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An Examination of Ten Personality Variables and Their Effect on ESP Clairvoyance Test Results

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TABLE OF CONTENTS

Abstract

The purpose of this present research study was to construct a paper and pencil test that would measure college students' ability to use extra sensory perception (ESP).

During recent years it has been found that certain personality variables correlate with ESP scoring. For example, the ability to handle stress and conflict situations (Rhine, 1952; Hudesman & Schmeidler, 1971) and adaptability (Schmeidler, 1954; Shields, 1962; Stanford, 1964; Hudesman & Schmeidler, 1971) have been shown to be important personality factors in Ss who score high on ESP tests.

However, few experimenters have been able to clearly define the personality characteristics which identify individuals who can score high on an ESP test.

The problem of finding Ss who can score high on ESP tests is a difficult one. Following the suggestions of Eysenck (1967) that the main personality variables be combined in some form of questionnaire, Kanthamani and Rao (1972) conducted research on a small scale in which four personality variables were combined. They found that by combining four main personality variables their selection of higher scoring ESP Ss improved. When one examines the extensive field of research which has been done on ESP it is evident that there are more than four main personality variables which various researchers have found important in the higher scoring ESP Ss. In fact a review of research shows that some ten personality characteristics are important in Ss who score high on ESP tests.

The next logical step would then be to combine the ten personality characteristics into a personality test. It would then be assumed that those Ss who scored high on the personality test would score high on an ESP test given them. Also it is assumed that those Ss who scored low on the personality test would score low on an ESP test.

A summary of the research design used in the present study follows. A review of the literature on ESP led to the conclusion that ten different personality variables are related to ESP ability. A 30-item questionnaire was then constructed from a pool of items that measured these ten personality variables. Ss in the present research were 100 Eastern Illinois University students. The 30-item ESP questionnaire was administered to each of these 100 Ss.

Ss who scored in either the upper 20% (ESP Ss) or the lower 20% (non-ESP Ss) of the range of scores on the questionnaire were given an ESP clairvoyance test. A t-test for significance was used to compare the scores on the ESP clairvoyance test between the ESP and non-ESP groups.

The mean of the ESP group was 109.1. The mean of the non-ESP group was 99.3. The significance level was ($t = 4.63$; $p < .001$). The t-test was followed by an X^2 item analysis of the ESP questionnaire given to both groups. This item analysis would point out which items of the questionnaire were significant. As for the items related to key personality variables in ESP research, the item analysis showed what personality characteristics were important in

higher scoring ESP Ss between the ESP and non-ESP groups.

Of the 30 items on the questionnaire, 2 were found to differentiate between the 2 groups at the .05 level. Three items were significant at the .01 level. One item showed significance at the .001 level. These 6 items were combined into a subscale, and an expectancy table for the 2 groups was constructed. Some limitations and implications for future research were discussed.

An Examination of Ten Personality Variables and Their Effect on ESP Clairvoyance Test Results

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History records man's belief that information can come from extra-sensory means of perception (i.e., one beyond the range of the known sensory processes). Some of the first written records of mankind express the belief that external forces can influence man. Gods, devils, angels, demons, planets, and other men all were believed to communicate and influence the actions of men by extra-sensory means.

In 1882 the Society for Psychical Research was founded. Its purpose was to make a scientific investigation of various extra-sensory phenomena (ESP). The Society for Psychical Research was the first to make use of controlled experimental situations in the testing of extra-sensory perception.

When experimental evidence was obtained by members of the Society for Psychical Research and other interested experimenters it soon became necessary to better define the different ESP experiences.

These ESP experiences are defined as follows: telepathy--a person's awareness of another person's thoughts without any known sensory channels of communication possible, clairvoyance--knowledge acquired of an object or an event without the use of the senses, precognition--the knowledge obtained by a person about another person's future thoughts (precognitive telepathy), or of future events (precognitive clairvoyance), psychokinesis--the ability to influence a physical object or an event by thinking about it.

Prior to 1934 (Hansel, 1966) the most widely-used material to test these ESP experiences were standard playing cards with probability of 1/2 for success for a color, of 1/4 for a suit, of 1/3 for a run or value, and of 1/5 for a perfect suit.

Since 1934 to this present time in 1974, the prevailing probability used has been 1/5. The 1/5 probability came to be used because it did seem to be the most workable one. K. E. Zener at Duke University in the early 1930's was one of the main individuals responsible for the 1/5 ratio being used. Zener worked with Joseph Rhine to invent some cards with five different symbols--a circle, rectangle, plus sign, wavy line, and star. These, called Zener cards or ESP cards, replaced the standard playing cards as the main material used in ESP experiments.

At Duke in the 1930's Rhine used the ESP cards to obtain a number of convincing results in ESP experiments. He also made ESP a topic of scientific interest and a popular conversation-piece among the general public ever since the early 1930's.

Looking back at the early investigations on ESP, (Rhine, Pratt, Stuart, Smith, & Greenwood, 1940) a preoccupation with certain forms of the phenomena is discovered. From 1882 until the beginning of 1940, there were 145 reports of experimental studies on extra-sensory perception. Using various materials, methods, and conditions, many results favorable to the existence of ESP did occur. Of the 145 reports, 106 (73%) of the cases were discovered to be statistically favorable to the existence of ESP. The majority of the 145 reports dealt with one type of ESP--telepathy.

