativity or originality in biophilous oriented persons.

Social Acquiescence and Life Orientation

The undercurrent of conformity in necrophilous tendency (Fromm, 1965, p. 208) could lead one to anticipate high F scores for LOT scorers. However, some of the relationship of the LOT to the F-scale should be erased through test construction control of acquiescent set on the LOT. The F-scale does not control for agreement response set. Thus, acquiescent tendency correlates very highly with F-scale authoritarianism (Bass, 1955). An independent test (Bass, 1958) which reveals social acquiescence would more clearly measure the dimension of social conformity than the set generated inadvertently by faculty test format. In addition, the conformist, described by Fromm is of the genre of the social conformist. This type of person, Fromm says, "gives up his individual self and becomes an automaton, identical with millions of other automatons around him" (p. 209). Moreover, Bass (1958, p. 494)

suggests that his social acquiescence scale (SA Scale) bears a relationship to Fromm's necrophilous character orientation.

Subsequent investigations (Vidulich and Bass, 1960, p. 259) report that Bass' SA Scale correlated (.40) with dogmatism (.01 level of significance). A negative correlation (-.25) was reported between the SA Scale and the objectivity score of the 16 PF. Both the lack of objectivity and the dogmatic approach of the high social acquiescent individual suggest a necrophilous orientation. Bass (1961) in reviewing several studies dealing with social acquiescence suggests:

... that where successive learning or problem-solving involves reserving judgment, avoiding half-truths, weighing evidence critically, discerning among weakly differentiated cues, avoiding overgeneralization and the negative effects of stimulus generalization, socially acquiescent Ss are likely to perform less adequately than those of matched intelligence but with lesser tendencies to acquiesce. (p. 448)

Thus, it is logical to anticipate a sizeable positive relationship between social acquiescence and necrophilous tendency.

Irrational Beliefs and Life Orientation

The necrophilous individual might be conceptualized by Ellis (1962) as one who attends to irrational ideas. Such irrational ideas as, "it is a dire necessity to be loved by almost everyone" or "that it is easier to avoid than to face difficulties" appear compatible with Fromm's non-productive orientation. A research instrument, the I-I Inventory, developed by Zingle (1965) could serve to test this conjecture. Zingle (1965, p. 54) reports that with juveniles academic achievement is negatively related to "irrationality." In other words Zingle found that productive students attend less to irrational thoughts. Similarly,

Fromm (1965, pp. 218-219) says that irrationality precludes "discovery" of something new or hence productiveness.

Conklin (1965) using the Zingle inventory replicated the earlier findings. A further study by Conklin, Boersma and Zingle (1966) indicates that low I-I Inventory scorers, upon presentation of learning tasks, attended to fewer irrelevant dimensions and exhibited higher retention rates. The evidence is suggestive of a negative relationship between the LOT and the I-I Inventory. The biophil (high LOT scorer), Fromm suggests, does not allow "subjective" and "irrational" factors to determine his thoughts and actions (1965, p. 217).

Institutional Regard and Life Orientation

Lo Scinto and Hartley (1963) report that open-minded (low dogmatic) subjects have less restricted perception of value-related stimuli. The necrophil, postulated herein to be closedminded (high dogmatic), does not have a broad view of the objects or others of concern to him (Fromm, 1965, p. 165). It is, therefore, plausible that attitudes of regard or disregard toward an institution would be reflected in an individual's life orientation. Fromm's conception of the authoritarian as one marked by either passiveness or aggressiveness would suggest that necrophils would exhibit either extreme institutional regard to extreme disregard. The non-productive individual would be relatively speaking all-accepting or all-rejecting of an institution. The biophil would likely occupy the middle range in relation to institutional regard. His broader perspective would allow for a modified alignment inclusive of qualified rejection.

Intelligence, Language Ability and Life Orientation

It has been systematically argued that life orientation as determined by the LOT should be related to conceptual complexity, dogmatism, authoritarianism, creativity, conformity, irrationality and institutional regard.

However, given Fromm's contention that "normal" individuals may fall anywhere along the life orientation continuum (1965, p. 95), some psychological or related abilities should not be highly correlated. For example, intelligence and language ability should be minimally or non-significantly related to the LOT. Furthermore, the finding of such a lack of relationship between the LOT and these two variables would be evidence of the construct validity of the LOT (Standards For Test and Manuals, 1966, p. 24).

RELATED SOCIOLOGICAL AND DEMOGRAPHIC VARIABLES

Introduction

The relationship of specified psychological constructs to the life orientation concept has been discussed, heretofore. However certain sociological and demographic variables are also of use in establishing the validity of the instrument. Life orientation as examined in the discussion which follows, should vary in small, but predictable directions with the age, group affiliation, occupation and birth order of individuals.

It would also be appropriate to note that the empirical testing will involve the LOT or Life Orientation Test constructed by the author

(described in Chapter III) as the measure of life orientation.

Age and Life Orientation

Certain items of the LOT are so prepared as to reflect a testee's temporal focus. This is congruent with Fromm's contention that the necrophil is preoccupied with the past, with tradition or precedent (1964a, p. 23). Studies of the temporal focus of the aged indicate a time orientation to the past (Shneidman, 1966; Kelish, 1963). The evidence that adolescents focus on the present and very near future (Meurer, 1964) further substantiates the view that temporal orientation to the past increases with age. Hence, age should be related to life orientation.

According to Fromm, the temporal focus toward the past is frequently accompanied by a preoccupation with death. However, overt preoccupation with death has been found associated with both the very young and the very old (Alexander, Colley and Adlerstein, 1957; Swenson, 1959). Nonetheless, since comprehension of LOT content is beyond the very young, age from this standpoint should be inversely related to life orientation (i.e. LOT scores).

Group Affiliation, Occupation and Life Orientation

Group affiliation and/or occupational group differences have been reflected in personality measures and remain an acceptable part of test validation (Standards For, 1966; Bass, 1958; Meehl, 1945). Groups such as educationists, student nurses and antique automobile enthusiasts should exhibit distinct LOT scores in comparison to other groups.

The evidence in the literature regarding the personality differences among persons pursuing different specialties within the general field of education is somewhat contradictory. Patterson (1967) hypothesized that counseling students as opposed to non-counseling students would make greater changes in attitude. He reports (p. 447) that counseling graduates showed lower F-scale scores after a year of counseling and study than non-counseling education students. However, a specifically designed measure of counselor attitude failed to reveal any other differences between the counselor and non-counselor subjects. This was found to be the case both prior to and upon completion of a year of intensive experience in their specialties.

Exhortatory literature for counselors suggests that counselors must have attitudes which allow them "true openness to future change" (Nash, 1964, p. 248). Such literature also suggests that the role of the counselor is as "a catalyst to human growth and understanding" (Farwell, 1961, p. 43). Others, in passing comment, cast counselors as strong agents for conformity (Skinner, 1965, p. 359); Anderson, 1968, p. 10).

Evidence from the related studies is far from conclusive, but a trend is detectable. Kemp (1957) examined the need structures of principals, counselors and teachers. He found principals higher than counselors on need for order, deference, endurance, achievement and aggression. The counselors, in turn, were higher on need for exhibition and affiliation. It would appear that the need for order and aggression on the part of the principals is more intimately linked to necrophilia

than is the need structure of counselors. Another study by Kemp (1962) comparing principals and counselors indicated that principals more often than counselors satisfied their needs through inculcating conformity, being recognized as an authority and being able to follow a definite plan. Work by Merrill (1960) and Newsome and Gentry (1963) substantiates Kemp's work and may be taken as evidence of what might be termed the more necrophilous orientation of principals as opposed to counselors.

Other studies (Von Fange, 1962; Mahan and Wicas, 1964; Rank, 1966; Polmantier, 1966; Fretz and Schmidt, 1967) which deal with one or the other specialty or both combined, suggest that there is more unity than disparity in the personality of educationists of the various specialties.

With the reservation implied by the work of these latter investigators, differences should be evident between the life orientation of educators who function as administrators and those who function outside the categories of administration and instruction per se. The evidence suggests that pupil personnel workers (e.g. counselors, special consultants, etc.) should exhibit higher scores on a measure of life orientation than educational administrators (e.g. principals and vice-principals).

Student nurses have frequently been the subject of personality investigations. Of particular relevance is Bass' (1958, p. 482) finding that student nurses are high on social acquiescence and hostility in comparison to school teachers. However, no appreciable difference was found between the two groups on acceptance of conventional mores (p. 481). Nonetheless, to the extent that social acquiescence and hostility are part of necrophilia, student nurses should have lower LOT scores

than teachers.

Work by Kastenbaum (1967) with regard to the impact of experience with the aged on the time perspective of student nurses is related to the above position. Kastenbaum found that nurses in both a geriatric and non-geriatric hospital changed in their time perspective. As the result of an intensive six-week experience with aged or regular patients, nursing trainees were found to exhibit a greater orientation to the past and increased identification with older persons (p. 166). It will be recalled that a temporal focus to the past is associated with necrophilia (Fromm, 1964a, p. 24).

The work of Lawson and Henley (1967); Michael, Haney and Jones (1966); Pallone and Hosinski (1967) can be interpreted to show that student nurses exhibit high conformity, high need to achieve and incongruent self-self ideal perceptions. All of these factors, Fromm (1967a, pp. 70-75) considers more indicative of a necrophilous orientation than of a biophilous orientation to life. Therefore, relative to others, student nurses should have low LOT scores.

Members of antique automobile clubs were sampled on the possibility that a factor contributing to their ownership of an antique automobile may be their focus toward the past and on "inorganic" machines. It is recognized that other factors such as the social opportunities membership affords might overshadow any other factor such as described. Nonetheless, generally low LOT scores for antique automobile enthusiasts could logically be anticipated.

Birth Order and Life Orientation

Birth order or ordinal position and its relationship to personality variables has been the subject of hundreds of investigations (Jones, 1954; Sampson, 1965; Warren, 1965). The theory underlying the search for differences resides in the idea (Adler, 1927) that personality should reflect the different experiences a family imposes or provides for older and younger siblings. Such a view, that is, the belief that personality is a function of differential environmental influences is compatible with Fromm's ideas (1965, p. 39-56).

Studies indicate that first borns as opposed to latter borns exhibit greater anxiety (Schacter, 1959), higher dependency needs (Sears, 1951), more submissiveness (Sampson, 1965) and greater need to achieve (Atkinson and Litwin, 1960). All of these findings suggest a more necrophilous orientation for first borns than for latter borns.

