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Rorschach Content of College Students

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RORSCHACH CONTENT OF COLLEGE STUDENTS

by

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LIFE

William S. McGurk was born in Boston, Massachusetts, on August 20, 1936. He was graduated from Boston College with a Bachelor of Science degree in June, 1958. He began his graduate studies at Loyola University in September, 1958, and received his Master of Arts degree in February, 1962.

From February, 1959 to September of 1960 he was employed in the Psychiatric Department of the Cook County Family Court as a Psychometrist. He began the Veterans Administration training program for Clinical Psychologists in October, 1960, and spent one year at Downey Veterans Hospital, one year at Hines Veterans Hospital, and is presently employed at the V.A. Mental Hygiene Clinic in Chicago.

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CHAPTER I

STATEMENT OF THE PROBLEM

Introduction

It is only in recent years that investigators have focused attention
upon Rorschach content analysis in the clinical or in the experimental litera-
ture. A possible reason for this previous lack of emphasis on content may be
related to Hermann Rorschach's special stress on the structural aspects of
perception. He stated that, "the content of the interpretations offers
little indication as to the content of the psyche. . ." (Rorschach, 1942, p.
122). Today, however, interest in Rorschach content is growing, and many
Rorschach workers feel that Rorschach's basic theory "does not necessarily
generate the kind of structural emphasis his thinking took" (Rychlak and
Guinouard, 1960). They believe that "past experience determines in part an
individual's present interpretive proclivity and that certain personality
types will report certain contents in common when asked to view an amorphus
inkblot stimulus." In a paper published in 1959, Shapiro attempted to show
that it is not intrinsic to the test to consider the determinants more
important than the content. On the contrary, each aspect can be properly
understood only in the light of the other. Furthermore, he feels that these
two dimensions offer a built-in criterion of adequacy and make correctness
more likely. To support his view Shapiro makes the point that determinants
are insufficiently specific because of the nature of perception. They will
never become more specific because "formal modes of perception come into

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being only with some sort of ideational content and it is this content which crystallizes their final and specific shape." Schafer (1958; 1960) has made the point that content and form interpenetrate and that they mutually define each other, and that every aspect of the response must be examined if we want a total picture from the test data. Levy (1955) has shown that it is the mode of verbalization that essentially determines the test scores in terms of determinants.

A review of the historical trends shows that many psychologists were becoming gradually discouraged with the use of the structured components of the Rorschach as an experimental device to predict behavior (Thurstone, 1948; Baughman, 1958). Zubin (1954; 1956) criticized the Rorschach scoring determinants as lacking validity. The same investigator, however, recognizes that the Rorschach as a whole can be a useful clinical tool when the context of the content of the response is taken into account. Wheeler (1949) mentions that "the use of the content--i.e., what is seen per se in the projective material-- in the analysis of projective techniques is almost as old as the techniques themselves." He mentioned that Parson, as early as 1917, had analyzed the responses of children describing characteristics of their imagination.

Today, the uses of Rorschach content is an integral part of the psychologist's regimen in diagnostic techniques. In addition, it is now being used in research and as part of a more broad attempt to construct measures for prediction and for the evaluation of specific traits. For example, Weil (1951) reports the use of Rorschach content for professional selection, and Piotrowski (1952; 1961) uses content in determining prognosis in schizophrenia.

The majority of normative studies dealing with Rorschach content

reported in the literature are concerned with clinical groups. There are
fewer norms reported for normal populations, and many of these were simply
used as control groups for certain pathological types. Among these normal
samples reported, there is no specification of the norms for college students,
which is of specific concern to this paper. Ames, Metraux, and Walker studied
an adolescent group in 1959. Beck, Rabin, Thiessen, Molish, and Thetford
(1950) reported the results for a group of 157 normal subjects. Finally,
Harrower-Erickson and Steiner (1945), in using the group Rorschach, present
their findings regarding content for four groups: college age group, adults,
prison inmates, and psychotics and psychopathic personalities. However, in
this latter study, percentages are reported instead of averages which makes
comparison very difficult. These studies will be more fully reviewed in a
following chapter.

Purpose of the Study

In order to fill the gap that exists in the literature concerned with
Rorschach content, there will be a normative description of the Rorschach con-
tent of 300 college students. The differences that are found will be evalu-
ated and discussed and a comparison made with other normative studies. Inter-
pretive hypotheses will also be presented in relation to any group personality
differences that are found to exist among five educational levels (freshmen,
sophomores, juniors, seniors, and graduate students). That is, an attempt
will be made to explain the differences that occur among the groups in terms
of personality variables, as defined by the past findings with regard to the
meaning of the specific content scores. Although some authors stress the
need for an "in context" interpretation of the meaning of specific Rorschach

responses, most agree that there are certain basic hypotheses that can be legitimately offered with repsect to the meaning of some of the more frequently used content categories. The hypotheses that have been obtained from the literature dealing with Rorschach content analysis can be found in Chapter II.

The use of interpretive hypotheses in this way is very similar to the procedure involved in determining "construct validity." The use of constructs as part of the experimental design of psychological research has recently received considerable attention in the literature. English and English (1958) define a construct as "referring to an entity or process that is inferred as actually existing (though not at present fully observable) and as giving rise to measurable phenomena, including phenomena other than the observable that led to hypothesizing the construct" (p. 116). Peak (1953) stated that "a construct is some postulated attribute of people assumed to be reflected in test performance." Bechtoldt (1959) points out that construct validity "involves the acceptance of a set of operations as an adequate definition of whatever is to be measured." However, he rejects it as being "unscientific." On the other hand, MacCorquodale and Meehl (1948) and Cronbach and Meehl (1955) stress the need for this approach to interpretation of psychological data, and set down certain rules to be followed in its use. Ebel (1961) also stresses the need for a construct approach in psychological research in direct contrast to more "empirical" methods. In relation to this, he points out the folly of an infinite regression of inadequate criteria with which researchers sometimes become involved. Rychlak (1959) further emphasizes that construct validity (common sense as he calls it) is an essential part of the nature of evidence and at times takes precedence over empirical validity. Brown (1953) has gone

so far as to formulate a series of 15 hypothetical-deductive constructs and proposes them as a foundation and rationale for construct interpretation (see Chapter II). Thus, the approach used in this paper has a definite precedent.

In relation to the content interpretation, an attempt will be made to define a "Rorschach content maturity index," by comparing the performance of freshmen and seniors in relation to specified indices of immaturity as reflected in content. It is assumed that freshmen as a group will exhibit more signs of immaturity than seniors for many reasons, e.g., they are younger, less well educated, and many of the very inadequate people drop out of school before the senior year. The hypothesis is that through the process of being educated, the student should acquire a greater sense of well being, of social belonging, and more finesse in dealing with people. If this is true, it should reflect itself in Rorschach content. The following indices were selected as reflecting immaturity: (H), hd, A, cloud, fire, food, nature, water, low R, and restricted variety of content. Those content categories listed that are not found to distinguish between the two groups regarding the relative presence or absence of immaturity will be dropped from the scale. Those indices that are found to differentiate will be indicated.

Finally, there will be an attempt to determine the relationships that exist between the total number of responses per Rorschach record, and the number of responses within the most frequently used content categories. In other words, the question asked is what happens to the content categories as the number of responses increases in a Rorschach record? Murstein (1960), for example, stresses that until this relationship is known, "interpretive implications or clusters of signs from projective techniques (will be) meaningless.

(p. 272). Cronbach (1949) also stresses that the relationship between the number of responses per record and other Rorschach variables is relatively unknown, and may tend to distort the results of attempted research. He further makes the point that the lack of knowledge of this relationship poses the biggest problem with regard to statistical manipulation of Rorschach data. Fiske and Baughman (1953), recognizing this need, did some preliminary study concerning this relationship, with the particular purpose in view of allowing the Rorschach to be used in a more empirical or quantitative manner. However, the relationships between R and the Rorschach variables were not defined explicitly in this study; they were simply pointed out as trends. They compared a normal and an abnormal group, and among other factors, studied several of the content categories. There conclusions were as follows:

1. The relationships between R and each scoring category often appear to be complex and non-linear.
2. The forms of the relationship with R seem to vary for the various categories although some have similar patterns.
3. The forms of the relationships with R are fairly similar for the normal and the outpatient groups.
   On the basis of these data, we agree with Cronbach (1949) that scores based on frequencies of responses in particular scoring categories are unsatisfactory psychological measures and that taking these scores as percentages of R is only a partially adequate solution to the problem. For research on the dimensions of personality, improved measures must be developed for promising Rorschach variables (p. 32).

Wittenborn (1950), in a factor analytic study, found no evidence of non-linear relationships with R among Rorschach variables, which is in direct contrast to Fiske's results (p. 263). Wittenborn has been severely criticized by Glickstein (1959) for not adequately controlling for R in his study. Glickstein claims that the correlations obtained in this (or any other) factor analysis would tend to be inflated measures, and result in spuriously

high communalities. Generally, it can be described as the inflation of a correlation between two variables which can be attributed to their mutual dependence on a third variable. Glickstein re-tabulated Wittenborn's data using a partial correlation technique. However, this method does not appear to be entirely satisfactory as a substitute; the valuable "productivity" factor (R) is eliminated from consideration. In addition, Glickstein recognizes that the partial intercorrelations of any small number of mutually exclusive categories are forced to tend toward negative value.

Wittenborn responded to Glickstein's criticism by stressing that the two differed in their views concerning the nature of the R variable (1959). According to Wittenborn, the number of responses in the various scoring categories determines R, and R does not delimit the number of responses in any scoring category. Accordingly, he does not consider it useful to regard R as a common third variable. However, there does not appear to be any real evidence for this conclusion reported in the literature. Conversely, Murstein (1960) stresses that this relationship is unknown, and goes so far as to caution his readers against even attempting a factor analysis with Rorschach data. The above authors do not report correlations for content categories in relation to R.

There have been several alternative procedures suggested for resolving the problem of controlling for individual differences in the production of R. Harrower-Erickson (1945) reports percentages rather than means or medians. However, this presents statistical complications and often fails to achieve the desired independence from R (Fiske, 1953; Beck, 1944; Cronbach, 1949). Eichler (1951) has employed the analysis of covariance to adjust for

differences in R. Such an analysis makes the groups comparable in the productivity factor by determining how much of the variance in the particular Rorschach score can be predicted from total responsiveness, and then subtracting this to secure the residual variance as the adjusted value. However, if this method is used, it would be necessary to normalize the skewed Rorschach data, which would be cumbersome done in this context. In addition, when the correlation between R and a given Rorschach score is low, the use of this design may be of little utility; increase in precision depends upon the correlation of the interaction effects.

Cronbach (1949) suggests several other possible methods of control for R. It would be possible to score only a fixed number of responses on all protocols, or reconstruct subgroups equated on R by discarding cases. However, in each of these methods, valuable information is lost. He also suggests the method of "pattern tabulation" involving the analysis of profiles of normalized scores. As was mentioned above, an approach such as this would be cumberson and uneconomical. Finally, he suggests the method of plotting the variable against R and testing the significance of the proportion of cases falling above and below a line fitting the medians of the columns. This latter technique is quite close to the method proposed in this thesis; that of rectifying the curves which are obtained and computing a line of best fit. However, connecting the medians of subclasses of R would be wasteful of data, comparatively speaking.

It is felt that an additional contribution will be a demonstration of the importance of the consideration of additional content scores in relation to productivity. That is, subjects who give 10 or 15 very complex responses

should not be considered underproductive simply because they do not approximate the median number of total responses. There are other measures of productivity, one of which appears to be the use of additional content. Therefore, there was an investigation concerning the use of additional content among subjects who gave below the median number of responses in comparison to those subjects who gave more than the median number of responses.

CHAPTER II

REVIEW OF RELATED LITERATURE

The first Rorschach worker to take considerable interest in exploring content was Lindner, who felt that it is through content analysis that "the test appears to yield its most important and fertile insights into the personality under examination" (Lindner, 1947). He maintained that (1) certain responses reflect basic processes within the personality, (2) certain responses are eminently characteristic of various diagnostic groupings, and (3) that certain responses are clearly indicative of essential dynamisms. Lindner's approach is basically psychoanalytical. He proposed: "In effect the Rorschach response like the dream, is also a 'royal road to the unconscious,' and again like the dream is subject to 'work' in the Freudian sense of displacement, condensation, distortion. . ." (Lindner, 1946).