The telepathy test (Rhine et al., 1940) required two subjects for operation, a sender and a receiver. The sender would look at a card or symbol and try to transmit its image to the receiver. It was believed that the information had to pass from two or more people and could not pass from the stimulus object itself. But in 1888 tests were conducted by Charles Richet in which subjects did try to make direct contact by thought with the stimulus object. It was thought that results could be obtained by this method that would be similar to the results obtained from the telepathy test. From that time on this form of ESP has been called clairvoyance.

In the telepathy test there is a greater possibility of sensory cues than in the clairvoyance test. This is because the individuals for most of the experiment are located in the same room so that auditing cues are possible. With two subjects and one or two experimenters the possibility of errors in scoring or in selection of targets is increased some. If a subject can possibly receive information from the stimulus object by himself, what role does another person play in the ESP experiment? In other words, the second person may not be needed.

It is because of these reasons that experiments for clairvoyance offer the best experimental safe-guards. And because of the advantages in the clairvoyance test it will be the one examined in more detail in this thesis.

When one looks at the early experimental work done on clairvoyance he finds that it was not until 1931 that experimenters

started more extensive study of this form of ESP. In 1931 experiments were made by Jephson, Besterman, and Soal (Rhine et al., 1940). They followed Richet's practice of placing cards in opaque envelopes and having the subject tell which card was inside each envelope chosen at random. But unlike Richet these experimenters were unable to find evidence of clairvoyance.

Then in 1933 in what was called the Pearce-Pratt experiment, (Hansel, 1966) an experiment was run which was designed to test clairvoyance in an almost error-free situation. The experiment took place at Duke University. Pearce, an instructor at the university, was in a room in one building while Pratt, a graduate student, was in another building. Pearce guessed at a pack of ESP cards controlled by Pratt. Both men synchronized their watches and at a fixed time Pratt would take one card off the top of the pack of 25 ESP cards. This pack had been shuffled and placed face down. Pratt would not look at each card, but would place it face down in another pile. Each minute another card was placed in the new pile in the same way. The Pearce-Pratt experiment was not completed until 1934. This experiment was run 37 different times from 1933 to 1934. The total above of chance guesses made gave strong support for the existence of clairvoyance.

Heavy support for clairvoyance was also given by a series of experiments run by Rhine (1934) at Duke. Rhine made 37,377 tests on a card-guessing clairvoyance test. There were some 1,343 successes above chance. Two subjects doubled the chance level for their experiments.

In England Tyrrell (1936) added to the success at Duke in finding clairvoyance. Tyrrell reported positive results using a mechanical selector and recorder to test clairvoyance.

Encouraged by the success of this period, Price and Pegram in 1937 (Rhine et al., 1940) found significant results when testing for clairvoyance. Some 19,000 trials using ESP cards sealed in opaque envelopes were run in the experiment. Rich in 1937 also was able to find similar results using the same methods as Price and Pegram.

Although the great success in finding evidence of clairvoyance at Duke in the early 1930's brought a rash of experiments by other experimenters, a number of other experimenters outside of Duke were unable to find supporting proof of clairvoyance.

Willoughby (1935) using ESP cards was unable to find evidence of clairvoyance in some 200 runs using two subjects, so he did a follow-up study using eight subjects. Each was given 200 successive runs using the ESP cards. Willoughby (1937) again found no evidence of clairvoyance.

Baker (1937) tested college students at the University of Minnesota for clairvoyance. Baker also was unable to confirm the existence of ESP in his experiment.

At Duke Rhine (1937) became the most out-spoken defender of the experiments at the university. He explained that ESP required the right experimental settings that would encourage good results. Rhine described how the Duke experiments were conducted. He sug-

gested that before anyone criticized the results at Duke they had better know the facts.

But even as Rhine was defending the great success at Duke a change was taking place. Pratt (1937) working at Duke could find only one subject in 124 tested who was capable of consistent ability in clairvoyance. Carpenter and Phalen (1937) tested college students at another university and found only three subjects who scored above chance on the clairvoyance test. Martin (1937) tested 39 students for clairvoyance and found only five who showed any ESP abilities. Humphrey (1938) was only able to find one college student in a group of 42 who scored above chance at clairvoyance.

The results that were being published seemed to negate the expectations of Rhine and the other Duke ESP experimenters. Rhine had expected to find evidence of ESP in the general population at large. The early experience had tended to show this, but as the experimental situations became better controlled these early expectations seemed unfounded.

It became necessary to identify those persons in the population who could show ESP abilities. When a person was found to do well on preliminary ESP tests, a more extensive test would be given.

Martin (1938) found one such person who could score above chance on the clairvoyance test. He then tested the person with some 25,000 calls using standard ESP cards hidden under a screen. Martin was able to find high above chance scores for the total trials. Martin (1938) then tested the same subject on another 25,000 trials.

Again high above chance scores were recorded. However, there were still others who could not find evidence of ESP in anyone. Higginson (1940) reported no evidence of ESP in his experiments.

