COLOR CHOICE AND SHORT STORY FICTION READING

CHOICE AS FUNCTIONS OF MOOD

By

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CHAPTER I

READING AS EXPLORATORY BEHAVIOR

Introduction

A void exists in the literature concerning research in exploratory
behavior. Few studies incorporate such complex behaviors as reading, so
consequently there is a dearth of information giving clues to the moti-
vating factors behind reading. The study of other exploratory behaviors
has told us a great deal about stimulus-seeking behavior, some of which,
indubitably, is applicable to reading.

According to Fowler (1965), exploratory behaviors must fit the cri-
terion of "providing a change in the person's present or recent pattern
of stimulation." Certainly reading fits this description. Fiction read-
ing also fits Berlyne's criterion that it fulfills no biological function
and has no goal object for which the organism responds (Berlyne, 1960).
In fact, Berlyne specifically mentions reading as a form of epistemic
(knowledge-seeking) behavior (Berlyne, 1963, 1965).

Traditionally, investigations of exploratory behavior have been re-
lated to simple visual or tonal stimuli. For example, Berlyne (1965,
1967) investigated preference for simple patterns and noted that subjects
reported emotional experiences, such as agitation or repugnance at some
simple geometric patterns. One method of investigation has consisted of
paired presentations of stimulus patterns in which psychophysiological
changes and verbal reports of preference are recorded (Berlyne, 1950,

1958, 1960, 1965, etc.) Berlyne (1967) gives the impression that any pattern preference can be judged on a pleasantness - unpleasantness dimension. Reading, or the exploration of a printed verbal field, certainly gives rise to more specific emotional behaviors, but the same general techniques as Berlyne used should also be applicable to the investigations of reading. The method used in the study reported in this thesis is similar to that used in some of Berlyne's experiments: a paired-comparison technique was used comparing both complex and simple materials, and a verbal report was relied upon for the determination of preference.

The variables traditionally investigated in exploratory behavior research include novelty, complexity, and a variety of "content variables which provide meaningful features" (Berlyne, 1967). These "content variables" typically affect the activity level of the organism in conjunction with other variables. Dr. Larry Brown and the writer conducted a study in the Spring of 1971 designed to extract reading-choice determinants by allowing subjects to make and explain reading choices under various instructional conditions. The data indicated that novelty, complexity, and a number of other content variables, such as the emotional content of a story, were the variables responsible for extended interest in short stories. One of these "content variables" appeared to be the amount and type of emotional experience "written into" a story by the author. This variable shall be referred to as "implicit emotion" in this paper. It was highly plausible that this variable provided meaningful features to the reader by some mechanism involving reference to the personal experience of the reader, or at least to the reader's momentary mood state. Following this reasoning, one of the purposes of the study

cited in this paper was to investigate the nature of the relationship between the mood of the story and the mood of the reader. Among other things, the study described in this paper investigates whether people in a given mood will choose stories which consistently express an implicit emotion which agrees or disagrees with the mood of the reader.

General Development of the Problem

A major objection of studies to exploratory behavior is that these studies are "artificial" (Brown, 1972; Livson, 1967, etc.). Reading behavior provides a natural field setting for the investigation of complex exploration. Thus, one of the more reasonable objections to the study of exploratory behaviors is overcome by the use of reading materials.

The Function of Fiction Reading

The general function of reading seems to be to provide stimulation to the reader and to provide an opportunity to explore a verbal field. It is highly reinforcing, as would be predicted by the well-documented statement by Berlyne and Slater (1969) that "any behavior followed by exploration will be reinforced." Berlyne (1963) considers reading as an information-obtaining behavior. Fiction reading, however, besides providing information pertaining to constructed situations, may also give essentially noninformational stimulation, such as mood change and an opportunity for the expression of feelings.

The Motivation of Fiction Reading

It is a plausible assumption that the reader, as any other organism, might have an optimal stimulation level. This "optimum arousal level" (Leuba, 1965) may be involved in the motivation of reading.

Reading, according to this model, would be reinforcing because it would raise or lower stimulation toward the optimal level of the individual. This model would explain not only differences in reading preferences between individuals, but also the variations of choices of reading materials by one individual. Reading could change the stimulation level of the person, either activating or subduing his arousal, depending on his need for stimulation at that time.

Previous studies of exploratory behavior suggest that in most cases people prefer increased stimulation. Berlyne (1958) found that when given a choice people tend to prefer bright, colored or complex stimulus patterns. Shultz (1967) found that the lack of stimulation is considered quite aversive by most people. His study showed that people subjected to periods of low stimulation voluntarily chose stimuli which previously had been considered boring, such as sixteen repetitions of the chorus of "Home on the Range" and old stock market quotations, in order to provide some sort of stimulation.

Effects of Emotion on Stimulus-Seeking Preference

Shultz (1967) noted that some people desire less stimulation than others and McReynolds and Acker (1969) demonstrated that emotionally maladapted children (who, incidentally, are more anxious than "normals" according to the authors) are significantly less curious than the more adapted children when given an assortment of toys and novel stimuli. McReynolds (1958) also showed that fear can be a factor in restricting exploratory behavior in psychiatric patients, particularly those with general anxiety. Lester (1968) also cited instances where fear facilitated exploratory behavior, in cases where patients were depressed.

Fear seems, therefore, to have an effect on exploratory behavior consistent with what would be expected assuming an optimum stimulation level. These studies illustrate how one emotion, fear, can facilitate and inhibit exploratory behavior.

Reading studies, particularly those involving reading rate or comprehension are frequently confounded by the neglect of concern about the reader's mood (Nadien, Schaeffer and Smeidler, 1969). This thesis investigated the importance of mood as a variable in story choice. It attempted to answer the question as to whether the mood that a story elicits can, by reference to the mood of the reader, be used as a predictor of story preference.

To investigate this, two assumptions were made: (a) that the emotional content of stories serves to change the reader's mood state or, in other words, his stimulation pattern; and (b) that an optimum stimulation level or mood state exists for most, if not all, readers. Velten (1967) showed that people in a high state of suggestibility are affected emotionally simply by the reading of elating and fearful statements. Although this "high state of suggestibility" may not be present in all readers, it seems reasonable to assume that if people read to seek stimulation they are affected by the emotional responses of the characters. Emotion, therefore, could be an important content variable, affecting reading choice by altering the reader's affective state.

CHAPTER II

COLOR AS A STIMULUS

Applicable Color Research

Physiological Studies

It has been known for a long time that color has energizing effects
on organisms. As early as 1877, Panacoast noted that different colors
of lights had differential effects on the behavior of organisms. He
prescribed colors for different ailments, and wrote that "Blue invites
repose, whereas red energizes the system. To accelerate the nervous sys-
tem, in all cases of relaxation, the red ray must be used--to relax the
nervous system, in all cases of excessively accelerated tension, the
blue ray must be used" (in Birren, 1961).

Feré (in Birren, 1961) measured increases in energy, as measured by
muscular tension, and found that all colors had some energizing effect,
but warmer colors (such as yellow or red) have a much greater effect.
Birren (1961) summarized the findings of other researchers and noted
some of the same general effects that Feré and others had found, namely
that brightness and "warmth" of color stimulate the autonomic nervous
system. Blood pressure and pulse actually rise, as the flesh becomes
warmer and temperature increases. Dimness or "calmness" of colors have
a relaxing effect on autonomic nervous system stimulation, blood pressure
and pulse decrease, and temperature tends to lower. According to Birren

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(1961) the research is quite consistent. Gerard, as reported by Aaronson (1964), measured blood pressure, galvanic skin response, respiration rate, pulse, muscular activation, and frequency of eyeblinks and brain- wave spindles. He concluded that red is "disturbing" to anxious subjects and blue is "tranquilizing." This agrees with Ellinger's (1967) finding that red light stimulates animals and affects their vital organs. Other physiological observations include those of Hessey (1938), which is largely unsupported by objective data, that the red end of the spectrum is inflammatory while the blue end is cooling.

Some of these effects seem logical in the light of some botanical and other biological evidence of Ott (1967) stemming from a well known study in biological research. Ott found that light affects the repro- duction of plants in several interesting ways. He found that blue flourescent light killed male flowers, but not the female flowers of the pumpkin plant. Red light, of the same intensity, killed the female, but not the male flowers. In a study using 1000 mice, he found that mice bred and raised in daylight produced 50% males and 50% females. Under red light they produced 30% female and 70% male, and under blue light 70% were female and 30% were male. Such a profound effect on an organ- ism, simply as a function of visible light, would point to the possi- bility that colored light has other effects as well. These physiologi- cal effects are largely in agreement, as the following research will show.

The Physiological Effects of Red

With relation to the energizing effects of red, as opposed to the tranquilizing effects of blue, Gerard (1957) noted that respiration and

the number of eyeblinks increase under red stimulation. Feré (1900) found that tension increased from 23 units, which is considered normal, to 42 units when a subject is exposed for one hour to red light. Assuming the back muscles are more powerful than the chest muscles, if the arms were to be held horizontally they would tend to spread under red light, because of increased muscular tension. This hypothesis was supported in 1942 by Goldstein, who noted that the arms did indeed spread under red light if the subject attempted to hold them in front of him.