In postulating a relationship between birth order and life orientation some caution would appear warranted. A large number of the ordinal position studies have utilized subjective measures such as ratings of anxiety (e.g. Yaryan and Festinger, 1961) or have been confined to structured laboratory tasks (e.g. Weller, 1962). Studies employing more objective measures of personality variables have failed to report any significant relationships. The following three studies are examples in point. Stotland and Dunn (1962) failed to find a relationship between birth order and F-scale authoritarianism. Moore (1964) reported no detectable relationship between the Social Acquiescence Scale and birth order. Recently, Gardiner (1968) found a lack of relationship

between conceptual complexity and birth order.

Thus, with due regard to the low probability which could be attached to such a hypothesis, first born subjects should reflect a more necrophilous orientation than latter born subjects.

Physical and Social Science Majors Within Education and Life Orientation

Goldschmid (1967) has shown that it is possible to predict the university major of students on the basis of personality tests. He developed 16 categories for describing university majors in terms of (1) the social science-humanities content of the specialty, (2) the physical science content of the specialty. Goldschmid, then, administered personality instruments such as the CPI and the Myers-Briggs Type Indicator (MBTI) to establish category norms. Subsequent, "unknown" students tested were adequately assigned to the appropriate major category with sufficient accuracy to validate the procedure.

It is suggested that the emphasis physical science places on quantification and abstraction acts as a selective factor which is evident in student personality. The scientific method emphasizes control and the conquest of uncertainty. These factors, Fromm associates with the necrophilous orientation to life. Social science majors, on the other hand, deal with life problems which so far have eluded and excluded certainty because of the multiple social variables which produce them. Recent work by Pal (1967) and Campbell (1967) can be interpreted, as well, to support the contention that physical science majors will score lower on a measure of life orientation than social science majors.

HYPOTHESES

Many hypotheses are implicit in the previous discussion. Those to be examined empirically are enumerated, hereafter. It will be recalled that the LOT was so constructed that low scores indicate a necrophilous orientation and high scores indicate a biophilous orientation. The basic general hypothesis which subsumes the specific hypotheses is that: The biophilous-necrophilous continuum underlying the LOT will occur in a construct validation network.

1. High LOT scorers will be more conceptually complex than will low LOT scorers.
2. High LOT scorers will be lower in dogmatism than will be low LOT scorers.
3. High LOT scorers will be lower in authoritarianism than will be low LOT scorers.
4. High LOT scorers will be higher in creative ability than will be low LOT scorers.
5. High LOT scorers will be lower in social acquiescence than will be low LOT scorers.
6. High LOT scorers will tend to be lower in institutional regard than low LOT scorers.
7. High LOT scorers will be less irrational in their belief system than low LOT scorers.
8. LOT scores of first borns will be lower than will the LOT scores of later borns.

9. LOT scores of student nurses will be lower than the LOT scores of education students.
10. LOT scores of members of an antique automobile club will be lower than the LOT scores of other groups.
11. LOT scores of pupil personnel workers will be higher than the LOT scores of educational administrators.
12. LOT scores of education students majoring in the social sciences will be higher than the LOT scores of education students majoring in the physical sciences or mathematics.
13. There will be no difference between the LOT scores of males and females.
14. Age will be moderately but inversely related to scores on the LOT.
15. There will be no difference in the written language ability of high and low LOT scorers.
16. There will be no difference in intelligence between low LOT scorers and high LOT scorers.

CHAPTER III

CONSTRUCTION OF THE LIFE ORIENTATION TEST

Item Preparation

Several of the works of Fromm (1963; 1964a; 1964b; 1965; 1967a) which are relevant to his life orientation concept were reviewed. Each statement made concerning either the necrophilous or biophilous orientation was noted. Subsequently, each of the noted characteristics (e.g. the necrophilous tendency to reject innovation) served as the basis of an item for the test. Half of the items were so worded that agreement would indicate a biophilous orientation. The other half of the items were so structured that agreement would indicate a necrophilous orientation.

A Necrophilous Agreement Item

Presenting a Shakespearian play with actors dressed as Eskimos instead of in regular costumes would be in poor taste.

A Biophilous Agreement Item

A translation of a Shakespearian play into modern slang wording could prove interesting and give new understanding.

A pool of 94 items of the above type was prepared. To insure readability of the items and directions down to and inclusive of grade eight reading level, two readability formulas (Flesch, 1948; Forbes and Cottle, 1953) were used to guide item revision. In addition, a class of grade eight students was asked to review the items and directions. Their reactions and comments served as an empirical test of readability

and as a basis for revision and/or rejection of items.

Content Validity

After this procedure 86 items remained. These remaining items were submitted to three judges familiar with Fromm's concepts. Items which the judges were unable to categorize either as distinctly biophilous or necrophilous in content or concerning which disagreement arose were rejected. An initial version of the LOT was then prepared consisting of what appeared to be the most content-specific items. There were 72 items in this first version, with 36 of each type randomly interspersed. Appendix A contains a copy of this initial 72-item version of the LOT.

Scoring Procedure

The directions called for responses to be recorded on a five-point Likert-type scale on a separate answer sheet. The scoring procedure established utilized weightings of 5, 4, 3, 2, 1 from agreement to disagreement on the biophilous items and the reverse on the necrophilous-agreement items. A high score, thus, would reflect a biophilous orientation. Appendix B contains a copy of the final 40-item LOT. The guide for scoring the final LOT appears in Appendix C.

Item Analysis Procedure

The initial version of the LOT was administered to 200 individuals. These persons, as far as practicable, proportionately represented the age, sex and occupational distribution of the population of Alberta according to the 1961 Canadian census. This sample ranged in

age from 11 to 83 and had a mean age of 24.34. Among the occupational categories represented were school children, barbers, persons from retirement homes, farmers, geologists, architects, a priest, a physician, secretaries, teachers, university students, housewives, bankers, civil servants, small town merchants, nurses, milkmen, retail-sales clerks, unemployed individuals and door-to-door salesmen.

The results of an item-total correlational analysis performed on the responses of these Ss are depicted in Table I.

TABLE I

ITEM-TOTAL CORRELATIONS FOR THE
72-ITEM INITIAL LOT (N=200)

ITEM NO.	ITEM-TOTAL r.	ITEM NO.	ITEM-TOTAL r.	ITEM NO.	ITEM-TOTAL r.	ITEM NO.	ITEM-TOTAL r.
1	.304	19	.137	37	.215	55	.186
2	.226	20	.270	38	-.001	56	.191
3	.179	21	.324	39	.162	57	.224
4	.297	22	.087	40	.154	58	.064
5	.434	23	.320	41	.166	59	-.009
6	.175	24	.186	42	.125	60	.360
7	.254	25	.156	43	.482	61	.351
8	.201	26	.182	44	.324	62	.345
9	.280	27	.243	45	.155	63	.483
10	.139	28	.156	46	.359	64	.151
11	.220	29	.327	47	.081	65	.240
12	.281	30	.052	48	.165	66	.182
13	.135	31	.003	49	.323	67	.245
14	.188	32	-.154	50	.170	68	.244
15	-.004	33	.346	51	.096	69	.342
16	.087	34	.348	52	.162	70	.152
17	.084	35	.240	53	.227	71	.350
18	.175	36	.287	54	.095	72	.276

Final Item Selection

A three-criteria procedure was employed to select 40 items for the final version of the test. The first consideration was that the correlation between the item and the total score be between the .15 and .50 range. Secondly, in order to qualify for selection the mean response weighting for the item had to fall between 1.5 and 3.5. A third qualification was that the standard deviation of the response weighting for the item had to be, or exceed 1.3 units.

The rationale behind these criteria are well established (e.g. Cattell, 1965; Bass and Berg, 1959; Nunnally, 1967). In attempting to sample across many different stimulus situations, both role and personality factors were considered in item content. Moreover, many interrelated behavioral tendencies indicative of both ends of the necrophilous-biophilous continuum formed the basis of the study. Thus, the homogeneity factor (the extent to which the item measures what the whole test measures) could not be too high, lest, the broad concept of a total life orientation be confused with some narrow trait. Nevertheless, a fairly broad range of correlations of items with the total would still be justified. For example, item 18 on the initial version of the test samples a rather narrow facet of life orientation. Specifically, it was constructed to test tolerance of uncertainty only. Thus, it should correlate rather minimally with life orientation as a whole. Table I reveals a correlation of .175 for item 18 with the total 72-item LOT.

Item 72-18. One of the delights of life is the excitement gained from not knowing about tomorrow.

On the other hand an item such as item 43 on the initial form which contains content relative to many facets of life orientation should correlate with the total test to a greater extent. Item 43 was intended to measure the degree of reverence for rules, tolerance of change, tolerance of non-conformity, and the tendency to press for, or force conformity. The correlation of this item with the total test was .483. Because of the wide behavioral range of life orientation content implicit in item 43, the high correlation is most acceptable.

Item 72-43. Persons who always want to change the rules, or add disruptive and different ideas to a meeting should be brought into line.

The rationale behind the use of the mean and standard deviation limits on the Likert scale-weightings resides in the extent to which they reflect the normal probability curve. That is, assuming that the behavior depicted by the item is normally distributed, the mean and standard deviation of the weightings should reflect this factor. Appendix D contains a table of the means and standard deviations of the responses for each of the items on the initial 72-item test.

The Final 40-Item LOT

Accordingly, the final 40-item version of the LOT (See Appendix B) was prepared and administered to 574 Ss who represented the groups listed in Table 2 below.

TABLE 2

DISTRIBUTION OF SUBJECTS FOR THE FINAL
LOT ITEM-TOTAL CORRELATION STUDY

GROUP	NUMBER IN SAMPLE
High school students	102
Student nurses	126
Teachers	96
Education students	250
TOTAL	574

The results of the item-total correlation analysis for the final 40-item version of the LOT appear in Table 3.

TABLE 3

ITEM-TOTAL CORRELATIONS FOR THE FINAL
40-ITEM VERSION OF THE LOT

ITEM NO.	ITEM- TOTAL r.	ITEM NO.	ITEM- TOTAL r.
1	.248	21	.349
2	.200	22	.238
3	.247	23	*.015
4	.268	24	.301
5	.385	25	.389
6	.312	26	*.066
7	.301	27	.454
8	.173	28	*.062
9	.171	29	.339
10	.474	30	.253
11	.224	31	.272
12	.272	32	.217
13	.238	33	.207
14	.356	34	.181
15	.426	35	.372
16	.195	36	*.101
17	.400	37	.253
18	.365	38	.383
19	.291	39	.386
20	.390	40	.280

It may be observed that with only four exceptions *, the range of the item-total correlations falls within the limits previously established.