The failures led to the discovery of some reasons why different results were found. Smith (1941) tried to define the factors which might influence ESP performance, and listed 22 different ones. A key factor he tested was the feeling of success. But the variables which could influence ESP scores were not at that time well-defined.

In an effort to better define the variables in scoring, Pratt (1942) put forth what he believed should be the standard approach to ESP research. Pratt's method was to find the gifted subject by giving an informal ESP test first. Then once the gifted subject was located, there would be a follow up with a formal ESP experiment on the subject. The formal test could then be designed to test the various scoring variables.

Schmeidler (1943) followed Pratt's suggestions. She designed a short written test which would separate the open-minded person from the closed-minded person. She compared the scores on her own test to success on an ESP test. She found that the open-minded person scored higher than the closed-minded person.

Woodruff (1944) also tried to better define the variables involved in ESP scoring. Woodruff tested a group of 20 students in college. He divided them into control and experimental groups. He found that the experimental group which was occasionally informed of their scores and who were given a reward at the end of their

trials scored better than the control group which was not informed of their scores and did not receive rewards.

As those most deeply involved in ESP research were working to better define the variables in scoring, many other experimenters still were unable to accept the evidence for the existence of ESP. West (1945), for example, was critical of much of the evidence for ESP.

But those working at Duke University were not discouraged by the evidence for ESP. In fact Rhine (1946) concluded that clairvoyance had been established as a fact by the experiments finished at that date.

If clairvoyance was a fact as Rhine said, what variables control the scoring in the various subjects? Birge (1949) tried to answer that question. Birge ran a series of clairvoyance card experiments in a game-like situation. He obtained high scores with a probability of .002 in favor of ESP. He concluded that one of the key factors in finding positive ESP results was the game-like conditions of the experiment.

But even under the best of conditions there are some people who score better than others. Pratt (1949) discussed what he believed to be the key variables which influenced individual scores. He concluded that three variables were involved in scoring. They are: conditions favorable to spontaneity, motivation, and individual personality factors.

Like Pratt, many other ESP experimenters were interested in a better definition of the variables involved in ESP scoring. The

Rorschach test was used by Schmeidler (1950) to pick out the best scoring ESP subjects. Schmeidler found that subjects classified by the Rorschach as the open-response type did better than the inhibited type when given an ESP test. Humphrey (1951) used the Bernreuter Personality Inventory test to classify subjects in a way similar to what Schmeidler had been doing. Humphrey separated subjects according to the Bernreuter Personality Inventory into introversion or extroversion categories. He found that for the most part extroverts scored better than introverts on ESP tests.

At first the general classifications worked out by Schmeidler and Humphrey seemed to offer promise in obtaining better scoring ESP subjects. Yet other experiments brought other variables into the picture. Greville (1951) discussed a method for evaluation of the reinforcement effect in ESP experiments which was worked out by A. M. Walker of Manchester University in England. Greville suggested that reinforcement may be a key variable involved in the ESP experiments.

Greville's suggestions did not at the time seem of any great importance. Many experimenters were finding a number of variables in ESP scoring. Rhine (1952) found that whenever a subject was put under stress his ESP scoring decreased. Rhine even found that when a subject tried very hard to score well his score would most likely drop during the ESP experiment.

Following Rhine's experiment Schmeidler (1954) ran an ESP experiment using school children as subjects. Her results showed that the well-adjusted child scored better than the poorly adjusted.

Just as Rhine had reported, Schmeidler found out that the momentary variables dealing with the relaxation and interest of the students were also important factors in high ESP scoring subjects.

Experiments in ESP reported by the year 1954 were beginning to point out the difficulties in clearly defining the reasons why one subject scores well on ESP tests while others score poorly.

West (1954) reported on a survey of current ESP experiments being conducted in Britain at this time. West pointed out that the final solution to the problem of fully understanding the ESP process was still in the future.

Thouless (1954) also discussed the problems involved in designing ESP experiments. He made it clear that only by designing a variety of different types of experiments in which a number of variables were varied could one ever clear up the problem of why some subjects score better than others.

As West and Thouless were raising questions about the future directions of ESP research, ESP experimenters were reporting new findings. Humphrey (1955) reported that his experiments had revealed that some subjects have the ability to know if they are scoring well during an ESP experiment. Fish (1955) became one of the first experimenters to find that erotic symbols were easier for some subjects to respond to, and therefore he obtained higher scoring results using the erotic symbols.

With the variety of results being reported by such men as Humphrey and Fish, a great many scientists were still critical of these experiments. Price (1955) expressed the view that most all

positive ESP results were due to errors in the design of the experiments. Bridgman (1956) joined Price in proclaiming that because no one had been able to obtain stable results, ESP does not exist.

But ESP experimenters for the most part did not question the existence of the phenomenon. These experimenters questioned only how and under what circumstances ESP was more likely to happen.

Gerber and Schmeidler (1957) even carried out an ESP experiment involving mothers convalescing from childbirth. They found that those women who were more relaxed and accepting towards the ESP experiment scored higher on the ESP tests.