Schafer (1953) in a theoretical article on content analysis, makes some interesting points. He agrees that the Rorschach test does not contain its own system of psychology and that the psychological theory is brought to the test by the interpreter. For Schafer, content involves highly charged personal imagery expressing major adjustment problems. This imagery has primitive and differentiated aspects which may be interpreted in sequence. He believes that "reality oriented perception," direct and indirect daytime imagery," and the "autistic and dream-like imagery" are on the same continuum. Rational categories in the analysis of the Rorschach have been inadequate so far because they haven't been able to submit the right question to the

Rorschach. Independent of theoretical orientation, the two main questions we
must ask, Schafer believes, are: "What about human beings matters to you?"
and "How well do the results clarify the significant variables?" The author
concludes with the cautious note, however, that this approach encourages "wild
psychoanalysis" of content. As safeguards, he proposes using a battery of
tests with emphasis on the themes and their interplay rather than on isolated
responses, and avoidance of naive interpretations of universals per se. He
urges the investigator not to read into the test his own genetic preconcep-
tions and to remember that meanings of content shift with context. However,
it appears that Schafer is often guilty of making the same rather universal
interpretations of content that he cautions others against making. His system
of "thematic analysis" makes use of many "defense indicators" and "prognostic
signs" which could easily be construed as "preconceptions" on his part.

Brown (1953) reviewed the previous statements by Schafer concerning the
theoretical aspects of content analysis, and formulated a very comprehensive
and valuable series of "hypothetical deductive constructs" which he proposed
as the basic postulates for content analysis. His data are presented as being
empirically derived on the basis of high frequency in his experience. He
states that "validative support comes from approximately 600 cases for which
clinical material was available." The following are the 15 constructs he pro-
poses as a foundation and rationale for content interpretation.

1. The Rorschach technique presents a constant series of visual stimu-
lus patterns to the patient which have restricted and limited meanings in
terms of formal reality.

2. In responding to these semi-structured forms individuals will pro-
ject interpretations which fall into uniform clusters known as "popular"
responses. This demonstrates a basic perceptual communality which overrides

the "accidental" nature of the blots.

3. The communality of popular responses represents the most visible segment of a continuum which implies that there is a similar communality in the invisible segments of the continuum which embraces the unconscious and preconscious fantasies of the individual. These areas are to the popular responses what the infra-red and ultra-violet portions of the spectrum are to the primary colors.

4. Borderline popular figures represents modal interpretations which project conflicts within the range of the "normal" and which are near consciousness (e.g., the upper grey figures of card X seen as two animals fighting or glaring at each other).

5. The meanings of projections in the fantasy area (M) are as significant for certain communalities of conflict, need, and wish as are popular responses and many form reactions for a communality of conformity and reality awareness.

6. The greater the distance from either populars or borderline populars the greater is the likelihood that personalized percepts are emerging and that these percepts stem from the invisible segments of the spectrum of mental life.

7. Such percepts may range from the creatively ingenious to the pathologically malignant, depending upon their distance from the visible range and the nature of the need expressed.

8. A process of censorship operates in the selection and rejection of percepts in accordance with (1) form acceptability and (2) content acceptability. This is analogue to the censorship that prevails in free associations and which is related to resistance in treatment.

9. In addition to the formal and acceptable features of certain blot areas which are seen and recognized as resembling "real" constructs (F plus), certain areas possess symbolic-affective loadings which are either preconscious or unconscious in our culture.

10. The manner in which interpretations are made in such areas demonstrates the strength of the ego in dealing with symbolic mental processes. The normal individual tends to interpret them as reality-oriented recollections, while the schizophrenic reacts to them as reality-distorting reified symbols, substituting the symbol for its referent.

11. Different levels of repression are demonstrated by variations from the visible segment of perception, ranging from normal through neurotic to psychotic.

12. Exclusions or inclusions of certain blot areas which differ too much from what may be expected upon the basis of patent or border communalities

represent different degrees of distortion caused by the imposition upon the blot area of symbolic meanings determined by deep inner needs in accordance with the principle of psychic determinism and the pleasure principle.

13. Such distortions or personalized slantings occur with sufficient frequency in the protocols of deviant personalities to constitute uniformities. As such they lend themselves legitimately to interpretation within the context of the total protocol content and auxiliary tests of the battery, especially since they constitute segments of an invisible communality of needs and need-frustrations.

14. The nature of conflicts and needs elicited through content analysis will be found to conform to the symbolized struggles of the individual with reference to psychosexual stages of development in a manner similar to their appearance in the dream work. Even though these struggles may be universal, the manner in which the culture deals with them determines their symbolic patterning in the Rorschach.

15. Specialized deviant subgroups within the culture will utilize symbols which seem to lack that expression of communality of conflict which is inferred from the uniformity of their appearance. One might have to assume in such cases the existence of a symbolic argot through which conflicts are betrayed. . . (Brown, 1953, pp. 255-256).

Then Brown analyses each card separately in terms of content evoked. He concludes by emphasizing the fact that:

. . .in utilizing content the psychologist must remain fully cognizant of the manner in which responses on one card influences the interpretation on another. Even though we have included chiefly those responses which we have found to have a high empirical correlation with clinical data, it is still the psychologist who serves as the integrating instrument and who, in his use of content material, must exercise the finest clinical judgment if he is to arrive at an understanding of the psychodynamic Gestalt of the patient (Brown, 1953, p. 278).

Brown's main concern is that although attempted validation of the Rorschach test is very useful, statistical treatment is not the most appropriate manner of handling projective materials.

Charen (1953), in a critique of this paper, argues that Brown might be right in his belief that a correlational analysis of the Rorschach is unwarranted since the content changes with the context. However, this does not

exlude the possibility for scientific, testable treatment of the subject mat-
ter. Charen criticizes Brown for his use of the terms "exploratory" and
"empirical correlation." It appears that Charen makes a too liberal interpre-
tation of Brown's remarks concerning statistical treatment of the Rorschach.
Brown seems quite explicit in his encouragement of statistical validation.
The author's disagreement seems to stem more from a variance of theoretical
interest rather than actual difference of opinion. Nevertheless, Charen's
encouragement of validation cannot be overemphasized, whether it be made in
reference to psychoanalytic formulations such as Brown's, or to any other
theory of personality.

Beck (1944) sees in content the "mental furniture" of the subject. For
Beck, content is a "source of knowledge concerning his (the subject's) inter-
ests and through the avenue of . . . his personal needs." Phillips and Smith
(1953) hold that "content symbolizes motivations and attitudes" and that "con-
tent is largely a function of the individual and not of the stimulus." On the
basis of the normative data of the content developed (not their "symbolic sig-
nificance) the subject is ordered to a behavioral group. Schafer (1954) views
content from its broadest sense and talks about "thematic analysis" rather
than content analysis, drawing his hypotheses mainly from contemporary psycho-
analytic literature and theory. Piotrowski (1957) sees value in content anal-
ysis but cautions the reader because he feels that, "In the minds of many con-
tent analysis dispenses with the need for a time consuming acquisition of
skill in scoring the record and in analyzing the formal aspects of the record."
He believes that "valid content analysis is a very difficult and underdeveloped
part of percept-analysis," and he urges the reader to wait for experimental

studies of content significance. This suggestion of Piotrowski is of the kind which motivated the writing of this thesis. Valid content analysis cannot be made without adequate criteria and norms with which to make comparisons. Even considering his cautiousness, Piotrowski cannot avoid utilizing the fertile possibilities contained in content interpretations. In his long-term Rorschach prognostic index for schizophrenic patients (1952; 1961), two of his fourteen signs have to do with content.

This need for experimental evidence for all of the hypotheses applied in Rorschach interpretation cannot be overemphasized. For many years it has been customary among psychologists to see the diversity of content as related either to the individual range of interest (Klopfer, 1954) or to the functioning intelligence (Beck, 1944). But a recent study by Klopfer, Bernadene, and Etter (1960) demonstrated a lack of relationship between intelligence test results and content diversity. These authors also found that the relationship between diversity and range of interests is not better than chance, at least for their population. A similar misconception has recently been rectified involving the hypothesis that alcoholics as a group tend to give more water responses on the Rorschach than do normals. Griffith (1961) has concluded that the geographical location of the alcoholic must be considered; those living inland do give more water responses while those alcoholics living on the coast tend to substitute ambiguous geography responses.

Human Content

Human content, the second most frequent content category, is present in approximately two-thirds of normal records (Phillips and Smith). H% is

probably the most promising source of hypotheses for content analysis. Kadinsky (1946) maintains that responses with human content represent interest in inner life and show the importance of consciousness and the moralities of the subjects. Klopfer (1954) agrees, and further stresses that H responses indicate introspective tendencies on the part of the subjects. As Hertzman and Pearce (1947) report, human responses are capable of representing keenly felt attitudes about oneself and the environment, or a high degree of self awareness. Phillips and Smith (1953) stress that H represents interest in and sensitivity to others. Absence of H, they feel, indicates a tendency toward isolation.

In general it is thought that a reduction in H% is pathognomic since human content is taken to imply interest in and sensitivity to others. Psychotics are generally reported to produce a lower H% than normals and neurotics. Absence of H is interpreted by Klopfer et al. as a lack "of conscious control over one's own feelings and impulses." Hertzman and Pearce (1947) felt that failure to produce human responses is associated with suppression of the self picture and horror of the self as the person sees it. Piotrowski (1957) interprets the absence of H as indicating a lack of interest in others.

Human-like content, (H), is viewed as implying "anxiety about interpersonal relations and a tendency toward social isolation" by Phillips and Smith. By attributing human-like characteristics to humans, the individual is removing the situation from his own particular frame of reference and makes it more distant. Klopfer (1962) postulates that (H) responses are given by those who are unable to identify closely with real people. (H) has been found among "paranoid types" by Lindner (1947) and among homosexuals by Due and Wright

(1945). Phillips and Smith have associated (H) with superior elaborations reflecting superior intelligence and viewed it as a contraindication to acting-out in antisocial ways. However, it should be remembered that Phillips and Smith have a tendency to base their interpretations on unreported data and on their own experience with "types" of patients.

Klopfer (1954) hypothesizes that human detail responses or Hd responses are an indication of "compulsive attention to detail accompanying an inability to deal effectively with other people." Normals of average intelligence are not expected to develop more than one or two Hd responses. A high Hd% is seen by Rorschach as a sign of anxiety, and by Piotrowski (1957) as an indication of anxious preoccupation with the intentions of others. Phillips and Smith refer to "social anxiety" in relation to Hd%.

Phillips and Smith believe that "the development of any head-or face is a paranoid schizophrenic sign." "Eyes" are, in most Rorschach literature, associated with a high degree of sensitivity to others and a paranoid attitude (Piotrowski, 1957; Lindner, 1947; Schafer, 1948; Hertz, 1938). However, this has not been experimentally supported. Bradway and Heisler (1953) found the frequency for "eyes" to be slightly above expectancy, but not to a significant degree, "among paranoid patients." Wertheimer (1953) cautions Rorschach workers when they use one-to-one behavior correlates of Rorschach signs. He also found that paranoids do not produce significantly more "eye" content. However, Wertheimer's specification for the inclusion of eye responses in his sample was that the word eye was counted each time it occurred. This is by no means an adequate design. It should be stressed that often the word eye will be developed within the elaboration of a more complex configuration, such

as the response, "a human head," in which the eye would be specified as part of the percept. This response is often given by normals, and it would tend to spuriously build up the number of eye content in this group. Wertheimer admits that certain types of eye responses may be related with paranoid trends; however, he states that one must be cautious not to over-generalize. In any case, this study suggests that the general acceptance of an interpretation is by no means an index of empirical validity.