Validity Considerations

The content validity of the instrument was established:

1. through adherence to the specific content described by Fromm.
2. through acceptance only, of the items concerning which 3 competent judges reached perfect disposition according to Frommian life orientation theory.
3. through submission of the items to Dr. Fromm, who regarded them as "very good and relevant."*
4. through the use of item-total correlation analysis.

The construct validity (which will be discussed at length in succeeding chapters) was established:

1. through the comparison of scores obtained by criterion groups (e.g. Nurses, Antique Automobile Club Members, Educational Administrators, School Counselors, Teachers, first born Ss, "later born" Ss, old persons, young persons.
2. through the use of the validated scales of psychological constructs listed in Table 4.

*Personal communication dated January 16, 1969.

TABLE 4

PSYCHOLOGICAL INSTRUMENTS EMPLOYED IN THE STUDY

TEST	VARIABLE	SOURCE
1. Paragraph Completion Test (PCT)	Conceptual Complexity	Schroder et al., 1967
2. Anagrams	Originality-Creativity	Yamomoto, 1964
3. Unusual Uses	Originality-Creativity	Yamomoto, 1964
4. Dogmatism (D) Scale	General Intolerance	Rokeach, 1960
5. California F-Scale	Authoritarianism	Adorno et al., 1950
6. Famous Saying Test SA Scale	Social Acquiescence	Bass, 1958
7. Irrational Idea Inventory I-I Inventory	Belief Irrationality	Zingle, 1965
8. Institutional Attitude Scale	Attitude Toward Institution	Remmers, 1960
9. Lorge-Thorndike Test of Mental Ability	Verbal and Non-verbal Intelligence	Houghton Mifflin Co.

Reliability Estimates

Samples were drawn from the two groups listed in Table 5 and tested and retested during a 5 week interval.

TABLE 5

SUBJECTS WHO PARTICIPATED IN THE
TEST-RETEST CONSISTENCY STUDY

GROUP	NUMBER IN SAMPLE
Summer Session Education Students	34
Education Students	67
TOTAL	101

The estimate of reliability obtained by this procedure was .826.

A further estimate of reliability was derived by determining odd-even item correlations and by using the Spearman-Brown formula. This latter procedure yielded an estimate of .71. The N was 574 and consisted of those groups listed in Table 2.

CHAPTER IV

PROCEDURE AND DESIGN

The Samples

Several populations were sampled. Information relevant to samples, numbers of Ss and the specific tests each group of Ss completed, is provided in Table 6.

TABLE 6

DESCRIPTION OF SUBJECTS AND OF TESTS ADMINISTERED

SAMPLE	N	TEST(S)
Education Students	351	LOT, PCT, SA, F-scale, Anagrams, Unusual Uses, Dogmatism Scale*
Urban High School Students	102	LOT, Lorge-Thorndike, Written Language*
Rural High School Students	84	LOT, I-I Inventory
Pupil Personnel Service Workers	33	LOT
Educational Administrators	29	LOT
Student Nurses	126	LOT
Teachers	96	LOT, Institutional Attitude Scale
Antique Automobile Owners	37	LOT
	858	

*All subjects in these groups did not complete all tests listed.

The Education Students

The education students were all in attendance in one of several sections of two educational psychology courses during the 1968-69 session of the University of Alberta. All were in their third or fourth year of education. The sample totalled 351. One of the courses in which the students were tested was compulsory and the other was optional. Although testing occurred during regular class time, participation was voluntary.

The Urban High School Students

The 102 high school students sampled were from a large composite high school operated by the Edmonton Public School Board. The students represented grades 11 and 12 only. Students from this school, typically represent a cross-section of the socio-economic status groups in Edmonton. They were tested, while in attendance in a supervised study period. One or more study periods are scheduled for all students.

The Rural High School Students

The rural high school students sampled, attended school in a small town. The school population was derived from the town itself, neighboring towns and villages and from the adjacent farming areas. The school is located in Northeastern Alberta and had a grade 10, 11 and 12 population of 162. Testing was accomplished in two classrooms and the study room. In all, 84 students completed the testing task of whom 48 were girls and 36 were boys. All three senior high school grades were represented. The 84 students tested were those who consumed their lunch at the school and who volunteered to participate.

The Pupil Personnel Workers

The sample of pupil personnel workers was constituted of volunteer testees who were in attendance at the summer session of the University of Alberta, 1968. The examiner obtained permission from instructors to visit classes and solicit the co-operation of appropriate students. All Ss were enrolled in one of 4 senior or graduate educational psychology courses. Testing was arranged for groups outside of class time. The 33 Ss in this category represent 8 special education majors, 21 counselors and 4 consultants for pupil personnel service branches of school boards. All indicated on the data sheet that they had occupied a pupil personnel services position in the 1967-68 school year.

Educational Administrators

Those designated as educational administrators (N=29) were the subjects who listed themselves on personal information sheets as principals or vice-principals of schools during the 1967-68 school year. All were volunteer Ss tested subsequent to classroom solicitation. The testing took place in groups in non-class time at the 1968 University of Alberta, Summer Session. The solicitation was made in 4 senior or graduate educational psychology classes and 1 graduate educational administration course. Of the total, 13 were involved in elementary school supervision, 9 worked at the junior high school level and 2 were employed at the high school level. The remaining 6 did not provide specific details. Only 2 were female.

Student Nurses

The student nurses were tested in conjunction with a psychology course which was part of their total program. They were all females in their second or third year of training at a large Edmonton hospital. The sample was 126 and included all students in the class on the day of testing.

Teachers

The Ss in this grouping (N=96) were those who indicated on the personal data questionnaire that they had been employed during the full 1967-68 school term as teachers. They were tested while in attendance at the 1968 University of Alberta, Summer Session. All were enrolled in an educational psychology class generally taken by third and fourth year students. Participation was voluntary.

Antique Automobile Club Members

The 37 subjects in this grouping were all members of 3 antique automobile clubs from Alberta. They were tested during a "car show" and "parts swap meet" held during the summer of 1968. The participation of individuals was solicited while they paused for coffee. Only those who indicated actual ownership of a vintage vehicle were tested. Testing conditions were not optimal. Some tests were taken away overnight and returned completed on the second day of the event. Approximately 40 to 50 percent of those in attendance who met the requirements were tested.

INSTRUMENTS

The Paragraph Completion Test

The Paragraph Completion Test (PCT) was constructed to measure cognitive complexity. It consists of six sentence stems which call for a subject to write two or three sentences in response. A copy of the PCT appears in Appendix E. Adult subjects are allowed 10 minutes to complete the test. A weighting of 1, 2, 3, 4, 5, 6 or 7 is awarded the response according to the level of conceptual structure which generated the response. Schroder et al. (1967, p. 190) report typical inter-rater reliability correlations in the .80 to .95 range. Internal consistency over the six items is high (.57 to .75) according to Schroder et al. (p. 106). An estimate of inter-judge reliability calculated between the ratings of the present author and a fellow graduate student also employing the instrument in connection with his thesis was .77 for 20 observations.

Typical responses at the 1, 3, 5 and 7 levels of conceptual complexity are presented hereafter. All were derived from the responses of third and fourth year education students to the stem "Rules..."

Weighting or Level of Conceptual Complexity Inferred	Response
1	Rules... are truly golden and everlasting. They exist forever to make people live right in their families and outside the home or wherever. The fact that they live on through time makes rules precious.
3	Rules... are required only up to the degree that they preserve continuity. If there are too many of them, they decrease in value. They are most useful in respect to games which everybody can know and play.
5	Rules... should allow for exception. When used for the orderly accomplishment of tasks, they are valuable. But they can choke individuality and cloak authoritarianism.
7	Rules... may be rational or beneficial or ridiculous and detrimental. They may govern, guide, restrict or infuriate. They may increase conformity, which can be helpful or hindering. Helpful rules protect the rights of individuals and can be changed.

Anagram Test

The Anagram Test is purportedly a measure of originality or creativity (Barron, 1963; Mednik, 1962). Essentially, the word, GENERATION, is offered and subjects are requested to generate words of any length from the letters composing this word. In the present investigation, weightings of responses were based on the statistical

frequency, or more specifically, infrequency of the individual responses. A time limit of 5 minutes was imposed. Weightings of 1 through 10 were awarded according to the infrequency of the offered word in the total sample. For example, the response, "IOTA," which occurred only once in the total sample was awarded a weighting of 10. The word, "TIRE," which occurred ten times in the total sample was awarded a weighting of 1. All words which occurred more than ten times were awarded zero. Individual weightings were summed to yield the score. The work of Mednik (1962) and Barron (1963) attest to the validity of the test as a measure of originality.

Unusual Uses Test

The Unusual Uses Test is part of the Minnesota Tests of Creativity battery (Yamamoto, 1964). Materials for the test consist of an answer sheet and a small stuffed toy dog. In the group administration procedure followed for this investigation, the answer sheet contained these instructions:

List below the cleverest, most exciting, most interesting and most unusual uses you can think of for this dog other than as a plaything. Think of uses as it is or as it could be changed. For example, it could be used as a pin cushion as it is. If on the other hand, you make it larger and stronger you could use it to sit on. (Yamamoto, 1964, p. 40)

A time limit of 5 minutes is imposed. Scoring and weighting of the responses was in accordance with the directions contained in the test manual. Table 7 depicts the weighting procedure. Test scores represent summations of these weightings.

TABLE 7
SCORING WEIGHTS FOR THE UNUSUAL USES TEST

CATEGORIES	PRINCIPLES	WEIGHT
Ornamental- Household	No change	1
	Change of materials	1
	Change of dimensions	1
Container- Holder	No change	2
	Change in materials	2
	Change in dimensions	3
Scientific- Mechanical	Static	2
	Dynamic	3

The Dogmatism Scale

The Dogmatism Scale (Form E) was constructed by Rokeach (1960). It consists of 40 items which provide a measure of "openmindedness" or "closedmindedness" of an individual's belief system. The high dogmatic (closedminded) person is relatively unable to accept and act upon impinging stimuli. He must first make a mental transformation of the stimulus, such as to make it congruent with his personal belief system (p. 57). Conversely, the low dogmatic (openminded) person receives and evaluates an impinging stimulus on its own "intrinsic merits."