Pincussen (in Birren, 1961) noted that blood sugar levels rise when subjects are exposed to red light, although other data (Daitsch and Kogen in Birren, 1961) suggest that these results are by no means conclusive. In fact, Daitsch and Kogen found that red light decreases blood sugar level, weakens metabolism as well (sic), and stimulates sexual activity in animals and birds.

Birren (1961) concludes that the majority of the evidence indicates that red causes an immediate increase in blood pressure, followed by depression. He also notes that time tends to be overestimated and that weights seem heavier under red illumination.

The Physiological Effects of Blue

The general physiological effects of blue seem to be tranquilizing. Gerard (1957) noted that respiration decreases upon exposure, and lowers blood pressure and eyeblinks, as well as pulse. Birren (1961) also noted that blue causes a drop in blood pressure "which may in time be followed by an accelerated reaction," meaning that some people experience a speeding of pulse and rise in blood pressure after the initial drop. Time is usually underestimated, and weights seem lighter.

When one is exposed to blue light and is asked to outstretch his arms, the arms deviate toward each other (Goldstein, 1942). This indicates that blue reduces the muscular tension of the back muscles, allowing the arms to drift together. Ehrenwald (in Birren, 1965) noticed that this was an effect of the arms deviating towards a blue light source, as opposed to arms deviating away from a red light source. In a remarkable variation of this experiment, Goldstein (1942) actually blindfolded his subjects and found the same results.

The Physiological Effects of Other Colors

People have done research on other colors in the spectrum but these studies seem to have yielded few conclusive results.

Typically, yellow follows the same general pattern as red. It is an "exciting" color, but not nearly so exciting as red (Birren, 1961). Almost all studies using this color are confounded, since yellow is a bright color, as opposed to other spectrally pure hues. If pure hues are used, therefore, brightness is not controlled for, or has not been, at least, in the previous studies. It was found that under yellow light an increase in muscular tension is noted, from the normal 23 units to 36 units (Feré, 1900). The arms spread away from each other, but not to the degree one finds in red, demonstrating an increase in tension (Goldstein, 1942). It has been mentioned by Birren (1963) that yellow is the most unpredictable color in its general effects, but usually is accompanied by a slight blood pressure and pulse rise. Daitsch and Kogen (in Birren, 1961) report that yellow has a "beneficial" (sic) effect on metabolism.

Green generally follows the same pattern as blue, in that it is a

tranquilizing color, but not as extreme as blue (Birren, 1961). However, the color green is also unpredictable, sometimes making a person feel nauseous or billious (Aaronson, 1964), which could be due either to excitement or to parasympathetic discharge. It reportedly decreases muscular restlessness in cases of torticollis or twisted neck, according to Metzger (in Birren, 1961). The latter finding would be expected, if Goldstein's (1942) explanation of the arms approaching each other after exposure to green light is correct. Feré (1900) reported a muscular tension increase from 23 to 28 units. Blood pressure and pulse are usually depressed (Birren, 1961).

Psychological Studies

Color has been shown to have strong associations with moods. Wells (1910), an art teacher, presented a mood list in scrambled order and a color chart of large chips of color to his class. He then asked the class to describe the colors in terms of the accompanying list (see Appendix A). Basically, his conclusions were that colors range in mood from exciting to tranquilizing and depressing. He also stated that "an affective character . . . remains the same regardless of any subjective attitude towards it" (p. 192). Following this reasoning, this means that red, for instance, is exciting whether it is liked or not. Ross (1938) conducted a similar study, in which he shined a theatrical spotlight on an 18" x 21" ground glass frame. By changing gelatin filters, he varied the colors and presented a word list identical to that used by Wells (1910). The results obtained were strikingly similar to Wells' previous finding. Ross noticed that moods, varying in degree of excitement, could be ranked and paired along a spectral circle, in such a way

that each mood would have a series of points along the color circle. The moods ranked from exciting to sad, as the paired colors ranged from red to blue. Yellow was matched to playfulness; blue to sadness or tenderness; green to leisureliness; and red to gayness or excitingness. Purple was considered solemn, but forceful, and thus occupied a position between red and blue on the color circle. Hevner (1935), using the same group of words as Ross and Wells, compared various simple geometric shapes and patterns, and varied the color between blue or red Milton Bradley standards. He controlled for brightness and intensity, and found consistent connotations for the moods corresponding to these colors, similar to the results found by Ross and Wells, regardless of the shape of the pattern used.

Other studies investigating color and mood include synesthetic and hypnotic studies. Odbert, Karwoski and Eckerson (1942) designed a study in which subjects reported not only the mood of the music which was being played, but also the colors associated with the music. They found that the colors named for a given musical selection had a definite pattern, and that these colors were in turn systematically related to the named mood of the selection. Furthermore, when the moods were given a circular arrangement in terms of excitement, the colors related to the moods formed a spectral color circle. Upon comparing this to Ross's mood-color circle one notes extremely similar findings. Aaronson (1964) induced post-hypnotic suggestion on a subject, aged 22, who had no admitted knowledge of other studies of mood connotations. He was told that everything he saw, on the day of his post-hypnotic suggestion, would be tinted with a given color, but he would not remember this when the suggestion was removed. He reported his mood at the end of each day. Under

the suggestion of red, he felt active, aggressive and outgoing. Under

orange he felt bright and happy; under yellow, bright, highly energetic

and industrious; under green, sick, dreary and billious; and under blue,

slow, calm, and mildly depressed. These reports, given by a presumably

naive subject, correlate well with the other findings.

Other research in color-mood comparisons is cited in Pressey (1921)

and Norman and Scott (1962). The results they report are consistent with

those of the researchers mentioned in this paper.

The Psychological Effect of Red

Odbert, Karwoski and Eckerson (1942) found red to be basically ex-

citing* as well as playful* and gay*, when paired with previously re-

ported moods of music. Hevner concluded that red is primarily gay*, but

also quite exciting*. Wells (1910), using different stimuli than Hevner,

got identical results, using red stimulus cards between 6867 and 6567

wavelengths; it was found, however, that as the color became more orange,

the effect became definitely more exciting*. Ross (1938) also found

that exciting* was clearly the most important affect of red. The differ-

ences as to whether red is primarily gay* or exciting* may be due to the

fact that Ross used larger stimuli and that his material was luminous.

Birren (1961) describes red as being "passionate," "exciting" and "ac-

tive," which is well in keeping with the exciting* connotation of red.

Luscher, in devising his color test (Scott, 1969) noted that red is pri-

marily a hue which "excites."

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*An asterisk will be used to indicate word groups as discussed by
Wells (1910), Ross (1938), and Hevner (1935), as well as by other re-
searchers, not simply the adjective itself. (See Appendix A)

Waller (1963) found that light of different colors can affect the judgment of human facial expressions. When his subjects rated expressions on ten-point scales along the dimensions of pleasant--unpleasant, active--passive, and desirable, he found that pictures rated under red light were more active, unpleasant, and less desirable as acquaintances than those rated under blue or white light.

The Psychological Effect of Blue

When paired with musical experience (Odbert, Karwoski and Eckerson, 1942), blue is thought of as tender*, as well as leisurely* to a lesser degree. Hevner (1935) found that blue was leisurely* as well as sad* and solemn*. Wells (1910) found that his class described blue as solemn* and tranquil*, but not particularly sad*. Ross (1938), on the other hand, found blue to be sad* but not particularly high in other affects. Birren (1961) describes blue as "subduing," "melancholic," "contemplative," and "sober." In general, blue may be thought of as sad*, tender*, and leisurely*, as well as solemn* to a lesser degree.

Waller (1963) found that people who rated facial expressions under blue light rated them more passive, pleasant, and desirable as acquaintances than those rated under red or natural light.

The Psychological Effect of Other Colors

Odbert, Karwoski and Eckerson found that people associated yellow with music that was gay* or playful*. Wells (1910) showed that it was generally considered light and airy, as well as cheerful, and that it fitted well between the categories of gay* and playful*. He also noted that the colors become increasingly gay* as the color becomes more

orange. While these results appear consistent, it should also be noted that all of the researchers considered yellow to be the most inconsistent color, very prone to individual differences, and prone to many descriptions which could not be considered generally appropriate upon consensus.

Odbert, Karwoski, and Eckerson (1942) found that people associated green with leisurely* when they heard a piece of music which they associated with that color. Wells (1910), as well as Ross (1938), noted that it was the most leisurely* color. Birren (1961, 1965) calls green "quiet," "refreshing," and "peaceful."