Animal Content

Rorschach (1942) found that animal forms are seen most frequently and he interpreted the "animal percentage" as a quite reliable indicator of stereotypy. He also found the A% increases when the intellectual level of the subject decreases. However, the fact that he observed the A% to increase with depression and decrease with elation should caution the reader not to make naive statements of low intelligence as the result of a high A% alone. Piotrowski (1957) points out that A% increases "when there is an unwillingness to exert oneself intellectually and a tendency to intellectual comfort either because of neurosis or because of a lack of training in intellectual discipline."

The relationship between anxiety and A% is discussed in most of the Rorschach textbooks. Rorschach used the proportion between whole and part animal responses (A:Ad) as an indication of anxiety, but Piotrowski feels that "since we now have a well elaborated system of shading responses and of shocks, the significance of the A:Ad ratio as a measure of anxiety is of little practical significance." Phillips and Smith (1953) also suggest that the anxious

individual develops a high AZ or that "an AZ beyond expectancy is an index of a relatively low level of social adjustment or immaturity regardless of the mental age reflected in the particular animal contents developed." Thus, a high AZ is not necessarily the result of a high anxiety level but may reflect immaturity as well. Phillips and Smith also postulate depression, lack of insight and of introspection to those with a high AZ.

It has been inferred that the particular type of animals produced reflects certain attitudes of the individual (Goldfarb, 1945). Thus, the concepts of hostile adults become mentally associated with aggressive animals and concepts of passive adults with domestic animals. Further, elaborations includes hypotheses that people understand intuitively the biological dynamics of animals which they interpret symbolically and express in their selection of animal content (Booth, 1946). Elaborating these concepts even further, Phillips and Smith relate specific animal contents to characteristics of role playing and draw extensive implications from their hypotheses. It should be stressed that most authors based interpretations such as this on "observation" or "experience" alone, usually within a specific theoretical framework, not having recourse to actual empirical data. Phillips and Smith go so far as to insist that each specific content must be assigned a fixed significance, regardless of context, unless good evidence can be established to the contrary by research. They claim their elaborations are based purely on normative Rorschach data and not on theory or experience alone. This may be true; however, they do not report their data or their method of analysis in any form. Although intuitive techniques are useful in psychological testing, some caution must be maitained and attempts made to empirically validate, in so far as

possible, the techniques that are used.

Anatomy Content

Anatomy responses have been generally considered to reflect concern about and fear of bodily harm. They are not found in normal records in great number except possibly among medical students (Kadinsky, 1954; Ross, 1940).

Rav (1951) interprets anatomy responses as being "nothing but anxiety," and states that more than one anatomy response can be interpreted as a pathological sign. He admits that he cannot account for the higher incidence of anatomy responses among those of the medical profession and suggests that they are an exception and that special norms are needed for this group. This conclusion seems unwarranted, particularly considering Rav's prior insistance that anatomy responses reflect a lower level of functioning than does card rejection. In addition, the approach he uses to bolster his rather dogmatic position appears to involve the taking of data from other Rorschach workers out of context in order to fit it into a rigid orthodox psychoanalytic viewpoint. Also, his sample was drawn from "presumed normals" (people who were not seeking psychiatric help) from Israel with no additional specification or description which makes the universality of his findings at least questionable.

Phillips and Smith (1953) believe that "anatomy content reflects a sensitivity to and concern with the expression of destructive impulses. Paradoxically, those individuals who act out their destructive impulses do not develop anatomy content" (p. 132). To test this hypothesis, Wolf (1957) compared two groups of "acting-out" and "non-acting-out" male patients in their production of anatomy responses. He found no difference between the groups.

Nevertheless, he noticed that "actors-out" did produce a greater number of "hostile" percepts. He interprets his findings as suggesting that in relation to acting-out of hostile impulses, production of anatomy responses might be viewed as a control activity for those with high hostile drive. Although this is an assumption on Wolf's part, and he appears to be fitting his data into preconceived opinions without actual proof, his conclusions are rather widely accepted, e.g., by Phillips and Smith. Phillips and Smith also view anatomy responses as reflecting anxiety and concern with intellectual accomplishment.

Rorschach (1942), as well as Beck (1944) and Mons (1951) conclude that there is a correlation between anatomy responses and hypochondriasis. These authors appear to have some statistical evidence for the assumption that the bodily concern of the hypochondriac is reflected in their perceptions and projected onto the blot. Rav's findings (1951) failed to support such a relationship. However, he is open to criticism for attempting to correlate symptoms of hypochonriasis, as expressed in the Rorschach, with anatomy responses, because he in fact expected to validate the anatomy responses in this way, while it is not known with certainty how hypochondriasis is reflected in the Rorschach. He did not examine the records of known hypochondriacs as did the above authors.

To evaluate anatomy responses and their significance in relation to the personality function of the alcoholic, Shereshevski-Shere, Lasser, and Gottesfeld (1953) compared the Rorschach protocols of alcoholics, normals, and schizophrenics. They found that alcoholics developed a percentage of anatomy responses that fell between the normals and the schizophrenics. They conclude that their results demonstrate that the alcoholics have intense difficulty in

handling aggression. However, it is apparent that they base this statement on the assumption that anatomy responses reflect destructive tendencies and fears of bodily harm.

Klopfer et al. (1954) suggest that anatomy responses are indications of insecurity. He also feels that anatomy responses cover feelings of intellectual inadequacy and real bodily concern (1962). Piotrowski feels that a high number of anatomy responses reflect feelings of intellectual inferiority, or an "intellectual taking-it-easy" which is in accord with Rorschach's observations.

Ames et al. (1954) found their most deteriorated seniles to give predominantly anatomy responses (83%) and the most intact to give a low per cent of anatomy responses (7%). On the other hand, they found children to produce a 6 per cent anatomy response at the age of nine (1952). Thus, it seems evident that research relating anatomy responses with intense bodily concern is not conclusive. Findings such as this suggest that the motivation behind the production of anatomy responses (or any other content for that matter) is varied and complex.

Piotrowski (1957) mentions a study by Mahler-Schoenberger and Silberpfenning which found that amputees with phantom limb experiences give a higher At% than those without the feeling. Apparently the authors had interpreted the higher At% as indicating a fear of losing a part of the body. Piotrowski concludes that, "the more perseverating and the more unusual the anatomy content, the greater is the likelihood that it has a special significance for the individual." This appears to be the safest and most sensible approach to anatomy interpretation.

Other Content

There have been few empirical or validation studies done in relation to the remaining content categories. Thus, the interpretations attached to them are more theoretical or "educated" intuitive attempts at personality description.

Rorschach believed that a greater than ten per cent inanimate objects content indicated a lack of concentration. Piotrowski (1957), elaborating on this, attributes it to a "lack of a dominant intellectual interest which would absorb the individual's intellectual creative activities," and his opinion is that it is not connected with intelligence but rather with lack in productivity

Coats of arms and other emblems or insignia are associated with marked prestige drives (Lindner, 1947). Phillips and Smith interpret emblems as indicating reliance on external forms rather than actual maturity. They reputedly hide unexpressed feelings of fear and hollowness, and thinly disguised dependency needs. They are given by insecure, anxious people who feel inferior. Piotrowski (1957) also interprets them as indicating feelings of personal inadequacy and attempts to rely on the support of the family. He states that in his experience, "nearly all the individuals with 'coat of arms' responses took a conscious, if sometimes forced, pride in their families." Schafer (1954) related emblem responses to a concern with social status and authority, and Klopfer (1954) infers the tendency to be submissive to authority.

Blood responses have been found to occur mainly on cards II and III, but they are rarely produced by normals. They have been interpreted as reflecting sadistic-destructive impulses (Lindner, 1947; Phillips and Smith), but as a "contra-indication to destructive acting out through a pressure of impulse to

do so" by the latter authors. Klopfer (1962) considers blood responses to reflect uncontrolled affective reactions.

Normal adults produce few botany or plant responses (according to Piotrowski, no more than two, according to Phillips and Smith, no more than four). Ames et al. (1952) report that plant responses comprise approximately ten per cent of the total number of responses in children below the age of six. Phillips and Smith associate passivity and dependency with plant content and state that these people have difficulty with heterosexual relationships. Piotrowski relates plant content to "positive and strong but crude and self-centered drives. . .sometimes they symbolize sexual objects (and) refer to unresolved sexual tension." He also looks upon these people as being quite infantile.

Nature responses, it is generally agreed, are a fairly common content and are considered to be intellectually evasive responses. Rorschach felt that a large number of nature responses are given mainly by the "model student" type of person who has been taught all the answers; they are superficial shallow people. Phillips and Smith interpret nature content as indicating feelings of inferiority. They say "it tends to be developed by persons who continually and unfavorably judge themselves against a figure larger and more powerful than themselves." Piotrowski states that people who give nature responses tend to withdraw from intellectual competition.

Little appears in the literature on geography and religion content either with respect to numerical occurrence or personality interpretations. Phillips and Smith hypothesize that geography content reflects attitudes of guardedness and evasion, depression, and attitudes of resentment regarding frustrated

dependency. The same authors state that religion content is not often given by normals, but is frequently given by schizophrenics whose delusions center around religion and problems in the sexual area. They state that these people inhibit the expression to rebel from authority, are guilty, weak, and moralistic people.

Piotrowski (1957) interprets preoccupation with clothing content as an indication of concern over one's social reputation and attractiveness. Clothing content is found in male homosexuals as reported by Due and Wright (1945), but non-homosexuals give this content also. Klopfer (1954) states that clothing responses indicate a concern with surface aspects of relationships. Phillips and Smith state that these people are sensitive to external social forms, are concerned over sex differences and have an unresolved problem of sex role.

Abstract content indicates superior intelligence (Klopfer, 1962), but is given by passively oriented people (Rorschach, 1942). Phillips and Smith state that abstract content is rare in the records of immature persons, and indicates a stable and constructive level of adjustment.

According to Phillips and Smith, art content is associated with fastidious attitudes and esthetic interests. These people "lack vigor and intensity and avoid emotional expression. They are unable to face problems and deal with difficulties. . .(and) do so in an unrealistic and intellectualized fashion." Piotrowski (1957) agrees, and hypothesizes that these people are ineffectual, effeminate and unrealistic people.

Piotrowski (1957) and Phillips and Smith agree that architecture content is given by superior people. They say in addition it reflects masculine

strivings and basic feelings of inadequacy and inferiority.

Food content is interpreted as indicating a dependent orientation combined with an intense desire to be nurtured (Klopfer, 1962; Schafer, 1954). Phillips and Smith agree, and further state there is a desire to "manipulate others for satisfaction." Klopfer (1962) states that mask content reflects an emphasis on role playing to avoid personal exposure.

Very little appears in the literature concerning the remaining content categories. However, Phillips and Smith make some experimentally unsupported comments on each. They state that smoke content indicates marked social maladjustment and a sense of inner strain and depression. These responses are rare in adults. They feel totem pole responses reflect average intelligence and a potential for achieving an average social adjustment. This content is developed more frequently by men. Water content reputedly indicates attitudes of dependence and inertia, ineffectuality and sexual inadequacy. Concerning cloud content, Phillips and Smith hypothesize evasiveness, lack of vigor, and restriction in the areas of social participation. It is a screen for attitudes of dependence and insecurity, and is given by people of average or higher intelligence. They say coral responses are given mostly by men for whom heterosexual relations are seen as threatening and dangerous. They feel that fire content is given by people who are weak, passive and immature. It indicates hostility, resentment and attention getting.

A low number of total responses is seen to indicate defensiveness by Schafer (1954), and a lack in productivity by Klopfer (1954). Phillips and Smith state that a superior person has a relatively high number of total responses.

In further reviewing the studies that have utilized the content approach to investigate underlying attitudes, one finds research work done in two more areas, namely, hostile content and sexual content.

Hostile Content

The possibility of assessing hostility from the content of the Rorschach test had first been suggested by Lindner (1946; 1948), Rappaport (1946), and Lubar (1947). Pattie (1954) showed the hypnotically induced hostility leads the subjects to perceive more objects of hostile import in the Rorschach. These results agree with the previously reported findings by Counts and Mensh (1950). Investigations of hostile content have focused mainly on devising quantitative measurements of hostility as derived from the Rorschach responses. Then, using a specific kind of population, the authors related derived hostility to behavioral manifestations. Others studies have dealt with the ability of various Rorschach cards to elicit hostile responses.