Subjects respond to the items by indicating the extent to which they agree (+1, +2, +3) with the item or the extent to which they disagree (-1, -2, -3) with the item. A score is obtained by summing the response values for all items. A constant of 160 is added to the final score to obviate dealing with negative numbers.

Validity studies are extensive and reliability estimates are most acceptable. Reliability estimates provided by Rokeach (1960, p. 89) range from .68 to .93. An independent test-retest estimate (N=20) obtained by Sawatzky (1968, p. 44) over a three-month interval was .83.

The F-Scale

The California F-Scale was intended originally to measure the predisposition to Fascism (Adorno, Frenkel-Brunswik, Levinson and Sanford, 1950). However, subsequent research utilizing the instrument has focused on the test as a measure of authoritarianism (Titus and Hollander, 1957). Rokeach (1960, p. 6) suggests that the F-scale is a measure of "right-opinionation." However, both interpretations are compatible with the intent of Adorno et al. Titus and Hollander (1957) and Deutsch and Krauss (1965) suggest that the F-scale is the most extensively validated measure of authoritarianism available. The correlates of F-scale authoritarianism are too numerous and complex to summarize briefly. Of particular relevance is the strong relationship of the F-scale to ethnocentrism, non-liberal political attitudes, strictness of child-rearing practices and to a lack of openness to attitude change (Adorno et al., 1950; Leavitt, Hax and Roche, 1955; Milton, 1952; Gregory, 1959; Gallagher, 1957).

The 29-item form was employed in the present study. Subjects respond by indicating their degree of disagreement (-3, -2, -1) to each item or their degree of agreement (+1, +2, +3) to each item. A constant of 116 is added to the summed weights to yield only positive

scores. The higher the obtained score is, the higher the authoritarianism of the subject.

Test-retest reliability estimates reported by Adorno et al (1950, p. 258) range from .85 to .91.

The Famous Sayings Test, S-A Scale

The S-A Scale of the Famous Sayings Test was designed to measure social acquiescence (Bass, 1958). Each item of the test consists of a famous saying, e.g. "haste makes waste." A testee responds by marking an "X" in a "Yes," "?" or "No" column opposite each saying. The S-A scale consists of 41 items and is scored by totalling the "X"'s in the "Yes" column.

The scale is predicated upon the idea that individuals high in social acquiescence are "insensitive, non-intellectual.. unquestioning conformists to social demands." Typically, such persons say "Yes" to both the saying, "you can't teach an old dog new tricks" and the saying, "you are never too old to learn."

Bass (1958, p. 487) makes the point that the S-A scale was developed to measure, "acquiescence to a wide variety of generalizations concerning how persons behave or should behave." Thus, he contends it is a measure of social acquiescence and not primarily acquiescence to a variety of other possible stimuli.

The S-A scale has been shown to be related to the tendency to accept group decisions (.36 to .39 and with F-scale authoritarianism (.16 to .49, Bass, 1958). Validation studies have been numerous and diversified (Bass, 1957; 1956a, 1956b; 1961).

Bass (1958, p. 488) reports a split-half reliability (N=100) for the S-A scale of .92 and a Kuder-Richardson Formula 21 estimate (N=1491) of .81.

The Irrational Ideas Inventory

The Irrational Ideas Inventory (I-I Inventory) is a research instrument developed by Zingle (1965). The I-I Inventory is based on the eleven major irrational or illogical beliefs which Ellis (1962) suggests are basic to, and sustaining of, unadaptive behavior. The I-I Inventory consists of 122 items which measure the extent to which a respondee embraces irrational ideas (Zingle, 1965, p. 43). Responses are marked on a five-point Likert type scale. The five points represent the range from strong agreement to strong disagreement and are weighted 5, 4, 3, 2, and 1 respectively. Total scores are obtained by summing the weights. To combat possible confounding of the scores with agreement-response set, negatively worded items weighted in reverse order are randomly interspersed.

Construct validity has been demonstrated by Zingle (1965), Conklin (1965) and Taft (1968). Test-retest reliability (N=91) is reported to be .80 over a 5 week interval (Zingle, 1965, p. 44).

The Attitude Toward Any Institution Scale (Remmers Short Form)

The original form of this scale was developed by Kelly in 1934. This initial version was a 45-item, Thurstone-type scale and equivalent forms A and B were offered. The shorter 17-item forms A and B of the test prepared by Remmers (1960) were used in the present

study. Remmers' version provides a more generalized scale which is intended to be applicable to "any social or other institution" (Shaw and Wright, 1967, p. 552).

Subjects respond by marking a plus (+) beside the items with which they agree. Each item that is agreed to, is assigned the appropriate scale value for that item. Scoring is accomplished by selecting the mid-point of the interval in which the median scale value occurs. High scores reflect favorable or uncritical attitudes toward the institution in question.

Studies employing this generalized scale suggest acceptable concurrent validity (Shaw and Wright, 1967, p. 553). For example, the generalized scale correlated .78 with a specific attitude scale on Sunday observance (N=222).

In the present investigation, the institution selected was the "school system" in which the subjects were employed. Appendix F contains a copy of the instrument as it was offered to these subjects. It is labelled the "ATI FORM A SHORT."

The following equivalent-form reliabilities have been reported by Kelly (See Shaw and Wright, 1967, p. 552) applying the scale to the institutions listed: communism, .89; war, .77; Sunday observance, .98; marriage, .71; divorce, .81.

An equivalent-forms reliability estimate obtained by the present investigator with the A and B short forms was .78 (A-B sequence). The subjects were 32 winter session education students who had taught school the previous term. The instructions, format and scoring procedures were identical to those used in subsequent

hypotheses testing. Both the A and B forms appear in Appendix.F.

The Lorge-Thorndike Intelligence Test

The Lorge-Thorndike Intelligence Tests are a series of group tests of abstract intelligence covering the range, kindergarten through grade 12. These tests yield both a verbal I.Q. and a non-verbal I.Q. derived through conversion of raw scores to deviation I.Q. equivalents.

Procedures used in the construction and validation of this series of intelligence tests have been so superior as to have promoted wide usage and acceptance for educational applications.

Procedures used to establish the reliability of the test, include alternate-forms estimates (verbal .896, non-verbal .846) and odd-even estimates (verbal .940, non-verbal .905) (Lorge and Thorndike, 1957).

OTHER DATA COLLECTION PROCEDURES

Written Language Ability Assessment

The method employed to assess the written language ability of the high school Ss is based on the work of Loban (1963) and Hunt (1965). Essentially, what was involved was the presentation of an enlarged drawing which served as a common stimulus to the students to prepare a brief descriptive paragraph. An analysis of the descriptions was made in terms of the length (in words) of "communication units."

Most simply, the communication unit variously termed "The

Minimum Terminable Unit" (T-Unit) or "Natural Linguistic Unit" is an index of language facility which lends itself to quantitative work. In accordance with Hunt's practice, it will be termed the T-Unit, hereafter. Hunt defines it as the smallest unit that is "grammatically capable of being terminated with a capital and a period while preserving essential meaning" (p. 17). Older more procedurally complex methods of measuring language ability such as counts of forms and ratio transformations are contained in the T-Unit concept. Studies which employ and validate the T-Unit length measure of language ability are numerous (e.g. Loban, 1963; 1966; Hunt, 1965; O'Donnell, Griffin and Norris, 1967; Fox, 1967).

As an index of "maturity-facility" in language, the T-Unit has the advantage of preserving all subordination achieved and all coordination between words, phrases and subordinate clauses. Almost perfect interjudge reliability in segmentation is frequently reported. Below is a sample of student writing after which appears the same theme divided into T-Units with capitals and periods designating the beginnings and endings of the T-Units.

Subject's Writing

The picture is of the old style of transportation used in colonial times probably it is the 17th century southern U.S.A. The stage driver has pulled up to a stage depot and a boy has run out to hold the horses, while, the outrider steps off his saddle horse and some ladies go in for refreshing beverages.

Example of T-Unit Division

T-Unit Division	No. of T-Units	No. of Words
The picture is of the old style of transportation used in colonial times.		13
Probably it is the 17th century southern U.S.A.		8
The stage driver has pulled up to a stage depot.	5	10
And a boy has run out to hold the horses, while, the outrider steps off his saddle horse.		18
And some ladies go in to the depot for refreshing beverages.		11
		<hr/> 50

$$\text{Mean T-Unit Length} = 50 \div 5 = 10$$

With school-age children (grades II to XII inclusive) high mean T-Unit length scores indicate language facility or mature language ability. Low mean T-Unit length scores indicate a lack of subordination, adjectival usage, prepositional phrases and other forms of the facile writer.

Personal Information Collection

The teachers, the education students and the nursing students sampled were requested to complete a personal data questionnaire. Appendix G provides a copy of the form used. Non-applicable items were cut away as indicated below in order that one printing would serve all groups.

The information requested related to the individual's:

1. name
2. age

3. sex
4. occupation
- Nursing Student's 5. birth order
6. university major
- Education Student's 7. graduate specialty
- Teacher's 8. specific role in the school system

The personal information obtained was coded and employed in relevant hypothesis testing.

INVESTIGATION PROCEDURES

All tests with the exception of the Lorge-Thorndike were administered in the manner prescribed by the test manuals or as described in the discussion concerning the instrument. Lorge-Thorndike verbal and non-verbal I.Q. scores were derived from the school-maintained cumulative records. All scoring of tests was in accordance with the descriptions already provided. The test results were then entered on IBM data cards. Subsequently, computer calculations were made consisting largely of item analysis, correlations, and analyses of variance.

CHAPTER V

FINDINGS AND CONCLUSIONS

Introduction

Basically, three types of criteria were employed to determine the validity of the LOT. Firstly, the relationship between the LOT and established personality measures was examined. Secondly, the LOT scores of specific criterion groups (e.g. nurses, educational administrators, and others) that could logically be argued to collectively hold differing life orientations were examined. Thirdly, variables other than those implicit in Frommian theory which might account for considerable test variance were examined. In this latter category, sex, age, verbal facility and intelligence were selected for scrutiny.

Hypotheses relevant to each of these three procedures are restated, hereafter, followed by the pertinent findings and conclusions.

HYPOTHESES RELATED TO PERSONALITY CONSTRUCTS

1. High LOT scorers will be more conceptually complex than will low LOT scorers.
2. High LOT scorers will be lower in dogmatism than will be low LOT scorers.
3. High LOT scorers will be lower in authoritarianism than will be low LOT scorers.

