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## Personality and creativity variables associated with the belief in paranormal phenomena.

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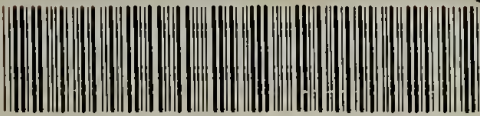
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PERSONALITY AND CREATIVITY VARIABLES  
ASSOCIATED WITH THE BELIEF IN  
PARANORMAL PHENOMENA

A Thesis Presented

By

SCHUYLER CLEVELAND WEBB

Submitted to the Graduate School of the  
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"For God hath power over all things."

The Holy Quran  
Yusaf Ali (Version) II 20

## TABLE OF CONTENTS

	Page
Acknowledgements.....	iii
List of Tables.....	vi
Chapter One: Introduction	
Paranormal abilities and personality.....	3
Regression in service of the ego.....	7
Independent variables.....	12
Paranormal abilities and creativity.....	18
Dependent variables.....	25
Hypotheses of the study.....	27
Chapter Two: Methods	
Subjects.....	29
Measures.....	30
Procedure.....	31
Design.....	32
Chapter Three: Results.....	33
Demographic and social characteristics of the sample self report of personal experiences.....	41
Reliability of measures of belief in paranormal phenomena.....	47
Paranormal phenomena measures.....	51
Sex differences on the paranormal phenomena measures.....	53
Age differences on the paranormal phenomena measures.....	55

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Paranormal phenomena measures and personality variables.....	57
Paranormal phenomena measures and creativity variables.....	59
Creative potential.....	62
Summary.....	65
Relationship between personality and creativity measures.....	65
Correlations among personality and creativity variables.....	68
Validity of independent variables.....	70
Chapter Four: Discussion.....	74
Sources of variability.....	80
Sex differences.....	82
Mood.....	83
Possible applications.....	85
Summary.....	86
References.....	88
Appendix A. Paranormal measures.....	95
Appendix B. Personality and creativity measures.....	99
Appendix C. Background Data Sheet.....	116
Appendix D. Consent form.....	117
Appendix E. Tables of belief and endorsement scales....	118

## LIST OF TABLES

Table		Page
1	Normative A and R Scale scores for college undergraduates	17
2	Age distribution within sample: Number and percentage within age groups	34
3	Number and percentage of male and female within sample	35
4	Number and percentage of religious affiliation within the sample	36
5	Distribution of sample on the Warner, Meeker and Eells Scale of Occupational Status	38
6	Distribution of year in college within sample	39
7	Number and percentage of the distribution of college major subjects within sample	40
8	Number and percentage of subjects responding in various categories on the ESP Scale	42
9	Additional descriptive statistics among selected dimensions	44
10	Means and standard deviations on the ESP Scale	45
11	Inter-item correlations, item-scale correlations, and Alpha reliability coefficients for the Paranormal Belief Scale	49
12	Inter-item correlations, item-scale correlations, and Alpha reliability coefficients for the Paranormal Endorsement Scale	50

## Table

## Page

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13	Pearson correlation coefficients among Paranormal phenomena measures	52
14	Means and standard deviations on the paranomrla belief measures by sex	54
15	Age correlations with paranormal phenomena belief measures	56
16	Pearson correlation coefficients between personality and paranormal phenomena variables	58
17	Pearson correlation coefficients between creativity and paranormal phenomena variables	60
18	T-Test comparison of means across all variables by openmindedness	63
19	T-Test comparison of means across all variables by ESP experience	64
20	Pearson correlation coefficients among the personality and creativity variables	67

## C H A P T E R    O N E

Psychical research and its successor, parapsychology, are now almost a century old and provide a history of perennial challenge to the rest of psychology. Repeatedly, parapsychologists have presented evidence of events that psychology, as part of the body of accepted scientific knowledge, leads us to consider impossible -- events that seem to contradict not only specific scientific generalizations, but even the basic presuppositions or modes of thought that underlie science and have proved so successful in predicting and controlling natural phenomena. Findings of research on clairvoyance, communication with the dead, and psychokinesis are suggesting that people can communicate with each other and with the rest of nature (dimensions known and unknown) without mediation by the sense organs scientists know or any substitute that scientists find believable. Other findings show that people influence the non-human world without using muscles or glands and processes we have not identified nor particularly understand. To these seeming impossibilities is added precognition and/or precognitive dreams, which seem to have time running backward whereas in psychology and in the rest of science, as in daily experience, it runs forward. Reincarnation, astral projection, and possession by spirits are also associated strongly with the parapsychology tradition (Schmeidler, 1976; Lande, 1976).

To all these challenging phenomena the terms "psi", "psychic" and "paranormal" are applied. Like specific terms such as possession, precognition, clairvoyance and other paranormal phenomena, these words explain nothing; however, they call attention to phenomena that seem impossible, yet apparently do happen. Moreover, the scientific field of parapsychology does not assume a priori that 1) such events do occur, nor that 2) if such events do occur, they are the result of mystical, supernatural, or otherwise "unexplainable" forces. In the scientific tradition, parapsychologists investigate the existence of such events with the belief that if such phenomena exists, a scientific explanation for their occurrence will eventually be discovered.

## Paranormal abilities and personality

There has been no previous research or work specifically on the personality characteristics of the paranormal believer; however, there has been a great deal of research, in well known parapsychology journals as well as in the parapsychological literature, done on the type of persons who seem to perform better on various parapsychological laboratory tasks or tests. While the subjects do not always perform significantly above chance on these tasks, certain personality types, as measured by various psychological tests, do seem to perform consistently and significantly better than other personality types.

For example, extroverts, as defined by scores on the Benreuter Personality Inventory (Humphrey, 1951; Gasper, 1952), the E Scale of the Maudsley Personality Inventory (Astrom, 1965; Green, 1967), the Social Introversion Scale of the MMPI (Black, 1963; Nash, 1966), and the Cattell High School Personality Questionnaire (Kanthamani & Rao, 1972), generally have mean ESP scores that are significantly higher than introverts' mean scores.

Socially adjusted individuals, as measured by Factors A, E, F, and I on the Cattell High School Personality Questionnaire (Kanthamani & Rao, 1971) and by several indices on the Rorschach (Schmeidler, 1949), perform better than maladjusted individuals.

Schmeidler (1964a) and Heyman and Schmeidler (1967) found that persons who give dynamic, hasty metaphors on the Time Metaphor Test tend to do better than individuals who give more naturalistic, passive metaphors.

Self-confidence scores of the Guilford Martin Inventory correlated .55 with ESP scores in Nicol and Humphrey's (1953) study.

Anxiety, as measured by the Taylor Manifest Anxiety Scale, has been found to be related to ESP scores in varying ways (Freeman & Nielson, 1964; Rao, 1965; Honorton, Carlson & Tietze, 1968). Neilson and Freeman (1965) suggested that tests of paranormal ability may be similar to other learning tasks in that degree of anxiety has differential effects on task performance depending on the complexity of the task. Honorton (1965), in an experiment testing the performance of highly anxious subjects on simple vs. complex ESP tasks bore out this hypothesis; that is, the highly anxious subjects tended to perform above chance on the simple task and at or below chance on the complex task.

Consistent results have been shown in ESP experiments with creativity as the independent variable. Highly creative subjects, as measured by scores on the Torrance Inventory (Honorton, 1967; Honorton, Carlson & Tietze, 1968), the Ice Question Test (Honorton, 1967), Guilford's Classes of Uses Test and the Barron 8 Item Scale (Schmeidler, 1963; Schmeidler,

1964b) and by professional occupation of artist vs. non-artist (Moss & Gnegerelli, 1968; Moss, 1969), have shown better performance on various measures of ESP ability than subjects with low degrees of creativity.

Defensiveness has also been shown to be a striking variable, with Carpenter (1965) and Johnson and Kanthamani (1968) finding that highly defensive subjects as measured by the Defense Mechanism Test (a TAT-like picture presented tachistoscopically) do poorly on measures of paranormal ability than low defensive subjects. In addition, Johnson and Nolbeck (1972) in their examination of a single, highly gifted subject, found that he performed worse on precognition and clairvoyant tasks involving target words which were personally relevant in a pleasant manner.

Finally, the variable of expansion/compression, from ratings of subjects' drawing, has shown some conflicting results (Humphrey, 1964b; Stuart, et al., 1967). Generally, subjects who draw expansive, free flowing pictures score better than subjects who draw tight, rigid, compressive pictures in tests compared to clairvoyant, telepathic and precognition ability (Smith & Humphrey, 1946; Humphrey, 1964a; Honorton, Carlson & Teitze, 1968; Kanthamani & Rao, 1973).

From these results, we might construct a hypothetical composite picture of the better ESP scorer in terms of his personality characteristics as measured by the various

psychometric tests administered. For example, if we synthesize the author's descriptions of what their various tests measure, we can develop a list of adjectives that define the ESP scorer and the poorer ESP scorer as evidences by these tests. The two contrasting lists are extensive, but within each profile, none of the adjectives appear to conflict theoretically. The better ESP scorer generally likes to be with other people, is uninhibited, vital and loose in his/her behavior -- has an ability to become flexible and tolerate unexpected consequences, adapts easily, is often an independent thinker, inquiring, searching, competitive and assertive, and is generally socially adjusted (i.e. free from nervous tension), not rigid, but not overly labile either. In contrast, the poorer ESP scorer tends to be more of a loner, more introspective, often shy and self-effacing, sensitive to criticism and critical of others, serious, self-sufficient and preferring his own decision but compliant to those of others, somewhat obsessive, rigid and guarded, and often anxiety prone. There are some exceptions to these personality profiles but, for the most part the ones describe above are widely accepted and researched (Kanthamani & Rao, 1973).

## Regression in service of the ego

Viewing these two characteristics from a dynamic perspective, one is reminded of Kris' concept of the capacity for adaptive regression or regression in the service of the ego (Kris, 1952). This is the capacity by which one is both free to explore the realms of fantasy and the unconscious, temporarily blurring the boundaries between external reality and internal symbolism, while at the same time, capable of critically organizing and synthesizing these imaginations into sensible and creative communications to others. As Schafer (1967) states it, regression in the service of the ego refers to "the ego's permitting relatively free play to the primary process in order to accomplish its adaptive tasks" (p.89).

Naturally, this is not a capacity found in everyone. Individuals with very rigid defensive mechanisms are rarely able to loosen up enough to allow themselves to regress or fantasize. On the other hand, individuals with defensive systems which are too weak and brittle, often can regress only too easily, but lack the organizing, synthesizing ego functions with which to structure these regressions into adaptive sensible communications "in the service of the ego."

Schafer (1967) lists six overlapping factors which are conducive to the ability to regress in the service of the ego. These are 1) well developed affect signals; 2) a secure

sense of self; 3) relative flexibility rather than rigidity or fluidity of defenses and controls; 4) relative mastery of early trauma; 5) a history of adequate trust and mutuality in interpersonal relations and 6) self-awareness, and personal and effective communication with others.

Taking into account the two broad personality profiles of the better ESP scorer and the poorer ESP scorer, one can discover Kris' and Schafer's relevancy here. The better ESP scorer is expressive, warm hearted and socially precise (well developed affect signals), self confident (a secure sense of self), emotionally stable and well adjusted (relative mastery of early traumata), adapts easily, is neither overly rigid nor overly labile (relative flexibility rather than rigidity or fluidity of defenses and controls), is sociable, extroverted, assertive and at ease with people (history of adequate trust and mutuality in interpersonal relationships and personal and effective communication with others). On the other hand, the poorer ESP scorer tends to be 1) overly introspective and less emotional; 2) sensitive to criticism, self effacing, and prone to anxiety; 3) sometimes neurotic and/or depressed; 4) overly rigid; 5) a shy person who prefers solitude; and 6) a rather pressured, compulsive person with a need for meticulousness and trifling matters.

Thus, theoretically, regression in the service of the ego might be a relevant variable in the field of parapsychology. Although this variable has not been tested directly, there are

a few research studies and papers in the literature which support its relevancy. For example, Devereux (1953) and Ehrenwald (1960; 1966) report of instances of telepathy-like experiences in the analytic situation, particularly in dream content around items of strong transference of feelings, and discuss these in terms of the breakdown of ego barriers and the "temporary fusion of two emotionally alike individuals... re-establishing for a fleeting moment the original mother-child unit" (Ehrenwald, 1960, p.53). Thelma Moss, in her telepathy research design (1967; 1968; 1969; 1970), employed the use of free associative protocols, and stated that "the nature of their free associations is similar to 'primary process' as described in psychoanalytic literature, filled with symbols, distortions, condensations, etc." (Moss, Chang & Levitt, 1970). Ullman and Krippner (1970; 1973) in their research in the realm of dream telepathy, also reported the use of dream reports together with the receiver's and sender's associational material to the dream reports. In other words, in telepathic studies, what is usually found to be communicated are not crystal clear pictures, messages or words, but more feelings or affective states, on a primary process level, very dream-like in structure, with symbolizations, condensations, displacements and the like. Freud stated in 1925:

I have often had an impression in the course of experiments in my private circle, that strongly

emotionally transferred without much difficulty. If one has the courage to submit to an analytical examination the associations of that person to whom the thoughts are supposed to be transferred, correspondences often come to light which would otherwise have remained undiscovered. On the basis of much experience I am inclined to draw the conclusion that thought transference of this kind comes about particularly easily at the moment at which an idea emerges from the unconscious, or, it passes over from the 'primary process' to the 'secondary process'" (Devereux, 1953, p.89).