Elizur (1949) devised the Rorschach Content Test (RCT) with the intention of developing a method for the analysis and scoring of the content of Rorschach responses. He scored hostility content according to two degrees of intensity, and used Lewin's concept of "systems of tension" as his theoretical framework. Elizur reports positive correlations between hostility score (h) and self-reports of "internalized or projected hostility." Walker (1951), on the other hand, reports opposite findings. He discovered a nonsignificant negative correlation between the "h" scores and questionnaires and self-ratings of the subjects. Walker, however, had used a different type of questionnaire and this could account, at least partially, for the differences. When Elizur

compared a group of neurotics and a matched group of controls, he found that RCT scores differentiate significantly between the groups. However, as Vassiliou (1961) reports, "the 'h' scores as described by Elizur is rather general in nature. One is left with the inference that 'h' measures a general trait or factor which is part of all types of hostility. If this is so, studies using Elizur's system should yield high positive correlations of 'h' scores with all criteria of hostility." Thus, the findings in this area have not been conclusive. It should be pointed out that the reliability of Elizur's system of hostility measurement is rather low (.60) and validity is not reported in the paper.

Smith and Coleman (1956) constructed a scale for scoring hostility utilizing portions of the method of Elizur. They investigated the nature of the relationship between overt hostility in the normal classroom behavior of children and the hostility content they produce in their Rorschach and Make-a-picture Story protocols. To assess overt hostility they had the teacher rate the children on scales measuring verbal hostility, physical hostility, and quarrelsomeness. The authors report a low but significant correlation between the over hostility scale and the Rorschach hostile content.

Rader (1957) correlated Rorschach content indices of aggressive potential with the behavior of 38 prison inmates during therapeutic group discussions. He was interested in hostile content and for this he developed a full scoring design. He reports that proportion of aggressive content to be positively related to aggressive behavior, but he made no attempt to assess the reliability of his scoring method.

The studies that have been reviewed have either used Elizur's scoring

system or have developed their own modifications. In general, the results of these studies have either been conflicting, or have yielded doubtful positive findings. To explain this lack of consistent results, Towbin (1955) points out that Elizur's theory assumes that "h" scores measure a general hostility which is all of the same kind, ". . .not tied up to any definite object but rather general in nature, free-floating and liable to substitution," as Elizur describes it. Towbin concludes that if "h" scores were measuring the motivational basis of all types of hostility, then all manifestations of hostility should be found to correlate positively with "h" scores. Studies using Elizur's system showed that the "h" score treats as equivalent two different ways of handling hostility since some studies found the hostility score positively correlated and others found it negatively correlated with overt aggressive behavior.

Storment and Finney (1953) devised a five point scale to differentiate between violent and nonviolent patients. Their hypothesis was that perception of hostile or aggressive content in the blots is related to similar trends in the individual's behavior. They used a weighted five-point score for quantification and they defined the different steps. The categories used were the following: Human, Animal, Plant, Anatomy, and Object. The scale discriminated between means of the groups. Using a cutoff point on the scale, the authors were able to place 17 out of 23 nonviolent, and 19 out of 23 violent patients, according to their aggression score only. On the other hand, four judges using global clinical criteria proved unable to differentiate significantly between the groups. However, as the authors recognized, the scale lacked intra-rater reliability. In addition, the scale does not appear

adequately sensitive for the nonhostile responses, and the weights assigned to the scale seem rather arbitrary and are of questionalbe validity.

Later, Finney (1955) refined the above scale, and devised the Palo Alto Destructive Content Scale. The author differentiated a priori the following four sub-categories of destructive responses: derogatory remarks, victim of destruction, potential destruction, and active destruction. Differences between assaultive and non-assaultive groups on the total score of this scale were below the .05 level. The total score also had fair reliability (.63). However, the four sub-scales did not seem to be measuring similar processes.

Murstein (1956) developed a new scale--the Rorschach Hostility Scale (RHS)--to test projection of hostility on the Rorschach, because he felt the different concepts of projection used thus far were not adequate. He found that "the projection of hostility on the Rorschach is dependent upon the actual possession of self-acceptance of the trait," and that "the kind of projection elicited is a function of the situation in which projection is studied." Murstein obtained an average correlation among three raters of .96.

Hafner and Kaplan (1960) devised a weighted hostility scale based on the ratings of eight judges. These writers attempted to devise a Rorschach and TAT hostility content scale which would overcome the shortcomings of the previous scales. They submitted 200 Rorschach responses of a hostile nature to eight judges who (1) ranked those responses on a four point scale according to the degree of hostility, and (2) sorted them into three groups--overt, covert, and no hostility. Inter-judge correlations were found to be positive and signifi- cant. When the scales were applied to the protocols of 30 patients, all of the inter-scorer reliabilities were found to be highly significant. The

authors suggest further evaluation with specific kinds of populations. However, the authors did not attempt to differentiate between hostile and non-hostile subjects; they dealt with responses. One wonders if the scale would be as sensitive if all of the responses given to the judges were not of a hostile nature. In addition, the scale has not been tested on actual acting-out verses non-acting-out patients.

Clinicians have often stressed the importance and necessity of distinguishing between "normal" and "neurotic" hostility (Bergler, 1946) and the diagnostic and prognostic implications of the patient's hostility (Grider, 1946). All of the above studies assume a possible relationship between hostile content on the Rorschach and an underlying hostile drive; their results generally confirm this. However, many of these studies also assume that they can attempt to predict overt behavior from the projective test data. The results of the studies that have attempted to relate the hostility that is seen in the Rorschach content to behavioral hostility are not consistent, however. In fact, some studies report that hostile content is negatively related to overt aggressive behavior (Elizur, 1949; Sanders, 1953). Thus, it can be said that the studies on hostility fail to consistently support the hypothesis that hostile acting-out will be reflected in the amount of destructive, hostile content on the Rorschach.

Phillips and Smith (1953), commenting on an initial assumption underlying the investigation of content, maintain that content symbolizes motivations and attitudes which may or may not be given more direct expression. They seem to believe that manifestation of behavior depends upon the extent of the pathology and upon the level of social adjustment. These factors can better

be inferred from the "non-contentual" aspects of the Rorschach. In other words, there are two personality variables--intense hostility and deficient impulse control--that seem to determine an assaultive reaction. Moreover, as Finney (1955) points out, behavior at times might be due to the amount of external provocation rather than to personality differences.

Sexual Content

The first experimental study in the Rorschach literature which deals with sexual responses is that of Bergmann (1945), who in studying the Rorschach's of homosexuals, found sex responses associated with anxiety, tension, and opposition responses.

Sexual responses to the Rorschach have long been regarded as pathognomonic of psychological and sexual disturbances (Beck; Klopfer et al.; Schafer, 1948). They are relatively rare in the records of normals (Beck, 1950), but there is some evidence that patients often give manifest sex responses. Sandler in 1950, using a factor analytic technique, found that sexual responses were typical of withdrawn, suspicious, and insecure people (Vassiliou, 1961). Zeichner (1955) found significant differences between schizophrenics and normals by testings of the limits of sex. Several studies suggest that schizophrenics show a considerable preoccupation with sex on the Rorschach (Beck, 1954; Chapman and Reese, 1953; Knopf, 1956). However, statements in this area cannot be generalized to the total clinical population because in almost all of these studies, investigators dealt with very disturbed psychotics. Phillips and Smith also suggest problems in sexual adjustment in relation to sex content. They further state that it is often given to demonstrate

emancipation from conventionality.

As Krout (1950) points out, little is known about the meaning of sex stimulus areas and this present serious obstacles for the interpretation of the responses. In an attempt to experimentally explore this area, some investigators designed studies to collect normative data, e.g., Shaw, 1948; Pascal et al., 1950; Charney, 1955.

One difficulty that studies dealing with sex responses face, arises from the fact that sex responses are relatively rare in the normal population. Thus, they are obliged to elicit such responses, and then study what symbols the subjects attach to the areas which they label as sexual. Studies dealing with this problem have followed different techniques. Some workers tried to show that responses to sex areas reveal underlying attitudes toward sexuality. One of the techniques used is to ask the subjects directly in the testing of the limits, to associate further on his response (Janis, 1946). It was found that this technique was not very productive unless used with patients either under psychoanalysis or under hypnosis (Earl, 1941; Mercer, 1950). A slightly different technique, used by Greenbaum (1955), was to give to the subject a word association test containing his responses to the sexual areas. But a criticism of this technique has been that there is no reason why the response will have the same symbolic meaning within the new context of the Word Association Test as it had in the original response to the Rorschach card (Vassiliou, 1961).

As many authors state, however, any correspondence between the symbolic response and the sexual identification has to be inferred and cannot be proven (Schafer, 1954; Phillips and Smith). It depends a great deal on the

theoretical assumptions with which one operates. According to psychoanalytic theory, attitudes toward sexuality are expressed largely in a symbolic manner. Therefore, it might be justifiable to expect that on the Rorschach areas with sexual stimulus-meaning, one will find responses which will express unconscious psychosexual attitudes in a symbolic form. To support this point of view George (1953; 1955) compared the findings of a study concerned with card preference of normals with Shaw's and Pascal's sex populars, and reports that the more sexually suggestive a Rorschach card is, the less frequently it is preferred by normals. In other words, even when there is not a direct response to the sexual area, this response may reflect an unconscious reaction to the area. However, there is no experimental evidence to support this commonly accepted hypothesis. Many authors have emphasized the need for further research (Sarason, 1954; Charney, 1955) which will relate responses to sexual areas to the personality characteristics of the respondents. Charney (1959) reports that patients who gave the most manifest sex responses tended to be overcompensatingly masculine in everyday behavior, and those who gave the least number of manifest responses tended to be more effeminate. This conclusion was based on behavior ratings of masculinity-femininity prepared independently by the ward psychiatrists and psychologists using the method of paired comparisons. However, only 28 patients were used in the comparison, the number of raters is not reported, and the criteria upon which the ratings were based is somewhat vague and may not have meant the same thing to the different raters. An intra-rater reliability study was not done.

Many studies have focused on the identification of homosexual trends and they have used content as an index of homosexuality. Harrower-Erickson (1945)

stated that "suggestions of homosexual trends were often noted in the blind analysis of the overt homosexual group of the sexual psychopaths."

In an attempt to use content of the Rorschach to contribute to psychiatric diagnosis, Due and Wright (1945), analyzed the records of 42 males who were either overt homosexuals, or were going through situational adjustment due to homosexual conflicts. They found seven types of responses which they thought to be characteristic of their homosexual subjects: de-realization of the projection; confusion of sexual identification; predominantly feminine identification; castration anxiety; a relatively high frequency of sexual and anatomical responses; and paranoid reactions together with what they characterized as an "esoteric" language and artistic references. However, the "content implications" are not stated in an objective way, nor is the frequency of occurrence of characteristic responses given. The authors recognized these limitations in their work.

In an attempt to more definitely and consistently establish signs of homosexuality, Wheeler (1949) selected 20 Rorschach content indices for homosexuality from the earlier studies in the literature, and attempted to validate them. He focused his investigation to determine the signs' internal consistency with each other and their external consistency with the therapists' judgments of homosexual tendencies. The study is based on 100 patients in therapy in an outpatient clinic. He reports that the 20 individual signs had a wide range of consistency with the total number of signs. However, the individual signs were not very discriminitive. Also, the relationship between over-all therapy ratings and 20 signs of homosexuality was found to be rather low (.42). Wheeler attributes this to a few factors that proved to have a

significant effect upon the therapists' agreement with the Rorschach indices, namely differences in training of the therapists, exposure of the therapist to psychoanalysis, and the therapist's competence to identify homosexual tenden- cies. Consequently, Wheeler proposes the use of more objective criteria for further research, and offers 14 signs that have been most internally consistent according to his results. However, it is interesting to note that Wheeler offers these "internally consistent signs" as being those most in agreement with the ratings of the therapists of whose competency he questioned. It was found that ratings of psychiatrists were in closest agreement with the Rorschach and those of psychologists and social workers were next, in that order.