General Effects of Visible Colors

To a large degree, the affective character of a color seems to be a function of wavelength. Red (6567-6867 Mu) is the most exciting color, while yellow (5808 Mu) is next, followed by green (5289 Mu) and blue (4732 Mu). These correspond to the Milton-Bradley standards used in the present study. The colors, when arranged by decreasing wavelength, correspond to moods which vary in activity from exciting to sad. The writer has discovered that predictions of the effect of any wavelength can be derived from examination of the position of moods on the color circle. If purple is associated with solemn*, for instance, and green is associated with leisurely*, one could predict that blue, which is spectrally between these two colors, would have a mood between leisurely* and solemn*. All of the studies support the fact that blue is most closely associated with sad* and tender*, the two moods between leisurely* and solemn*, according to Ross's spectral mood circle, supporting this prediction. Likewise, when a color like yellow, for instance, is contaminated by another color, such as red, one can expect the resultant

color to have the affective character which is the common factor between

the two colors. Consequently, since yellow has connotations of playful*

and gay*, and red has connotations of exciting* and gay*, one can expect

orange to have the connotation of gay*, which again is the case. This

seems to hold true, regardless of the position on the spectrum, as long

as the tints and saturations are of approximately the same intensity.

Some Problems in Color Research

Pressey (1921) noted that the affective reactions to color are high-

ly variable from individual to individual and from week to week. He drew

the disturbing conclusion in his own research that "no hue excepted

showed characteristics of any constancy." Havelock Ellis (1900) sup-

ported this, and added that colors decreasing in spectral intensity

(wavelength) become more poorly defined. In fact, during his research

among aborigine tribes he discovered that some tribes, such as the

Kiwain and Murray, did not have a name in their vocabulary for blue, but

all tribes had at least one name for red. Pressey (1921) noted that re-

actions to colors were often changed by subjective factors such as con-

ditioning, mood, or chance association, as well as by objective factors

such as reflectance or unevenness of colored surfaces.

Several researchers have realized the necessity for keeping light-

ness constant. Washburn (1911) also noted that saturated colors are

preferred in small areas, while unsaturated colors were more likely to

be preferred in larger ones. Wright and Rainwater (1962), in a factor

analytic study, demonstrated that changes of lightness and saturation

could alter the meanings of colors. Fifty colors were rated by the Os-

good Semantic Differential method along bipolar scales. These colors

varied in hue, saturation, and brightness. The factor analysis produced
six factors: Happiness (joyful and fresh), Showiness (striking and out-
standing), Forcefulness (strong and active), Warmth (warm and full),
Elegance (distinguished and festive) and Calmness (quiet, soothing and
strong). It was found that Happiness depended on lightness and satura-
tion, but not very much at all on hue. The lighter and more saturated a
color is, the more Happiness it connotes. Showiness depends partially
upon saturation, as well as upon lightness. To be showy, it is more
necessary for a color to be highly saturated than to be light. Forceful-
ness depends to a large degree on saturation also. Warmth indeed de-
pended upon hue, with the longer wavelengths connoting more warmth. Ele-
gance depended to a great extent upon blueness, but saturation also had
some effect. Calmness depended more on darkness than upon any other
factor, but depended on the degree of blueness as a secondary factor.
Thus, it is easy to see how lightness and saturation, if not controlled
for, create confounding effects. Guilford (1934) also noted evidence
suggesting confoundings resulting from failure to control for lightness
and saturation when he stated that hue was responsible for the affective
value of a color in about 67% of the women in his preference studies and
in only 16% of the men.

Guilford (1934) also presented evidence that colors were stereo-
typed. He showed, by cross-cultural preference studies, that general
color preferences were about the same, regardless of race or nationality.
In all cases, blue, red, and violet were high-preference, but none was
ever the most consistently preferred or rejected color. The stereotype
of connotation is highly reliabile when considering hue. The stereo-
typed responses given for colors is possibly due to social learning of

what colors are supposed to represent (Aaronson, 1964). In Aaronson's

study, the stereotypic responses to colors were examined by having sub-

jects respond to the names of the colors, rather than to any color or

specific wavelength. He concluded his paper by stating that stereotyping

appears to be a function of the position of the color on the spectrum.

The stereotypes run from uproar to tranquility, as colors run from red

to blue. Fortunately, Aaronson notes that the hedonic tone of these

stereotypes does not necessarily follow the same gradient, so it seems

unlikely that this type of stereotyping greatly affects choice behavior.

The social learning interpretation of color stereotyping is also ques-

tionable, as Aaronson (1964) showed that there is a great possibility

that stereotypes may in fact be activated by perceptual experiences. In

other words, if the perceptions of an environment produced concensus as

to the mood connoted by a given color, stereotyping would not only be

probable, but would follow almost as a direct result of reality testing.

Motivation for Color and Story Choice and Statement of Purpose of Study

Motivation for color choice, or the reason for an individual choos-

ing a particular color, has not received much investigation (Scott,

1969). Luscher (in Scott, 1969) suggested that the reason for choice of

a particular color lies in the fact that an individual uses color choice

to reflect his personality. Much of this seems to be predominantly

speculative, as Luscher makes the assumption that people choose colors

because they need the stimulation of the type that a particular color

affords them. This, of course, is a distinct possibility, but it seems

equally plausible that a person might choose a color to typify the mood

which he felt at the moment of choice. By Luscher's reasoning, a person

who chose the color blue would want to be calmed when he made the choice. Under the opposite view, the person who chose the color blue would do so to reflect a state of calmness already present.

If story choice and color choice have the same function, and the choice behavior concerning color is not stereotyped, one should choose a story having the same affective character as the color chosen. A person choosing red, for example, should also choose a story which had an element of excitingness* and gayness*. The person choosing yellow would choose a playful* story, a person choosing green would choose a leisure-ly* story, and one who chose blue would choose a sad* or tender* one.

Another possibility is that the making of a color choice involves little opportunity to change the subject's mood, whereas the examination for story choice might provide more opportunity for changing moods. In other words, one might choose a color to express an emotion, but choose a story to change that emotion if it is too extreme or unpleasant. Under this hypothesis one would predict that a person choosing red would choose a sad* and tender* story, a person choosing yellow would choose a leisurely* story, one choosing green would choose a playful* story, and one choosing blue would choose an exciting* and gay* one.

Motivation for color and story choice was indirectly measured in this study by asking each subject which color best reflected his current mood. Since most of the experimental evidence, if not all, supports the idea that affective connotations for colors are stereotyped (Aaronson, 1964), it was assumed that the subject's response should enable an as-sessment of his mood. By comparing the apparent mood of the subject (inferred by means of the color chosen to reflect his mood) with his color preference, one can determine the degree to which mood influences

color choice. It is possible that color choice or preference might be stereotyped, and therefore may not necessarily be influenced by mood, as Luscher (Scott, 1969) suggests. That is, a person might prefer blue, for example, regardless of his present mood.

The stories used in this study were scaled in advance according to the degree to which moods were perceived as present in the reading material. A further refinement required the subjects involved in the actual experiment to identify from a list of word groups (see Appendix A) the group of words which best described the story which they most preferred. This enabled the experimenter to make a comparison between the apparent mood of the subject (inferred from his color response to mood) and the mood reflected in the story. By basing the results upon only those persons whose interpretation of the mood of the story agreed with the scaling sample, the problem of implicit (written by the author) mood versus explicit ("written into" a story by the reader) mood was virtually eliminated.

The primary purpose of this research was to investigate the motivation behind mood-dependent story choice. It has been demonstrated (Aaronson, 1964) that affective stereotypes exist in relation to color. The color blue, for instance, has a connotation of sadness which is consistent among individuals. Thus, if one regards his mood as blue, there might be a predictable story choice. He could choose an exciting story to compensate for that mood, or choose a sad story to express the mood which he feels. Either pairing similar mood-color and story choices or opposite mood-color and story choices should provide evidence allowing an inference to be made concerning the mechanics of mood-dependent story-choice motivation.

The relationship between the reported mood of a subject and story choice was expected to have good inferential value. If a positive relationship between reported mood and the mood expressed in a story existed, it was assumed that the story must have been chosen to reflect that mood. If, on the other hand, a negative relationship between mood and story choice appeared, then it was assumed that the story was chosen to compensate for that mood, assuming that reading a story has some effect on mood.

In view of the literature on exploratory behavior indicating that the function of exploration is to provide a change in stimulation, it would be more likely that story reading has a compensatory effect. It was predicted, therefore, that a person reporting his mood as yellow would choose a leisurely ("green") story, if the optimal stimulation level was between yellow and green. The plausibility of this assumption of the optimum level is discussed in the discussion section. A person reporting his mood as green should choose a playful ("yellow") story. One who reported his mood as red should choose a sad ("blue") story and one who reported his mood as blue should choose an exciting ("red") one. It seems likely that the closer to the optimum mood level the mood report is, the more prone it should be to individual differences, making it a poorer predictor of story choice.