Thus, it seems that in this type of communication a primary process level of thinking predominates. From this one might hypothesize that those persons best able to utilize primary process thinking in an adaptive, communicative manner (those with the ability to adaptively regress in the service of the ego) might show better results in the laboratory tasks of this nature.

All of the discoveries discussed so far have dealt with persons showing better performance on paranormal tasks, not with persons who profess belief in various paranormal phenomena. However, it has been shown in several studies (Schmeidler, 1949; 1952; Ryzl, 1968; Buxby, 1968; Moss & Gengerelli, 1968; Moss, 1969) that belief, especially strong belief, is positively correlated with higher ESP scoring. Therefore, it is likely that personality variables are relevant to belief research.

Certainly to report belief in unusual phenomena like clairvoyance and astral projection would require a certain degree of flexibility in the defenses (Schafer, 1967; Rotter,

1975). The question is raised, however, as to how adaptive the ability to regress to primary process modes of thinking has to be for mere belief in unusual phenomena. Belief is not an active process; it does not require communication on a creative level or on an adaptive level; it is a rather passive, cognitive process. Therefore, it is possible that believers in paranormal phenomena, while being able to regress to lower levels of thinking, would not necessarily have to possess the integrative ego functions necessary to adapt this "magical" thinking to secondary process reality levels. In other words, believers are probably loose defensively in either an adaptive (creative) or maladaptive (pathological) manner.

If the former were true, one might expect a looser defensive system combined with evidence of creativity and lower levels of anxiety (defenses may be loose but they are flexible and capable of working efficiently enough to fight off anxiety and allow creative productivity). If the latter were true, one might expect a looser defensive system; however, this time, creativity would be lower and anxiety most likely high (the defenses in this case would be too loose, not functioning adaptively enough to fight off anxiety and serve creative production).

An additional theoretical construct which would probably be of interest to this study would be Rotter's concept of locus of control of reinforcement. Much experimental litera-

ture exists on the differences between "Internals" and "Externals" (see Rotter, 1966, 1975; Lefcourt, 1972 for reviews of the literature). When events are typically interpreted by a person as being the result of luck, chance, fate or under the control of powerful others, he/she is said to have a belief in external control. On the other hand, if a person typically perceives events as being contingent upon his/her own actions, he/she is said to believe in internal control. At first impression, one might expect people who profess belief in paranormal phenomena to tend to believe in external control of reinforcement. However, in light of the previous discussion of adaptive and maladaptive regression, it might be that those people who profess a belief in ESP and are capable of a high level of adaptive regression will show more belief in internal control. Those people who do not profess belief in ESP and are not capable of high levels of adaptive regression will show a tendency toward the belief in internal belief also.

### Independent variables

Therefore this study, as well as measuring the nature and extent of belief in paranormal phenomena will also examine two theoretical constructs in relation to belief in paranormal phenomena; namely, the capacity for adaptive regression in service of the ego and the nature of the belief in

locus of control of reinforcement.

To measure the first of these two constructs, several independent variables will be assessed; namely, a) the degree of defensiveness, b) the degree of anxiety, c) the degree of creativity (potential and ability), d) the amount of primary process material presented and e) the adaptiveness of the defenses in handling the material.

To measure the second of these two constructs, Rotter's variable of Internal vs. External locus of control will be used.

The independent variables to be assessed will be operationally defined in the following manner:

Defensiveness	Score on Welsh R scale of the MMPI
Anxiety	Score on Welsh A scale of the MMPI
Creativity	Potential score on Torrance Personal Social Motivation Inventory (short form)
	Ability: Scores of frequency, flexibility, originality on Guilford Classes of Uses test-"Brick Question"
Primary process and adaptiveness of defenses	Scoring of responses to Brick Question for Defense Demand and Defense Effectiveness along the lines of Holt's scoring system for primary process manifestations in Rorschach responses
Internal/External locus of control	Rotter I-E Scale

Tests were chosen which were not too lengthy and which could be molded easily into a true-false questionnaire format. To measure defensiveness, the Welsh R scale were chosen. This scale developed by G.S. Welsh using an internal consistency method in an attempt to assess subjects' positions on a dimension consistently isolated in various factor analytic studies on the MMPI. The content of items on the R scale relate to health and physical symptoms; emotionality; violence and activity; reactions to other people in a social situation; social dominance; feelings of personal adequacy and personal appearance; and personal and vocational interests. The disorders generally exhibited by high R scorers are characterized by repression and denial while low R scorers are characterized by externalized and "acting out" behavior.

A test-retest (four month interval) reliability coefficient found for the R scale has been calculated at .74. Split-half (odd-even) correlation for the R scale was .48. This low split-half correlation was explained by Welsh as probably being due to the low homogeneity of items while the high test-retest correlation still supported the stability of the R scale (Welsh, 1956).

R scores have been found to correlate positively with other MMPI scores/scales (K, .53; I, .38; D, .44; and Hs, .41) and negatively with the Ma scale (-.44) of the MMPI. Correlations have also been obtained with the California Personality

Inventory: tolerance, .32; femininity, .33; good impression, .43; impulsivity, -.64; self-acceptance, -.41; and social participation, -.35. Williams and Lawrence, in a factor analytic study reported by Welsh (1956), have described the underlying dimension which the R scale loads most heavily on as "expressive-repressive."

Thus, the R scale has been shown to be a reliable instrument with both face validity and construct validity. High scorers would be those people who are reporting a number of somatic symptoms while using a great deal of caution or repression in reporting displays of emotion or feelings of dominance, excitement or curiosity.

To measure anxiety, the Welsh A scale was selected. This scale was derived by Welsh in the same manner as the R scale. The content of its items refer to thinking and thought processes (i.e. doubting, ruminating, etc.); negative emotional tone and dysphoria; lack of energy and pessimism; personal sensitivity to a dysphoric attitude in which anxiety is prominent.

The four month test-retest reliability coefficient found for the A scale was .70. In addition, a split-half (odd-even) reliability coefficient was measured as .88 (Welsh, 1956).

MMPI scales which have correlated with the A scale are K, -.71; I, -.37; Hy, -.32; Si, .45; F, .34; and Ma, .30. Correlating scales of the California Personality Inventory are social responsibility, -.41; tolerance, -.59; intellectual

efficiency,  $-.46$ ; academic achievement,  $-.50$ ; psychological interests,  $-.60$ ; good impression,  $-.56$ ; and impulsivity,  $.47$  (Welsh, 1956).

Thus, the A scale has also been shown to be a reliable instrument with both face validity and construct validity, measuring a dimension described as anxious dysphoria.

An additional reason these two scales were selected was that Welsh (1956, p.377) has suggested using the two scales together as a more effective diagnostic tool. He has fashioned a quadrant table indicating trends in psychiatric diagnoses that have been found in studies utilizing a combined score interpretation:

#### CLUSTERING OF PSYCHIATRIC DIAGNOSES IN A AND R QUADRANTS

<u>High A - Low R</u>	<u>High A - High R</u>
paranoid schizophrenia psychoneurosis, severe anxiety states	reactive depressive manic-depressive, depressed anxiety states
<u>Low A - Low R</u>	<u>Low A - High R</u>
manic-depressive, manic alcoholics behavior and character disorders	hysteria conversion reactions psychoneurosis, mild

Normative data have also been compiled by Welsh on the two scales. The norms relevant to college undergraduates are in Table 1. Thus it was assumed that for very high or very low scorers, the two scales scores taken together might provide additional information as to possible defensive style or type

TABLE I

Normative A and R Scale Scores  
for College Undergraduates

GROUP	N	<u>MEAN</u>		<u>SD</u>	
		A	R	A	R
College sophomores	71	14.5	17.1	6.7	3.9
College undergraduates	307	14.2	15.9	7.4	4.4
College I, Male	65	13.2	15.9	7.4	4.0
College undergraduates	425	10.1	15.5	8.0	3.9
College II, Female	96	9.7	17.4	6.9	3.5
College II, Male	132	8.7	15.2	7.7	4.7
					-.36

of pathological tendencies indicated.

### Paranormal abilities and creativity

To measure creative potential, the Torrance Personal Social Motivation Inventory was selected. This inventory consists of items which tap an "inquiring, searching, reaching-out and courageous attitude" (Honorton, 1967, p.31). The short form utilized in this study consists of 30 items from the original 100-item inventory. From the content of the items alone, high scores on the Torrance would be giving a self report of persistence, original and dependent thinking, working for personal satisfaction, and a preference for the novel and the unpredictable. For example:

I enjoy staying up all night when I'm doing something that interests me. (True)

I frequently try things which do not occur to others to try. (True)

I find it easier to identify flaws in the ideas of others than to think of other possibilities myself. (False)

I resist accepting the accustomed ways of doing things unless I can prove to my own satisfaction that it is the best way. (True)

I thoroughly enjoy activity in which pure curiosity leads me from one thing to another. (True)

I enjoy experiences where I can not know what is going to happen. (True)

Honorton (1967) reports a product-moment correlation of .28 between the Torrance Inventory and scores on the Ice

Question Test -- one of the Object Question tests by Burhart and Bernhiem. In addition, they computed a  $\chi^2$  (chi-square) between scores on the Torrance Inventory and ratings of subjects' drawings as expansive or compressive and found that high Torrance Inventory scores tended to draw expansively while low scores tended to draw more constricted, "compressed" drawings ( $\chi^2 = 4.84$ ;  $p < .03$ ). This suggests a certain amount of construct validity for the claim that the Torrance Inventory taps into an underlying dimension or predisposition towards creative, unrestrictive thinking.

In addition, as has been previously mentioned, the Torrance Inventory has been used in previous parapsychological studies. Honorton (1967) found that high scorers on the Torrance Inventory tended to score above chance on a parapsychological task while low scorers tended to score at or below chance ( $\chi^2 = 4.90$ ;  $p < .03$ ). Honorton, Carlson and Teitze (1968) found that the Torrance Inventory provided the most effective separation between high and low scoring ESP subjects of any of the various tests they administered ( $p < .01$ ).

Thus the Torrance Inventory was selected as a measure of the subjects' attitudes or motivations toward creativity -- their predisposition toward creative behavior.

An additional test was sought that would provide a more direct indication of actual creative performance. The Guilford tests of divergent thinking are one set of tests. Guilford does not purport to measure creative "achievement" per se,

and Nicholls (1972) and Leach (1971) are quite exact in pointing out that tests of divergent thinking are just that -- measures of the ability to think fluently and divergently -- not indications of actual creative productivity outside the laboratory environment. Be that as it may, the Guilford tests do provide some indication of the ability to think quickly (fluency), the ability to shift response sets (flexibility), and the ability to think in an unusual and creative manner (originality) all under a certain degree of time pressure. In psychoanalytic terms the above would require a freedom from anxiety, an availability of neutralized aggressive and libidinal energy, and a resiliency and flexibility of defenses, all characteristics which were discussed in relation to the concept of regression in service of the ego.

The particular test chosen was one of ideational fluency -- The Brick Question. Subjects were asked to think of as many different uses for a brick they could within a specified time limit (three minutes). Responses are then scored for fluency (F score--number of responses), flexibility (Fl score--number of varying degree/categories of uses used), and originality (O score--responses weight in inverse proportion to their popularity in the sample).

Guilford's tests have correlated positively with a need for adventure, tolerance for ambiguity, liking for reflective thinking and a liking for divergent thinking, and negatively with a need for meticulousness and a need for discipline.

This is in accord with Guilford's theoretical rationales that creative production is most enhanced by that state of mind which fosters an abandonment of controlled thinking, broadening of one's scanning, and a strong urge to create something (Guilford, 1967).

In parapsychological studies, Schmeidler (1963; 1964a) found that scores on Guilford's classes of uses tests taken together with scores on an 8-item questionnaire measuring predisposition to creative thinking correlated positively with scores on a test of ESP ( $p < .01$ ). Honorton (1967) found that high scores on the Ice Question Test (similar to Guilford's test of divergent thinking) tended to score above chance on tests of parapsychological ability while low Ice Question scorers tended to score at or below chance on the parapsychological tests ( $\chi^2 = 4.78$ ;  $p < .03$ ).

Thus it appears that Guilford's type of test is a valid measure of the capacity for divergent thinking, and it has been shown to relate positively to scores on parapsychological tests. For these reasons it was selected as a measure of creative ability, and for the theoretical reasons mentioned before, it was selected as an indirect indication of the capacity for adaptive regression.