Aronson (1952) used Wheeler's 20 signs of homosexuality to test the Freudian formulation that the paranoid subjects would show a greater amount of homosexual conflict. He found that "paranoid subjects report an overwhelmingly greater number of homosexual signs on the Rorschach test than do other non- paranoid psychotics or normals." Basing his conclusions on the assumption that Wheeler's homosexual signs "are both internally consistent with each other and externally consistent with therapist's judgments of homosexual con- flict," he states that his results are "strongly supportive of the Freudian theory of paranoia." However, it was also determined that the non-paranoid psychotics reported significantly more responses dealing with male and female genitalia (Wheeler's sign 19). The author states this finding suggests that all psychotic patients, paranoid or not, are disturbed in the sexual area. This may be true, but one should be more hesitant about generalizing from only one sample. In addition, the question about the specific kinds of sexual dis- turbance which distinguish paranoids from non-paranoid psychotics (if any)

seems essentially unanswered.

In his book on psychological testing, Rappaport (1946) states in relation to homosexual signs: ". . .a response. . .in which two symmetrical figures are described as male and female. . .in our experience has usually been an indication of homoerotic strivings. . ."

Nelson, Wolfson, and LoCasrio (1959), recently designed a study to explore whether card III can be perceived equally well as either a male or a female figure by a variety of patients, as well as by nonpatients. Their results suggest that for all their subjects, including their homosexuals, the blot was more often seen as "male" or "female" or "neutral" than as "female." The authors state that these findings were most evident in the female patient group. However, they fail to point out that females generally tend to give fewer sex responses and sexual specifications than do males (Charney, 1959; George, 1955). In addition, a greater number of "male" identifications would be expected or at least theoretically desired in a male sample. The criteria for inclusion in the male homosexual sample was that they at one time had engaged in overt homosexual behavior. This does not necessarily imply homosexuality in the dynamics sense, and the authors results would be expected. Also, the male "homosexual" sample number only 21.

Pascal and Herzberg (1952) attempted to test the hypothesis that an accurate estimate of sexual adjustment can be made from the procedure of "testting the limits for sex" (TLS). They used four groups of prisoners, namely homosexuals, pedophiliacs, rapists, and controls. Their results show that controls were undifferentiated from the rapists. However, both of these groups were significantly differentiated from both the pedophiliacs and

homosexuals who showed greater pathology in all cases. The authors feel that the fact that they were not able to distinguish between controls and rapists lends credence to their findings. "If we take heterosexual behavior between adults as our standard then it is difficult to see how the rapists differ from the controls is sexual behavior per se." Apparently what the authors try to show is now meaningful differences in the perception of sexual areas may be relating manifest sex responses to psychosexual pathology.

In some investigations, the authors assume that the homosexual will reveal his conflict in the way he will interpret the sexual areas on the Rorschach. Other studies show that the way in which sexual areas on the Rorschach are interpreted is often related to homosexuality. Cutter (1957) investigated the nature of sexual responses to cards VI and VII in a group of sexual psychopaths, and found that occurrence of sexual responses to those cards is not associated with severity of disturbance. The author agrees with other Rorschach workers that frank sex responses show a breakdown of defenses and an experience of acute anxiety. Chapman and Reese (1953) designed a study in which they compared the records of six patients undergoing acute incipient schizophrenic breaks, with six normals. They used the homosexual signs listed by Ulett (1950) as their criteria for evidence of homosexuality. They interpreted their results as evidence supporting the theory that in the process of a schizophrenic break the patient passes through a period where homosexual drives are significant and prominent.

In research on sexuality and the Rorschach, the theoretical question always remains whether the fact that there is a correspondence between the original symbolic response and the sexual identification of an area means that

the original response did in fact symbolize a sexual organ. Some of the researchers agree that this is an unproven inference (Sarason, 1954; Pascal, et al., 1950). And further, as Charney (1959) points out, the fact that an area which is identified as a penis is also seen as an elongated object is not surprising when one considers the obvious structural correspondence. Does this mean that when a subject sees an elongated object he is expressing his unconscious conception of a penis? Pascal et al. (1950) also point out that it is common practice in clinical work with the Rorschach, at least among "seasoned and analytically minded examiners," to interpret Rorschach content. But such interpretations for the most part lack objective evidence, at the present.

Summary

In summary, the survey of the literature has shown that Rorschach's complete reliance on the formal aspects of the test is not retained today by clinicians who use the Rorschach. Conversely, since 1946, the significance of content and possible interpretations of it have received a great deal of attention in the literature. Unfortunately, the majority of these studies have been intuitive in nature and have been attempts at elaboration of specific theoretical positions, especially that of psychoanalysis. There have been few systematic attempts to test the validity of the many hypotheses developed, and the need for experimental evidence is essential if content analysis is to take its place as a legitimate procedure in Rorschach interpretation.

The empirical studies that have been done predominantly deal with three main areas of interest: sexual content, hostile content, and anatomy content.

The concern with sexual content may be due to the fact that sex responses have been found to be relatively rare in the records of normals, and in addition, sex plays an important role in psychoanalytic theory. Sex responses are regarded as pathognomonic and are typical of withdrawn, suspicious, and insecure people; they are frequently given by schizophrenics. Some investigators have gathered normative data on sex responses and thus certain areas have been designated by them as "sex populars." However, the evidence cited by these studies is not sufficient to conclude that certain Rorschach areas have consistent sexual stimulus meanings. Most of these studies have assumed a symbolic relationship between these areas and certain responses, however, this has not been supported by experimental evidence. Studies that have focused on the identification of homosexual trends have reported some "signs" as statistically significant in characterizing the homosexual record. However, this research produces many false positives and false negatives.

Investigators of hostile content have focused mainly on devising quantitative measurements of hostility as derived from the Rorschach responses. However, it is often questionable exactly what kind of hostility the scales which were constructed are measuring. The arbitrary manner in which weighting is assigned in these scoring systems is also questionable. Authors frequently found a relationship between hostile content and what was interpreted as underlying hostile drive. However, they have not been able to consistently predict overt behavior from the Rorschach content. As a result, the studies do not provide a basis for concluding that hostile acting-out will be reflected in Rorschach content. It should also be stressed that acting-out can be precipitated by such things as external provocation, and is not always determined

by basic hostile attitude.

Anatomy responses are interpreted as reflecting concern about and fear of bodily harm, a concern with the expression of destructive impulses, and feelings of insecurity and of intellectual inferiority. Theoretically, those individuals who act out their destructive impulses should not develop anatomy content in that its production is viewed as a channelization of hostile drives. However, production of anatomy content has not been found to differentiate actors-out from non-actors out. Research has also failed to support the relation between anatomy content and hypochondriasis that had been thought to exist. As in the other content categories, a general criticism of the studies concerned with anatomy content is that they rely too heavily upon theory, and leave too many questions unanswered.

Many authors, especially those dealing with the more theoretical articles on the Rorschach, stress the need for some well documented normative data drawn not only from clinical, but also from normal populations which would serve as a basic frame of reference for comparison in the future. Until this is done, the foundation upon which much of the research on Rorschach content rests will remain unsteady.

CHAPTER III

THE PROCEDURE

This research is part of a project suggested by Dr. Frank J. Kobler. Under his direction, and with the assistance of three other graduate students in psychology, the Rorschachs of 300 college students were drawn from the files of the Psychology Department of Loyola University. These Rorschachs had been given to volunteer subjects during the years 1950 to 1961, by students who were taking their second course in the Rorschach. The majority of subjects were students at Loyola University and were enrolled in a variety of courses of study.

Criteria for Including a Record in the Sample

The following rules were agreed upon prior to the collection of the data:

1. At least one response per card and no more than 90 responses per record were limits arbitrarily set.

2. The subjects had to be in college at the time of the testing.

3. Basic information such as sex, age, education, and the names of both subject and examiner had to be given.

4. All responses had to be legible.

5. The location of responses had to be plainly indicated on the location chart.

6. Only responses given in the response proper of the test were used (although additional content given within the response proper was recorded, and is an integral part of the study).

7. Records that were suspect of being abnormal (as judged by four advanced clinical psychology students and verified by a Ph.D. psychologist), were excluded from the sample. A total of six cases were dropped because of judged abnormality.

Rules followed for the Assignment of Content Categories

Klopfer's categories were used as the basic frame of reference, and those reported in Phillips and Smith were used to supplement this. All responses were re-scored with respect to content category. In those cases where it was either difficult to assign a category or it was difficult to distinguish between main and additional scores, a decision was made by mutual agreement among the four recorders and the supervisor. During this process, certain rules to follow were set down, and these are as follows:

1. Anatomical responses with sexual connotations are scores "sex."

2. Head-dress is scored "clothing."

3. Foot-prints (animal or human) are scored "(Ad)" or "(Hd)".

4. Certain responses which were either frequently occurring (such as totem pole) or were difficult to assign to a more general category (such as light or soap suds) were made categories in themselves.

5. Wish bones, sea shells, sponges, and horseshoes are scored "Aobj."

6. In opposition to Klopfer, "bow tie" was scored as "clothing."

7. For emblems or insignias, etc., a main "emblem" was scored, and an additional score was given depending on the specific content of the emblem, e.g., (A).

8. Embryo is scored "sex."

9. Bacteria is scored "A." However, if this or any other response is seen as a biological specimen, "biology" is scored.

10. All additional "water" responses were scored.

11. If a response is stressed as being a painting, a main "art" is scored, and an additional category is assigned, depending on the content.

12. Toupees and false teeth are scored "Hobj."

13. Whiskers or mustaches are scored "Ad" or "Hd."

14. "Mineral" was created as a category to include such responses as gold, silver, coal, etc.

15. Punctuation, letters of the alphabet, mathematical symbols, etc., are all scored "symbol."

16. Such responses as orange, or apple peel are scored "food."

17. All material such as silk, wool, etc., are scored "cloth."

18. Teeth are scored "anatomy."

Each record was examined in its entirety by two of the recorders for possible scoring errors.

The scoring categories are mostly self explanatory, and reference can be made to Klopfer (1954) or to Phillips and Smith (1953) for supplementary description of them. There were many responses which, because of their uniqueness, could not be incorporated into a more general category. However, for purposes of statistical manipulation, and because they occurred so infrequently, they were included under the heading of "other" responses. These responses are: ink blot, color, bubble, coral, cloth, crystal, dirt, gas, liquid, mineral, mist, paint, reflection, symbol, snow, AH (mythical combination of human and animal), volcano, light, human-object, lava, botany, jewel,

shadow, oil, and soap-suds.

Normative Description of the Sample

Table 1 shows the distribution of ages, sex, and education of the sample.

Table 1

Description of the Sample According to

Sex, Education, and Age

Education	Sex			Age	
	Male	Female	Total	Mean	S.D.
Freshmen	36	64	100	18.7	1.60
Sophomores	23	30	53	20.3	1.98
Juniors	30	20	50	21.4	2.10
Seniors	25	38	63	21.9	1.27
Graduate Students	26	8	34	24.2	2.44
Totals	140	160	300	20.7	2.55

Medians and quartile deviations are reported on content, main and additional, for each of the following educational levels: Freshmen, Sophomores, Juniors, Seniors, and Graduate Students. This is further broken down by sex. The formulae used for the medians and quartile deviations are from those reported in McNemar (1955, pp. 14 and 19 respectively). Medians are being used in preference to means because of the caution encouraged by authors in Rorschach research, particularly with regard to the use of statistics and experimental design. Cronbach (1949), for example, in his presentation of an

analysis of statistical problems in relation to Rorschach work, stresses that parametric techniques tend to give too much weight to extreme scores which may distort the data. Care was taken in the computation of the median so as not to produce an inflated measure. That is, for each content category, all subjects were included in the analysis, including those who did not produce the content category under consideration.