The new experimental situations like those introduced in Gerber and Schmeidler's experiment still did not answer some of the basic questions. Why is it that some experimenters find evidence of ESP and others do not? Why is it that so many variables seem to effect a subject's scoring?

Heinlein (1958) added fuel to the fire in the ESP controversy by finding no evidence of clairvoyance in an experiment involving college students. The students attempted to match a concealed objective test key. This experiment again pointed out the difficulty in finding consistent evidence of extra sensory perception.

Ross (1959) ran two experiments involving 101 subjects. He believed he had found the reason for success or failure in finding evidence for ESP. Ross stated that the major variable determining prediction of ESP successes for unselected subjects was garden variety contiguity of reinforcement. Like Greville's suggestions in 1951 about the importance of reinforcement, Ross'es experiment was

not looked upon with great interest at this time either. The believer and non-believer in ESP were too busy defending their own beliefs.

In reaction to criticism, Rhine (1959) wrote an article that defended ESP results. M. C. Marsh's experiment at Rhodes University in South Africa (Fish, 1960) added support to Rhine's view. The experiment performed by Marsh was a clairvoyance test involving college students' attempts to match drawings concealed in opaque envelopes. Positive evidence for clairvoyance was discovered. The experiment by Marsh was very similar to the one that Rhine had run at Duke. The similarity in results obtained by Marsh and Rhine was to add to the backing for a possible experimental design which was to provide consistent results. A key factor seemed to be the condition of the experiments being game-like.

Ratte (1961) picked up on the idea of the game-like experimental situation. Ratte's experiment was a clairvoyance test in which the subjects made guesses at various targets which were hidden from view. Each subject could gain points by identifying correct targets 50% of the time. The other 50% of the time the subject would gain points by answers which did not identify the targets. The game-like situation provided positive evidence of ESP. By 1961 the value of the relaxed game-like experimental situation became one of the most well-accepted variables in ESP scoring.

The researchers continued to discover more about the other variables in ESP scoring. Shields (1962) tested school children. He found that the well-adjusted child scored higher on ESP tests than

did the withdrawn child. He also found that ESP results could not be correlated with age, sex, or intelligence quotient.

Chauvin and Darchen (1963) continued the process of better defining the variables involved in ESP scoring. Chauvin ran tests of clairvoyance in which the target ESP cards were hidden under a variety of materials. No difference in scoring was reported when the target cards were concealed under glass, iron, wood, or no shield at all.

Ryzl and Pratt (1963) also made a contribution in obtaining stable ESP results. In their test they used the same subjects who were tested for clairvoyance in a number of different experiments. Above chance ESP scores for the series of experiments were reported. Ryzl and Pratt's experiments were well controlled in that the external experimental variables were stabilized. However, their experiment did not offer any clues to why their subjects showed the evidence of ESP and other subjects do not.

Rhine (1964) attempted to answer the question of why some subjects score higher than others. He discovered that the subject who is well-motivated tends to perform better in ESP experiments.

By the time of Rhine's experiment in 1964 other experimenters were also trying to stabilize scoring of ESP subjects. Schmeidler (1964), in a series of experiments using the same subjects, was able to obtain above chance scoring in ESP experiments involving computer selection of ESP targets. She found it difficult to maintain a consistent scoring level.

Whatever causes the uneven scoring level of subjects seems to interfere in the best-controled experimental situation. Rhine considered motivation to be the key. Schmeidler was not at this time ready to state if there was any one key variable. Among the variables Schmeidler found important were: competitive personality type, creativity, and the feeling of success by the subject while taking an ESP test.

Other experimenters kept adding to the variables which influenced scoring. Freeman and Nielsen (1964) found that the very anxious subjects scored higher than medium or low anxious ones. Standford (1964) discovered that the more adaptive person produced higher scores during the ESP test. Krippner (1965) offered a reward of a transistor radio to the highest-scoring ESP subject and found an increase in the scoring of the group tested. Going along with Krippner's findings, Tart (1966) reported that most of the ESP tests given subjects resulted in an extinction process. If the subjects are not given positive reinforcement during or after the experiment, reduced scoring can be expected to occur. Tart's discoveries supported the long-held view of Rhine about the importance of motivation.

Apart from the need for motivation, most of the other variables seemed to be dealing with personality factors. Many tests probing personality have been given in an attempt to discover the key factors. Buzby (1967), for example, combined a questionnaire dealing with interest in ESP with the Embedded Figures test. He reported that those subjects with a vital interest in ESP and

also shown to be global perceivers by the Embedded Figures test, were the best ESP subjects. But Busby's discoveries only added to an already confusing number of personality factors which seemed to influence scoring.

Eysenck (1967) expressed the view that the various personality factors should be combined to describe the personality type which could be expected to score high on the ESP tests. But most ESP experimenters were still looking for the simple solution to find the better scoring subjects. Busby (1968), using the Draw-A-Man test, found that subjects with low body sophistication tend to score above chance at clairvoyance. Uleman (1971) used another standard psychological test, the TAT, and discovered the need for influence correlated with higher ESP scores.

The search for the simple solution to finding the higher scoring ESP subject was extended into the biological area. Lewis and Schmeidler (1971) found that subjects who could better control their alpha brain waves scored higher on ESP. But the relationship between alpha wave variations and ESP scoring is complex.