The responses to the Brick Question Test were also scored for presence of primary process material and adaptiveness of defenses with an adaption of a scoring system developed by

Holt (1970). The Holt system allows for the scoring of the degree to which two types of primary process thinking are present -- one, based on the degree to which the thinking contains sexual and aggressive content and the other, the degree to which the responses are based on illogical thinking. This score is called the Defense Demand (or DD) score. The system also allows for the measurement of the degree to which the primary process material is handled effectively and adaptively. This is the Defense Effectiveness (or DE) score.. (See Appendix B for discussion of the DD and DE scoring systems).

The reliability of Holt's system depends to a great deal on the reliability of the scorer. Since the scoring used in this study was an adaptation by the experimenter of Holt's system based on his theoretical rationale, no relevant reliability figures can be presented here.

The construct validity of Holt's system has been established in a number of studies (Goldberger & Holt, 1958; Pine & Holt, 1960). Several studies, of relevance here, which have used Holt's system examined the relationship between unusual states of consciousness and the amount of primary process available to the subject and the effectiveness with which he/she handled it. Allison (1967) found that stronger, more intense, conversion experience of the sudden and dramatic type were associated with greater amount of primitive, non-logical thought manifestations, as well as, better integration

of such ideation. Feirstein (1967) found that tolerance for unrealistic experiences, or a person's capacity to perceive in ways which contradict the usual modes of perception, was related to the capacity to engage in integrated, unrealistic, and integrated drive-related thought. Maupin (1965) found that the ability to achieve deeper levels of meditation was related to the capacity for adaptive regression to primary process levels of thinking.

Thus Holt's system, in its measure of primary process material and effectiveness of defenses, is an objective, quantitative measure of the capacity for adaptive regression and thus of direct relevance to this study. Construct validity of the Holt system has been established; however, neither reliability nor validity has been established for the particular adaptation utilized here. Nevertheless, the theoretical rationale behind the two systems is the same and thus it is hoped that the adapted system will provide an adequate, though rough, measure of subjects' Defense Demand and Defense Effectiveness.

Finally, the dependent variable of belief in internal vs. external locus of control of reinforcement was assessed by the Rotter I-E Scale. The reliability and validity of this scale has been well established (Rotter, 1966; Lefcourt, 1972; Rotter, 1975).

Studies which are relevant to this experiment include a study in which Odell (1970) found a significant relationship

between Rotter's I-E scale and Barron's Independence of Judgement Scale, with subjects high in externality showing a greater likelihood of conformity. Crown and Diverant found that externals had less confidence in their own judgement abilities in an Asch-type and wagered less money than internals on the correctness of their judgement when making independent rather than conforming judgements. Gore found that internals produced shorter TAT stories than externals when the examiner's gestures indicated that subjects were expected to produce longer stories (the above stories cited in Lefcourt, 1972).

These results, that externals are more conforming, less likely to take risks, and less confident in their own independent judgement, run contrary to the previously discussed personality traits of innovative, creative individuals. Therefore, one might expect externals not to be the types who would express belief in unusual ideas such as parapsychological phenomena. On the other hand, Rotter reports that it is typical of internals to repress failures and unpleasant experiences (Rotter, 1975). This might lead us to think that if it is characteristic of internals to utilize repression of unpleasant experiences, they would probably be less likely to admit to belief in such uncertain and sometimes "unacceptable" ideas such as precognition and clairvoyance. Also by consideration of the content of the I-E scale items alone, one might expect a person who attributes events to luck,

chance, or fate (externals) to be more likely to profess belief in paranormal phenomena than people who strongly believe they master their own destiny (internals).

However, in light of the previous discussion of high adaptive and low adaptive regression and its possible relationship to belief and subsequent I-E scores, those seemingly contradictory hypotheses may fit and support the original relationship proposed. That is, that people who profess belief in paranormal phenomena and who show a capacity for high adaptive regression, will more likely be internal, while those people who profess no belief in paranormal phenomena and who show a low capacity for adaptive regression may display an external tendency.

#### Dependent variables

The dependent variables of belief in paranormal phenomena was assessed by questions on the self report questionnaire which could be divided into four categories. The first of these attempted to assess the nature of paranormal belief. The Belief Scale, consisting of eight true and false questions, each dealing with a different type of paranormal phenomena was intermingled with the other questionnaire items (see Appendices A, B, and C).

The second category, labeled the Endorsement Scale, consisted of twelve questions adapted from Schmeidler's Sheep-Goat questions (1949) which, if answered in the indicated

direction would express a general belief or disbelief in paranormal phenomena for various reasons ranging from no proof possible (e.g. "Many experiences we have are beyond rational or scientific explanation") to psychotic thinking (e.g. "All those people who claim to have extrasensory powers are either cheats or crazy"). Thus, a high score on the Endorsement Scale indicates the general belief in paranormal phenomena whereas a low score on the Endorsement Scale indicates the general disbelief in paranormal phenomena.

The third category consists of a single question to assess the subject's degree of openmindedness (e.g. "I must suspend judgement of whether extrasensory phenomena exists until more careful evidence is in").

The fourth category (i.e. experience) consists of a separate sheet on which the subjects were asked 1) whether or not they had ever had any unusual, coincidental-type experiences; 2) how often such experiences had occurred (on a scale from 1 to 5); and 3) if they had ever had any experiences they felt were the result of extrasensory phenomena.

Although the type of relationship between the variables of this study do not fit readily into such designations as "independent variables" and "dependent variables" (i.e. one set of variables have a causal relationship to another set), the assumption made in this study is that some variables are more basic in understanding a person than others. That is,

beliefs and specific attitudes toward aspects of the world can reasonably be seen as quite transient, whereas personality and abilities-related variables can be seen as more basic and determining of such things as belief.

### Hypotheses of the study

In summary, two questions will be asked: 1) What is the degree and the nature of the belief in paranormal phenomena among a sample of college students? and 2) Is there a relationship between the self-reported belief in paranormal phenomena and certain personality and creativity measures?

The first question will be assessed by true-false questions concerning belief in different types of paranormal phenomena; degrees and rationale behind these beliefs; presence of openmindedness; and self report of experiences attributed to ESP.

The second question will be assessed by looking at the relationship between self-reported belief (as measured above) and scores on various paper-and-pencil personality and creativity measures.

It is hypothesized that:

1) Individuals who believe in paranormal phenomena will have lower repression measure scores than individuals who do not believe in paranormal phenomena.

2) Individuals who believe in paranormal phenomena will

have lower anxiety measure scores than individuals who do not believe in paranormal phenomena.

3) Individuals who believe in paranormal phenomena will demonstrate the ability to adaptively regress to primary process levels of thinking and to handle this material more effectively than individuals who do not believe in paranormal phenomena.

4) Individuals who believe in paranormal phenomena will score higher on creative ability and potential than those individuals who do not believe in paranormal phenomena.

5) Although there is good reason to anticipate a relationship between I-E scores and the measures of belief in paranormal phenomena, the direction of this relationship was not predicted. The theories about belief in paranormal events could reasonably predict quite different outcomes. In other words, this aspect of the study exploratory.

## C H A P T E R   T W O

## METHODS

Subjects

The subjects in the present study were 141 male and female community college and university students. The community college sample was drawn from Springfield Technical Community College located in Springfield, Massachusetts. The university sample was drawn from the University of Massachusetts located in Amherst, Massachusetts.

The subject selection procedure at the community college was as follows: 1) The experimenter was given permission to request student participation by the instructor in an undergraduate introductory psychology course. 2) Subjects were asked to report to the next class period for the administration of the questionnaire. Each student who participated in the study received extra course credit towards his/her final grade in the course. The subject selection procedure at the state university was as follows: 1) The experimenter was granted permission, by the acting Psychology Human Subjects Committee to recruit subjects who were currently taking introductory and other psychology courses. 2) Subjects were tested in the offices located in the psychology department building at prearranged times. Each student who participated in the study received extra course credit towards his/her

final grade in the course.

### Measures

The Guilford (1967) Classes of Uses Test, or specifically the "Brick Question" was used to collect the data necessary to assess creativity (i.e. Fluency, Flexibility, and Originality) and primary process material (i.e. Defense Demand and Defense Effectiveness). This segment of the questionnaire was timed for three minutes by the experimenter.

The "Opinion Questionnaire" was a collection of 137 items from the A and R scales of the Minnesota Multiphasic Personality Inventory (Welsh, 1956), the Torrance Inventory Short Form (Honorton, 1967), the Paranormal Belief Scale (Webb, 1976), the Paranormal Endorsement Scale (Schmeidler, 1949), and the Openmindedness Question (Schmeidler, 1952). (See Appendices A, B, and C).

Rotter's (1966) I-E Scale (see Appendix B) was the next segment of the questionnaire. This instrument is a forced-choice, 29-item measure used to determine whether individuals perceive the events that happen to them as being controlled by external forces or as being a function of their own behavior. For the purposes of the present study, scores were split at the median (i.e. 11).

The next measure was a scale asking the subjects to report on previous coincidental experiences. In this scale, subjects

are presented with a scale measuring the approximate frequency of coincidental experiences on a scale of 0 to 5, with 0 indicating "never"; 1 indicating "once or twice in their lifetime"; 3 indicating "every now and then or several times a year"; and 5 indicating "quite frequently or several times a week". Subjects were also asked if they had experiences they would attribute to ESP and if they did, to briefly explain the occurrences (Appendix B).

Finally, a personal background sheet was used asking the subject's age, sex, year in college, religious affiliation, major field of study, parents' usual occupation and educational background.

### Procedure

During the recruitment, subjects were told that the purpose of the study was to investigate various attitudes and opinions in regard to paranormal phenomena and personality. Once the subject agreed to participate, he/she was asked to sign a statement of prior informed consent, as required by the Psychology Human Subjects Committee (see Appendix D).

Questionnaires were administered in small groups of 5 to 25 subjects. Each subject was asked to complete an "Opinion Questionnaire" consisting of the Guilford Classes of Uses Test (i.e. Brick Question), the Rotter I-E Scale, ESP Information Sheet, and a personal and demographic information sheet.

After the subject completed the questionnaire, he/she was informed as to the specific purpose of the study: the comparison of personality and creativity variables of subjects who either believe or do not believe in paranormal phenomena. The purpose of the Rotter Internal-External Locus of Control Scale was also explained and discussed.

### Design

In the present study the statistical analysis of the data consisted of the following procedures: 1) numerical description of the sample (i.e. demographic characteristics); 2) presentation of the reports of personal experiences of paranormal phenomena and related experiences; 3) the establishment of the reliability for the Paranormal Belief and Endorsement Scale by the Cronbach Alpha reliability computation; 4) intercorrelations among the paranormal phenomena measures; 5) sex differences on the paranormal phenomena measures by simple comparison between means; 6) correlations between the paranormal phenomena measure and age; 7) intercorrelations between the paranormal phenomena measures and the personality and creativity measures; 8) intercorrelations among the personality measures; 9) intercorrelations among the creativity measures; and 10) intercorrelations between the personality and creativity measures.

## C H A P T E R    T H R E E

## RESULTS

Demographic and social characteristics of the sample

The sample was not a truly random sample of college students. All the subjects were enrolled in Psychology 101 courses and other psychology courses at the University of Massachusetts and Springfield Technical Community College and were volunteers for the experiment. The age range of the sample was between 18 and 43 years -- a fairly diversified range with only two subjects not reporting age. The average age of the sample was 21 years and the median of the sample was 19.8 years of age (see Table 2). The sample contained 52 males and 87 females, with two subjects not reporting gender (see Table 3). Religious affiliation ranked in the following order: Catholic (46%), no preference (19%), Protestant (11.3%), Judaism (5.6%), Agnostic (4.2%), Baptist (2.8%), Episcopalian (2.1%), Spiritualism (2.1%), Islam (.7%), Lutheran (.7%), Methodism (.7%), Pentecostal (.7%), Yoruba-Lucumi (.7%), and no report (1.4%) (see Table 4).