A secondary purpose of this research was to find out if an empirical relationship exists between color preference and mood (inferred from a mood-related color choice). It was expected that since a relationship between mood and color has been demonstrated, the favorite color might either be the same or "opposite" from the color selected to indicate the subject's mood. If there are different mechanisms involved in exploring

simple materials such as color samples and more complex materials such as fiction reading matter, the choice of a preferred color might <u>match</u> the choice of a color judged to reflect mood characteristics. Thus, one might predict that if a person chose red as reflecting his mood he might also choose red as his favorite color, thereby reflecting his mood in his color preference.

The findings of the research cited in this paper could be complica-ted by the stereotyping of color choice responses. A person could always choose the color blue as his favorite, regardless of his mood. It would be probable, however, that the least favored color choices would be less susceptible to this because there is likely to be a stronger motivation to have a favorite color than a repugnant one.

CHAPTER III

METHOD

Subjects

Stories selected for inclusion in the study were scaled by 40 students at Oklahoma State University. The four stories which seemed appropriate were then rescaled by ten students from the introductory psychology classes at the University of Texas at Austin. This was done to insure that the stories were interpreted in the same way as the original scaling sample, since the actual experiment was performed at the University of Texas.

Fifty-five women and 54 men were drawn from the introductory psychology classes at the University of Texas at Austin to participate in the actual experiment. Thus the total number of $\underline{S}$s involved was 159, as opposed to 109 who were involved in the actual choice situations.

Materials

Excerpts were taken from four stories, "The Enormous Bed" by Henry Jones (D), "Turandina" by Nicolai Turgenev (B), The Once and Future King by T. H. White (A), and "The Ultimate Trip" by Benton T. Randall (C). These excerpts are presented in their entirety in Appendix B. All were modified by the experimenter to correct for style and cultural bias. The names of the characters were changed, so that people who normally reject stories of a given origin (i.e., Russian) would not recognize

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the author's nationality. Names were changed in the selection from <u>The</u> <u>Once</u> <u>and</u> <u>Future</u> <u>King</u> so that the source would not be recognizable. All selections were carefully reworded in cases where the language was archaic or difficult to understand, so that the complexity might be more equal between stories.

Four color chips, approximately $3\frac{1}{2}$ x $6\frac{1}{2}$ inches in size were used. The hues were Milton Bradley standards, tint 2, saturation 2; hues red, yellow, green and blue.

<div align="center">Procedure</div>

Forty undergraduate students at Oklahoma State University scaled the stories from a group of 8 excerpts selected by the experimenter. Each student was given two stories and was asked to read each of them. $\underline{S}$ was then given a scrambled list of the adjectives in Appendix A. Under each word on the list was a scale marked in 4 intervals. $\underline{S}$ was asked to mark on the scale the degree to which he thought the adjective was represented in the stories.

From the 8 original stories, four were selected, which best typified the moods described by Ross (1910), Hevner (1935), and Odbert, Karwoski and Eckerson (1938) as being connotations of the colors red, yellow, green and blue. The results from this scaling were compared to the "color profile" of the various investigations mentioned above. Thus, stories which presented a "profile" predictable by mood content were included in the actual investigation. For example, a mood state corresponding to the color blue was assumed to be present in a story which "peaked" along the dimensions of sadness and tenderness. For that reason, a story with those characteristics was included in the study.

Ten additional subjects were chosen from the introductory psycholo-
by courses at the University of Texas to be used in the scaling sample.
Each of these Ss scaled all four of the stories selected from the data
from the scaling sample at O.S.U. Since the results from this scaling
sample agreed completely with the Oklahoma scaling sample, the results
of the samples were pooled. The average scale values on the mood di-
mensions are reported in Figure 1. It should be noted that each of the
adjectives listed is a representative of a group of adjectives, which
is reproduced in Appendix A. The stories chosen peaked in Exciting-
ness*, Sadness*, Leisureliness*, and Playfulness*. These stories were
approximately equal in pleasingness and complexity according to the same
raters. The scale values on pleasingness ranged from 2.8 for story D
to 2.4 for story C, and the scale values for complexity ranged from 2.5
for story B to 1.8 for story D (four-point scales). The stories were
then ordered in "stimulation value," ranging from exciting to sad. In
A-D-C-B order, starting from the most exciting end of the scale, the
stories can be considered to follow the spectral order from red to blue.

Each of the color chips used was mounted on an individual sheet of
white typing paper and placed, in an order determined by randomization
by blocks, on a desk. Subjects were escorted individually into the
room, and asked to seat themselves behind the colors. The subject was
then asked to choose his favorite color. As the color was selected, it
was recorded, and the color sheet chosen was moved away from the re-
maining colors. Two more times, the subject was asked to choose his
favorite. The colors were then placed in the original position, and the
subject was asked to choose the color which best typified his present
mood, and then the color which least typified it.
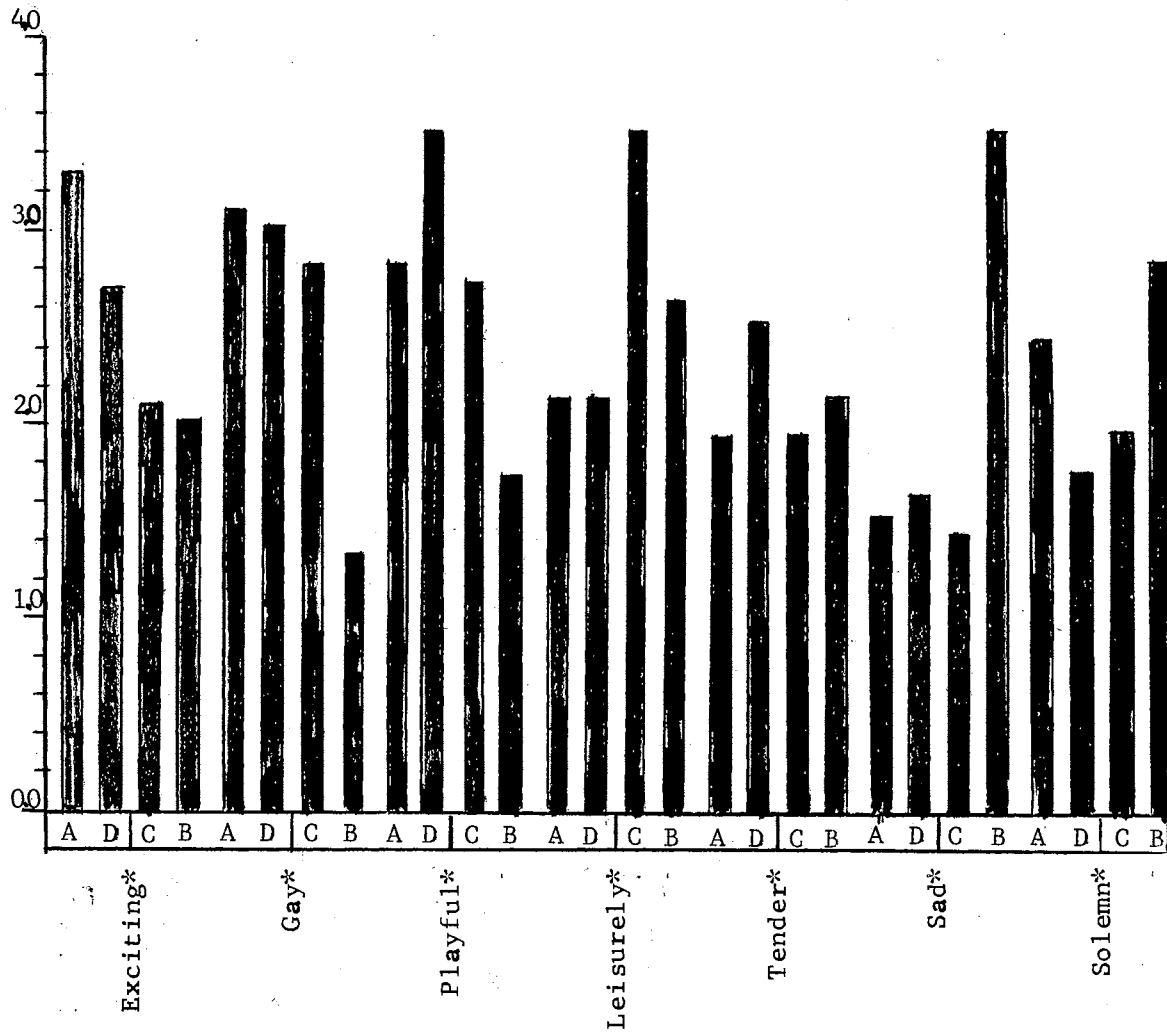
Figure 1. Scaling of Stories

Subjects then moved from the desk and sat at a table, upon which were the four excerpts placed in random order. The subject was instructed to read each of these and to make a choice of which one he preferred. It was explained that this part of the experiment was separate from the color choice, in hopes that S would not be influenced by the previous task. After S had read each of the stories, he was asked which he preferred, and was then asked to rank each of the remaining stories. Then S was asked why he preferred the one he did, and given an opportunity to review it. He was then presented with a list of the clusters in Appendix A and asked which group of adjectives best described his favorite story. Answers to the interview were recorded, and the subject was thanked and allowed to leave.