Mitchell (1971) even extended ESP research into outer space. While heading to the moon in Apollo 14, he ran a series of experiments with subjects on earth. He reported that distance did not seem to interfere with ESP. However, not all of his experiments obtained better than chance results.

The personality variables must be stabilized before a situational variable, such as the distance in Mitchell's experiment, can be better analyzed. It was for this reason that Hudesman and

and Schmeidler (1971) gave an ESP test to clients after they had been through a therapeutic session with a psychologist. The experiment showed that sessions rated good by the psychologist resulted in the client scoring higher on an ESP test. Little evidence of ESP could be discovered when a test had followed a poor therapeutic session. The findings suggested that when a person was making good psychological adjustment he was a better subject for ESP.

Kanthamani and Rao (1972) picked up on earlier suggestions by Eysenck that some form of combined personality questionnaire ought to be developed to discover the good ESP subject. Four personality factors were to be covered in the questionnaire. These four factors were items that had been found to correlate high with ESP in other experiments. Kanthamani and Rao reported better success in finding good ESP subjects using their questionnaire.

But there are more than four factors shown by experiments to effect ESP scoring. The following are main factors that have been shown to influence scoring: open-mindedness about ESP (Schmeidler, 1943, 1950; Hudesman & Schmeidler, 1971), motivation (Pratt, 1949; Rhine, 1964; Freeman & Nielsen, 1964; Tart, 1966), ability to handle stress and conflict situations (Rhine, 1952; Hudesman & Schmeidler, 1971), ability to relax (Schmeidler, 1954; Gerber & Schmeidler, 1957; Hudesman & Schmeidler, 1971), competitiveness (Schmeidler, 1964), creativity (Schmeidler, 1964), adaptability (Schmeidler, 1954; Shields, 1962; Stanford, 1964; Hudesman & Schmeidler, 1971), confidence (Smith, 1941; Schmeidler, 1964; Hudesman & Schmeidler, 1971),

vital interest in ESP (Schmeidler, 1954; Busby, 1967), global perception (Busby, 1967), game-like ESP experiment (Birge, 1949; Fish, 1960; Ratte, 1961), and positive reinforcement (Woodruff, 1944; Greville, 1951; Ross, 1959; Krippner, 1965; Tart, 1966).

All of these main factors are personality variables except the game-like experimental situation and the reinforcement given the subject during the experiment.

It is therefore the hypothesis that a questionnaire can be constructed that will differentiate between subjects who score high and low on an ESP test. An additional hypothesis is that the upper 20% of the scorers on the ESP questionnaire (the experimental group), and the lower 20% of the scorers on the questionnaire (the control group), will show significant difference in their performance on an ESP clairvoyance test. The .01 level of confidence will be used to determine significance.

It is also hypothesized that the total scores on the experimental group will be above chance level thereby showing evidence of ESP. The total scores of the control group will be below chance showing no evidence of ESP.

Method

Design. A questionnaire designed to differentiate between high and low scoring ESP Ss was given to 100 college students. These students were chosen at random from psychology classes at Eastern Illinois University. From this group of 100 students, two groups were chosen. One group, the experimental group, contained the 20 subjects (Ss) who had the highest scores on the questionnaire. The second group, the control group, contained the 20 Ss who had the lowest scores on the questionnaire.

The experimental and control groups were given an identical ESP test for clairvoyance. To give the clairvoyance test a game-like atmosphere, both groups were told that they were taking part in a guessing game that can be a lot of fun. Both groups were also told that once they learned how to play the game well they might be able to mystify their friends. To maintain the game-like atmosphere the experimenter (E) displayed a light-hearted, relaxed mood during each trial in the study. The clairvoyance test consisted of four runs (a run being 52 cards) through a standard deck of playing cards which were well-shuffled and then cut three times.

After shuffling and cutting, the cards were placed face down on a table behind a board--entirely out of view from the S. The S called out the possible color of the top card in the deck, red or black. After each guess the top card was turned over and shown to the S. The card was then placed at random back in the deck. The deck itself was kept hidden from the S. The S made 52 guesses

from the deck. This was one run through the deck. Each S had a total of four runs. A two minute break period was given to each S between runs.

Scoring was accomplished by having the S and the E both mark down each guess before the card was revealed. After the card was revealed the S and the E recorded whether it was a correct guess or not. The two recording sheets of the S and the E were compared after each run to check for any possible errors in recording.

Verbal reinforcement was given each correct guess during each of the four runs. The reinforcement consisted of the words yes, right, or good. These words were each used 1/3 of the time. These identical words were used as reinforcement for both the experimental and the control groups.

After both the experimental and control groups completed their experimental trials the total correct responses for the two groups were compared using a standard t-test to determine significance. The total scores for each of the two groups were then computed and compared to the level of scoring expected by chance. The total group score of the ESP group should be above chance. The total group score of the non-ESP group should be below chance.

Logic. The personality factors which are covered in the questionnaire were chosen because they have been shown by research to have a predictive value in finding better scoring ESP Ss. By combining all the major personality factors believed involved in high scoring in one questionnaire, one should be better able to find higher scoring ESP Ss.