The socioeconomic backgrounds were based on the distribution of the sample on the Warner, Meeker and Eells Occupational Status Scale (1949). Judging from their father's (or mother's if the father was not present) occupations each subject was accorded a rating. Ratings 1 through 3 were

TABLE 2

Age Distribution Within Sample:  
Percentage Within Various Age Groups

<u>AGE</u>	<u>N</u>	<u>%</u>
18	27	19.1
19	29	20.6
20	37	26.2
21	12	8.5
22	4	2.8
23	5	3.5
24	4	2.8
25	3	2.1
26	1	.7
28	3	2.1
29	3	2.1
30	3	2.1
31	2	1.4
33	3	2.1
34	1	.7
35	1	.7
43	1	.7
No Report	2	1.4
	<hr/> 141	<hr/> 100.0

Mean = 21.01

Standard Deviation = 4.98

TABLE 3  
Number and Percentage of Males and Females  
Within the Sample

<u>Sex</u>	<u>N</u>	<u>%</u>
Male	52	36.9
Female	87	61.7
No Report	2	1.4
	<hr/>	<hr/>
TOTAL	141	100.0

TABLE 4  
 Number and Percentage of Religious Affiliation  
 Within the Sample

<u>RELIGION</u>	<u>N</u>	<u>%</u>
Catholic	66	46.0
Protestant	16	11.3
Judaism	8	5.6
Agnostic	6	4.2
Baptist	4	2.8
Episcopalian	3	2.1
Spiritualism	3	2.1
Islam	1	.7
Lutheran	1	.7
Methodism	1	.7
Pentecostal	1	.7
Yoruba-Lucumi	1	.7
No Preference	28	19.8
No Report	2	1.4
	<hr/>	<hr/>
TOTAL	141	100.0

assigned to professionals (i.e. lawyers, doctors, executive managers of private enterprises, registered nurses, social workers, librarians, ministers, etc.). Ratings 4 and 5 were assigned to semi-professionals (i.e. stenographers, carpenters, foremen, police personnel, telephone operators and repairmen, etc.). Ratings 6 and 7 were assigned to semi-skilled and manual laborers (i.e. moulders, baggage personnel, miners, janitors, migrant workers, etc.). Rating 8 was assigned to the parent(s) who is presently unemployed. The sample loaded the highest on ratings 5 (23.4%) and 1 (21.9%), followed by ratings 2 (18.4%) and 3 (14.1%). The remaining ratings ranged from 0% to 5.6%, while 7% of the sample did not report any occupational status of their parents (see Table 5).

Sophomores accounted for 39% of the sample followed by freshmen (37%), Juniors (15.6%), Seniors (4.9%) and Special Students (2.8%) (see Table 6).

The vocational interests and academic orientations (college major) of the sample varied widely. Twenty-seven (or 19.1%) of the sample majored in pre-law study or law enforcement. Psychology and education majors accounted for 14.8% and 9.9%, respectively, of the sample. Other major fields of interest accounted for .7% to 7% of the total sample (see Table 7).

TABLE 5

Distribution of Sample on the  
Warner, Meeker and Eells Scale of Occupational Status

<u>GROUP</u>	<u>N</u>	<u>%</u>
1 (highest)	31	21.9
2	26	18.4
3	20	14.1
4	8	5.6
5	33	23.4
6	8	5.6
7 (lowest)	0	0
8 (unemployed)	5	3.5
No Report	10	7.0
	<hr/>	<hr/>
TOTAL	141	100.0

TABLE 6

Distribution of Year in College Within the Sample

	<u>N</u>	<u>%</u>
Freshmen	53	37.6
Sophomores	55	39.0
Juniors	22	15.6
Seniors	7	4.9
Special Students	4	2.8
	<hr/>	<hr/>
TOTAL	141	100.0

TABLE 7

Number and Percentage of the Distribution  
of College Major Subjects Within the Sample

<u>MAJOR</u>	<u>N</u>	<u>%</u>
Geology	1	.7
Animal Science	2	1.4
Education	14	9.9
Computer Science	1	.7
Health Science	4	2.8
Fine Arts	1	.7
Psychology	21	14.8
Nursing	4	2.8
Mental Health	10	7.0
Communications	4	2.8
History	1	.7
Cosmetology	1	.7
Economics	1	.7
Pre-Medicine	3	2.1
Engineering	2	1.4
Political Science	4	2.8
Journalism	1	.7
Business Administration	5	3.5
Community Affairs	2	1.4
Physical Education/Therapy	6	4.2
Music	1	.7
Sociology	1	.7
Law	27	19.1
Food/Nutrition	2	1.4
Speech Pathology	3	2.1
Biology	2	1.4
Fire Science	6	4.2
Foreign Language	1	.7
Religion/Philosophy	1	.7
Undecided	6	4.2
	<hr/>	<hr/>
TOTAL	141	100.0

### Self report of personal experiences

The first question this research effort entertained was the extent and the nature of belief in paranormal phenomena among a sample of college students. It was found that reported belief in many different types of phenomena was fairly widespread; however, reported experiences actually attributed to extrasensory experience only approached the moderate level.

Looking at Table 8, we see that 127 subjects or approximately 90% of the total sample reported that they had experienced unusual or noteworthy events which they defined as coincidental experiences. The mean frequency of subjects reporting experiences was located between "once or twice in lifetime" and "every now and then; several times a year." The descriptive examples were not too terribly unusual or extraordinary. The most common were dreams that later became actual events (n=27), and these dreams ranged from dreaming about the Massachusetts Lottery Number, an athletic game score or doing well on a test, to dreaming about a mishap or catastrophe such as someone's death. Other frequently described coincidental experiences were correctly guessing who's calling on the telephone (n=36), déjà vu experiences (n=10), or successful gambling bets or guesses (n=12). Miscellaneous incidents reported were predicting when an important letter would arrive, knowing who's at the door, or thinking of an old friend who shows up the next day. As can

TABLE 8  
 Number and Percentage of Subjects Responding  
 in Various Categories on the ESP Scale

Reported Coincidental Experiences	<u>N</u> 127	<u>%</u> 90
-----		
Frequency of Coincidental Experiences	<u>N</u>	<u>%</u>
0 (Never)	12	8.5
1 (Once or twice in lifetime)	14	9.9
2	8	5.6
3 (Every now and then; several times a year)	76	53.9
4	20	14.1
5 (Quite frequently; several times a year)	9	6.3
MISSING DATA	2	1.4
	<hr/>	<hr/>
TOTAL	141	100.0

be seen, the experiences described were very much of the common, everyday chance occurrences that most people have experienced happening at least once in their lives. Fifty-five subjects, or 39% of the total sample reported experiences which they felt were the result of the extrasensory phenomena in addition to reporting coincidental type experiences (see Table 9). (A more detailed presentation of the numbers and percentages of subjects describing various paranormal phenomena is provided in Tables 1 and 2 of Appendix E).

Overall, the coincidental experiences described by these subjects were similar to those of the remainder of the sample, although the mean frequency of occurrence was reported as somewhat higher (Table 10). The description of the experiences attributed to extrasensory incidents varied. Several of the 55 subjects reported experiences attributed to extrasensory phenomena that most other subjects attributed to coincidence (e.g. deja vu experiences, or correctly guessing who is calling on the telephone, or knowing who will be in the neighborhood). Several people (n=5) reported a greater sensitivity to people's thoughts or "true" motives as a result of extrasensory perception. In addition, other subjects in the ESP group reported more unusual types of events than the more common coincidental experiences reported by the remainder of the sample. Examples were (1) being able to see people's auras since birth (n=2); (2) correctly diagnosing cancer and its location in a family member two weeks prior to a physical examination (n=1).

TABLE 9  
Additional Descriptive Statistics  
Among Selected Dimensions

<u>ITEM</u>	<u>N</u>	<u>%</u>
Reported experiences attributed to ESP	55	39
Affirmation to Openminded Question	69	48.9

TABLE 10  
Means and Standard Deviations  
on the ESP Scale

	$\bar{M}$	SD
Mean frequency of coincidental experiences	1.08	.28
Mean frequency of coincidental experiences for <u>Ss</u> reporting experiences attributed to ESP	3.03	.48
Mean frequency of coincidental experiences for <u>Ss</u> reporting experiences not attributed to ESP	2.77	.67

(3) feeling a cold breeze and hearing a music box playing at the approximate time of a subject's family member's death (n=1); (4) visions of people who appear in the presence of a subject as if to communicate, then simply disappear (n=3); (5) experiencing journeys out of the body as in astral projection (voluntarily and involuntarily) (n=3); (6) feeling a physical pain at the same moment a lover, family member, or close friend is feeling pain (n=5); and (7) knowing that something unusual is about to happen before it happens (n=7).

One subject reported that so-called ESP events (clairvoyance, precognition, psychokinesis, communication with the dead, and possession) are common and frequent occurrences in her religious experience (i.e. Yoruba-Lucumi). Contrastingly, another subject believes in extrasensory experiences, yet avoids it and defines paranormal phenomena as an abomination in God's sight (according to a Bible passage: Deuteronomy 18: 9-12, King James Version):

9 When thou art come into the land which the Lord thy God giveth thee, thou shalt not learn to do after the abomination of those nations.

10 There shall not be found among you...that useth divination, or an observer of times, or an enchanter, or a witch,

11 Or a charmer, or a consulter with familiar spirits, or a wizard, or a necromancer.

12 For all that do these things are an abomination unto the Lord; and because of these abominations the Lord thy God doth drive them out from before thee...

In the same light, a Muslim subject referred to two passages from the Holy Quran as to base her non-belief of paranormal phenomena. The Holy Quran says:

Or have they a ladder,  
By which they can (climb  
Up to heaven and) listen  
(To its secrets)? Then  
Let such a listener of theirs  
produce a manifest proof.

-Yusuf Ali (version) LII 38

And We have,  
(From of old),  
Adorned the lowest heaven  
With lamps, and We  
Have made such lamps  
As missiles to drive  
Away the Evil Ones,  
And have prepared for them  
The Penalty  
Of the Blazing Fire.

-Yusuf Ali (version) LXVII 5

These two examples of scripture may indicate that three major religious doctrines of the world, Islam, Christianity and Judaism, reject the notions behind paranormal phenomena (Nurridin, 1977).

### Reliability of measures of belief in paranormal phenomena

The second question concerned the relationship exist between the self report of belief in paranormal phenomena and certain personality and creativity variables. However, before discussing the issue directly, it is important to review the reliability of certain dependent measures as part of the results.

Paranormal Belief Scale. Because the Paranormal Belief Scale was devised by the experimenter (see Appendix A), the reliability of the scale needed to be demonstrated. Therefore, the most widely used internal reliability coefficient test measure was conducted to determine its reliability. The results of the Cronbach Alpha test are graphically displayed in Table 11. The results indicate that the alpha level of the Paranormal Belief Scale is well within the established limits of scale reliability (cf. Nunnally, 1967). The intercorrelations of the items are moderate and thus support the demonstration of internal consistency scale.

Paranormal Endorsement Scale. The Paranormal Endorsement Scale was devised by Schmeidler (1949) and has been used in ESP research before this study. The scale, which contains twelve items is a combination of "Sheep" and "Goat" items (see Appendix A). A high score indicates endorsement of all "Sheep" items and no "Goat" items, and a low score indicates endorsement of all the "Goat" items and no "Sheep" items. Since the literature did not report a test reliability coefficient, a Cronbach Alpha test was performed. The results of the test are displayed on Table 12. The alpha coefficient of .71 sets the Paranormal Endorsement Scale within the limits of acceptable scale reliability. The intercorrelations indicate that the internal consistency of the scale is also acceptable.

TABLE 11

Inter-Item Correlations, Item-Scale Correlations, and Alpha Reliability Coefficients  
for the Paranormal Scale

	I	II	III	IV	V	VI	VII	VIII	Item Total
I. Clairvoyance	1.00	.239	.242	.346	.293	.372	.326	.364	.495
II. Reincarnation		1.00	.127	.209	.200	.322	.281	.274	.368
III. Dreams (Precog- nition/Clair- voyant			1.00	.147	.155	.397	.160	.164	.302
IV. Astral Projection				1.00	.393	.319	.482	.411	.537
V. Possession					1.00	.395	.349	.365	.493
VI. Precognition						1.00	.323	.395	.574
VII. Communication with Dead							1.00	.330	.519
VIII. Psychokinesis								1.00	.531

Reliability Coefficients

Alpha = .78

Standard Item Alpha = .77

TABLE 12

INTER-ITEM CORRELATIONS, ITEM-SCALE CORRELATIONS, AND ALPHA RELIABILITY COEFFICIENTS FOR THE PARANORMAL ENDORSEMENT SCALE

	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	ITEM TOTAL $\Sigma$
I STAT. PROOF	1.00	.106	.267	.090	-.001	.073	.154	.114	.358	.124	-.026	.108	.241
II No Dir. PROOF		1.00	.222	.119	.143	.256	.174	.285	.206	.184	.140	.140	.354
III EVERYONE HAS ESP			1.00	.180	.270	.028	.232	.176	.160	.122	.062	-.026	.314
IV CERTAIN PEOPLE HAVE ESP				1.00	.225	.063	.194	.153	.197	.188	.105	.005	.273
V COMMUNICATION SYSTEMS					1.00	.074	.191	.018	.064	.112	.260	.033	.243
VI ESP BEYOND EXPLANATION						1.00	.160	.302	.300	.273	.212	.255	.354
VII ESP IS DEDUCTIVE REASONING							1.00	.407	.116	.285	.240	.133	.421
VIII ESP IS COINCIDENCE								1.00	.214	.400	.125	.053	.399
IX PAB METHODOLOGY									1.00	.225	.318	.431	.482
X CRAZY AND CHEATS										1.00	.310	.260	.461
XI NON-SCI. MIND											1.00	.290	.361
XII PSYCHOTIC												1.00	.293

RELIABILITY COEFFICIENTS

ALPHA = .71      STANDARD ITEM ALPHA = .72

Paranormal phenomena measures

The Paranormal Belief Scale, the Paranormal Endorsement Scale, the Openmindedness Question, the ESP experience question and the ESP Scale were used separately to attain a subject's belief or disbelief in paranormal phenomena. Table 13 displays the Pearson intercorrelations between these five measures.