4. High LOT scorers will be higher in creative ability than will be low LOT scorers.
5. High LOT scorers will be lower in social acquiescence than will be low LOT scorers.
6. High LOT scorers will tend to be lower in institutional regard than low LOT scorers.
7. High LOT scorers will be less irrational in their belief system than low LOT scorers.

Findings

Separate analyses of variance were calculated with respect to deriving empirical support for each of the given hypotheses.

Firstly, the sample was ordered in terms of LOT scores and subsequently the highest 27 percent of scorers and the lowest 27 percent of scorers were selected for comparison of the construct under examination.

On every criterion with the exception of those assessing originality or creativity, the high LOT groups were found different from the low LOT groups in the predicted direction. Table 8 depicts the results of these analyses.

Conclusions

The conclusions warranted on the basis of these analyses are:

- a. High LOT scorers are more conceptually complex than low LOT scorers.
- b. High LOT scorers are more openminded (less dogmatic) than low LOT scorers.

TABLE 8

SUMMARY OF DIFFERENCES BETWEEN THE UPPER 27% AND LOWER 27%
OF LOT SCORERS ON EIGHT PERSONALITY INDICES

PERSONALITY INSTRUMENT	UPPER 27% LOT SCORERS		LOWER 27% LOT SCORERS		N	df	F-ratio	P
	\bar{x}	S D	\bar{x}	S D				
PCT	14.26	1.94	8.72	3.23	35	36	36.49	<.001
DOGMATISM SCALE	124.39	14.57	150.37	22.61	18	19	17.05	<.001
F-SCALE	72.33	14.13	98.47	21.84	18	19	18.45	<.001
ANAGRAM TEST	23.44	15.45	26.59	15.80	27	27	.55	N.S.
UNUSUAL USES	9.15	5.93	7.30	4.10	27	27	1.78	N.S.
S-A SCALE	11.93	5.66	16.69	6.69	27	26	7.86	<.007
ATI	8.80	1.22	7.76	1.50	26	25	7.35	<.009
I-I INVENTORY	368.11	29.43	360.97	27.21	23	22	4.87	<.01

- c. High LOT scorers are less authoritarian than low LOT scorers.
- d. High LOT scorers are not different from low LOT scorers in the ability to give original or "creative" responses.
- e. High LOT scorers are less socially acquiescent than low LOT scorers.
- f. High LOT scorers are more critical of social institutions than low LOT scorers.
- g. High LOT scorers retain fewer irrational or illogical ideas than low LOT scorers.

Hypotheses 1, 2, 3, 5, 6 and 7 have been confirmed. No support was found, however, for Hypothesis 4, which contained the prediction that a positive relationship exists between the originality-creativity dimension of personality and life orientation.

HYPOTHESES RELATED TO CRITERION GROUPS

- 8. LOT scores of first born students will be lower than the LOT scores of latter born students.
- 9. LOT scores of student nurses will be lower than the LOT scores of education students.
- 10. LOT scores of members of antique automobile club will be lower than the LOT scores of other groups.
- 11. LOT scores of pupil personnel workers will be higher than the LOT scores of educational administrators.

12. LOT scores of education students majoring in the social sciences will be higher than the LOT scores of education students majoring in the physical sciences and mathematics.

Findings Related to Birth Order

To test Hypothesis 8, data relevant to the birth order of education students and nurses were collected. Subjects who indicated that they were "only-born" children were omitted from both groups. Table 9 below provides the means and standard deviations for first and latter born subjects on the LOT.

TABLE 9

MEANS AND STANDARD DEVIATIONS OF LOT SCORES OF FIRST AND LATTER BORN NURSING AND EDUCATION STUDENTS

GROUP	BIRTH ORDER	N	LOT MEAN	LOT S D
Nursing Students	First	40	122.28	13.28
	Latter	74	125.03	13.57
Education Students	First	83	135.77	15.53
	Latter	114	131.93	15.61

Subsequently, an analysis of variance was performed to determine if the differences in LOT scores were significant. First born LOT scorers were found upon analysis of variance computations not to be different from latter born LOT scorers. Table 10 provides the summaries of the analyses of variance.

TABLE 10

SUMMARY OF ANALYSES OF VARIANCE OF LOT SCORES OF FIRST
AND LATTER BORN NURSING AND EDUCATION STUDENTS

GROUP	SOURCE	M S	df	F-ratio	P
Nursing Students	Groups	196.00	1	1.08	$\leq .301$
	Error	181.37	112		
Education Students	Groups	709.00	1	2.92	$\leq .089$
	Error	242.69	195		

Thus, Hypothesis 8 was contradicted, as first born persons did not obtain lower LOT scores than did latter born persons.

Findings Related to Occupational, Trainee and Affiliation Groups

Hypothesis 9 contained the prediction of lower LOT scores for nursing students than for education students. Hypothesis 10 contained the prediction of lower LOT scores for members of an antique automobile club than for other groups. Hypothesis 11 was the statement of the prediction that pupil personnel workers would score higher than educational administrators. Inspection of the group means for these subjects in Table 11 reveals that only nursing students appear to be different from the other groups.

An analysis of variance computation indicates ($p = .001$) that only the nursing students have significantly lower LOT scores than all other groups. No other differences approached significance and are not reported. The summary of the analysis of variance appears in Table 12.

TABLE 11

MEANS AND STANDARD DEVIATIONS OF LOT SCORES FOR THE
OCCUPATIONAL, TRAINEE AND AFFILIATION GROUPS

GROUP	N	LOT MEAN	LOT S D
Nursing Students	117	124.21	13.46
Education Students	212	133.15	15.69
Educational Administrators	29	128.24	19.59
Pupil Personnel Workers	33	129.30	15.96
Antique Auto	37	129.49	14.70

TABLE 12

SUMMARY, ANALYSIS OF VARIANCE OF THE
LOT SCORES OF THE FIVE GROUPS

SOURCE	M S	df	F-ratio	P
Groups	1533.25	4	6.54	<.001
Error	234.49	422		

(The specific p. value was .000045)

Findings Related to Education Student, Program Major

Hypothesis 12 contained the prediction that among education students, social science majors would exhibit higher LOT scores than would physical science or mathematics majors. The personal data sheet completed by the third and fourth year education students provided the information to test the hypothesis. Those listing their major as physics, chemistry, household economics or mathematics were categorized as "physical science majors." Those listing their major as history, psychology, sociology or early childhood education were categorized as "social science majors." All others (e.g. physical education, fine art, etc.) were omitted.

Means and standard deviations for the LOT scores of the two groupings appear in Table 13.

TABLE 13

THE MEANS AND STANDARD DEVIATIONS OF LOT
SCORES FOR EDUCATION STUDENTS, GROUPED
AS SOCIAL OR PHYSICAL SCIENCE MAJORS

N	MAJOR	MEAN	S D
105	Social Science	136.76	14.27
70	Physical Science	130.43	16.01

The observed difference in means in favor of the social science majors was found significant upon submission of the data to analysis

of variance. Table 14 provides the summary of the analysis of variance.

TABLE 14

SUMMARY, ANALYSIS OF VARIANCE FOR EDUCATION STUDENTS,
GROUPED AS SOCIAL OR PHYSICAL SCIENCE MAJORS

SOURCE	M S	df	F-ratio	P
Groups	2258.00	1	10.05	.0018
Error	224.71	173		

Thus, education students majoring in the social sciences obtain higher LOT scores than those majoring in the physical sciences or mathematics.

Conclusions

The conclusions possible on the basis of these results are:

- a. The LOT scores of first born students are not different from the LOT scores of latter born students.
- b. Student nurses obtain lower LOT scores than education students.
- c. Members of an antique automobile club obtain LOT scores that are not different from some professional and pre-professional groups.
- d. Education students majoring in the social sciences obtain higher LOT scores than those majoring in the physical sciences.

Hypotheses 9 and 12 have been confirmed, while Hypotheses 8, 10 and 11 were not supported. Ordinal position, membership in an antique automobile club or being an educational specialist in administration or pupil personnel work does not entail different life orientations. However, engaging in nurses training and following either a social or physical science major for education students entails different life orientations.

A necrophilous orientation is a stronger concomitant of pursuing nursing education, relatively speaking, than it is of pursuing teacher education.

Also, a necrophilous orientation is a stronger concomitant of pursuing a physical science major than it is of pursuing a social science major.

HYPOTHESES RELATED TO OTHER POSSIBLE SOURCES OF VARIANCE

The hypotheses in this section were prepared to generate evidence to counter other hypotheses which might arise or be suggested as to the sources of score variance on the LOT.

The Specific Hypotheses

13. There will be no difference between the LOT scores of males and females.
14. Age will be inversely related to scores on the LOT.
15. There will be no difference in the written language ability of high and low LOT scorers.

16. There will be no difference in intelligence between low LOT scorers and high LOT scorers.

Findings Related to Sex

To test Hypothesis 13 an analysis of variance was performed on the LOT scores of a random sample of all Ss tested and for whom information relative to sex had been obtained. The sample included student nurses, teachers, administrators, high school students and pupil personnel workers. The 212 in the sample represent one third of the number for which data relevant to sex had been collected. The means and standard deviations are presented in Table 15.

TABLE 15

THE MEANS AND STANDARD DEVIATIONS OF LOT SCORES
OF A RANDOM SAMPLE OF MALE AND
FEMALE TESTEES

GROUP	N	MEAN	S D
Male	105	132.46	17.08
Female	107	133.82	14.02

The slight observed difference in means (1.36), however, was found not to be significant. Table 16 provides the summary of the analysis of variance between the two groups.

TABLE 16

SUMMARY, ANALYSIS OF VARIANCE OF LOT SCORES
OF A RANDOM SAMPLE OF MALE AND
FEMALE TESTEES

SOURCE	M S	df	F-ratio	P
Groups	99.00	1.	0.41	0.525
Error	243.78	210.		

Sex does not appear to account for LOT score variance. A separate analysis of variance of the ages of the male and female groupings revealed no difference. Thus, age differences could not be argued as accounting for the results.

Findings Related to Age

To test Hypothesis 14, an analysis of variance test of difference was performed between means on the LOT for the upper and lower 27 percent of scorers. Table 17 depicts the means and standard deviations for LOT scores and for age for the two groupings.

The observed difference in means (3.81) was found to be significant ($p=.034$). The summary of the analysis of variance is presented in Table 18.