The value of the game-like ESP test has also been shown to increase the scoring of Ss. For this reason the card experiment was approached in a game-like fashion. The clairvoyance test was selected as the ESP measure because it lends itself to precise control of the experimental variables.

The value of reinforcement given Ss during an ESP test has also been shown by research to improve ESP scoring. For this reason verbal reinforcement was given to the Ss. By combining (1) the major personality factors, (2) the game-like experimental situation, and (3) positive reinforcement, it should be possible to obtain a group of Ss who obtain a high score on the ESP test.

Subjects. One hundred Eastern Illinois University students were chosen from undergraduate psychology classrooms. These students were a combined group of freshmen, sophomores, juniors, and seniors. Their mean age was 20. Of these 100 college students, 20 were placed in the experimental group and 20 were placed in the control group. These 40 students were then given an ESP clairvoyance test.

Sampling and control devices. The 100 Ss were chosen from undergraduate psychology classrooms. The 20 highest scorers and the 20 lowest scorers on the questionnaire were selected to take part in the ESP clairvoyance test. It was the plan that in case the range of scores on the questionnaire was narrow, another sampling of 100 different students would be made, and so on until a good distribution of scores was found. This was not necessary. The range of scores was sufficient on the first sample. Each S was tested individually in the same room. The S and the E were both seated with a table between them. Identical playing cards were used in all the exper-

iments. The cards were all placed in the same location behind a board on the table when each S was tested. A double check for recording errors was used throughout all the experiments. This was done by comparing the recording sheets used by the S and the E at the end of each run. When an error was found in one of the recording sheets the scores for that run were discarded and the run repeated. Record sheets were compared during the two minute break period between each run.

Measurement. A standard t-test for significance was used to compare the scoring of the experimental and control groups on the ESP clairvoyance test. An X^2 item analysis Siegel (1956) was used to compare responses of the two groups on the ESP questionnaire. Computation of the chance level for the total scores of the two groups on the ESP clairvoyance test was also done. For this experiment accepted chance levels are ½ for color for each deck of cards having 26 red and 26 black cards.

Apparatus. The instrument for selecting Ss for the clairvoyance ESP test was a true-false questionnaire consisting of 30 questions. Seven psychology instructors at Eastern Illinois University selected the 30 questions used in the questionnaire from 50 questions submitted to them by the author of this thesis. The 50 original questions were designed to measure the ten personality variables that previous research had related to ESP ability.

Standard playing cards were used for the clairvoyance test. Identical scoring sheets were used by both the Ss and the E to record the results of the clairvoyance tests.

Results

The 30-item ESP questionnaire was given to 100 Eastern Illinois University students. The upper 20% (ESP Ss) and the lower 20% (non-ESP Ss) of the range of scorers on the questionnaire were all given the same ESP clairvoyance card test. The total scores of the two groups on the ESP card test were compared by using a standard t-test to determine the level of significance. The mean score of the ESP group was 109.1. The mean score of the non-ESP group was 99.3. The two groups differed significantly ($t=4.63$; $p<.001$).

The first part of the hypothesis which stated that the ESP group would score significantly higher on the ESP card test than would the non-ESP group was thus supported. The second part of the hypothesis which stated that the mean score of the ESP group would be above chance and that the mean score of the non-ESP group would be below chance was supported in that the mean score of the ESP group was 109.1, which was above the chance level of 106.0. The non-ESP group's mean score was 99.3, which was below the chance level of 106.0. The chance level was found by taking 50% of 212, which was the highest possible correct response on the ESP test. The chance level was computed in this way because the common accepted chance level is 50% of the total possible score where only two possible choices (black or red card) could be made by each S on each response.

The scores of each S in the ESP and non-ESP groups on both

the ESP questionnaire and the ESP clairvoyance test are listed in Table 1. Column 1 under the ESP and non-ESP groups is a listing of each S's score on the ESP questionnaire. Column 2 under the ESP and non-ESP groups is a listing of each S's score on the ESP clairvoyance test. For example, S number 2 in the ESP group scored '27' on the questionnaire and '115' on the ESP test.

Item Analysis of the Questionnaire

The responses of true or false on the 30-item ESP questionnaire which were made by the ESP and non-ESP groups were compared on each of the 30 items for significance using an X^2 item analysis taken from Siegel (1956). The following formula was utilized:

$$X^2 = \frac{N(AD-BC - \frac{N}{2})^2}{(A+B)\ (C+D)\ (A+C)\ (B+D)}$$

where N is the total number of Ss used, and A, B, C, and D refer to the cell values in the 2 x 2 contingency table. Those items which were found to differentiate between the ESP and non-ESP groups at the .05 level of significance were incorporated into a subscale. Two items were significant at the .05 level. Three items were significant at the .01 level. One item was significant at the .001 level. The items that differentiate between the two groups are presented in Table 2.

A subscale was developed for both the ESP and non-ESP groups using the scoring key. The 6 items were combined in the subscale. Each item was given a unit weight of 1. Therefore, the highest possible score of any S is 6 while the lowest possible score is 0. This subscale is presented in Table 3.