The Paranormal Belief Scale produced the strongest relationship with the Paranormal Endorsement Scale at the .001 level of significance ( $r=.72$ ). Thus, people who favor belief in ESP may also tend to hold attitudes that ESP is acceptable. The Openmindedness Question (a dichotomous variable) and the ESP scale likewise correlated significantly ( $r=.57$ ;  $p<.001$ ). This indicates that people who are openminded in reference to ESP are also more likely to have a higher frequency of coincidental experiences. The association between the Endorsement Scale and the Openmindedness Question is significant ( $r=.15$ ;  $p<.05$ ). This indicates that people who endorse paranormal phenomena also are openminded to occurrences that do not fit into the scientific tradition.

The dichotomous variable of ESP experience was associated consistently significant with the measures of paranormal phenomena. Both the Paranormal Belief and Endorsement Scales correlated significantly with the ESP experience question at the .05 level of significance. Thus, as expected, individuals who believe they have had some kind of ESP experience are also

TABLE 13  
 Pearson Correlation Coefficients  
 Among Paranormal Phenomena  
 Measures

	I	II	III	IV	V
Belief Scale	1.00	.72**	.04	.05	.14*
Endorsement Scale		1.00	.15*	.02	.13*
Openmindedness			1.00	.57**	.27**
ESP Scale (Coincidence)				1.00	.35**
ESP Experience					1.00

\* $p < .05$

\*\* $p < .001$

holding attitudes that paranormal phenomena are acceptable and believe in various occurrences of ESP.

The ESP Question correlated significantly with the Openmindedness Question ( $r=.27$ ;  $p<.001$ ) and the ESP Scale ( $r=.35$ ;  $p<.001$ ). Both of these results taken together support the hypothesis that the individual who believes that he/she has experienced ESP is openminded to its occurrences and also experiences a relatively higher frequency of coincidental experiences.

#### Sex differences on paranormal phenomena measures

Of the 55 subjects who believe they have had experiences attributable to ESP phenomena, 37 were female (67.3%) and 18 were male (32.7%). In order to determine whether significant sex differences existed on Paranormal Belief Measures, a t-test comparison of means was conducted (see Table 14). Females tended to hold attitudes which highly endorses the possibility of ESP and/or paranormal phenomena more so than males ( $t=-2.20$ ;  $p<.05$ ). Females' mean score on the Paranormal Belief Scale is also significantly higher than the mean score for males ( $t=-2.63$ ;  $p<.01$ ). This indicates that females are more aware of the existence of paranormal phenomena than are males.

TABLE 14

Means and Standard Deviation on the Paranormal Phenomena Belief Measures of Sex

	MALES		FEMALES		TOTAL		
	$\bar{M}$	SD	$\bar{M}$	SD	T-Value	Sign.	$\bar{M}$ SD
Belief Scale	4.27	2.34	5.33	2.26	-2.63	.01	4.96 2.33
Endorsement Scale	8.20	2.83	9.03	2.25	-2.20	.05	8.70 2.43
Openmindedness	1.44	.50	1.55	.50	-1.25	NS	1.51 .50
ESP Scale	2.77	1.31	2.83	1.28	- .26	NS	2.82 1.35
ESP Experience	1.58	.54	1.59	.52	- .10	NS	1.58 .50

### Age differences on paranormal belief measures

The Pearson correlations between the demographic variable of age and the Paranormal Belief Measure indicate consistent and significant relationships (see Table 15).

Age correlated negatively with the Paranormal Belief Scale ( $r = -.758$ ;  $p < .001$ ) and the Paranormal Endorsement Scale ( $r = -.722$ ;  $p < .001$ ). Both of these results taken together suggests that relatively younger individuals were more likely to believe and endorse paranormal phenomena than relatively older individuals.

The ESP Coincidence Scale and age are significantly associated ( $r = .759$ ;  $p < .001$ ). This result indicates that relatively older people experienced more coincidental experiences than relatively younger people.

The Openmindedness Question associated significantly with age ( $r = .582$ ;  $p < .001$ ). This result indicates that relatively older people were more openminded in regard to paranormal phenomena than relatively younger people.

It should be taken into account that the powerful significance between age and the measures of paranormal phenomena is possibly influenced by the two district sample populations. The two samples were from quite different schools, which could influence different attributes, opinions, predispositions and belief systems. It is also the researcher's impression that there were more older students in the Springfield Technical Community College sample. Further research which involves comparing various defined groups on belief in paranormal phenomena may clarify this matter.

TABLE 15

Age Correlations with Paranormal Belief Measures

	<u>r</u>	<u>significance</u>
Paranormal Belief Scale	-.758	.001
Paranormal Endorsement Scale	-.722	.001
ESP Coincidence Scale	.759	.001
Openmindedness	.582	.001
ESP Experience	.471	.001

Paranormal phenomena measures and personality variables

The Pearson correlations between the Paranormal Belief Scale and the personality variables failed to produce any significant associations.

Defense Effectiveness correlates both significantly and positively with Paranormal Endorsement Scale ( $r=.149$ ;  $p<.05$ ). This result indicates that the ability to effectively handle primary process material is required to endorse the possibility of paranormal phenomena. Both repression and anxiety display weak relationships with the Paranormal Endorsement Scale. However, anxiety correlated with the scale in a negative manner ( $r=-.043$ ), which indicates that individuals who are less prone to anxiety or rigidity in their expression have a slight tendency to endorse paranormal and unusual phenomena.

The ESP (Coincidence) Scale and the variable of Defense Demand and Defense Effectiveness are strongly associated (i.e. .001 level of significance). This result indicates that the drives of the primary process and the degree to which the primary process material is handled effectively and adaptively are linked to the higher frequency of coincidental occurrences. The ESP Scale and repression are highly associated ( $r=.450$ ;  $p<.001$ ). In addition, the ESP Scale is also significantly associated with the anxiety measure ( $r=.417$ ;  $p<.001$ ) (see Table 16).

TABLE 16

Pearson Correlation Coefficient Between Personality  
and Paranormal Phenomena Variables

	Belief Scale	Endorsement Scale	ESP Scale
Defense Demand	-.027	.112	.353***
Defense Effectiveness	-.026	.149*	.359***
Repression	.105	.069	.450***
Anxiety	-.040	-.043	.417***
Rotter's I-E Scale	-.009	-.044	.203**

\* $p < .05$

\*\* $p < .01$

\*\*\* $p < .001$

The results show that repression is related significantly to openmindedness with regard to ESP ( $t=2.79$ ;  $p<.01$ ). This supports the notion that in order to entertain various ESP phenomena, subjects were relatively free from unacceptable desires or impulses within their consciousness. Other differences across other personality variables were non-significant.

In this study the Rotter I-E Scale was scored in the direction opposite to the accustomed manner. That is, instead of high scores indicating high external locus of control, in this study high scores (i.e. 12 - 22) indicated greater endorsement in internal locus of control. Thus, the results indicated that people who score relatively high on the ESP Scale tend to be internally oriented ( $r=.203$ ;  $p<.01$ ). Other associations between the paranormal phenomena measures and the Rotter I-E Scale were not statistically significant (see Table 16).

#### Paranormal phenomena measures and creativity variables

Creative ability. Creative ability was measured by the Fluency (or Frequency), Flexibility, and Originality scores on the Brick Question. Intercorrelations between these measures and the paranormal phenomena measures were fairly consistent, yet a few exceptions were noted (Table 17).

The Paranormal Belief Scale correlated significantly with

TABLE 17  
 Pearson Correlation Coefficients Between Creativity  
 and Paranormal Phenomena Variables

	Belief Scale	Endorsement Scale	ESP Scale
Fluency	.103	.195**	.108
Flexibility	.053	.194**	-.163*
Originality	.152*	.199**	.447***
Torrance Inventory	.135*	.040	.688***

\* $p < .05$

\*\* $p < .01$

\*\*\* $p < .001$

Originality ( $r=.152$ ;  $p<.05$ ). This result indicates that individuals who hold paranormal phenomena to be acceptable and "real" are characterized by unusual and creative thinking.

The Paranormal Endorsement Scale associated strongly with Fluency ( $r=.195$ ;  $p<.01$ ), Flexibility ( $r=.194$ ;  $p<.01$ ), and Originality ( $r=.199$ ;  $p<.05$ ), demonstrating that the belief in ESP events and creative ability were linked.

The ESP Scale correlated with Fluency ( $r=.108$ ) and correlated strongly with Originality ( $r=.447$ ;  $p<.001$ ). Thus, individuals who scored higher as creative thinkers scored relatively higher on the ESP Scale than individuals who did not show the same capacity. On the other hand, flexible thinking showed a significantly negative correlation with the ESP Scale ( $r=-.163$ ;  $p<.05$ ). This result suggests that relatively higher scores on the ESP Scale are linked to lower scores on the flexibility dimension.

The mean differences for the scores of Fluency, Flexibility, and Originality are non-significant yet tend to be in the direction of an individual who is openminded in regards to ESP phenomena.

Individuals who reported ESP experiences averaged higher Flexibility scores ( $\bar{m}=5.22$ ) than individuals who did not report such experiences ( $\bar{m}=4.08$ ). This supports the hypothesis that creative flexibility and belief in ESP are linked.

### Creative potential

Creative potential or attitude, as measured by the Torrance Inventory, was consistently significant with the measures of the paranormal phenomena.

The Torrance Inventory showed a significant positive correlation with the Paranormal Belief Scale ( $r=.135$ ;  $p<.05$ ), indicating that creative potential and the belief in paranormal phenomena are linked. In addition, the Paranormal Endorsement Scale revealed a weak association with creative potential ( $r=.040$ ) but is in the expected direction.

A strong relationship was also found between the ESP Scale and creative potential ( $r=.688$ ;  $p<.001$ ). Thus, individuals who have coincidental experiences relatively frequently have a greater potential for creative thought or disposition.

Significant results were obtained with the Torrance Inventory ( $t=-2.10$ ;  $p<.05$ ). Thus, individuals who endorsed openmindedness in regards to ESP were more likely to be inclined toward creative behavior than individuals who were not openminded to the possibility of ESP (Table 18).

There is a significant difference between "yes" and "no" ESP reports on the Torrance Inventory ( $t=4.42$ ;  $p<.001$ ). Thus, it appears that individuals who reported ESP experiences averaged relatively higher Torrance scores than individuals who did not report ESP experiences (Table 19).

TABLE 18

T-Test Comparison of Means  
Across All Variables of Openmindedness

Variable	Openmindedness		T-Value	Sign.
	Yes m	No m		
Belief Scale	4.85	5.05	-.51	NS
Endorsement Scale	8.30	9.04	-1.75	.08
ESP Coincidence Scale	2.51	3.11	-2.71	.01
ESP experience	1.72	1.44	3.30	.001
<u>Personality</u>				
DD	2.00	1.98	.09	NS
DE	2.00	2.13	-.35	NS
Repression	16.47	14.71	2.79	.01
Anxiety	16.82	17.79	-.80	NS
I-E	10.52	10.57	-.07	NS
<u>Creativity</u>				
Fluency	9.33	9.14	.29	NS
Flexibility	4.44	4.57	-.23	NS
Originality	14.28	16.01	-.87	NS
Torrance	18.95	20.30	-2.19	.05

NS= not significant

TABLE 19

T-Test Comparison of Means Across All Variables  
of ESP Experience

Variable	Yes <u>m</u>	No <u>m</u>	T-Value	Sign
Belief Scale	5.38	4.69	1.77	.08
Endorsement				
Scale	9.09	8.43	1.52	NS
Openmindedness	1.39	1.69	3.61	.001
ESP Coincidence	3.44	2.40	4.63	.001
<u>Personality</u>				
DD	2.20	1.88	.94	NS
DE	2.29	1.94	.94	NS
Repression	14.15	16.45	-3.75	.001
Anxiety	17.38	17.25	.11	NS
I-E	10.40	10.55	-.23	NS
<u>Creativity</u>				
Fluency	9.13	9.33	-.30	NS
Flexibility	5.22	4.08	2.09	.05
Originality	17.18	13.93	1.37	NS
Torrance	21.24	18.69	4.42	.001

NS= not significant

## Summary

In summary the results of this research effort indicated that "believers" of paranormal phenomena were able to adaptively regress to primary process modes of thinking (Defense Demand and Defense Effectiveness Scores). Significantly lower levels of repression were also characteristics of paranormal "endorsers" and "experiencers". There was also slight evidence that individuals who experience ESP may be internally oriented in reference to locus of control.

The measures of creativity were significantly related to measures of paranormal phenomena. Thus it appears that the creative and original individual was more likely to believe and endorse paranormal phenomena. These results are further supported by the significant relationship between paranormal phenomena and creative potential (i.e. Torrance Inventory score).