A table showing the per cent of subjects using each category within each educational subgroup is presented. In addition, a table showing the number of different content categories used by each educational subgroup has been compiled.

Major differences between groups found in the normative description are evaluated and discussed, and interpretive hypotheses are presented utilizing the past findings reported in the literature with regard to the meaning of the specific content scores. The Extension of the Median Test (Siegel, 1956, p. 179 is used as the basic format to test the differences that are found among the various groups for degree of significance. For purposes of economy, the machine formulae for Chi-square as described in Spiegel (1961) have been substituted for the hand calculation methods for determining Chi-square. The comparison of the total groups utilizes a 5 x 2 table (Spiegel, p. 204), and the comparison of males and females a 2 x 2 table (Spiegel, p. 203). Both measurements involve a two tailed test, and a .05 level of confidence is needed to establish significance. However, those comparisons reaching the .10 level of confidence will be looked upon as trends, and interpretations will be offered within this context. Since this is a normal sample, consistent extreme differences are not expected, and those differences that are found to

exist are considered relative, i.e., not permanent.

The "Rorschach Content Maturity Index" tested between freshmen and seniors involves essentially the same procedure as for the comparison of males and females above, i.e., use of a 2 x 2 table with the expected significance level of .05. However, in this case, a one-tailed test is called for. One variable to be tested in the maturity index, namely restricted variety of content, has been evaluated using a t test based on the mean number of content categories used by each group (McNemar, 1962, p. 103).

The method of analysis used in the investigation of the relationship between the number of total responses and the number of responses within each of the five most frequently used categories is as follows. The number of responses was plotted against the number of content for the main responses of each of the 300 subjects. The curves were then rectified using the approach described in Guilford (1936, p. 287). The lines of best fit for these categories were found using the method of least squares, and the formulae for the lines were determined. Correlations were found and confidence limits (.05 level), based on the standard error of estimate, were determined for each relationship. This will enable predictions to be made regarding the number of responses in each content category which will occur with a given number of responses in a record, with a certain degree of probability. Although the correlations found were basically Pearson product moment correlations, Guilford (1936) refers to a correlation found in this way as an "index of correlation." Since the data were essentially normalized by finding the line of best fit, the assumption of linearity underlying the use of Pearson's r has been satisfied.

CHAPTER IV

RESULTS AND DISCUSSION

Normative Analysis

The median number of content occurring in each category for the five educational levels and the total sample can be found in Tables 2 through 7 below. The quartile deviations for these medians can be found in Tables 17 through 22 in the Appendix.

It will be noted that the median number of total responses for the entire sample is 25.32. This is far below the mean of 32.65 reported by Beck et al. (1950) for his 157 normals (see Table 7). However, this difference would appear to be partially accounted for in terms of the weight given to extreme scores in the skewed Rorschach distribution by using the mean. The mean number of responses in this college sample is 29.31, which is much closer to Beck's estimate. Another factor which may contribute to this difference is an examiner influence can have an effect upon the number of roral responses that are produced in a given record (Meyer and Partipilo, 1961; Gibby, Miller, and Walker, 1953; Gibby, 1952; Lord, 1950). In the present study, 90 examiners were involved; however, only two examiners tested Beck's 157 subjects. Thus, it would appear that the examiner variable would be essentially ruled out in this study, and the production of R would be a more reliable estimate.

The two studies by Ames et al. (1954; 1959) report mean number of responses for an old age sample and for 16 year olds respectively, which approximates or is below the median reported in this study (see Table 8).

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Table 2

Medians for Content given by Freshman

Cagetory	Main Responses			Additional Responses		
	Male	Female	Total	Male	Female	Total
R	24.00	21.00	22.16	--	--	--
A	9.65	7.70	7.86	0.19	0.10	0.13
(A)	0.22	0.32	0.28	0.08	0.09	0.09
Ad	1.40	0.87	1.05	--	0.01	0.01
(Ad)	0.06	0.08	0.07	0.03	0.02	0.02
Total A	11.83	9.83	10.33	0.36	0.21	0.26
H	2.33	2.17	2.22	0.06	--	0.02
(H)	0.36	0.85	0.63	0.03	0.02	0.02
Hd	0.90	0.67	0.75	0.05	0.01	0.02
(Hd)	0.22	0.13	0.16	0.05	0.01	0.02
Total H	4.00	4.50	4.39	0.16	0.03	0.07
Obj.	1.27	0.95	1.05	1.21	0.95	1.06
At.	0.77	0.50	0.60	0.05	0.02	0.03
Na.	0.84	0.36	0.44	0.14	0.20	0.18
Pl.	1.20	0.39	0.62	0.45	0.23	0.24
A.At.	0.06	0.06	0.06	--	0.02	0.01
Abs.	0.05	0.05	0.05	0.01	0.02	0.02
Aobj.	0.90	0.65	0.76	0.12	0.05	0.07
Arch.	0.16	0.15	0.16	0.03	0.03	0.03
Art	0.16	0.09	0.12	--	0.02	0.01

Table 2 (Continued)

Category	Main Responses			Additional Responses		
	Male	Female	Total	Male	Female	Total
Blood	0.06	0.02	0.04	0.08	0.08	0.08
Biol.	0.03	--	0.01	--	--	--
Clothing	0.70	0.32	0.43	0.45	1.00	0.76
Cloud	0.16	0.09	0.12	0.05	0.02	0.03
Crown	0.01	0.01	0.01	--	0.02	0.01
Design	--	0.02	0.05	--	--	--
Emblem	0.16	0.06	0.10	0.01	--	0.01
Expl.	0.06	0.04	0.05	0.05	--	0.02
Fire	0.03	0.04	0.04	0.12	0.12	0.12
Food	0.16	0.23	0.20	0.08	0.01	0.03
Geo.	0.19	0.09	0.13	--	--	--
Ice	0.05	0.02	0.03	0.05	0.03	0.04
Mask	0.12	0.05	0.07	--	--	--
Rel.	0.08	0.03	0.05	0.10	0.07	0.08
Rock	0.06	0.04	0.05	0.28	0.09	0.15
Sex	0.06	0.02	0.04	0.10	0.03	0.05
Smoke	--	0.02	0.02	0.05	0.05	0.05
T.Pole	0.12	0.15	0.14	--	--	--
Water	0.03	0.05	0.04	0.19	0.20	0.19
Other	0.19	0.17	0.18	0.06	0.10	0.10

Table 3

Medians for Content Given by Sophomores

Category	Main Responses			Additional Responses		
	Male	Female	Total	Male	Female	Total
R	21.50	26.50	23.17	--	--	--
A	7.62	7.83	7.71	0.18	0.15	0.16
(A)	0.26	0.29	0.26	0.14	0.04	0.08
Ad	1.25	1.25	1.25	0.02	--	0.01
(Ad)	0.11	0.02	0.05	0.02	--	0.01
Total A	9.75	10.50	9.86	0.69	0.18	0.26
H	1.75	2.75	2.44	--	0.02	0.01
(H)	0.46	0.80	0.64	0.05	0.04	0.04
Hd	0.80	1.08	1.00	--	0.10	0.05
(Hd)	0.11	0.25	0.18	--	--	--
Total H	5.25	6.00	5.64	0.05	0.15	0.10
Obj.	1.38	1.00	1.11	0.67	1.17	0.89
At.	0.71	0.72	0.72	0.14	0.06	0.09
Na.	0.46	0.44	0.45	0.11	0.18	0.16
Pl.	0.38	0.70	0.54	0.65	0.29	0.41
A.At.	0.05	0.10	0.08	--	--	--
Abs.	--	0.13	0.06	0.05	0.28	0.06
Aobj.	0.86	1.38	1.13	0.18	0.04	0.09
Arch.	0.11	0.29	0.20	0.08	0.08	0.08
Art	0.08	0.06	0.06	0.02	--	0.01

Table 3 (Continued)

Category	Main Responses			Additional Responses		
	Male	Female	Total	Male	Female	Total
Blood	0.05	0.04	0.04	0.11	0.04	0.06
Biol.	0.05	0.04	0.04	--	0.02	0.01
Clothing	0.46	0.29	0.35	0.46	1.75	1.31
Cloud	0.14	0.02	0.06	0.14	0.13	0.13
Crown	--	0.04	0.02	0.02	0.04	0.03
Design	--	---	--	0.02	--	0.01
Emblem	0.02	0.10	0.06	--	--	--
Expl.	0.18	0.02	0.08	0.05	0.04	0.04
Fire	0.02	0.08	0.05	0.11	0.13	0.12
Food	0.08	0.25	0.16	0.08	0.02	0.04
Geo.	0.11	0.15	0.13	--	0.02	0.01
Ice	--	0.06	0.03	0.02	--	0.01
Mask	0.08	0.06	0.06	--	0.02	0.01
Rel.	0.05	0.06	0.05	0.08	0.18	0.13
Rock	0.02	0.04	0.03	0.08	0.18	0.13
Sex	0.11	0.04	0.06	0.08	0.02	0.04
Smoke	0.02	0.04	0.03	--	0.10	0.05
T. Pole	0.18	0.04	0.13	0.02	--	0.01
Water	--	0.06	0.03	0.32	0.33	0.32
Other	0.22	0.13	0.16	0.11	0.15	0.13

Table 4

Medians for Content Given by Juniors

Category	Main Responses			Additional Responses		
	Male	Female	Total	Male	Female	Total
R	29.00	25.33	27.00	--	--	--
A	8.25	8.50	8.33	0.18	0.21	0.19
(A)	0.44	0.27	0.36	0.08	0.09	0.08
Ad	1.80	1.33	1.63	0.02	--	0.01
(Ad)	0.06	0.03	0.04	0.04	0.03	0.03
Total A	12.00	10.30	11.50	0.33	0.33	0.33
H	2.30	2.17	2.25	0.04	0.03	0.03
(H)	0.33	1.00	0.50	0.02	0.03	0.02
Hd	1.78	1.06	1.43	--	--	--
(Hd)	0.50	0.17	0.33	--	0.06	0.02
Total H	5.75	3.17	4.50	0.04	0.09	0.06
Obj.	1.33	1.17	1.28	1.00	1.00	1.00
At.	1.40	0.33	1.08	0.04	0.03	0.03
Na.	0.30	0.50	0.43	0.04	0.41	0.14
Pl.	0.83	1.00	0.88	0.25	0.33	0.28
A.At.	0.10	0.17	0.13	--	0.06	0.02
Abs.	0.08	0.09	0.08	0.04	0.06	0.04
Aobj.	1.13	1.07	1.11	0.08	0.06	0.07
Arch.	0.18	0.27	0.21	0.02	0.06	0.03
Art	0.10	0.06	0.08	0.02	--	0.01

Table 4 (Continued)

Category	Main Responses			Additional Responses		
	Male	Female	Total	Male	Female	Total
Blood	0.10	0.09	0.10	0.10	--	0.06
Biol.	0.04	0.03	0.03	--	--	--
Clothing	0.58	0.33	0.46	1.08	1.33	1.17
Cloud	0.04	0.06	0.04	0.04	0.13	0.07
Crown	0.02	--	0.01	0.08	--	0.04
Design	--	--	--	--	0.03	0.01
Emblem	0.06	0.06	0.06	--	--	--
Expl.	0.13	0.03	0.08	--	--	--
Fire	0.04	0.09	0.06	0.06	0.17	0.10
Food	0.15	0.27	0.19	0.13	--	0.07
Geo.	0.29	0.17	0.24	--	--	--
Ice	0.04	0.09	0.06	--	0.06	0.02
Mask	0.21	0.06	0.14	0.04	0.03	0.03
Rel.	0.02	0.09	0.04	0.10	0.06	0.08
Rock	0.08	0.06	0.07	0.13	0.09	0.11
Sex.	0.15	0.09	0.13	0.38	0.09	0.24
Smoke	0.02	--	0.01	0.04	0.03	0.03
T. Pole	0.18	0.17	0.18	--	--	--
Water	0.08	0.03	0.06	0.21	0.21	0.21
Other	0.18	0.17	0.18	0.15	0.17	0.16