TABLE 1

ESP Group			Non-ESP Group		
S's No.	Column 1 Questionnaire	Column 2 ESP Test	S's No.	Column 1 Questionnaire	Column 2 ESP Test
1	28	105	1	19	102
2	27	115	2	19	97
3	27	101	3	19	97
4	27	100	4	19	97
5	26	121	5	19	93
6	26	119	6	19	91
7	26	119	7	18	110
8	26	117	8	18	105
9	26	117	9	18	95
10	26	112	10	18	94
11	26	111	11	17	108
12	26	109	12	16	87
13	26	109	13	15	108
14	26	107	14	15	104
15	26	106	15	15	94
16	26	106	16	14	102
17	26	104	17	14	101
18	26	103	18	12	104
19	26	101	19	12	103
20	26	101	20	12	102

TABLE 2

ESP QUESTIONNAIRE ITEMS

DIFFERENTIATING CRITERION GROUPS

Key	Item No.	Question
F	6	It is not important to me to reach the top in my job or in school. **
T	7	I like to take charge and run things. ***
F	9	I do not like to make hard decisions. **
T	13	I like to win at whatever I do. *
T	19	I handle new situations very well. **
T	23	Confidence in myself is one thing I have. *

* .05
** .01
*** .001

TABLE 3

FREQUENCY DISTRIBUTION AND PERCENTAGE DISTRIBUTION OF SUBSCALE SCORES FOR ESP AND NON-ESP SUBJECTS

Test Scores	f	cf	Percentile
6	7	40	100
5	11	33	83
4	4	22	55
3	4	18	45
2	7	14	35
1	5	7	18
0	2	2	5

A scoring key was then constructed for the 6 items in Table 2. This key was developed by finding how 50% or more of the Ss in the ESP group responded to the criterion items that differentiated between the two groups. For example, the key item 19 was scored 'true' because 50% or more of the Ss in the ESP group responded 'true' to that item.

Expectancy Table for the Subscale

An expectancy table for the subscale presented in Table 4 was obtained by computing a frequency distribution of both the ESP and non-ESP groups. Percentiles and cumulative frequencies were also established for each score on the subscale. The frequency distribution for the subscale and the percentiles are presented in Table 4.

Subscale scores for the two groups ranged from 0 to 6. Approximately 55% of the Ss in both groups received a score of 4 or above while the remaining 45% received a score of 3 or below. The ESP group had a scoring range of from 4 to 6. The non-ESP group had a scoring range of from 0 to 4.

Only 2 Ss in the non-ESP group received a score above 3, while only 2 Ss in the ESP group received a score lower than 5. Therefore, a high score on the 6 differentiating items on the ESP questionnaire was representative of the ESP group. A low score on the differentiating items was representative of the non-ESP group. A frequency distribution of scores is provided in Table 3.

TABLE 4

EXPECTANCY TABLE FOR SUBSCALE PRESENTED IN TABLE 2

Total No.	No. Receiving Each Score ESP Ss	Non-ESP Ss	Test Scores	Cumulative Percentage
7	7		6	100%
11	11		5	83%
4	2	2	4	55%
4		4	3	45%
7		7	2	35%
5		5	1	18%
2		2	0	5%
40	20	20		

Discussion

The results of the present study using an ESP personality questionnaire to select higher scoring ESP Ss is encouraging. The differences between the performance of the ESP and non-ESP groups in the present study is consistent with previous research.

Various studies (Pratt, 1949; Rhine, 1964; Freeman & Nielsen, 1964; Tart, 1966) have indicated that motivation is an important factor in the personality of Ss with good ESP ability. The present study also suggests that motivation is an important factor as shown by the fact that item 6 (It is not important to me to reach the top in my job or in school.) was rated 'false' by the great majority of the Ss in the ESP group. A 'false' response on item 6 would be expected of a S who had a high motivation level.

The ability to handle stress and conflict situations has also been shown by studies (Rhine, 1952; Hudesman & Schmeidler, 1971) to be an important variable in the higher scoring ESP S. The present study also suggests that the ability to handle stress and conflict situations is an important variable in that the great majority of Ss in the present study rated item 7 (I like to take charge and run things.) as 'true' and rated item 9 (I do not like to make hard decisions.) as 'false'. The response of 'true' to item 7 and 'false' to item 9 would be expected if a S had a high ability to handle stress and conflict situations.

One study (Schmeidler, 1964) gave clues that a high competitiveness level was a key variable in the personality of higher

scoring ESP Ss. The response of the great majority of the ESP group in the present study to item 13 (I like to win at whatever I do.) as 'true' would be expected if a S had a high competitive level. The response to item 13 in the present study thus gives support to competitiveness being an important variable in higher scoring ESP Ss.

A number of studies (Schmeidler, 1954; Shields, 1962; Stanford, 1964; Hudesman & Schmeidler, 1971) have shown that the adaptability of Ss is a good indicator of their ability to score high on an ESP test. The responses of most of the Ss in the ESP group to item 19 (I handle new situations very well.) as 'true' would be the response expected if a S had a high adaptability level. The response by the ESP group to item 19 therefore gives support to the importance of a high adaptability level in higher scoring ESP Ss.