TABLE 17

LOT AND AGE MEANS AND STANDARD DEVIATIONS
FOR THE UPPER 27% AND LOWER 27% OF
THE RANDOM SAMPLE ON THE LOT

N	GROUP	LOT MEAN	LOT S S	AGE MEAN	AGE S D
57	Upper 27% LOT Scorers	152.63	9.00	25.70	6.54
57	Lower 27%	114.75	6.78	29.51	9.60
	P for Upper and Low Difference	.001		.034	

TABLE 18

SUMMARY, ANALYSIS OF VARIANCE OF AGE MEANS OF
THE UPPER 27% AND LOWER 27% OF THE
RANDOM SAMPLE ON THE LOT

SOURCE	M S	df	F-ratio	P
Groups	413.06	1	4.59	.034
Error	90.06	112		

Thus, the evidence appears to confirm the prediction that a decrement in LOT scores accompanies aging.

Such a finding adds validity to the LOT and, hence, the life orientation concept. However, it does bring into question, the role of age as a variable in accounting for the relationships obtained between the LOT and the other variables considered.

Thus, to provide evidence that age of testees does not account for the results obtained, correlations were calculated between the age of the testees and the scores obtained by them on the other instruments employed. Only those instruments for which such data is not available in the literature were used in this procedure.

An examination of Table 19 reveals that age is minimally and non-significantly related to scores on the other instruments. Therefore, age does not appear to account for the obtained relationship between LOT scores and scores on these instruments. The Ss tested were 69 third and fourth year education students for whom the data were available.

TABLE 19

CORRELATION BETWEEN AGE AND SCORES OF EDUCATION
STUDENTS ON SIX INSTRUMENTS USED IN THE STUDY

INSTRUMENT	CORRELATION WITH AGE	OBTAINED P VALUE
LOT	-.22	.06
F-scale	.06	.63
Dogmatism	.04	.71
PCT	-.10	.42
Anagrams	-.17	.16
Unusual Uses	-.12	.31

Findings Related to Language Ability

Hypothesis 15 which contains the suggestion that a relationship exists between LOT scores and verbal ability was tested in the following manner. High school subjects who completed the LOT were asked to write a brief descriptive paragraph about a common stimulus picture. The paragraphs were then analyzed as to the number of communication units (T-Units). Subsequently, the mean length of T-Units in number of words was calculated for each student.

An analysis of variance performed on the T-Unit length means for the upper 27% and lower 27% of LOT scorers failed to reveal significant difference in verbal ability. Tables 20 and 21 provide the data relevant to this conclusion.

TABLE 20

MEANS AND STANDARD DEVIATIONS OF LOT SCORES AND
T-UNIT LENGTH FOR THE UPPER 27% (ON LOT) AND
LOWER 27% (ON LOT) OF HIGH SCHOOL STUDENTS

N	GROUP	LOT MEAN	LOT S D	T-UNIT MEAN	T-UNIT S D
23	Upper 27% LOT Scorers	142.57	7.57	9.04	1.47
24	Lower 27% LOT Scorers	127.79	3.28	9.72	3.36
	P. for Upper and Lower Difference	.001		.244	

TABLE 21

SUMMARY, ANALYSIS OF VARIANCE OF T-UNIT LENGTH
FOR THE UPPER 27% AND LOWER 27% OF HIGH
SCHOOL LOT SCORERS

SOURCE	M S	df	F-ratio	P
Group	545.75	1	1.39	0.244
Error	391.63	45		

Language or verbal facility (as assessed by the T-Unit method) is not related significantly to life orientation (i.e. LOT scores).

Findings Related to Intelligence

Hypothesis 16 suggested that life orientation would be independent of intelligence. To test the hypothesis, an analysis of variance was performed on the IQ scores (verbal and non-verbal) of the upper 27% and lower 27% of LOT scorers. The upper 27% of LOT scorers and the lower 27% of LOT scorers were found not to differ in intellectual ability. Tables 22 and 23 depict these findings.

TABLE 22

MEANS AND STANDARD DEVIATIONS OF VERBAL IQ AND
NON-VERBAL IQ FOR THE UPPER 27% (ON LOT) AND
LOWER 27% (ON LOT) OF HIGH SCHOOL STUDENTS

N	GROUP	V-IQ MEANS	N-V-IQ MEANS	LOT MEANS
23	Upper 27% of LOT Scorers	132.22	125.61	142.57
24	Lower 27% of LOT Scorers	127.08	120.38	127.79
	P. of Differences Between Upper and Lower Means	.236	.219	.001

TABLE 23

SUMMARY, ANALYSIS OF VARIANCE OF VERBAL IQ
AND NON-VERBAL IQ FOR THE UPPER 27% AND
LOWER 27% OF HIGH SCHOOL LOT SCORERS

VERBAL IQ	M S	df	F-ratio	P
Group	309.75	1	1.44	.236
Error	214.53	45		
NON-VERBAL IQ				
Group	321.81	1	1.55	.219
Error	207.49	45		

Conclusions

The findings suggest the following conclusions:

- a. There is no difference between the LOT scores of males and females.
- b. Age is moderately and inversely related to the LOT.
- c. There is no difference between the written language ability of high and low LOT scorers.
- d. There is no difference between the intelligence of high and low LOT scorers.

Hypotheses 13, 14, 15, 16 have been confirmed. Sex, language ability and intelligence do not contribute greatly to score variance on the LOT. Age, however, is a variable inversely related to life orientation.

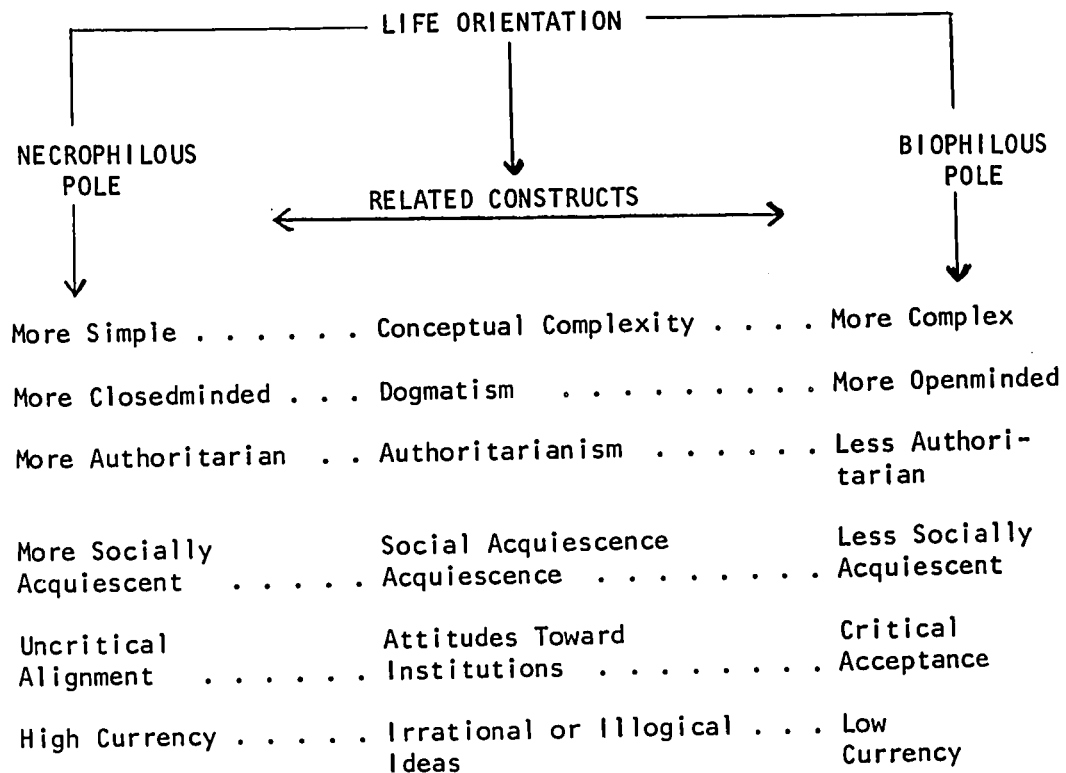
CHAPTER VI

DISCUSSION AND IMPLICATIONS

DISCUSSION

Life Orientation and the LOT

The life orientation concept advanced by Fromm has been shown to be amenable to objective assessment. Several constructs logically related to life orientation have been found to co-vary with scores on the Life Orientation Test prepared by the author. Thus, from use of the LOT together with these other instruments, the following graphic summary concerning the two poles of life orientation is possible.



The Relationship of the Polar Attitudes of Life Orientation to Other Psychological Constructs

FIGURE III

That the above findings are congruent with the typical necrophilous personality and the typical biophilous personality as portrayed in Frommian theory need not be reiterated. The coverage of the relationship of these other variables to life orientation offered in Chapter II should suffice. Nonetheless, some commentary concerning the theory and findings is justifiable.

Fromm does not believe that necrophilia is a "normal biological tendency" (1964a, p. 24). Rather, he believes that the mass media and the Western social structure are weighted in favor of conditioning such an orientation (1967b, p. 13). Moreover, Fromm is not alone in this latter conceptualization. Skinner's (1948) skilful juxtaposition of the "sane society" of Walden Two and contemporary society can be construed as conceptually similar. For example, Skinner's utopia has advertising filtered out of radio broadcasts, outside contact is minimal and only emotions which promote harmony are reinforced.

Shostrom (1968, p. 11) acknowledges that Fromm's theories are basic to his own postulations. He further provides concrete examples of "man, the manipulator," at work. To the necrophil with the "marketplace orientation,"

... man is no longer a man but a customer. To the sales manager he is a prospect, to the tailor a suit, to the bond salesman a bank account; even at the beauty parlor, which performs a rather intimate personal service, madame is a generality, "the patron." All of this tends to de-personalize us and deprive us of our individuality, and we resent it. I don't want to be a "head" to my barber; I want to be Everett Shostrom, a live and vibrant person. We all want particularity, but that is not what we have when we're hooked by systems of commercial thought which tend to destroy that very quality. (p. 11)

Fromm's (1957) article entitled, Man Is Not a Thing by Shostrom's admission provided the inspiration for his example of the "manipulator" (necrophil?) at work. A further extrapolation of these ideas to the findings of the current study appears appropriate.

To the extent that the lower LOT scores of the student nurses reflect genuine necrophilous tendencies, one would anticipate that patients are viewed as "a caesarean," as "an enema" or "a diabetic." Moreover, the finding that pupil personnel workers reflect no greater a biophilous orientation than administrators, leads to similar queries. Does the special education consultant see children as "a mongoloid," "an aphasic" or as "students" - albeit with limited potential? Does the school counselor see persons or another "discipline problem," another "mixed-up-program" or another "welfare case?"