CHAPTER IV

RESULTS

In order to learn about the motivation behind mood-dependent story

choice or color choice, 32 predictions were made, 16 of which were in-

compatible with the other 16 (see Tables I and II). These predictions

were based on data on people who responded "correctly" to the question

as to which mood group the story belonged. These 82 $\underline{S}$s, as opposed to

the 27 who "incorrectly" responded, can be thought of as those who agreed

with the opinion of the scaling sample. A color choice could be made to

reflect the current mood of $\underline{S}$ (expression hypothesis), or to change that

mood if it was extreme (compensation hypothesis). A story choice, by

the same account, could also be made either to reflect current mood (ex-

pression hypothesis) or to provide an opportunity for a change in stimu-

lation necessary to change that mood (compensation hypothesis). The

specific predictions are shown in Tables I and II.

A $\underline{Z}$-test for proportions (Walker and Lev, 1969, pp. 187-189) was

used to determine if these predictions were significant. This test

measures whether one proportion is greater than could be expected by

chance alone, when comparing it to all the other alternatives. The pro-

cedure for obtaining $\underline{Z}$-scores in the case of blue color as a function of

blue color-mood choice is included as an example of the statistic in

Figure 2. It was useful in this case for weighing specific predictions

(see Tables I and II) as to whether the predicted result could have

TABLE I

PREDICTIONS UNDER COMPENSATION HYPOTHESIS

	Given		Predicted		z	Significance Level
1	First mood choice	Blue	A story choice		3.74	.001
2	"	Red	B	"	4.45	.001
3	"	Yellow	C	"	1.29	.10
4	"	Green	D	"	1.96	.05
5	Last mood choice	Red	B story rejected		1.33	.10
6	"	Blue	A	"		NS
7	"	Yellow	C	"		NS
8	"	Green	D	"		NS
9	First mood choice	Blue	Red color choice			NS
10	"	Red	Blue	"		NS
11	"	Yellow	Green	"		NS
12	"	Green	Yellow	"		NS
13	Last mood choice	Red	Blue color rejected			NS
14	"	Blue	Red	"		NS
15	"	Yellow	Green	"		NS
16	"	Green	Yellow	"		NS

TABLE II

PREDICTIONS UNDER EXPRESSION HYPOTHESIS

	Given		Predicted		z	Significance Level
1	First mood choice	Blue	B story choice			NS
2	"	Red	A	"		NS
3	"	Yellow	D	"		NS
4	"	Green	C	"		NS
5	Last mood choice	Red	A story rejected			NS
6	"	Blue	B	"		NS
7	"	Yellow	D	"		NS
8	"	Green	C	"		NS
9	First mood choice	Blue	Blue color choice		1.51	.10
10	"	Red	Red	"	7.50	.001
11	"	Yellow	Yellow	"		NS
12	"	Green	Green	"		NS
13	Last mood choice	Red	Red color rejected		2.26	.05
14	"	Blue	Blue	"	3.08	.01
15	"	Yellow	Yellow	"	1.55	.10
16	"	Green	Green	"	1.47	.10

Mood-Color Choice

	Blue	All Other Colors	
Blue	15	17	32
All Other Colors	15	35	50
	30	52	82

(Row label at left: Color Choice)

$$Z = \sqrt{\dfrac{\dfrac{15}{30} - \dfrac{17}{52} - \dfrac{82}{2(30)(52)}}{\dfrac{\dfrac{32}{82}\dfrac{50}{82}}{30} + \dfrac{\dfrac{32}{82}\dfrac{50}{82}}{52}}}$$

$$Z = 1.51$$

Figure 2. Example of Z-Score Calculation in the Case of Predicted Blue Color Choice from Blue Mood-Color Choice

occurred by chance.

First, z-tests were performed to determine what one could predict knowing the color which best described the subjects mood at the time of the story or color selection (see Tables I and II). Story predictions were significant or nearly significant in all cases under the set of predictions that a person chooses to <u>compensate</u> for his mood (Predictions 1-4, Table I). Note that red and blue moods (Predictions 1 and 2, Table I) are the strongest predictors. No significant predictions could be made under the hypothesis that one chooses a story to <u>express</u> the inferred mood (see Predictions 1-4, Table II).

Red and blue mood choices yielded significant or near significant predictions that people choose colors to <u>express</u> an emotion (Predictions 9 and 10, Table II). No mood choices predicted that one chooses a color to change a mood (Predictions 9-12, Table I). Tables III and IV show the proportion of story and color choices, respectively, based on the mood choice of the subjects.

The colors or stories least favored were then predicted from the moods which least well typified the Ss' moods. This was done primarily as a check on the suggestion that moods which are least typical of a subject's affect should enable predictions also. It performed the extra function, of testing the assumption that colors at the ends of the spectrum are less suspectible to individual differences (see discussion) than colors near the middle. Examination of the data (see Tables I and II) revealed that red and blue mood-colors (Predictions 13 and 14, Table II) could be used to predict color responses, consistent with the hypothesis that one chooses a color to identify a mood, but yellow and green mood rejections (Predictions 15 and 16, Table II) provided only

TABLE III

PROPORTIONS OF COLOR CHOICE AS A FUNCTION OF
MOOD-COLOR CHOICE

	Red	Yellow	Green	Blue
Red	.04	.00	.00	.04
Yellow	.09	.12	.09	.10
Green	.02	.06	.01	.05
Blue	.01	.11	.10	.18
	Red	Yellow	Green	Blue

First Color Choice (vertical axis label)

First Mood-Color Choice

TABLE IV

PROPORTION OF STORY CHOICE AS A FUNCTION OF
MOOD-COLOR CHOICE

		Red	Yellow	Green	Blue
	A	.01	.09	.04	.22
	D	.01	.04	.07	.07
	C	.00	.09	.05	.04
	B	.13	.09	.04	.04

First Story Choice

First Mood-Color Choice

marginally significant predictions. Tables V and VI show the proportion
of story and color rejections, respectively, based on mood-color rejec-
tions. The red mood-color rejection provided the prediction of the re-
jection of the sad story, "B" (Prediction 5, Table I). This supports
the model that story choice has the function of changing a mood. All
other predictions were nonsignificant.

When comparing those Ss who agreed with the scaling sample with
those who did not, one could deduce that if the perceived mood of the
story actually was responsible for the results cited in this study, one
might predict that the patterns of story choice should be different for
the two groups. The frequency of those choosing a given story as a
function of perceived mood are shown in Appendix C, reflecting how the
responses of the "incorrect" responders differed from those of the "cor-
rect" responders as a function of the underlying mood of the stories.
It can be seen that the patterns of incorrect responders cannot be used
as good or even fair predictors of story choice, whereas the patterns
by correct responders can.

TABLE V

PROPORTIONS OF COLOR REJECTION AS A FUNCTION
OF MOOD-COLOR REJECTION

	Red	Yellow	Green	Blue
Red	.35	.16	.05	.01
Yellow	.02	.10	.07	.01
Green	.06	.05	.02	.04
Blue	.04	.01	.02	.06

Color Rejection (row label)

Mood-Color Rejection

TABLE VI

PROPORTIONS OF STORY REJECTION AS A FUNCTION
OF MOOD-COLOR REJECTION

Story Rejection	Red	Yellow	Green	Blue
A	.08	.04	.04	.05
D	.12	.07	.01	.05
C	.12	.08	.04	.02
B	.15	.10	.01	.00

Mood-Color Rejection

CHAPTER V

DISCUSSION

It is apparent from the data that the appropriate model for color
choice behavior predicts that a color is chosen to express the current
mood of the subject. Story choice, on the other hand, seems to have the
function of changing that mood, especially if the mood is "extreme."
Thus, story choice can be predicted from color-expressed mood fairly
well by hypothesizing that the mood expressed by the color will have the
opposite characteristics from the mood expressed by the story. In other
words, if one chooses red as reflecting his mood, he is most likely to
choose a sad story, because red presumably connotes excitingness, and
sadness seems to constitute a very different kind of mood. By the same
token, one who chooses blue to express his mood is most likely to choose
an exciting story. The choice of yellow would predict a leisurely
story, but only if the optimal mood state of the individual was some-
where between playful and leisurely. Individual differences in color
and story choice would be expected to be proportionally greater among
the people who chose either yellow or green to reflect their mood, be-
cause these would not usually be considered indicative of extreme mood
states and other factors would play a relatively larger role in formu-
lating preferences.

In light of the concept of "optimum stimulation level" (Leuba,
1965), one can see a strong possibility of a compensatory mechanism

concerning short story fiction reading choice (see "Development of Problem" section). It would be unlikely, from this point of view, that the "optimal mood state" (which is considered here to be a reflection of "optimum stimulation level") would be reflected by a color indicative of an extreme mood state, such as red or blue. On the other hand, green and yellow mood choices, which are considered to be less extreme, would be more likely to reflect this optimal state. This leads to the assumption that the "optimal mood state" is in many cases between yellow and green. It appears quite likely, in view of this consideration, that the function of mood-dependent short story choice is to bring the S back to this "optimal state."