Somewhat similar to research on adaptability, an increasing number of studies (Smith, 1941; Schmeidler, 1964; Hudesman & Schmeidler, 1971) have shown that the amount of confidence a person has may well indicate his ability to score high on an ESP test. In the present study most of the Ss in the ESP group rated themselves as confident individuals by their response to item 23 (Confidence in myself is one thing I have.) as being 'true'. The 'true' response would be expected if the individual had confidence in himself. The ESP group's response of 'true' to item 23 lends support to the research on confidence in ESP Ss.

Two other variables which seem to increase scoring on ESP tests are the game-like atmosphere (Birge, 1949; Fish, 1960; Ratte,1961),

and positive reinforcement (Woodruff, 1944; Greville, 1951; Ross, 1959; Krippner, 1965; Tart, 1966). Both the atmosphere and reinforcement were held constant throughout the ESP test portion of the present experiment. By holding these two variables constant the effect they may have had on the scoring levels of the Ss would be cancelled out.

Other research studies which were examined in the current study were not supported. The importance of open-mindedness about ESP pointed out by earlier studies (Schmeidler, 1943, 1950; Hudesman & Schmeidler, 1971) was not supported. Studies relating to the ability to relax (Schmeidler, 1954; Gerber & Schmeidler, 1957; Hudesman & Schmeidler, 1971) were also not supported by this study. One other earlier study (Schmeidler, 1964) dealing with the creativity of high scoring ESP Ss found no support in the current study. Two more personality factors in ESP scoring found little support in this study. Studies relating to vital interest in ESP (Schmeidler, 1954; Busby, 1967) examined in this study were not significant. One study relating to global perception (Busby, 1967) was also not upheld in the current research study.

In all, the present study provides support for 5 of the 10 personality variables which previous research found important in higher scoring ESP Ss. The 5 supported variables are: motivation, ability to handle stress and conflict situations, competitiveness, adaptability, and confidence.

The 5 variables which were not supported by the present study were: ability to relax, open-mindedness about ESP, creativity,

vital interest in ESP, and global perception.

The inconsistencies between this present study and earlier research relating to these 5 personality variables that were not supported may be due to the following problems: (1)the difficulty of designing questions which measure these five personality characteristics. For example, creativity is not only difficult to define as it is even more difficult to measure by using short questions. (2)The ESP questionnaire in the present study is one of the first of its kind. Only Kanthamani and Rao (1972) have investigated a somewhat similar questionnaire. Considering two problems it is not surprising that 5 of the 10 personality variables in ESP scoring were not supported in the current study.

Limitations

One shortcoming of the current study was the fact that only 3 questions were used to draw out each of the 10 personality variables in the ESP questionnaire. Most personality tests are longer in length and a greater number of statements or questions are used to uncover personality variables.

No attempt was made to correlate each S's scoring on the ESP questionnaire with his corresponding scores on the ESP clairvoyance test.

Suggestions for Future Research

The 5 personality variables of the ESP Ss which were supported by the present study should be cross-validated in a future study. A longer questionnaire dealing with the 5 personality variables supported by the present study could be a possible next step.

A questionnaire dealing with the 5 key variables could also be followed by another type of ESP test. For example, a telepathy test could be given. Correlation between the S's scores on the questionnaire and on an ESP test could help define the relationship between scoring on the questionnaire and scoring on the ESP test.

It is hoped that by doing future research on the 5 key personality variables supported in the present study that an even better method can be developed to select higher scoring ESP Ss than the method developed and researched in the present study.

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TABLE 5

ESP Questionnaire with Concept Headings and Correct Answers

Open-mindedness about ESP

1. F I believe that there is no such thing as extra sensory perception.
2. T One should keep an open mind about ESP.
3. T It may be possible that information can come to a person by means outside known sensory channels.

Motivation

4. T I rate my general motivation as high.
5. T I want to do the best I can whenever I do something.
6. F It is not important to me to reach the top in my job or in school.

Ability to handle stress and conflict situations

7. T I like to take charge and run things.
8. F When I take a test in school I often get uptight before the test.
9. F I do not like to make hard decisions.

Ability to relax

10. T I am not a nervous type person.
11. T I find it easy to fall to sleep.
12. T I like to take it easy whenever possible.

Competitiveness

13. T I like to win at whatever I do.
14. T People should fight for what they believe in.
15. T I do like to argue.

Creativity

16. T I like to think about new things or new ideas.
17. T I like more of the creative things in life.
18. T I am interested in art and poetry and good music.

Adaptability

19. T I handle new situations very well.
20. T I consider myself to be a person who fits into new life styles easily.
21. T My life has been one of changing life styles.

Confidence

22. T I believe I can do most anything if I want to badly enough.
23. T Confidence in myself is one thing I have.
24. F I do not like to make decisions.

Vital interest in ESP

25. T It is important to me to find out if I have ESP.
26. T I have read a number of articles or books on ESP.
27. F I am not interested in ESP.

Global perception

28. T It is important to me to find out more about the universe in which we live.
29. T A person should be more concerned with the world's problems.
30. T The whole is sometimes greater than the sum of its parts.