The administrator is berated as the "quantifier," the constant re-creator of "chopped off" persons compatible with the acceptable Procrustean bed. Perhaps, the counselor has been, as Anderson (1968) has charged, merely using more insidious techniques to achieve the same ends. However, since no LOT score norms have been established, one may merely conjecture at this point.

Refraining from value judgments is difficult but an attempt is necessary. For, in the case of the nurses, the very real possibility exists that the correlates of necrophilia actually aid them in coping with sick, demanding patients. As Skinner says, "few people would care to argue that a disease cannot be described in general terms, or

that a single case cannot be discussed by referring to factors common to many cases" (1965, p. 19). The fact remains, however, that the patient is not a "disease" or one of "several operations" in a nurse's repertoire of services. Quite possibly, a pattern of excessive categorization could obscure perception, such that other symptoms or counter indications would pass unobserved. Such a view is not the least unwarranted as the findings suggest that the necrophilous individual is closedminded and utilizes rather simple conceptual structures. Moreover, these more simple structures give rise to what may be termed facilitative distortion. Other correlates of necrophilia, such as authoritarianism and social acquiescence undoubtedly are demanded of nurses by physicians. Nurses should be firm with patients; nurses should not argue with the physician or question his recommendations. Is the granting of such infallibility to physicians justifiable?

The finding that education students with physical science majors score lower on the LOT than their counterparts who are social science majors requires no illucidation. Such a finding accrues validity to the LOT that is unquestionably compatible with the rationale behind the construction of the instrument.

Contradicted Hypotheses

A lack of relationship between the LOT and the creativity-originality measures employed in this study requires examination. The Anagram Test employed may reveal originality as intended, but it also appears to reveal language ability. Contrarily, the LOT by

virtue of a lack of correlation with language facility did not correlate with the Anagram Test. Moreover, such a correlation would have been spurious, if indeed the factor responsible for the relationship was a knowledge of numbers of words. On the surface, such an argument loses credence because the other index of the same dimension, the Unusual Uses Test, also was found not to be related to the LOT. However, "fluency" has been taken as a factor related to creative work (Tyson, 1966, p. 175). Also, creative scientists and artists tend to score high on dominance (Cattell, 1965). Cattell explains that, "presumably their need (on intellectual grounds) to break with convention is here sustained by their 'tough' disposition" (p. 91). He further casts this finding into perspective (p. 311) by reporting that with advanced university students and scientific researchers "dominant" individuals make superior creative achievements in the field of research. The aggressive, dogmatic researcher obtains the research grants and his necrophilous preoccupation with details and quantification leads to success in this area. Fromm, (1967a) himself, says that,

"productiveness" is associated with creativeness, particularly artistic creativeness. The real artist, indeed, is the most convincing representative of productiveness. But not all artists are productive; a conventional painting, e.g. may exhibit nothing more than the technical skill to reproduce the likeness of a person in photographic fashion on a canvas. (p. 92)

Similarly, the "creative" productions of the advanced university student or researcher may be examples of dogged application of "technical skill." The validation procedures behind many of the

creativity measures include counts of publications and peer-ratings (Barron and Barron, 1963). Thus, generalizations to other "creative" endeavor may not be logical or defensible.

The anticipated relationship between birth order and life orientation also failed to materialize. No other arguments other than those reservations placed upon the formulation of the hypothesis relevant to birth order presented in Chapter II need be advanced. The rationale behind a low probability for this hypothesis was discussed at that juncture.

Likewise, considerable reservation was placed upon the outcome of the hypotheses which contained the suggestions that educational administrators and antique automobile owners would score lower than other groups.

IMPLICATIONS

The LOT and Counseling

Literature relative to the evaluation of the progress of therapy is scarce with notable exceptions (Wolpe, 1958; Eysenck, 1965). However, most evaluative techniques remain highly subjective. Browning and Peters (1960) have reacted to this subjective approach. They suggest that "persons often integrate their lives on levels that are not ultimately satisfactory, but which only give the illusion of well-being" (p. 145). They continue by saying that Rogers and other non-directive counselors center on man's expression of his inner feelings of need without reference to the fact that these needs often

result from "cultural defects" which cannot bring ultimate health to the client. Browning and Peters (p. 146) cite as an alternative, Fromm's attempt to provide a list of the psychological commonalities of mental health just as physiological and anatomical commonalities for man have been accepted. Christensen (1963) viewed the job of the counselor as one of creating an atmosphere which would permit the emergence of self-actualization, autonomy, creativity, satisfaction, etc. However, he felt to operate within such a framework, the counselor must have some idea of what constitutes desirable or undesirable behavior. Christensen believed that the Frommian formulations concerning the biophilous and necrophilous poles of life orientation were the most tenable descriptions of desirable and undesirable behavior available. Thus, use of the LOT as an index of the progress of therapy would appear logical.

The LOT, Counselor Selection and Client Appraisal

Arbuckle (1958, p. 214) suggests that the most basic question the educator of counselors must ask is "not what does the student know, but rather what can he do with what he knows?" It does not appear incongruent to suggest that the LOT might be an index of what the potential counselor could do as a therapist. The correlates of the biophilous personality seem especially apropos to the counselor if he is to accomplish the behavioral goals of counseling outlined by Glanz (1966, p. 76).

The LOT could prove useful in establishing priorities on admittance to overcrowded counselor-trainee programs.

In addition, the LOT could be administered to clients as an aid to educational and vocational choice considerations. However, use of the LOT in this regard must await further investigation. It has not been proved or suggested, herein, for example, that a high biophilous individual cannot be a successful nurse. The opposite may, indeed, be the case.

Other Possibilities for Research

Research into changes accruing from group counseling or other group work requires additional evaluation. The LOT would appear to have a plausible application here.

Other topics such as child-rearing, cross-cultural studies and specific group studies (e.g. salesmen, bureaucrats, morticians, prisoners, religious people) could get at some of the societal variables which promote necrophilia. Indeed, outcome studies whereby the effectiveness of a number of different treatments or procedures could be assessed by means of the LOT appear to be productive directions for research (Fromm, 1964a, p. 25).

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A P P E N D I C E S

A P P E N D I X A

LOT

Form 72B

Read each of the following statements and decide how much you agree or disagree. Show your choice on the separate answer sheet. Use the code below.

A : I agree

B : I agree a little

C : Undecided

D : I disagree a little

E : I disagree

NOTE:

There are no right or wrong answers.

There is no time-limit.

Answer all items.

Mark only one choice for each item.

1. Most interesting, exciting pastimes involve much cost for the right kind of equipment.
2. Being part of a new struggling enterprise is more satisfying than working with a well-established organization.
3. There is more pleasure in being freed from tasks by machines than in operating them.
4. Untrimmed trees in the wild state never approach the beauty or symmetry of those properly cultivated.
5. The old values of thrift, order, sacrifice and being on time are still the way to success.
6. Postponement of marriage or the raising of children until one can enjoy material possessions such as cars or houses is desirable.
7. Being alone in a large, unfamiliar city causes one to feel small or insignificant.

8. Although modern art does not show things as they exist, it has a hidden, attractive quality.
9. Often the most exquisite pleasures in life require no expenditures or gadgetry.
10. To make for good teamwork or group spirit, one should hold back some personal feelings or wishes.
11. The progressive and stimulating age we live in promises much for future generations to build upon.
12. The introduction of new or original procedures and materials can make one's work enjoyable.
13. Gardening in hazardous and unpredictable and hardly worth the effort because of insects, winds, storms, and other problems.
14. Using one's time in an orderly and regular fashion should provide a rewarding life.
15. Weather forecasts, on the whole, give one a good idea of what to expect.
16. There are, indeed, many new inventions based on almost totally new ideas.
17. There is something fascinating about the speed, distance range and explosive power of present day missiles.
18. One of the delights of life is the excitement gained from not knowing about tomorrow.
19. Self-discipline and refusal of immediate pleasures will result in gains, but hardly in a meaningful life.
20. There is a peace or inner serenity to be gained from attending the last rites of a departed one.
21. Persons careless in personal appearance should be required to model after those who dress with style and care.
22. It is difficult to think much about the past, because of the activity of the present.
23. Imitation plastic plants make it ridiculous, in most cases, to bother watering and caring for real plants.
24. The saying that, "There is nothing new under the sun," is mostly true, because little is really new.

25. Being involved with the birth of new life, such as in a hospital nursery, must be an enjoyable experience.
26. The widespread disrespect for traffic laws is likely the major cause of highway deaths.
27. Seeing live animals in a game preserve offers more than does close examination of mounted animals.
28. Untouched forest areas can possess a beauty unmatched elsewhere.
29. Making an unflinching habit of keeping one's home and clothes in order is very desirable.
30. A supervisor who is respectful of his workers and yields to their opinions will get good results.
31. Uncertainty is necessary to push or compel man toward further development.
32. Seeing and examining many great works of art would be better than owning one such work.
33. Controlling children's actions with harmless untruths about possible dangers is often a correct thing to do.
34. The care and concern of those professionals who help in time of bereavement or loss is praiseworthy.
35. Looking for new methods rather than depending on proven procedures adds a zest or incentive to living.
36. Some guilt and self-disgust over past mistaken actions helps one deal with the present.
37. Being always open to a change of plans or time schedules increases one's enjoyment of life.
38. One must truly wonder or marvel at the number of mechanical devices which free mankind.
39. A successful person does not act without much concern and caution about what others will think.
40. Love involves active striving for the growth and happiness of the loved one.

41. It is sad, but necessary, that children be taught to face the realities of death and the cruelties of life.
42. A translation of a Shakespearian play into modern slang wording could prove interesting and give new understanding.
43. Persons who always want to change the rules, or add disruptive and different ideas to a meeting should be brought into line.
44. There is something overly immodest, almost indecent, about the bodily movements in modern dancing.
45. One should feel joy in watching new-born animals begin their lives.
46. Pleasant memories of past accomplishments are better than looking to the indefinite future.
47. Other things aside, the men who worked under the Soviet and Nazi dictators of World War II, really knew how to organize.
48. There is an attraction in the enthusiasm, noise and zest with which children pursue games.
49. The uncertainty of the future gives one sound reason for some fear.
50. Free interpretive dancing is generally more pleasing to watch than exact, traditional dance forms.
51. Since each day unfolds new problems, fixed patterns of the past rarely offer complete solutions.
52. The trend toward big-game "hunting" with cameras only may attract more people to safari expeditions.
53. Pictures of bleeding, dead or injured soldiers certainly makes one fearful and wonderous about modern weapons.
54. The odd and quite different dress of some young people is most likely their harmless way of showing independence.
55. Years of experience in dealing with life or work problems provide ready methods for handling most present problems.