Table 5

Medians for Content Given by Seniors

Category	Main Responses			Additional Responses		
	Male	Female	Total	Male	Female	Total
R	25.18	31.00	28.90	--	--	--
A	7.63	10.65	9.00	0.16	0.06	0.09
(A)	0.19	0.36	0.29	0.07	0.07	0.07
Ad	1.38	1.79	1.65	0.02	0.03	0.03
(Ad)	0.04	0.08	0.06	0.02	0.01	0.01
Total A	10.33	12.50	11.19	0.24	0.16	0.16
H	1.86	2.79	2.38	--	0.06	0.03
(H)	0.24	1.16	0.48	0.04	0.06	0.05
Hd	0.69	1.07	0.87	--	--	--
(Hd)	0.16	0.20	0.18	--	0.04	0.03
Total H	4.38	6.00	5.45	0.04	0.18	0.12
Obj.	0.92	1.25	1.14	0.39	1.07	0.78
At.	0.95	0.96	0.96	0.07	0.04	0.05
Na.	0.92	0.65	0.74	0.16	0.07	0.11
Pl.	0.94	0.86	0.89	0.53	0.16	0.27
A.At.	0.13	0.08	0.09	0.02	--	0.01
Abs.	0.02	0.13	0.08	0.10	0.03	0.05
Aobj.	1.08	1.10	1.09	0.04	0.04	0.04
Arch.	0.10	0.26	0.18	--	0.08	0.04
Art	0.07	0.11	0.09	--	0.01	0.01

Table 5 (Continued)

Category	Main Responses			Additional Responses		
	Male	Female	Total	Male	Female	Total
Blood	0.02	0.06	0.04	0.24	0.01	0.08
Biol.	0.02	0.06	0.04	0.02	--	0.01
Clothing	0.33	0.67	0.48	0.73	0.83	0.78
Cloud	0.13	0.11	0.12	0.07	0.07	0.07
Crown	0.04	0.06	0.05	0.02	0.01	0.01
Design	0.02	--	0.01	--	--	--
Emblem	0.13	0.08	0.09	--	0.01	0.01
Expl.	0.04	0.13	0.09	0.02	--	0.01
Fire	0.13	0.03	0.06	0.04	0.11	0.08
Food	0.33	0.33	0.33	--	0.04	0.03
Geo.	0.24	0.20	0.22	--	--	--
Ice	--	0.03	0.01	0.04	--	0.01
Mask	0.02	0.13	0.08	--	0.01	0.01
Rel.	0.07	0.06	0.06	0.16	0.20	0.18
Rock	0.07	0.06	0.06	0.16	0.13	0.14
Sex.	0.16	0.03	0.07	0.33	0.08	0.16
Smoke	--	0.01	0.01	--	0.04	0.03
T. Pole	0.16	0.16	0.16	--	0.01	0.01
Water	0.04	0.03	0.03	0.33	0.36	0.35
Other	0.13	0.09	0.11	0.07	0.08	0.07

Table 6

Medians for Content Given by Graduate Students

Category	Main Responses			Additional Responses		
	Male	Female	Total	Male	Female	Total
R	29.00	29.00	29.00	--	--	--
A	9.16	9.50	9.20	0.12	--	0.08
(A)	0.22	0.16	0.21	0.02	0.07	0.03
Ad	1.83	1.00	1.78	0.04	--	0.03
(Ad)	0.18	--	0.13	0.02	--	0.02
Total A	12.50	10.50	12.10	0.18	0.07	0.15
H	2.71	2.75	2.73	--	--	--
(H)	1.10	1.25	1.14	0.04	0.07	0.05
Hd	1.40	1.33	1.38	0.02	0.07	0.03
(Hd)	0.22	0.16	0.21	0.02	--	0.02
Total H	6.70	6.00	6.50	0.09	0.16	0.11
Obj.	1.39	0.50	1.30	0.84	1.00	1.00
At.	0.88	0.84	0.86	0.02	0.07	0.03
Na.	0.83	0.83	0.83	0.31	0107	0.24
Pl.	0.38	0.17	0.31	0.37	0.75	0.44
A.At.	0.12	0.16	0.13	--	--	--
Abs.	0.12	0.17	0.13	0.04	--	0.03
Aobj.	1.49	0.83	1.33	0.09	--	0.07
Arch.	0.22	0.30	0.24	0.02	--	0.02
Art	0.07	0.07	0.07	--	--	--

Table 6 (Continued)

Category	Main Responses			Additional Responses		
	Male	Female	Total	Male	Female	Total
Blood	0.12	0.07	0.11	0.09	--	0.07
Biol.	0.04	--	0.03	--	--	--
Clothing	0.83	1.00	0.87	0.60	0.16	0.73
Cloud	0.09	0.07	0.08	--	0.07	0.02
Crown	--	0.07	0.02	0.07	--	0.05
Design	0.15	0.07	0.13	--	0.07	0.02
Emblem	0.09	0.07	0.08	0.02	--	0.02
Expl.	--	0.07	0.02	0.07	--	0.05
Fire	0.04	0.07	0.05	0.04	0.50	0.11
Food	0.31	0.16	0.27	0.15	0.07	0.13
Geo.	0.18	0.16	0.18	--	--	--
Ice	--	0.16	0.03	--	--	--
Mask	0.12	0.30	0.15	--	--	--
Rel.	0.09	--	0.07	0.04	0.30	0.08
Rock	--	--	--	0.18	0.16	0.18
Sex	0.12	0.07	0.11	0.09	--	0.07
Smoke	0.12	--	0.02	--	0.16	0.03
T. Pole	0.26	0.16	0.24	--	--	--
Water	0.12	0.16	0.13	0.26	0.16	0.24
Other	0.50	0.16	0.39	0.12	0.07	0.11

Table 7

Medians for Content Given by Total Sample

Category	Main Responses			Additional Responses		
	Male	Female	Total	Male	Female	Total
R	25.33	25.30	25.32	--	--	--
A	8.50	8.43	8.47	0.17	0.11	0.13
(A)	0.26	0.31	0.29	0.07	0.08	0.08
Ad	1.67	1.23	1.41	0.02	0.01	0.02
(Ad)	0.08	0.06	0.07	0.03	0.01	0.02
Total A	11.12	10.59	10.88	0.30	0.20	0.24
H	2.13	2.40	2.19	0.02	0.02	0.02
(H)	0.43	0.93	0.68	0.03	0.07	0.05
Hd	1.18	0.93	1.04	0.01	0.02	0.02
(Hd)	0.23	0.17	0.20	0.01	0.02	0.02
Total H	5.05	5.21	5.14	0.08	0.12	0.10
Obj.	1.31	1.10	1.19	0.86	0.88	0.87
At.	0.96	0.63	0.80	0.06	0.03	0.05
Na.	0.63	0.46	0.51	0.14	0.17	0.15
Pl.	0.77	0.57	0.66	0.42	0.25	0.32
A.At.	0.09	0.09	0.09	--	0.01	0.01
Abs.	0.05	0.09	0.07	0.04	0.04	0.04
Aobj.	1.07	0.93	1.00	0.10	0.04	0.07
Arch.	0.15	0.22	0.19	0.03	0.05	0.04
Art	0.10	0.08	0.09	0.01	0.01	0.01

Table 7 (Continued)

Category	Main Responses			Additional Responses		
	Male	Female	Total	Male	Female	Total
Blood	0.07	0.04	0.06	0.11	0.04	0.07
Biol.	0.03	0.02	0.03	--	--	--
Clothing	0.60	0.40	0.48	0.69	1.16	0.90
Cloud	0.10	0.08	0.09	0.05	0.07	0.06
Crown	0.01	0.03	0.02	0.03	0.02	0.03
Design	0.03	0.01	0.02	--	--	--
Emblem	0.09	0.07	0.08	0.01	--	0.01
Expl.	0.07	0.06	0.06	0.03	--	0.02
Fire	0.05	0.05	0.05	0.07	0.13	0.10
Food	0.19	0.25	0.22	0.08	0.02	0.05
Geo.	0.20	0.14	0.17	--	--	--
Ice	0.02	0.04	0.03	0.02	0.02	0.02
Mask	0.11	0.08	0.09	0.01	0.01	0.01
Rel.	0.06	0.05	0.06	0.09	0.13	0.11
Rock	0.05	0.04	0.05	0.17	0.12	0.14
Sex	0.12	0.04	0.07	0.17	0.04	0.10
Smoke	0.01	0.02	0.02	0.02	0.06	0.04
T. Pole	0.17	0.15	0.16	--	--	--
Water	0.05	0.05	0.05	0.25	0.25	0.25
Other	0.22	0.14	0.18	0.10	0.11	0.11

Table 8

Statistical Results of Other Studies Dealing

With Rorschach Content

Category	Ames, 1959 100, 16 yr. olds	Ames, 1954 41, 80 yr. olds	Beck, 1950 157 normals
R	22.50	25.90	32.65
A	10.90	11.40**	
H	4.29	6.00***	4.02
Hd			1.78
Obj.	2.57	3.30	
At.	0.83	0.50	1.55
Na.	0.76	0.70	
Pl.	0.50	1.80	
Abs.	0.43*	0.10	
Arch.	0.13	0.20	
Art	0.16		
Blood	0.15	0.10	
Design	0.06		
Fire	0.11*		
Food	0.18	0.30	
Geo.	0.23	0.40	
Sex			0.03

* Includes main and additional responses.

** A + Ad

*** H + Hd

With the assumption that mean scores are an inflated estimate of Rorschach data, it would follow that both the adolescent and the old age groups tend to give fewer total responses than the college population. Hereafter then, when the medians of this study are compared with the means reported in other studies, the differences will have to be fairly large in order for significance to be attached to it.

A comparison of the five educational levels with regard to their total number of responses shows that median response output consistently increases as educational level increases, ranging from 22.16 for freshmen to 29.00 for graduate students. This difference was found to be significant above the one per cent level of confidence (see Table 9). Considering the sample as a whole, there is no essential difference in the production of R between males and females. However, on inspection of the individual educational levels this similarity is not as clearly demonstrated; there appear to be inconsistent sex differences with respect to the production of R. Nevertheless, the differences may be accounted for in terms of sampling error, and should be considered due to chance.

Interpretively, from the above considerations it would appear that the lower the educational level, the more defensive the group would tend to be (Schafer, 1954). They would also tend to be generally less intelligent (Phillips and Smith, 1953) and less productive (Klopfer, 1954).

The fact that this response difference attained such a high degree of significance affects the procedure to be used in evaluating the other differences found in content among the educational levels. It has been demonstrated that increase in total number of responses tends to affect the number of

Table 9

Extension of the Median Test of Categories

Reaching Significance Comparing the Five

Educational Levels

	Main Content	
Category	x^2	P
R	16.98	< .01
Ad	8.50	< .10
Hd	11.69	< .02
Aobj.	8.51	< .10
Clothing	7.78	< .10
Blood	15.14	< .01

responses that occur in a specific response category (Cronbach, 1949; Fiske, 1953; Murstein, 1960). This finding appears quite logical and will be further demonstrated in this paper. It follows that dynamic interpretations cannot be made simply on the basis of an increased median number of responses occurring in a given category when two or more educational levels are compared. However, this does not mean that no interpretations can be made. For example, if freshmen produce a higher median number of responses in a given category in contrast to the other educational levels, it would not only lend itself to interpretation (since statistically they would be expected to give fewer responses in a given category), but it would additionally tend to emphasize the extent to which Freshmen actually over-produce in the category. However,

the influence of increased response output does not necessarily affect each content category in the same way. This will be partially demonstrated later in an evaluation of the five most frequently used content categories. This factor will present some additional problems with respect to making interpretations of the differences that are found. Nevertheless, the specific relationships between content and R that are found in a later section of this paper will be incorporated into the present attempt to evaluate the interpretive meaning of the differences that occur in the production of specific content categories among the five educational levels. Finally, although many of the differences which will be considered in the evaluation did not reach statistical significance in an over-all comparison, they will be interpreted as tends, and should only be considered as such.