It was also demonstrated that sex and age were significant demographic factors that were positively related to the belief and endorsement of paranormal phenomena.

## Relationship between personality and creativity measures

Correlations among the personality variables. The high correlation between the Defense Demand and Defense Effectiveness scores ( $r=.888$ ;  $p<.001$ ) is to be expected since Defense Effectiveness is not scored unless Defense Demand is

present. This result indicates that primary process drives (i.e. sexual and aggressive) were associated with the effectiveness of handling such drives (Table 20).

Repression significantly related to Defense Demand ( $r=.381$ ;  $p<.05$ ) and Defense Effectiveness ( $r=.408$ ;  $p<.001$ ) and suggests that high level of repression is linked to the drives and to the handling of the primary process material. Anxiety was also significantly related to Defense Demand ( $r=.192$ ;  $p<.01$ ) and Defense Effectiveness ( $r=.205$ ;  $p<.01$ ) suggesting that high levels of anxiety is linked to the drives and to the effective handling of the primary process material.

Repression and anxiety were positively and significantly associated ( $r=.405$ ;  $p<.001$ ). Thus, high levels of repression were coupled with high levels of anxiety (i.e. anxiety states).

Rotter's I-E Scale correlated significantly with both Defense Demand ( $r=.126$ ;  $p<.01$ ) and Defense Effectiveness ( $r=.152$ ;  $p<.01$ ). This suggests that individuals who produce relatively greater amounts of primary process material are internally oriented. This internal orientation was also evident with individuals who were prone toward high levels of repression ( $r=.296$ ;  $p<.001$ ) and anxiety ( $r=.264$ ;  $p<.001$ ).

TABLE 20

# PEARSON CORRELATIONS COEFFICIENTS AMONG THE PERSONALITY AND CREATIVITY VARIABLES

	I	II	III	IV	V	VI	VII	VIII	IX
I DEFENSE DEMAND	1.00	.838***	.381**	.192***	.136**	.214***	.051	.150**	.379***
II DEFENSE EFFECTIVENESS		1.00	.408***	.205**	.152**	.267**	.112*	.549**	.420***
III REGRESSION			1.00	.405***	.296***	.014	-.141**	.366***	.538***
IV ANXIETY				1.00	.264***	.006	-.191**	.271***	.530***
V I-E					1.00	.046	.064	.249***	.349**
VI FLUENCY						1.00	.389***	.470***	.128**
VII FLEXIBILITY							1.00	.239***	-.101
VIII ORIGINALITY								1.00	.476***
IX TOLERANCE									1.00

\*  $p < .10$   
 \*\*  $p < .05$   
 \*\*\*  $p < .01$   
 \*\*\*\*  $p < .001$

Correlations among the creativity variables. The measures of creative production -- Fluency, Flexibility and Originality -- correlate significantly and consistently with each other (Table 20).

Fluency correlates highly with Flexibility ( $r=.396$ ;  $p<.001$ ) and Originality ( $r=.470$ ;  $p<.001$ ). In addition, Flexibility and Originality are significantly linked at the .001 level ( $r=.239$ ). These results taken together suggests that the ability to think quickly, the ability to shift response sets and the ability to think in an unusual and creative manner are strongly linked to each other.

Fluency correlates with the Torrance Inventory at the .05 level of significance ( $r=.128$ ). This result strongly suggests that the trait of fluency or frequency in creative production is linked to attitudes or motivation toward creative behavior. The same attitude or motivation toward creativity are significantly linked to creative and original thought ( $r=.486$ ;  $p<.001$ ).

Correlations among personality and creativity variables

Fluency was significantly related to Defense Demand ( $r=.214$ ;  $p<.01$ ) and Defense Effectiveness ( $r=.267$ ;  $p<.05$ ) indicating that the primary process is linked to fluent thinking in regards to creativity. Flexibility was weakly associated with both Defense Demand and Defense Effectiveness.

However, Flexibility and Defense Effectiveness showed a correlation bordering on significance at the .10 level ( $r=.112$ ). On the other hand, Originality was significantly linked to Defense Demand ( $r=.149$ ;  $p<.05$ ) and Defense Effectiveness ( $r=.549$ ;  $p<.05$ ) indicating that creative thinking was also associated to primary process material and its management. The Torrance Inventory and the Defense Demand and Effectiveness scores were significantly correlated at the .001 level. Thus the predisposition for creativity may also be connected to primary process thought.

Fluency had non-significant relationships with both repression ( $r=.014$ ) and anxiety ( $r=-.191$ ;  $p<.01$ ). Thus the greater ability to shift response sets may require a relatively low level of repression and anxiety. Originality in regards to creative production, on the other hand, was not blocked by relatively high levels of repression and anxiety. Originality significantly related to repression ( $r=.366$ ;  $p<.001$ ) and anxiety ( $r=.271$ ;  $p<.001$ ). Similarly, creative potential is not hampered by repression and anxiety for they too associated significantly to the Torrance Inventory score at the .001 level.

The Rotter Scale displayed weak associations with Flexibility and Fluency. However, Originality and a sense of inner locus of control were strongly linked ( $r=.279$ ;  $p<.001$ ). Creative originality would seem to be a reliable indicator for the tendency to believe in internal locus of control (Table 20).

### Validity of independent variables

Brick Question scoring scales. The scoring system for the Brick Question (Defense Demand/Defense Effectiveness and Fluency/Flexibility/Originality) were devised by the experimenter according to the rationale of already existing scoring systems (i.e. Holt [1970] and Guilford [1967]). Therefore the validity of these scoring systems needed demonstration. However, the intercorrelations with other independent measures were consistent with the theoretical rationales behind the scoring systems; therefore, some degree of validity for the Brick Question scales was established by this research effort.

Defense Demand and Defense Effectiveness. The most interesting finding with the Defense Demand and the Defense Effectiveness scales was the positive rotation Defense Demand (DD) shared with the anxiety measure ( $r=.193$ ;  $p<.01$ ). In addition, the correlation between Defense Effectiveness and the predisposition toward creative ability reveals a significant correlation (.001 level). Both of these results are in line with the idea that high drive content, unless adaptively channeled for constructive purposes, tends to be related with anxiety, while effective handling of the drive material allows the person to be able to entertain unusual and spontaneous ideas and situations without most of his/her energy being tied up in restricting his/her drives.

Defense Demand and Defense Effectiveness also correlated positively with the dimensions of creative ability, with a slight exception. In other words, both the ability to regress and the adaptiveness the regression is related to the individual's ability to think quickly and originally. The relationships between Flexibility and both Defense Demand and Defense Effectiveness were in the expected direction but were notably weak and non-significant. However, a correlation bordering on significance ( $p < .10$ ) was found between Flexibility and Defense Effectiveness. Nevertheless, how effectively the drive is handled (DE score) relates more strongly to Fluency, Flexibility and Originality than to the presence for drive material alone (DD score), which is consistent with the concept that mere regression alone does not necessarily indicate creative potential. This relationship was strongest for the Originality score or the ability to generate unusual and original ideas ( $r = .549$ ;  $p < .001$ ). Finally, of the three Guilford Classes of Uses scores, Originality had the highest correlations with DD and DE. Thus, the ability to think originally was highly associated with the ability to regress to primary process levels. Some common variable, such as defense originality might be at work here.

Fluency, Flexibility and Originality. The ability to think quickly (i.e. fluently), flexibility and originally is hypothesized to be positively related to a preference for

unusual or novel situations, creative attitudes and curiosity (Torrance Inventory score). This was more true for the Fluency score ( $r=.128$ ;  $p<.05$ ) and the Originality score ( $r=.486$ ;  $p<.001$ ) since Flexibility related insignificantly to the Torrance Inventory score.

On the other hand, the relationship found between creative production and personality measures was an interesting one. Fluency related insignificantly to both anxiety and repression scales while Originality is significantly and positively correlated with these scales. However, Flexibility was negatively correlated with reports of anxious dysphoric feelings/emotions (A scale,  $p<.01$ ; R scale,  $p<.05$ ). This follows the notion that if too much energy is bound up in conflict and defending against them, one loses a certain degree of freedom and flexibility in his/her cognitive process.

A more positive relationship was found between Fluency, Flexibility and Originality and the feeling that the consequences of events are a function of one's own personal actions (Rotter's I-E Scale). This relationship was significant only for the originality score ( $r=.279$ ;  $p<.001$ ). This suggests that feeling more the master of one's own fate rather than at the whim of the environment theoretically places one in a more active rather than passive stance and is related to greater original productivity.

Finally, a word should be mentioned in reference to the

high correlation among the three creative ability scores. This suggests the possibility that the three measures do not effectively discriminate separate abilities. However, in the correlation coefficient table (Table 20), Fluency did not consistently account for the most significant correlation across variables, which would be expected if the total number of responses consistently influenced the Flexibility and the Originality scores accounted for all their correlations. Thus, it is suspected that the three scores of creative ability are tapping into somewhat different dimensions.

## C H A P T E R   F O U R

## DISCUSSION

The findings indicate that reported belief in paranormal or non-concretely substantiated events is fairly widespread within two samples of college undergraduates. Most of these students also reported a fair frequency of personal experiences which they considered unusual, noteworthy or curious. However, these students are generally reluctant to attribute their experience to extrasensory perception (ESP), but will instead call them the result of either chance or coincidence. Moreover, this study indicated that the younger individuals tended to accept paranormal phenomena more than older individuals. It might be that younger individuals are adaptively flexible providing them with the capacity to believe in unusual events. Even though older individuals appear to be less accepting of ESP/paranormal phenomena, they have higher ESP Scale scores. Experience seems to be an important factor in this regard. In other words, the older an individual is the more likely he/she is to experience some noteworthy or unusual event.

It was originally hypothesized, for various theoretical reasons elucidated in the Introduction, that individuals who either believe or disbelieve in paranormal and ESP occurrences would have certain personality characteristics. Inspection

of the data may suggest that the stated hypothesis is close to being supported.

A high score on the Paranormal Belief and Endorsement Scales was found in the individual who was generally able to entertain large amounts of drive related material and cope with it effectively. The overall picture is of a person who can relax enough to accomodate belief in the possibility of paranormal events and drive related experiences, but who maintains a degree of integration of such beliefs by combining them with logical and socially accepted thinking.

A low score on the Paranormal Belief and Endorsement Scales was found in the individuals whose thinking was filled with anxiousness and somewhat unacceptable drive-related thoughts and images and who was unable to accept non-concretely substantiated concepts (i.e. paranormal phenomena) with more conventional or neutral thoughts. It would appear that low ESP/paranormal endorsers represent an effort to maintain simple, orderly and acceptable experiences in a person who tended to become slightly confused and disturbed by primary process drive-related thoughts. In other words, the person who experiences anxious and moderate levels of repression about drives is assumed to have a greater tendency to avoid belief in paranormal phenomena.

It would be useful to say something about Rotter's I-E Scale and its relationship to other personality variables.

Notable are the correlations between the I-E Scale and the measures of anxiety and repression (defensiveness) which are significant at the .001 level. Thus, more internal oriented individuals tend to respond in a more anxiety prone manner. This is theoretically consistent if one reasons that the more one feels in control of events around him/her and less in control of events within him/her, the more anxious one is likely to feel. The correlation between repression and I-E scores suggests that internally oriented people use repression as a characteristic defense mechanism. These feelings of anxiousness and repressiveness may be responsible for inhibiting one from endorsing unusual or paranormal phenomena.

Theoretical considerations suggest the belief in paranormal phenomena is related to creative ability, as creative potential. The ability to make creative contributions seems to require an openness to unusual/paranormal phenomena and an ability to see beyond the constraints of conventional labels and anticipations. This it appears that the creative process requires an adaptive weakening of the sharply defined boundaries of temporal, spatial, and other relationships.

The results of the present study indicate that the ability to adaptively regress, to integrate primary process, and possess fairly low anxiety and defensive styles relates to

the endorsement of paranormal phenomena (i.e. ESP). Insofar as these abilities seem to be a necessary aspect of the creative process, the results tentatively suggest that the same abilities involved in the endorsement of paranormal phenomena (i.e. to engage in integrated primary process and possess low anxiety and defensive styles) might also be involved in creative productivity. Such an interpretation is consistent with previous findings by Wild (1965) and by Pine and Holt (1960). Moss (1969) predicted and found significantly higher scores in artists, a group expected to be both receptive and outgoing, than in non-artists. It seems, as the risk of oversimplification, as if all these results are investigating the same continuum, with one pole characterized as defensive, repressive, non-creative and the other pole as open and creative. Viewed in this manner, all the studies give convergent results. These studies, taken together, lend support to the psychoanalytic concept of creativity as involving the integration of primitive, drive-related, paralogical modes of thinking and perceiving.