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56. Quiet periods where one is alone to mediate or think are enriching and valuable.
57. Consistent obedience of laws is most necessary to maintain society.
58. One should flee from personal danger, even if by doing so, he loses all possessions gained in a life time.
59. A meaningful life is obtained only through the continual unfolding of one's talents or abilities.
60. A manager must avoid any personal feelings or involvement in dealing with his workers.
61. Questions from children can add a freshness or newness to routine tasks.
62. The world problems of over-population, quarrels among countries and threats of war should make one hesitate to bring children into the world.
63. Presenting a Shakespearian play with actors dressed as Eskimos instead of in regular costumes would be in poor taste.
64. Living in a comfortable manner must include some disorder, and some irregular arrangements.
65. It is right to change laws when most people disregard them.
66. A well-run organization usually is under the direction of a man who defines work-roles exactly.
67. Hiking or talking with friends are to be preferred to driving cars and being in competitive sports.
68. Being free to travel and see different things is more important than using one's money to buy houses, cars, land or furniture.
69. Newspaper and news reports of multiple-murders are useful, because people will then take precautions.
70. Public displays of affection such as kissing arriving relatives at an airport are in no way shameful.
71. Fortunately, group pressures can be brought to bear on young people with extreme ideas.
72. All too often parents don't know about or are unaware of their children's failures or shortcomings.

A P P E N D I X B

LOT

Form 40

Read each of the following statements and decide how much you agree or disagree. Show your choice on the separate answer sheet. Use the code below.

A : I agree

B : I agree a little

C : Undecided

D : I disagree a little

E : I disagree

NOTE:

There are no right or wrong answers.

There is no time-limit.

Answer all items.

Mark only one choice for each item.

1. Most interesting, exciting pastimes involve much cost for the right kind of equipment.
2. Being part of a new struggling enterprise is more satisfying than working with a well-established organization.
3. There is more pleasure in being freed from tasks by machines than in operating them.
4. Untrimmed trees in the wild state never approach the beauty or symmetry of those properly cultivated.
5. The old values of thrift, order, sacrifice and being on time are still the way to success.
6. Postponement of marriage or the raising of children until one can enjoy material possessions such as cars or houses is desirable.

7. Being alone in a large, unfamiliar city causes one to feel small or insignificant.
8. Although modern art does not show things as they exist, it has a hidden, attractive quality.
9. One of the delights of life is the excitement gained from not knowing about tomorrow.
10. Persons careless in personal appearance should be required to model after those who dress with style and care.
11. A well-run organization usually is under the direction of a man who defines work-roles exactly.
12. The world problems of over-population, quarrels among countries and threats of war should make one hesitate to bring children into the world.
13. It is right to change laws when most people disregard them.
14. The care and concern of those professionals who help in time of bereavement or loss is praiseworthy.
15. Presenting a Shakespearian play with actors dressed as Eskimos instead of in regular costumes would be in poor taste.
16. Hiking or talking with friends are to be preferred to driving cars and being in competitive sports.
17. Persons who always want to change the rules, or add disruptive and different ideas to a meeting should be brought into line.
18. Newspaper and news reports of multiple-murders are useful, because people will then take precautions.
19. Being free to travel and see different things is more important than using one's money to buy houses, cars, land or furniture.
20. Fortunately, group pressures can be brought to bear on young people with extreme ideas.
21. Pleasant memories of past accomplishments are better, than looking to the indefinite future.
22. Living in a comfortable manner must include some disorder, and some irregular arrangements.

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23. The trend toward big-game "hunting" with cameras only may attract more people to safari expeditions.
24. Years of experience in dealing with life or work problems provide ready methods for handling most present problems.
25. Some guilt and self-disgust over past mistaken actions helps one deal with the present.
26. Being involved with the birth of new life, such as in a hospital nursery, must be an enjoyable experience.
27. Making an unflinching habit of keeping one's home and clothes in order is very desirable.
28. All too often parents don't know about or are unaware of their children's failures or shortcomings.
29. A manager must avoid any personal feelings or involvement in dealing with his workers.
30. Being always open to a change of plans or time schedules increases one's enjoyment of life.
31. Pictures of bleeding, dead or injured soldiers certainly make one fearful and wonderous about modern weapons.
32. Free interpretive dancing is generally more pleasing to watch than exact, traditional dance forms.
33. A successful person does not act without much concern and caution about what others will think.
34. The saying that, "There is nothing new under the sun," is mostly true, because little is really new.
35. There is a peace or inner serenity to be gained from attending the last rites of a departed one.
36. Self-discipline and refusal of immediate pleasures will result in gains, but hardly in a meaningful life.
37. A translation of a Shakespearian play into modern slang wording could prove interesting and give new understanding.
38. There is something overly immodest, almost indecent, about the bodily movements in modern dancing.
39. The uncertainty of the future gives one sound reason for some fear.
40. It is sad, but necessary, that children be taught to face the realities of death and the cruelties of life.

A P P E N D I X C

SCORING THE LOT

1. For the biophilous-agreement items: (2, 3, 8, 9, 13, 16, 19, 22, 23, 26, 30, 32, 36 and 37) weightings of 1, 2, 3, 4 or 5 are awarded the response as depicted below.

Response	Weighting
I agree	1
I agree a little	2
Undecided	3
I disagree a little	4
I disagree	5

2. For the necrophilous-agreement items: (1, 4, 5, 6, 7, 10, 11, 12, 14, 15, 17, 18, 20, 21, 24, 25, 27, 28, 29, 31, 33, 34, 35, 38, 39 and 40) the weightings are awarded in reverse as below.

Response	Weighting
I agree	5
I agree a little	4
Undecided	3
I disagree a little	2
I disagree	1

3. The weightings for all 40 items are then summed to yield a life orientation score within the range from 40 to 200.

A P P E N D I X D

TABLE 24

MEANS AND STANDARD DEVIATIONS OF THE
RESPONSES OF 200 SUBJECTS TO THE
INITIAL 72-ITEM LOT

ITEM	\bar{x}	S D	ITEM	\bar{x}	S D	ITEM	\bar{x}	S D
* 1	3.5	1.6	*25	3.3	1.3	*49	2.7	1.5
* 2	3.5	1.5	26	2.0	1.4	50	2.9	1.5
* 3	3.2	1.6	27	4.6	1.0	51	3.9	1.3
* 4	3.2	1.4	28	4.5	1.1	*52	3.3	1.4
* 5	2.3	1.5	*29	1.9	1.3	*53	2.4	1.6
* 6	3.2	1.6	30	3.9	1.4	54	4.2	1.3
* 7	2.5	1.6	31	3.2	1.6	*55	2.4	1.4
* 8	3.4	1.4	32	2.5	1.5	56	4.6	0.8
9	4.5	1.1	33	4.1	1.3	57	1.8	1.1
10	1.9	1.3	*34	2.5	1.5	58	3.0	1.5
11	4.3	1.2	35	4.4	1.0	59	3.9	1.4
12	4.7	0.7	*36	2.2	1.5	*60	3.2	1.6
13	4.5	1.1	*37	2.1	1.3	61	4.5	0.9
14	2.7	1.4	38	4.2	1.1	*62	3.3	1.5
*15	3.3	1.3	*39	3.2	1.6	*63	2.5	1.6
*16	3.5	1.5	40	4.7	0.8	*64	3.0	1.4
17	2.1	1.5	*41	2.1	1.3	*65	2.6	1.6
*18	3.4	1.4	*42	3.2	1.6	*66	2.2	1.4
*19	2.6	1.5	*43	3.2	1.5	67	2.9	1.5
*20	3.2	1.5	*44	3.1	1.4	*68	3.0	1.5
*21	3.5	1.5	45	4.3	1.1	*69	3.3	1.5
22	2.6	1.5	*46	2.9	1.4	70	4.7	0.8
23	4.4	1.2	47	2.5	1.5	*71	3.0	1.5
*24	3.4	1.6	48	4.6	0.9	*72	1.9	1.3

*Items retained for the 40-item LOT.

A P P E N D I X E

APPENDIX F

ATI SCALE FORM A SHORT

Place a plus sign (+) before each statement with which you agree. All statements refer to the educational institution or system with which you are employed.

In general the school system:

- ___ 1. Exerts a strong influence for good government and right living.
- ___ 2. Serves society as a whole well.
- ___ 3. Is necessary to society as organized.
- ___ 4. Adjusts itself to changing conditions.
- ___ 5. Is improving with the years.
- ___ 6. Does more good than harm.
- ___ 7. Will not harm anybody.
- ___ 8. Inspires no definite likes or dislikes.
- ___ 9. Is necessary only until a better can be found.
- ___ 10. Is too liberal in its policies.
- ___ 11. Is losing ground as education advances.
- ___ 12. Promotes false beliefs and much wishful thinking.
- ___ 13. Does more harm than good.
- ___ 14. No one any longer has faith in this institution.
- ___ 15. Is detrimental to society and the individual.
- ___ 16. Benefits no one.
- ___ 17. Has positively no value.

ATI SCALE FORM B SHORT

Place a plus sign (+) before each statement with which you agree. All statements refer to the educational institution or system with which you are employed.

In general the school system:

- ___ 1. Develops good character.
- ___ 2. Is retained in the civilized world because of its value to mankind.
- ___ 3. Is increasing in its value to society.
- ___ 4. Is necessary as a means of controlling society.
- ___ 5. Is improving in its service to mankind.
- ___ 6. Is in the process of changing and will come out a fit instrument.
- ___ 7. Is not sufficiently appreciated by the general public.
- ___ 8. Its good and bad points balance each other.
- ___ 9. Has not yet proved itself indispensable to society.
- ___ 10. Is too conservative.
- ___ 11. Is too changeable in its policies.
- ___ 12. Is unfair to the individual.
- ___ 13. Is disgraced by its past.
- ___ 14. Is out of control of society and is running wild.
- ___ 15. Is an enemy of truth.
- ___ 16. Is the most despicable of institutions.
- ___ 17. Is the most hateful of institutions.

A P P E N D I X G

Confidential Data Sheet

1. Name -----
2. Age -----
3. Sex -----
4. Occupation -----
5. Number of older brothers and sisters -----
6. Number of younger brothers and sisters -----
7. University Major(s) -----

8. Specific area of graduate study if any -----

9. Present role in school system -----