In view of the evidence that prolonged exposure to color might affect mood state (Aaronson, 1964, 1967, Zajonc, 1968) it was thought that the relatively short amount of exposure to the colors would provide little chance to effect a change in mood-state. For this reason, it is quite predictable that color choice would have a different function than short-story choice, namely that of mood-identification.

It is important to note (Table I) that the red and blue mood choices yield results of greater statistical significance than those of yellow or green. Furthermore, it supports the assumption that individual differences have less effect on the more extreme moods indicated by the choice of red or blue mood choices.

When predicting color choice from mood there is a tendency for blue mood responders to choose blue more frequently than would be expected by chance. This tendency is not as strong, however, as in the case of red mood responders. Yellow and green mood choices apparently have no significant predictive power. These data might be explained by the

observation that yellow and green mood-states are less extreme than those

of red or blue, and hence, that "yellow" or "green" moods may be insuf-

ficiently "extreme" to bring about a preference for colors expressing

these moods.

The fact that the blue mood choice yields poorer predictive power

with regard to color preference than the red mood choice is puzzling.

It is plausible that "red" moods, being relatively rare, would necessi-

tate greater definition and, therefore, expression. "Blue" moods on the

other hand, may be more socially acceptable and common, and may there-

fore, not require so strong an expression. This seems doubtful if one

examines the predictions made by rejected moods, however, as rejected

color choices should be less susceptible to choice stereotyping: one

can in fact predict the rejected color when the last mood choice is blue

better than if the last mood choice is red. Thus, it seems more likely

that blue responders are more stereotyped in their first color choices

than red responders. In other words, it seems as though mood may have

less of a bearing on the first choice responses of the blue responders

than on the first choices of the red responders. Naturally, if this

were true, one still might expect some relationship between mood-color

and story choice.

Subjects who chose red and who responded in agreement with the

scaling sample favored story "B"; the ones who responded "incorrectly"

favored story "D" (see Appendix C). "Correct" responders who chose the

color blue tended to choose story "A"; "incorrect" responders tended to

choose story "D". "Correct" responders to the color yellow tended to

choose story "B"; however, the "incorrect" responders were more likely

to choose story "D". Green "correct" responders tended to choose story

"D", and "incorrect" responders chose all stories equally. It is inter-
esting to note that all "incorrect" responders except two who chose "B"
thought of this story as leisurely. The evidence seems to favor, there-
fore, the assumption that mood was the critical variable involved in this
experiment.

Implications and Suggested Research

It is important to find that under limited choice situations one
function of fiction short story choice is to elevate or depress the
reader's mood to approach an "optimum" mood level. It is also useful to
know that color choice correlates highly with the identification of a
mood-state. Although these findings satisfy the stated major purpose of
the paper, other, perhaps farther reaching implications can be drawn.

Since the idea that affective stereotypes exist for color has been
well supported (Ross, 1938; Wells, 1910; Hevner, 1935; Odbert, Karwoski
and Eckerson, 1942; Aaronson, 1964; etc.), the introduction of mood-
color synethesia as a tool was logical. This may well prove to be an
excellent indirect method of gauging mood, which is frequently a diffi-
cult research problem. By asking a subject what color expresses hid
mood best, one is less likely to receive defensive reactions to the in-
quiry than if one were to ask him to describe his mood. This is an ad-
vantage which compensates in part for the indirectness of the method.

Other research implications stem from the inferential tests which
suggest particular motivational patterns. The simplicity and objectivity
of a method for inferring motivation involving only simple choices should
have obvious advantages over other forms of motivational research. Per-
haps this may lead to a system of inferring personality characteristics

involving motivation by a battery of choice situations. Luscher (in Scott, 1969) has already made inferences about personality from a simple choice test, namely the choosing of colors.

Perhaps one of the most important implications of the present research is that different choice situations may have different functions with regard to the organism. This may be responsible for variations in the results of exploratory preference studies, like those mentioned by Berlyne (1965, 1969).

Color is certainly one of the simplest exploratory materials, whereas short stories are quite complex. Perhaps one can gain insight into the mechanisms of simple material exploration as opposed to complex material exploration. When simple materials have been studied, choice-variables have been comparatively easy to locate. This is not true of complex materials. Perhaps, simple materials really offer little chance for the subject to change this stimulation level. He therefore could simply identify some feature of the material which contributes to a higher stimulation value. In the case of those simple materials used by Berlyne (1965) the most complex may still be insufficient to produce a stimulation effect greater than the level desired by the subject. Remembering that the lack of stimulation is unpleasant to most people (Schultz, 1967), one can see that the most likely recourse would be to choose the most complex or unusual pattern when dealing with simple materials. Complex patterns, on the other hand, may give some subjects a chance to become involved in the material so that a stimulation level change may be effected. Some of the patterns, because of their complexity, could conceivably over-stimulate the individual, depending on his mood or level of stimulation prior to the presentation. Since the

complex patterns offer more of a chance to change his stimulation level, the subject would most likely choose a pattern which would bring him nearer to his optimal stimulation level. This, of course, would not necessarily be in the direction of increased complexity or uniqueness. The choice might therefore be less predictable, resulting in more confusing and contradictory data.

The data strongly support a stimulation model of exploratory behavior. According to this model an organism tends to explore materials which raise or lower the stimulation level to a certain level, the level probably fluctuating not only between individuals but also to some degree within the organism.

Another implication of the present study is that, since mood is at least in part responsible for short story choice, the reading material one chooses is likely to reflect a mood which is other than optimal. Thus, clinical observations of chosen stories could provide the therapist with a simple measure of how a given patient's mood changes. Observations of other choice behaviors could also perhaps give information to a keen observer. More research is indicated to determine what other various choice behaviors are likely to reflect. Mood might also be manipulated experimentally, either by drugs or by manipulations of cognitive tasks designed to elate or depress subjects involved in story or color choice situations.

Other research questions which could prove rewarding include whether complex materials produce similar choice reactions to those of simpler materials, providing the subjects' moods were artificially depressed. Further research concerning the color-mood synesthesia needs to be done. It could be possible that one could gauge an individual's mood by a

paired-comparison technique involving colors differing only in very specific wavelengths. The relations between chosen stories and moods could also be further investigated by pairing story choices with observations of facial expressions, which have been shown to be "good" measures of affect. Story choices could also be recorded among various types of disturbed patients, in order to further understand their moods, which are sometimes difficult to evaluate. This study could lead to many other investigations. The opportunities for exploratory research involving the printed page as a natural field are virtually boundless.

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APPENDICES

APPENDIX A

WORDS USED IN WELLS (1910), HEVNER (1935), ROSS (1938), AND ODBERT, KAR-WOSKI AND ECKERSON (1942)

Solemn*	Sentimental*	Graceful
Spiritual*	Yielding	Gay*
Lofty*	Longing*	Happy*
Awe-inspiring*	Yearning*	Merry*
Dignified*	Pleading*	Joyous*
Sacred*	Plaintive*	Cheerful*
Sober*	Leisurely*	Gay*
Serious*	Serene*	Bright*
Sad*	Tranquil*	Exciting*
Pathetic*	Lyrical	Sensational*
Doleful	Leisurely*	Agitated*
Mournful*	Satisfying	Soaring*
Tragic*	Quiet*	Exhilarated*
Melancholic*	Soothing*	Passionate*
Frustrated	Playful*	Triumphant*
Depressing*	Fanciful*	Impetuous*
Gloomy*	Quaint*	Restless
Heavy*	Sprightly*	
Dark*	Delicate	
Tender*	Light*	
Dreamy*	Humorous*	

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*Indicates words used in scaling stories which were selected for materials in this study. These words were less likely to be confused with author's style, character, or reader experience. Underlined words refer to categories.

APPENDIX B

SHORT-STORY EXCERPTS

This is the First Page of Story "A"

    Uncle John rode behind the boy in silence, secure in the knowledge which the other was still too green to know--that he had taught the finest knight in Europe. He was still carrying the fighting harness, which was strapped up in fine order, for, from now on, he was Harold's squire.

    They came to a clearing in the wood, and a little stream ran through the middle. There was a ford here and the stream roared over the clean stones, only a few inches deep. On the other side of the rushing water, there was an enormous knight in black armour with his helmet visor in position. He sat motionless on a black charger and his shield was still in his canvas case. It was impossible to resist his threat. The great helm overshadowing his face, he had the look of imminent danger about him. You did not know what he was thinking, nor what action he might be going to take. He was a menace.