According to psychoanalytic theory, one of the earliest and most important conflicts faced by the individual is that between the expression of drives (i.e. aggressive and sexual) and restrictions against such expressions. A central concept in psychoanalysis is that modes of dealing with this early drive conflict will determine the manner the individual deals with later conflictual situations (such as accepting para-

normal phenomena). Indeed, the results of the present study indicated that a failure to achieve integration of drive related thinking was associated with disbelief in ESP/paranormal phenomena and the lack of creative productivity. The fact that these results are consistent with the hypothesis of this study provides little evidence as to a causal relationship between the endorsement of paranormal phenomena and the manner of dealing with drives related to each other in the course of psychological development. Such information can only be obtained from future longitudinal studies which would relate impulse control and paranormal phenomena belief at various developmental stages.

The extensive amount of research involving ESP and hypnosis deserves a brief comment in relationship to the present study. The combined results of studies by Hull (1933) and Hilgard et al. (1965; 1968) suggest that a personality that entertains fantasy (i.e. primary process thought), imaginative and innovative thought (i.e. creative disposition) is open to unusual and nonconventional experiences. Thus it would appear that these same personality variables also relate to the personality variables associated with the belief in paranormal events. Moreover, the hypnosis -- ESP research is an independent body of literature which provides results that are consistent with the present study's results. Honorton and Krippner's review (1969) of research on hypnosis and ESP

indicates that hypnosis will under some conditions allow for effective ESP/paranormal phenomena scoring (and belief). Out of the 13 experiments listed in which a comparison was made of ESP in the hypnotic and the waking state, nine showed a significant advantage with hypnosis. A few more recent experiments confirm this trend (Schmeidler, 1976). Comparison of successful and unsuccessful attempts to increase ESP scores hypnotically indicates that direct suggestion for high scores is ineffective, whereas suggestions that the subject enter a relaxed but open state (i.e. anxiety-less state) is likely to be associated with a high percentage of ESP belief and scoring (see Honorton & Krippner, 1969).

Briefly, the theory of cognitive control and cognitive style indirectly supports the hypothesis proposed by Gardner, Holzman, Klein, Linton and Spence (1959) suggests that cognitive principles predict style of behavior that determines a person's responses in a wide variety of situations. A control principle which relates to this study is the tolerance for unrealistic experiences (Turner, 1965). Tolerance for unrealistic experiences (TUE) is the acceptance of experiences which do not agree with what one holds to be traditional. The low TUE subject was unable to organize fantasy and drive related thoughts. In order to defend against these thoughts the low TUE subject maintains a rigid and conventional mode of responding in situations. This supports the concept that

rigidity can represent defenses against disorganized internal experiences. Insofar as relaxed adaptive defenses are necessary for belief in paranormal phenomena and the creative process, the results suggest that a high TUE subject is capable of the same abilities which lends support to the present study.

### Sources of variability

Personality findings in parapsychology fit neatly into other psychological theory. The higher scores of primary process, more open and creative subjects compared to defensive, anxiety prone, and less creative subjects tend to confirm conventional psychological expectations of how these factors affect performance on most paranormal phenomena tasks. Thus, there is no theoretical conflict here, merely enlargement and enrichment of the personality and social findings.

One major extension to existing theory deserves comment. ESP/paranormal phenomena research has shown that potential personal relationships can affect task performance even when the subject does not know the other person and is unaware that the other person is involved (Osis & Carlson, 1972; Osis & Dean, 1964). This extends our concept of effective human relations and has broad implications for social psychology.

Interpersonal relations and the experimenter effect. The results of the present study in no way begins to measure the effect of experimenter influence on the scores of the subjects.

Since all of the testing was done in the presence of one single experimenter one can only speculate about the results if the experimenter were not present during the administration of the questionnaire. In the present study, the effect of the presence of the experimenter is reasonably thought to carry a constant impact across all subjects in their responses to the questionnaire. This point raises the question as to the extent that belief in certain situations affects other individuals and groups of people in the same setting.

From the earliest days of psychical research, what is known as the experimenter effect or experimenter bias was often noted; some experiments are likely to find better results than others in laboratory settings. In early research at J.B. Rhine's laboratory at Duke University, a similar effect was found in ESP studies: two experimenters who were meticulous in following the same formal procedure predicted and found that one would elicit significantly higher ESP scores than the other (Pratt & Prince, 1938). Similar effects have appeared repeatedly (Osis & Dean, 1964) and the overall interpretation is that an experimenter who is more distant or shy or ill at ease will find lower ESP tasks scores than one who is more outgoing and more comfortable with the procedure. This may be a significant factor in the present study since the experimenter has been perceived as somewhat easy-going and friendly. If this is a fact, then

the experimenter's presence in the testing setting could have affected some of the ESP scores, as well as the other personality and creativity scores and may explain some of the variance which is unaccounted for in the results (cf. Kintz, et al., 1965).

Perhaps the component of experimenter effect which is the cause of greatest concern is that by which the experimenter in some manner influences his subjects to perform as he/she has hypothesized. The reasons for concern about expectancy effect are that so little is known about it and very little research has been devoted to it. However, there are several studies that suggest that this phenomena or occurrence shouldn't be passed over too readily (cf. Rosenthal & Fode, 1963; Kintz, et al., 1965). In light of the present study, the expectancy of the experimenter (based on the hypothesis) may have influenced the degree of variance in the results in such a manner as to bear out the hypothesis.

In the present study, the situation arises as to the sensitivity of the subjects to attitudinal differences in the experimenter transmitted through interpersonal modalities. Further research is required to clarify this issue within paranormal phenomena/ ESP research.

### Sex differences

The overall sex differences in performance reflected a relatively greater tendency to believe in paranormal phenomena

on the part of females than males. Being tested by a member of the opposite sex may result in increased competitiveness, higher anxiety, a greater desire to please or a change in some other psychological process (Stevenson, 1964). Furthermore, Stevenson and Allen (1964) noted that subjects performed relatively better with an opposite sex experimenter. If this generalization is correct, then it would have some implications for the present study. Since 87 (or 61.7%) of the sample of the study were female (see Table 3) and the experimenter is male, then the relatively higher female scores on the paranormal phenomena measures may have been influenced by the experimenter's sex.

The significant sex effect may also reflect the operation of complex processes involving the interaction between sex of experimenter and sex of subject. This may also explain some of the variance which is unaccounted for in the results. Further research would be necessary to ascertain the specific meaning and process of the sex interactions.

### Mood

The administration of the questionnaire cannot be thought of simply as a process of following objective, standardized procedures. The testing situation represents the interplay of examiner, examinee, and situational factors, in addition to questionnaire content and procedures. This process of

of questionnaire administration has been known to produce different moods within subjects. Thus, the motion of mood can be a possible source of variability that is not accounted for in the present study.

From experiments in which self-reported moods are compared with ESP scores, the clearest generalization is that each experimenter is likely to replicate his/her own findings. Neilson (1970) has twice found that subjects in extreme moods, either pleasant or unpleasant, are more likely to make high ESP scores than are subjects in moderate moods. Fisk and West (1956), in a mass ESP experiment, found higher scores for subjects in pleasurable mood than in a displeasurable mood. Andre (1972) found no effect of mood. These results are confusing. To the extent that experimenters arouse different feelings in their subjects the moods relating to ESP task scores might also differ, which could account for the apparent contradictions in the results of the earlier studies (see Eilbert, 1949).

Moreover, the mood of the experimenter has been shown to influence the scores of subjects on ESP tasks (Osis & Carlson, 1972; see White & Angstadt, 1965). Rao (1968) also proposes that experimental mood and attitudes are significant when conducting paranormal phenomena research. A similar study like the present study which invites the individual to report his/her mood may produce results which coincide with other studies.

### Possible applications

The characteristic that makes paranormal phenomena so elusive in the laboratory, is its sensitivity to mood and to interpersonal influences, may be one that makes it especially useful for diagnostic testing of interpersonal relations.

In studies of group relations, verbal reports and questionnaires are likely to give less useful information than such behavioral measures as body postures (i.e. body language), eye contact, speech subtleties, or even chair placement. However, ESP questionnaires scores are easier to obtain than the latter which are hard to measure objectively. An ESP task may demonstrate that an individual will make high ESP scores in the presence of one experimenter, average scores with another, and below average scores with the third. These could be interpreted as measures of his/her feelings of closeness or withdrawal to the various experimenters. Later tests of the same type could indicate whether the feelings have been stable or have shifted. In the clinic, a similar measure may (in the absence of other information) indicate which of the available therapists has elicited a more straightforward response from an adult or child (Mackie, 1969) or how one person's feelings shift, perhaps without his/her being conscious of it, according to some change in another's behavior (cf. Rudolf, 1950). Further research in the area of communication or psychology with its relation to

ESP will give us a greater understanding of this phenomena.

### Summary

In summary, this study has demonstrated that reported belief in paranormal phenomena or non-concretely substantiated events is fairly widespread within two samples of college undergraduates. Most of these students also reported a moderate frequency of personal experiences which they considered unusual, noteworthy or curious. However these students were generally reluctant to attribute their experiences to extrasensory perception, but instead reported them as the result of either chance or coincidence.

The personality measures used in this study related to each other in a theoretically consistent manner, and there was evidence for the reliability of the two scoring scales devised by the experimenter in accord with previously existing rationales.

Self report of belief in various paranormal concepts did appear significantly related to various personality and creativity variables; in particular, to preference for innovative and inquiring attitudes and situations, creative productivity, originality in creative productions, degree of drive content (DD) in creative productions, and effectiveness in adaptively handling the drive content (DE) in creative productions. Paranormal concepts were also related to females more than males and younger individuals rather than

relatively older individuals.

The results were also discussed in terms of possible experimenter effects, moods, and sexual interaction which may have affected the responses of the subjects. A substantial amount of further research in various areas of social and clinical psychology is viewed as having far reaching implications in regards to ESP/parapsychology.

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## APPENDIX A

## Paranormal Measures

Paranormal Belief Scale Items

1. The ability to see people, events, or things without being physically there is probably not possible.
2. I believe in Eastern religious philosophy of reincarnation.
3. I do not believe it is possible to dream of an event taking place faraway or to dream of an event that has not yet taken place.
4. I do not believe there are planes of existence through which it is possible to travel without one's physical body.
5. There have been several documented cases of possession by spirits in the cases of medical history.
6. Some prophets have the ability to foretell the future.
7. Communications with persons who are dead is not possible.
8. Psychokinesis, or the ability to mentally influence physical objects (such as making a key bend or a compass needle spin) is possessed by some people.

Paranormal Endorsement Scale

1. Although I have no direct proof I tend to think that ESP is possible.
2. Most people have some degree of extrasensory ability which they call intuition.
3. Many experiences we have are beyond rational or scientific explanation.
4. There are certain primitive communication systems among humans that are relatively unknown to scientists.
5. Certain sensitives, such as Peter Hurkos or Uri Geller, have abilities beyond those found in normal men.
6. The existence of extrasensory phenomena is well proven statistically.
7. Intuition is merely the product of intelligent, deductive reasoning.
8. Most of the things which people nowadays attribute to ESP powers are really the result of chance coincidences.
9. Recent experiments "proving" the existence of ESP have been shown to be non-valid statistically and methodologically.
10. Our world is governed by natural laws of physics which are largely known and predictable; therefore, to believe in ESP requires a non-scientific mind.
11. One who truly believes he/she has unusual ESP powers is dangerously close to psychotic-like thinking.
12. All those people who claim to have ESP are either cheats or crazy.

Openminded Question

I must suspend judgement on whether ESP phenomena exists until more carefully controlled scientific evidence is revealed.

ESP Experience ScaleCoincidental Experiences

Many people have experienced coincidences or "streaks of luck" that have struck them as unusual or noteworthy; for instance, knowing in advance who is calling you when the phone is ringing, having a certain dream which later came true, being compelled to bet on a certain result and winning, etc., etc. The experimenter is interested in how widespread this phenomena is.

Have you ever experienced instances similar to the above?

\_\_\_\_\_ If so, how often? \_\_\_\_\_

1	2	3	4	5
once or twice in my life		every now and then; several times a year		quite frequently several times a week

If yes, please describe briefly \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

ESP Experiences:

Have you ever had any other experiences which you feel are the result of extrasensory phenomena? \_\_\_\_\_

If so, please describe briefly \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## APPENDIX B

## Personality and Creativity Measures

Brick Question

In this task you are to think of as many different uses for a brick as you can in three minutes. The uses can be anything you want as long as a brick can feasibly do it. Try to think of uses which people do not usually think about. When time is called please pass your papers forward.