    Harold halted, and so did Uncle John. The black knight walked his horse into the shallow water, and drew rein in front of them. He raised his lance in a gesture of salute, then pointed with it to a place behind Harold's back. Either he was telling him to go home again, or else he was pointing out a good position from which they could start their charges. Whichever the case might be, Harold saluted with his gauntlet and turned round to go to the place. He took one of his spears from Uncle John, pulling his visor around in front of him. He laced it on. Now he too had become a man without expression.

    The two knights faced each other from opposite ends of the small shoal. Then, although neither of them had so far spoken a word, they readied their spears, put spurs to their horses, and began to charge. Uncle John, drawn up sagely behind a near-by tree, could hardly contain his delight. He knew what was going to happen to the black knight, although Harold did not know, and he began to snap his fingers.

    The first time you do a thing it is often exciting. He blood surged in Harold's veins and his heart was in his throat. Harold had never ridden a serious jouse before-- and, although he had charged at hundreds of quintains and thousands of rings, he had never taken his life in his hands in earnest. In the first moment of the charge, he felt to himself: "Well, now I am off. Nothing can help me now." In the second moment he settled down to behave automatically, in the same way as he had always done with the quintain and the rings. At once Harold felt his heart surge as his steed surged forward. Man and horse were one, and they were off!

    The point of his spear took the black knight under the rim of his shoulder-harness at exactly the right place. His mount was in full gallop and the black knight's was still in a canter. The black knight and his horse revolved rapidly toward their sinister side, left the ground together in a handsome parabola, and came down again with a clash. As Harold rode by, he could see them sprawling on the ground together with the knight's broken lance between the horse's legs and one flashing horseshoe tearing the canvas from the fallen shield. The man and the horse were mixed together. Each was afraid of the other, and each was kicking against the other in the effort to be parted. Then the horse got up on its forelegs, its haunches heaved upright, and the knight sat up, lifting one steel gauntlet as if to rub his head. Harold reined in

and rode back to him.

Generally, when one knight had given another a fall with the lance, the fallen one used to lose his temper, blame the fall on his horse, and insist upon fighting it out with swords on foot. The black knight was still strong, and many pounds heavier than Harold. His broadsword glittered by his side. If he took the usual course, and decided to fight it out, he would be almost certain to win.

The black knight, however, did not do the usual thing. He was evidently a more cheerful kind of person than the colour of his armour would suggest, for his sat up and blew through the split of his helm, making a note of surprise and admiration.

This is the First Page of Story "D"

Westchester is what is known as an old foundation. This means the plumbing is atrocious, the quarters cramped and the discpline Spartan. I was boarded in the house of a Mr. Fletcher, a crouched man with pebble-glasses and an absurdly foul temper. It is the custom at board-ing schools for the housemasters to be married and in this Mr. Fletcher was no exception. His taste and luck had been extraordinary, but for a man of his character, he was certainly not to be pitied. Rhoda, as she was called, was a good 10 years his senior, which at the time seem hoary indeed, although Mr. Fletcher was probably not quite 40. There was a tale around the school that she used to be quite becoming when she wore make-up, but decided to forego that pleasure the day she got married. They said old Fletcher got his glasses the week after...

I was approaching my seventeenth birthday, I suppose, when I noticed she had been uncommonly kind to me. If you are kept of Latin elegiacs and cross-country runs over a period of years, it is surprising how one notices attention of that sort, regardless of how old the woman might be.

Fletcher was obviously in a bad mood that morning.

"Jones, would it be too much to ask you to confine your unquestion-able conversational gifts to the Debating Society? I am attempting to instruct you."

"I'm sorry sir; I was asking for a piece of paper."

"Your sorrow, Jones, is of lesser moment to me than your silence. I may proceed?"

I mumbled that he could do as he bloody well liked. There was a pause, and I noticed a glare from the eyes of the man facing me.

Fletcher began to tap a small ruler slowly on his desk.

"You said?"

"Please continue sir."

There were only six of us in the group and the whole scene was ridiculous. No other master would have dreamt of addressing seniors like children. It suddenly occurred to me that I could knock Fletcher's head off, and I regretted his glasses.

The lesson proceeded. We wrote and he talked occasionally. There was a short pause, then, two minutes before the end of class, it flared up again.

"What are you grinning about, Jones?"

The sun was blazing in through the window and I was thinking about cricket that afternoon. To disturb my revery and stop the sound of the imaginary cricket bat was almost unpardonable. I got annoyed.

"It was a congental tic, sir, nervously acquired from my paternal grandfather who was well known in the village as Soft Charly."

His eyes swam forward against his lenses like tadpoles.

"Are you trying to be insolent, Jones?"

"Yes, sir."

He moved toward me and I rose in my seat and looked at him. We looked at each other. The bell went. Somebody muttered "round's out" and I laughed and Fletcher went back to his desk to collect his papers.

Fletcher's wife came into the room. Evidently she and her husband had had a spat, and she stared at me a while, but finally smiled. "Hello, Jones," she said, "forgive me for interrupting you, but I felt I must congratulate you for your performance. That was beautiful, you

must come over some time for tea." My respect for her immediately increased. It was evident she knew charm when she saw it. If only I hadn't stumbled and nearly fallen when I tried to get up from my desk to address her. I mumbled something incoherent and said that would be roaring. There was nothing to do at this point but accept.

This is the First Page of Story "C"

What a fantastic weekend for a camping trip, thought Jack as he un-packed his things from the car. It seemed hard to believe that just a day before he had been in the bustling city, thinking over his life and talking to his friends. It was then they had decided to go out to the lake.

"Bring me down my bedroll," Chuck shouted from the bank of the lake, "I'll make the fire, and we can go swimming while the coals get hot enough to make supper."

As he he looked down towards shore, Jack's mind began to wander. It was almost hard to imagine swimming that beautiful spread of water. There it stood, serene and alone, without so much as a ripple to break its glassy surface. Its blue-green water at once inviting and soothing, also was cool and almost desolate. How the lake reflected the way he felt; peaceful, yet alone and separate from the rest of the world.

As the soft May breeze blew across the water it created ripples, which broke the surface occasionally, and flowed in an easy uninterrupted rhythm which beat softly on the beach. Gary came up to the car and helped Jack carry the things down to the beach. He produced a case of Dr. Peppers which he had tucked under a bed of ice in the back of the car, and sat down on the warm sand. After opening three of them, he leaned back, and closed his eyes as if to take a nap. His voice rose softly above the noice of the crackling of kindling, and he spoke in deep, relaxed tones. "It seems as if the whole world stops here. I'll bet there aren't three more people between here and the dam. It's aw-fully quiet here."

Just then, Chuck suggested swimming, and Gary rose from his prone position, suddenly alive and full of spirit. They ran into the waiting surf, while Jack slowly followed behind. It seemed to him that you shouldn't rush through experiences like he was having at that moment. It was better to take things slowly, and savor them, like fine old wine. Something about the excursion worried Jack, but he shrugged it off with-out analyzing why. He reached the shore and gracefully dove in. Sud-denly feeling the cold, he re-emerged some 10 feet from where he started, and sputtered out, his eyes frozen shut and his mouth open wide. He shook his head and began swimming forward while Gary and Chuck watched. About a hundred yards out, he found what he was looking for. The experience of standing straight up on the sand bar, brought back memories of when he was in junior-high. It was the last time he had been there, and he had lost a valuable ring that his father had given him for his birthday. He signalled for the others to come out, and dove, scouring the bottom, but not really expecting to find anything. His friends came out too, and searched with him, but found no trace of the ring. They had just found some shells and an interesting fossil, when Gary noticed some ominous thunderclouds in the distance. They all agreed that they had better go back to shore and cook, before the storm burst.

Everyone grabbed his own steak and began cooking them over the coals, turning them with coat hanger grills which they had made before leaving. They dug up the potatoes that they were baking, and ate until it seemed they could hold no more. The trio then got up and retrieved their guitars from among the baggage.

No one among them realized how many songs they had remembered since

their days when they were among the members of a prominent rock-group in high-school, but they sang a good bit until the clouds completely darkened the horizon. Out of the bushes from their left, they heard a noise that was unmistakeable. They were not alone! The voices were human. "We heard your sound and decided to come over and see what you were all about." Evidently this stranger had come in peace. He did <u>look</u> strange, but then again, his manner put them right at ease.

This is the First Page of Story "B"

Peter Bulanin was spending the summer in the country with the family of his cousin, a teacher of philology. Bulanin himself was a young advocate of thirty years of age, having finished his law courses at the university only two years before.

The past year had been a comparatively fortunate one. He had successfully defended two criminal cases on the nomination of the court, as well as a civil case undertaken at the instigation of his own heart. All three cases had been won by his brilliant pleading. The jury had acquitted the young man who had killed his father out of pity because the old man fasted too assiduously and suffered in consequence; they had acquitted the poor seamstress who had thrown vitriol at the girl her lover had wished to marry; and in the civil court the judge had awarded the plaintiff a hundred and fifty pounds, saying that his rights were indisputable, though the defendant asserted that the sum had previously been paid. For all this good work Peter himself had received only fifteen pounds, this money having been paid to him by the man who had received the hundred and fifty.