Brick Question Scoring System -- Guilford Rationale

1. Frequency F score; total number items given
2. Flexibility Fl score; total number of categories given
3. Originality O score; quantitative measure only; based on percentage of people listing said item:
  - A. Each item scored from 0 to 3.0
  - B. Totals summed for each person giving O score
  - C. Items score determined in following manner:

<u># People listing item</u>	<u>%of total Ss</u>	<u>#of such items</u>	<u>Item score</u>
64 - 141	>50%	2	0
32 - 63	25 - 50%	3	.5
16 - 31	12.5 - 25%	3	1.0
8 - 15	6.25 - 12.5%	18	1.5
4 - 7	1.56 - 6.25%	27	2.0
2 - 3	<1.56%	39	2.5
1	<.4%	121	3.0

Brick Question Scoring System -- Holt Rationale

## A. Defense Demand - DD score

1. Items scored for overt drive content, either sex or aggression; scores range from 0 to 1.5
2. Totals summed for each person giving DD score
3. Item score determined in following manner:

Score

1.5	Blatant Drive Content	Hitting persons or animals with intention of hurting; overt mention of sexual content
1.0	Displaced Drive Content	Indirect aggression or sex; hitting objects with aggressive intent; intention of breaking or destroying; words like "dead"; content such as sleeping or eating
.5	Sublimated Drive Content	Hitting objects with no aggressive intent; "hitting, pounding, dropping out window, displacing water"; any movement, force, "sealing up," barricading, fire, heat; contact, touching, carrying
0	No Drive Content	No movement of force; no contact; "paving, construction, filling, looking."

## B. Defense Effectiveness - DE score

1. Item scored for effectiveness in handling drive content, either sex or aggression; scores range from 0 to 1.5; if DD=0, then DE is not scored.
2. Totals summed for each person giving DE score
3. Item score determined by:
  - a. quality--functionality; drive constructively channeled; (subjective scoring)

b. quantity--originality based on number of people giving an item; (objective scoring)

Score

1.5	creative, original, novel
1.0	adaptive, functional, fairly unusual
.5	fair, slightly functional or functional but very common
0	absurd, nonfunctional, no constructive rationale or reason

A Scale Items

1. I find it hard to keep my mind on a task or job.
2. I have a daydream life about which I do not tell other people.
3. I have more trouble concentrating than others seem to have.
4. I often feel as if things were not real.
5. My plans have frequently seemed so full of difficulties that I have had to give them up.
6. I sometimes feel that I am about to go to pieces.
7. At times my mind seems to work more slowly than usual.
8. At times I think that I am no good at all.
9. When in a group of people, I have trouble thinking of the right things to talk about.
10. I have often lost out on things because I could not make up my mind soon enough.
11. Criticism or scolding hurts me terribly.
12. I usually have to stop and think before I act even in trifling matters.
13. I am easily embarrassed.
14. I feel unable to tell anyone all about myself.
15. I have several times had a change of heart about my life work.
16. Sometimes some unimportant thought will run through my mind and bother me for days.

17. People often disappoint me.
18. Often I cross the street in order not to meet someone I see.
19. I am apt to take disappointment so keenly that I can't put them out of my mind.
20. I worry quite a bit over possible misfortunes.
21. Life is a strain for me much of the time.
22. I feel anxiety about something or someone almost all the time.
23. I have often felt guilty because I have pretended to feel more sorry about something than I really was.
24. I do many things which I regret afterwards.
25. I must admit that I have at times been worried beyond reason over something that really did not matter.
26. I am apt to pass up something I want to do because others feel that I am not going about it in the right way.
27. I feel tired a good deal of the time.
28. It makes me feel like a failure when I hear of the success of someone I know well.
29. Even when I am with people I feel lonely most of the time.
30. Often, even though everything is going fine for me, I feel that I don't care about anything.
31. I wish I could get over worrying about things, I have said that may have injured other people's feelings.
32. Most of the time I feel blue.

33. I brood a great deal.
34. I have often felt that strangers were looking at me critically.
35. I have had periods of days, weeks, or months when I could not take care of things because I couldn't "get going".
36. I have sometimes felt that difficulties were piling up so high that I could not overcome them.
37. I wish I could be as happy as others seem to be.
38. I have difficulty in starting to do things.
39. I very seldom have spells of the blues.

R Scale Items

1. I like to cook.
2. I am in just as good physical health as most of my friends.
3. I like dramatics.
4. I am about as able to work as I ever was.
5. I do not worry about catching disease.
6. I think I would like the kind of work a forest ranger does.
7. I do not often notice my ears ringing or buzzing.
8. I think I would like the work of a building contractor.
9. I like repairing a door latch.
10. I have had no difficulties starting or holding my urine.
11. Sometimes, when embarrassed I break out into sweat which annoys me greatly.
12. I like mechanics magazine.
13. I like science.
14. I have never had a fit or convulsion.
15. I like to attend lectures on serious subjects.
16. I have had periods in which I carried on activities without knowing later what I had been doing.
17. I enjoy the excitement of a crowd.
18. I am very careful about my manner of dress.
19. I frequently find it necessary to stand up for what I think is right.
20. Once in a while I feel hate toward members of my family whom I usually love.

21. At times I am full of energy.
22. I am fascinated by fire.
23. My mother and father often make me obey even when I thought that it was unreasonable.
24. I would like to wear expensive clothes.
25. I like to flirt.
26. Some of my family have quick tempers.
27. I enjoy social gatherings just to be with people.
28. I like to read newspaper articles on crime.
29. I do not blame a person for taking advantage of someone who lays himself open to it.
30. I have often met people who were supposed to be experts who were no better than I.
31. I enjoy detective or mystery stories.
32. At times I feel like smashing things.
33. If given the chance I would make a leader of people.
34. I like to let people know where I stand on things.
35. I was fond of excitement when I was young (or in childhood).
36. At times I feel like picking a fist fight with someone.
37. My worries seem to disappear when I get into a crowd of lively friends.
38. I am often inclined to go out of my way to win a point with someone who has opposed me.
39. I try to remember good stories to pass them on to other people.

40. I am often sorry because I am so cross and grouchy.

Torrance Inventory

1. I think financial reward is the best incentive to do good work.
2. I resist accepting the accustomed ways of doing things unless I can prove to my own satisfaction that it is the best way.
3. I am apt to pass up something I want to do when others feel that it is not worth doing.
4. I usually put a great deal of energy and zeal into work.
5. I sometimes become childishly enthusiastic about an apparently simple thing.
6. I find it easier to identify flaws in the ideas of others than to think of other possibilities myself.
7. It is hard for me to work intently on a problem for more than a hour or two at a stretch.
8. I see many things problems to work on, much work to do.
9. I am willing to risk suffering for the sake of possible growth.
10. I enjoy work in which I must keep trying out new approaches.
11. I am fascinated by new ideas, whether or not they have practical value.
12. I like to find ways of converting necessities to advantages.
13. My mind often gets so caught up in a new idea that I am almost unable to think of anything else.
14. I frequently try things which do not occur to others to try.

15. I thoroughly enjoy activity in which pure curiosity leads me from one thing to another.
16. I enjoy staying up all night when I'm doing something that interests me.
17. I have a feeling of excitement when an idea I am working on begins to gel.
18. I enjoy trying out a hunch just to see what will happen.
19. The presence of a group stimulates me to express myself.
20. I never pay much attention to "crack pot" ideas.
21. I never feel really qualified when taking on a new job.
22. I sometimes get so intent on a new idea that I fail to do things that I ought to be doing.
23. I enjoy experience where I cannot know what is going to happen.
24. I enjoy tackling a job that I know involves many as yet unknown difficulties.
25. I am inclined to be "lost to the world" when I get started on an original idea.
26. I feel upset when little things happen that I had not planned on.
27. I enjoy work in which I must adapt my course of action as I go along.
28. My interests are often caught up in ideas that may never lead to anything.
29. I sometimes lose myself in experiencing with an idea that may have no practical value.

Rotter's Internal-External Locus of Control Scale

I more strongly believe that:

1. a. Children get into trouble because their parents punish them too much.  
b. The trouble with most children nowadays is that their parents are too easy with them.
2. a. Many of the unhappy things in people's lives are partly due to bad luck.  
b. Peoples' misfortunes result from the mistakes they make.
3. a. One of the major reasons why we have wars is because people don't take enough interest in politics.  
b. There will always be wars, no matter how hard people try to prevent them.
4. a. In the long run people get the respect they deserve in this world.  
b. Unfortunately, an individual's worth often passes unrecognized, no matter how hard he tries.
5. a. The idea that teachers are unfair to students is nonsense.  
b. Most students don't realize the extent to which their grades are influenced by accidental happenings.
6. a. Without the right breaks, one cannot be an effective leader.  
b. Capable people who fail to become leaders have not

taken advantage of their opportunities.

7. a. No matter how hard you try, some people just don't like you.  
b. People who can't get others to like them, don't understand how to get along with others.
8. a. Heredity plays a major role in determining one's personality.  
b. It is one's experiences in life which determine what they are like.
9. a. I have often found that what is going to happen will happen.  
b. Trusting to fate has never turned out as well for me as making the decision to take a definite course of action.
10. a. In cases of the well-prepared student, there is rarely if ever, such a thing as an unfair test.  
b. Many times exam questions tend to be so unrelated to course work that studying is really useless.
11. a. Becoming a success is a matter of hard work; luck has little or nothing to do with it.  
b. Getting a good job depends mainly on being in the right place at the right time.
12. a. The average citizen could have an influence in government decision.  
b. The world is run by a few people in power and their

is not much the little guy can do about it.

13. a. When I make plans, I am almost certain that I can make them work.  
b. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.
14. a. There are certain people who are just no good.  
b. There is some good in everybody.
15. a. In my case getting what I want has little or nothing to do with luck.  
b. Many times we might just as well decide what to do by flipping a coin.
16. a. Who gets to be the boss often depends on who was lucky enough to be in the right place first.  
b. Getting people to do the right thing depends upon ability; luck has little or nothing to do with it.
17. a. As far as world affairs are concerned, most of us are the victims of forces we can neither understand or control.  
b. By taking an active part in political and social affairs the people can control world events.
18. a. Most people don't realize the extent to which their lives are controlled by accidental happenings.  
b. There really is no such thing as "luck".
19. a. One should always be willing to admit his mistakes.

- b. It is usually best to cover up one's mistakes.
- 20. a. It is hard to know whether or not a person really likes you.
- b. How many friends you have depends upon how nice a person you are.
- 21. a. In the long run the bad things that happen to us are balanced by the good ones.
- b. Most misfortunes are the result of the lack of ability, ignorance, laziness, or all three.
- 22. a. With enough effort we can wipe out political corruption.
- b. It is difficult for people to have much control over the things politicians do in office.
- 23. a. Sometimes I can't understand how teachers arrive at the grades they give.
- b. There is a direct connection between how hard I study and the grades I get.
- 24. a. A good leader expects people to decide for themselves what they should do.
- b. A good leader makes it clear to everybody what their jobs are.
- 25. a. Many times I feel that I have little influence over the things that happen to me.
- b. It is impossible for me to believe that chance or luck plays an important role in my life.

26. a. People are lonely because they don't try to be friendly.
- b. There's not much use in trying too hard to please people; if they like you, they like you.
27. a. There's too much emphasis on athletics in high school.
- b. Team sports are an excellent way to build character.
28. a. What happens to me is my own doing.
- b. Sometimes I feel that I don't have enough control over the direction my life has taken.
29. a. Most of the time I can't understand why politicians behave the way they do.
- b. In the long run people are responsible for bad government on a national, as well as, on a local level.

## APPENDIX C

## Background Data Sheet

Age \_\_\_\_\_

Sex \_\_\_\_\_

Year (circle one)

1 freshmen

4 senior

2 sophomore

5 grad student

3 junior

6 special student

What is your major field of interest in college (or what do you think it will be?) \_\_\_\_\_

Religious denominational preference: \_\_\_\_\_

Father's usual occupation ( Describe briefly): \_\_\_\_\_

Mother's usual occupation (describe briefly): \_\_\_\_\_

Father's educational attainment (highest level): \_\_\_\_\_

Mother's educational attainment (highest level): \_\_\_\_\_

## APPENDIX D

## Consent Form

I hereby give my consent to participate in the study being conducted by Schuyler C. Webb with the understanding that I can, at any time, withdraw my consent and participation if I wish to do so.

Signature: \_\_\_\_\_

## APPENDIX E

Table 1

Specific Belief Scale Items:  
 Number and Percentage of Ss Answering in  
 Belief Indicated Direction

<u>ITEM</u>	<u>TOTAL # Ss</u>	<u>%</u>
Dreams (Clairvoyance/Precognition)	119	83.3
Clairvoyance	98	69.5
Possession by spirits	93	65.9
Precognition	91	64.5
Astral Projection	89	63.1
Psychokinesis	81	57.4
Communication with dead	70	49.6
Reincarnation	45	31.9

Table 2

Specific Endorsement Scale Items:  
 Number and Percentage of Ss Answering in  
 Affirmative Direction

<u>ITEM</u>	<u>TOTAL # Ss</u>	<u>%</u>
No proof	127	90
Ability in everybody	118	83.6
No proof possible	115	81.5
Unexplainable to science	106	75.1
Gifted few	66	46.8
Statistical proof	62	43.9
Rational reasoning	47	33.3
Coincidence	44	31.2
Bad methodology and statistics	37	26.0
Unscientific mind	33	23.4
Psychotic	31	21.9
Cheats or crazy	13	9.2