But, as will be understood, one cannot live a whole year on fifteen pounds, and Peter had to fall back on his own resourses, that is, on the money his father sent him from home. As far as the law was concerned there was as yet nothing for him but fame.

But his fame was at present not very great, and as his receipts from his father wer but moderate, Peter Bulanin often fell into a despondent and elegiac mood. He looked on life rather pessimistically, and captivated young ladies by the eloquent pallor of his face and by the sarcastic utterances which he gave forth on every possible occasion.

One evening, after a sharp thunder-storm had cleared and refreshed the air, Peter Bulanin went out for a walk alone. He wandered along the narrow field paths until he found himself far from home.

A picture of entrancing beauty stretched itself out before him, canopied by the bright blue dome of heaven besprinkled with scattered cloudlets and illumined by the soft and tender rays of the departing sun. The narrow path by which he had come led along the high bank of a stream rippling along in the winding curves of its narrow bed-- the shallow water of the stream was transparent and gave a pleasant sense of cool freshness. It looked as if one need only step into it to be at once filled with the joy of simple happiness, to feel as full of life and easy grace of movement as the rosy-bodied boys bathing there.

Not far away were the shades of the quiet forest; beyond the river lay an immense semicircular plain, dotted here and there with woods and villages, a dusty ribbon of a road curving snake-like across it. On the distant horizon gleamed golden stars, the crosses of far-away churches and belfires shining in the sunlight.

Everything looked fresh and sweet and simple, yet Peter was sad. And it seemed to him that his sadness was but intensified by the beauty around; as if some evil tempter were seeking to allure him to evil by some entrancing vision.

For to Peter Bulanin all this earthly beauty, all this enchantment of the eyes, all this delicate sweetness pouring itself into his young and vigorous body, was only as a veil of golden tissue spread out by the

devil to hide from the simple gaze of man the impurity, the imperfection, and the evil of nature.

This life, adorning itself in beauty and breathing forth perfumes, was in reality, thought Peter, only the dull prosaic iron chain of cause and effect--the tiresome and burdensome slavery from which mankind could never get free.

Tortured by such thoughts, Peter Bulanin had often felt himself as unhappy as if in him there had awakened the soul of some ancient monster who had howled piteously outside the village at night.

APPENDIX C

COMPLETE RAW DATA

A. Correct Responders

Mood Choice		Color Choice				Story Choice			
1	4	1	2	3	4	1	2	3	4
B	G	B	Y	G	R	A	C	B	D
B	G	B	Y	R	G	C	B	D	A
B	G	Y	B	G	R	A	B	D	C
B	G	Y	B	R	G	A	B	D	C
B	Y	B	G	Y	R	D	A	C	B
B	Y	B	G	R	Y	A	B	D	C
B	Y	B	Y	G	R	A	B	D	C
B	Y	B	Y	G	R	A	D	C	B
B	Y	B	R	T	G	A	D	C	B
B	Y	G	B	Y	R	D	A	C	B
B	Y	G	B	R	Y	D	C	B	A
B	Y	Y	B	G	R	A	B	D	C
B	Y	Y	B	G	R	A	C	B	D
B	Y	Y	B	G	R	A	D	C	B
B	Y	Y	G	B	R	C	B	D	A
B	Y	Y	G	R	B	B	D	C	A
B	Y	R	B	G	Y	A	C	B	D
B	R	B	G	Y	R	D	A	B	C
B	R	B	G	R	Y	A	C	B	D
B	Y	B	G	R	Y	A	D	B	C
B	R	B	Y	G	R	D	A	B	C
B	R	B	Y	G	R	A	B	D	C
B	R	B	Y	G	R	A	B	D	C

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Mood Choice		Color Choice				Story Choice			
1	4	1	2	3	4	1	2	3	4
B	R	B	Y	G	R	A	C	D	B
B	R	B	R	G	Y	A	C	D	B
B	R	G	Y	B	R	C	A	D	B
B	R	G	Y	B	R	A	C	D	B
B	R	Y	G	R	B	D	C	A	B
B	R	R	B	Y	G	B	D	A	C
B	R	R	Y	B	G	B	D	C	A
G	R	B	G	Y	R	C	D	B	A
G	Y	B	G	Y	R	D	A	B	C
G	Y	B	G	R	Y	C	B	A	D
G	Y	B	G	R	Y	D	B	C	A
G	Y	B	G	R	Y	A	C	D	B
G	Y	B	Y	G	R	C	D	A	B
G	Y	B	R	G	Y	A	B	C	D
G	Y	Y	G	B	R	A	D	C	B
G	R	B	Y	G	R	D	C	A	B
G	R	Y	B	G	R	D	B	A	C
G	R	Y	G	B	R	B	D	A	C
G	R	Y	G	B	R	C	B	D	A
G	R	Y	G	B	R	D	B	A	D
G	R	Y	G	R	B	D	C	A	B
G	R	Y	R	G	B	B	D	C	A
G	R	G	B	Y	R	B	C	D	A
Y	B	B	G	Y	R	B	A	C	D
Y	B	B	R	Y	G	C	D	B	A
Y	B	G	B	R	Y	D	B	A	C
Y	B	Y	B	R	G	C	D	B	A
Y	B	Y	G	R	B	D	B	A	C
Y	G	Y	B	G	R	C	D	A	B
Y	R	B	G	Y	R	A	D	C	B
Y	R	B	Y	G	R	B	D	C	A
Y	R	B	Y	G	R	C	A	B	D
Y	R	B	Y	G	R	A	C	B	D

Mood Choice		Color Choice				Story Choice			
1	4	1	2	3	4	1	2	3	4
Y	R	B	Y	G	R	A	D	C	B
Y	R	B	Y	G	R	A	B	C	D
Y	R	B	R	Y	G	A	D	C	B
Y	R	G	B	Y	R	B	C	A	D
Y	R	G	B	Y	R	B	C	A	D
Y	R	G	B	Y	R	D	A	B	C
Y	R	G	B	Y	R	A	B	C	D
Y	R	Y	B	G	R	B	D	A	C
Y	R	Y	G	B	R	C	D	B	A
Y	R	Y	B	R	G	B	D	A	C
Y	R	Y	B	G	R	A	D	C	B
Y	R	Y	B	R	G	C	D	A	B
Y	R	Y	B	G	R	C	A	B	D
Y	R	Y	G	B	R	B	A	C	D
R	B	Y	G	R	B	B	A	C	D
R	B	Y	G	R	B	B	A	C	D
R	B	Y	R	G	B	B	D	C	A
R	B	R	B	Y	G	B	C	A	D
R	B	R	Y	G	B	B	C	D	A
R	G	B	Y	G	R	A	B	D	C
R	G	Y	G	R	B	B	C	D	A
R	G	Y	R	G	B	B	D	C	A
R	Y	G	B	Y	R	B	D	A	C
R	Y	G	B	Y	R	D	B	A	C
R	Y	Y	B	R	G	B	C	A	D
R	Y	Y	B	R	G	B	C	A	D
R	Y	R	B	Y	G	B	D	C	A

B. Incorrect Responders

Mood Choice		Color Choice				Story Choice				Story Mood Description
1	4	1	2	3	4	1	2	3	4	
B	G	B	Y	G	R	D	B	C	A	Leisurely
B	G	B	G	R	Y	B	D	C	A	Exciting
B	Y	Y	B	G	R	D	A	B	C	Exciting
B	Y	Y	B	G	R	D	B	C	A	Exciting
B	Y	Y	B	G	R	D	B	C	A	Leisurely
B	R	B	G	Y	R	B	C	D	A	Exciting
B	R	B	Y	G	R	C	A	B	D	Playful
B	R	G	Y	R	B	C	D	B	A	Playful
B	R	Y	S	G	R	B	D	A	C	Leisurely
G	B	B	G	R	Y	B	C	D	A	Leisurely
G	B	Y	B	G	R	A	C	D	B	Sad
G	Y	B	G	R	Y	D	B	A	C	Exciting
G	Y	B	R	G	Y	D	B	A	C	Sad
G	Y	G	Y	B	R	A	B	C	D	Exciting
G	R	B	G	Y	R	B	C	D	A	Leisurely
G	R	B	G	Y	R	C	D	B	A	Gay
G	R	G	B	Y	R	D	A	C	B	Sad
G	R	Y	G	B	R	D	A	C	B	Sad
G	R	R	B	G	Y	D	C	A	B	Leisurely
G	R	B	Y	G	R	D	B	A	C	Exciting
Y	R	B	Y	G	R	D	B	A	C	Exciting
Y	R	G	Y	B	R	B	D	C	A	Leisurely
Y	R	Y	B	G	R	D	B	A	C	Leisurely
Y	R	Y	G	B	R	C	D	A	B	Gay
R	Y	B	Y	G	R	D	A	C	B	Exciting

VITA ^{2}

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