One might question whether or not interpretations attached to content would apply to a "normal" college population. However, several authors state (e.g., Phillips and Smith, p. 113) that virtually all contents which are developed by disturbed individuals are also developed by normals. In this sense then, the difference between normal and disturbed individuals is that normals would not express in behavior those pathological traits, attitudes, and motives which they do express in content. Thus, the traits would not be as influential in a normal population. However, this would not mean the traits would not be present in a relative sense. Logically, they could be reflected more strongly in certain of the educational levels because of different needs, developmental level, and environmental pressures, and an attempt of this study is to make this differentiation.

Evaluation of the production of animal content shows that every subject

contributes to this category (See Table 11). The medians for the total group appear to approximate those reported in previous studies. Although Ames' two groups produce a higher number, this is to be expected considering the interpretive implications involved (see below). When looking at the median number of animal responses for each educational group it appears that the production of this content increases with educational level. However, when the correlation between R and A is taken into consideration and the number of responses is controlled for (see regression analysis below), this phenomenon is reversed. The production of animal responses actually increases as educational level decreases, and this trend was found to be significant above the five per cent level of confidence (see Table 16). This trend can also be seen in an evaluation of (A) content. Also using this method of analysis, the difference between freshmen and seniors in the production of A was found to be significant above the .001 level of confidence. This point will be evaluated further in the section on the "Rorschach Content Maturity Index." The above findings appear to be supported by a consideration of the occurrence of additional animal responses. There are no significant sex differences in the production of main A responses. However, a slight trend can be noted in the direction of males giving more additional animal responses than females.

Seventy-three per cent of all subjects produced main animal-detail responses. Comparison of the educational groups again shows the median number of content to increase with educational level, and this difference reached the ten per cent level of confidence (see Table 9). However, correction for the influence of R as above ruled out this finding and showed no significant difference among the groups (see Table 16). The males give more Ad responses than

do females and this difference is significant above the .10 level (see Table 10). The seniors were the only group that did not follow this pattern, and this deviation no doubt lowered the significance level for the entire sample in this content category. However, the extreme difference between the quartile deviations for the senior males and females indicates that the deviation is most likely a result of sampling, and is a chance occurrence (see Table 20). Analysis of(Ad) responses showed no remarkable differences.

All of the animal responses were combined into a "Total A" score. Evaluation of the various educational levels shows no significant differences for main responses for either the total group or between freshmen and seniors. However, inspection shows the freshmen, sophomores, and juniors to give more additional animal responses than do either seniors or graduate students. The difference between males and females in the production of additional Total A score was significant above the .10 level, with the males being more productive (see Table 10). There is no consistent sex difference shown for main Total A score although the males generally seem to produce more Total A.

From the standpoint of comparative interpretation of the animal responses in this sample, there is a trend which suggests that students of the lower educational levels would tend to be more stereotyped in their thinking and less productive (Klopfer, 1954; Rorschach, 1942; Piotrowski, 1957). They would also tend to be less intellectually assertive (Piotrowski, 1957), more immature, and possess less insight (Phillips and Smith, 1953). The above interpretations would appear to be more strongly relevant for males in the lower educational levels.

In the analysis of human content, even though there are some differences

Table 10

Extension of the Median Test of Categories Reaching

Significance for Males and Females

Category	Main Content		Additional Content	
	x^2	P	x^2	P
Ad	2.83	< .10	--	--
Total A	--	--	2.73	< .10
(H)	7.79	< .01*	--	--
Total H	--	--	5.56	< .02*
At.	3.91	< .05	--	--
Pl.	--	--	4.97	< .05
Abs.	2.71	< .10*	--	--
Aobj.	2.93	< .10	4.88	< .05
Blood	--	--	8.27	< .01
Clothing	2.93	< .10	2.72	< .10*
Fire	--	--	3.67	< .10*
Food	--	--	10.47	< .01*
Sex	10.40	< .01	16.90	< .001
Smoke	--	--	14.58	< .001*
Other	3.03	< .10	--	--

*Indicates categories in which females were more productive than males.

Table 11

Per Cent of Subjects Using Each Content Category as a Main Response

Category	Freshmen	Sophomores	Juniors	Seniors	Gr. Students	Total
A	100	100	100	100	100	100
(A)	36	33	38	36	29	34
Ad	66	64	88	76	73	73
(Ad)	13	09	08	11	17	11
H	94	92	94	85	97	92
(H)	54	54	50	49	76	56
Hd	57	66	78	58	73	66
(Hd)	24	26	40	26	29	29
Obj.	68	67	64	68	73	68
At.	53	56	64	66	61	60
Na.	47	47	46	57	58	51
Pl.	53	50	60	63	38	52
A.At.	12	13	20	15	20	16
Abs.	09	11	14	14	20	13
Aobj.	62	67	78	80	79	73
Arch.	24	28	30	26	32	28
Art	19	11	14	15	11	14
Blood	07	07	16	07	17	11
Biol.	02	07	06	07	05	05
Clothing	46	41	48	49	70	50
Cloud	19	11	08	19	14	14

Table 11 (Continued)

Category	Freshmen	Sophomores	Juniors	Seniors	Gr. Students	Total
Crown	02	03	02	09	02	03
Design	03	--	--	01	20	04
Emblem	16	11	10	15	14	13
Expl.	09	13	14	15	02	10
Fire	07	09	10	11	08	09
Food	29	24	28	39	35	31
Geo.	20	20	32	30	26	25
Ice	05	05	10	03	05	05
Mask	13	11	22	14	23	16
Rel.	09	09	08	11	11	09
Rock	09	05	12	11	--	07
Sex	08	11	20	12	17	13
Smoke	03	05	02	01	02	02
T. Pole	22	20	26	23	32	24
Water	08	05	10	06	20	10
Other	26	24	26	17	44	27

in interpretation for the various forms of the content, they all essentially deal with how an individual relates on an interpersonal level. Therefore, for purposes of continuity, the interpretations for human content will be presented in an integrated form after the discussion of the statistical differences that were found among the various groups for each of the separate types of human content.

Ninety-two per cent of all subjects contributed main human content. The graduate students had the highest production rate which was ninety-seven per cent. There were no significant differences found among any of the groups insofar as H is concerned. However, there was a tendency for females to produce more of this category than males.

(H) was more discriminating. Females produced more (H) than males, and this difference was significant above the .01 level of confidence (see Table 10). There was also a trend in the direction of freshmen producing more of this category than seniors for main content. This difference between freshmen and seniors in the production of (H) was found to be significant above the ten per cent level for additional responses (see Table 14). Although 56 per cent of all subjects contributed to this category, and the distribution was relatively even among the various educational levels, the graduate students were much more productive; 76 per cent of the graduate students gave (H) responses (see Table 11). In addition, the median number of (H) produced by the graduate students was almost double that of the other educational levels. Thus, there appears to be a slight continuous decrease in the production of (H) as educational level increases. However, the graduate students prove to be the exception, and they are more productive in this area than any other educational

level.

Evaluation of the differences in the production of human-detail responses shows that the juniors and graduate students give more of this content than the other educational levels. This difference was found to be significant above the .02 level (see Table 9). However, it is difficult to logically explain the difference for the juniors considering that this finding is at variance with that for the other types of human responses. Since this is the case, the difference may be due to sampling error. There were no consistent differences found between males and females. In addition, there are no remarkable differences among the educational levels for (Hd) responses.

A composite picture of the production of human responses of all types can be seen in the Total H score that was obtained. There is a trend which suggests that females produce more main Total H than males. This trend is significant beyond the .02 level for the additional Total H score. All of the educational levels appear quite similar in its production with the exception of the graduate students. The Total H score of this group far exceeds that of the other educational levels. Interpretations will not be made for the differences in Total H score because, as was stated above, the various types of H have slightly different interpretive meaning, and therefore cannot be combined for this purpose. The Total H score was determined so that the reader may compare the human content in this study with the "H-per cent" reported by some authors in their work.

A comparison of these results with normative studies reported in the literature dealing with human content shows no great differences (see Table 8). It is interesting to observe that the production of H responses does not

appreciably increase with age. Ames' group of 16 year olds do not differ greatly from Beck's sample (mean age of 30.5), or from Ames' sample of 80 year olds.

The comparative implications of the analysis of human responses from the standpoint of interpretation are as follows. On the one hand, the graduate student group compared to the other educational levels, and the females compared with the males, would tend to possess a higher degree of self awareness (Hertzman, 1947), show more interest in and sensitivity to others (Phillips and Smith, 1953), and generally tend to be more introspective and more interested in inner life (Kadinsky, 1946; Klopfer, 1954). Even though this is postulated, these two groups would also tend to feel more anxiety about interpersonal relations and lean toward relative social isolation (Phillips and Smith), and have more difficulty in identifying closely with people (Klopfer, 1954). Thus, the females and graduate students, although sensitive as groups, have a tendency to be more reserved and non-demonstrative toward society. The interpersonal anxiety, social isolation, and relative difficulty with identifying with people discussed above appears to decrease in the sample as educational increases. As was noted, the one exception is with the graduate students.

Sixty-eight per cent of all subjects produced inanimate object content. The students in this sample produced much less of this content than Ames' two groups reported in Table 8. Comparison of the five educational levels showed no significant differences to exist. However, there was a non-significant trend noted for males to produce more objects than females. This finding is in opposition to Rorschach's view (1942) that this content is most often given

by women.

Interpretively, these findings suggest that Ames' 16 and 80 year olds lack in productivity (Piotrowski, 1957) and concentration (Rorschach, 1942), relatively speaking, in comparison with this college sample. In addition, the interpretation attached to this content may partially account for the lack of conformity of the females of this sample to Rorschach's view in relation to object content. That is, college women must be striving, productive, and indeed possess a keen ability to concentrate if they are to succeed in college.

Evaluation of median anatomy responses shows no significant differences among the educational levels. Sixty per cent of all subjects gave main responses in this category, and the distribution was fairly even throughout the five groups. However, the males were found to produce more main anatomy responses than females and this difference is significant at the .05 level of confidence (see Table 10). From the standpoint of comparative interpretation, it can be said that males of this sample tend to be more concerned with the expression of destructive impulses than the females (Phillips and Smith). They would also tend to feel relatively more insecure, anxious, and intellectually inadequate (Klopfer; Phillips and Smith; Rorschach; Beck; Piotrowski).

Considering the interpretations that are attached to anatomy content, a comparison of this study with other normative studies reported in the literature (Table 8) yields some questionable results. Ames' 16 year olds closely approximate the median number of At responses in this college sample. Beck reports a much higher incidence of anatomy responses in his normal population. This is understandable considering all of his 157 subjects were employees of a mail order house, and may in fact feel less intellectually adequate and more

frustrated as a group than a college population. However, Ames' sample of 80 year olds contributed the fewest number of anatomy responses. This would not seem to correspond with the interpretations previously mentioned, nor with the feeling of some authors that At responses reflect concern with bodily integrity (Rav, 1951; Klopfer, 1954) and is related to hypochondriasis (Rorschach; Beck, 1944; Mons, 1951). There were only 41 subjects used in Ames' old age sample, and this may partially account for the seemingly questionable results concerning anatomy responses for this group.

Analysis of the occurrence of nature content shows that additional Na responses decrease as educational level increases. However, the graduate students are an exception to this pattern. In addition, the graduate students produce almost double the number of main nature responses in comparison to freshmen, sophomores, and juniors. The difference between freshmen and seniors in the production of additional Na responses was found to be significant at the ten per cent level (see Table 12). Fifty-one per cent of all subjects contributed main nature responses, and there were no large differences shown among the educational levels in relation to this. However, a slightly higher percentage of graduate students gave nature responses than the other groups (see Table 11).

Interpretively, it appears that students at the lower educational levels would tend to be more intellectually evasive (Piotrowski, 1957; Schafer, 1948; Rorschach; Phillips and Smith). They would also tend to feel more inferior and unaccepted (Phillips and Smith) and comparatively more helpless (Klopfer, 1954). As mentioned above, the graduate students are the exception. Even considering their educational status and drive for professional attainment, the analysis

Table 12

Extension of the Median Test for Rorschach Content

Maturity Index Comparing Freshmen and Seniors

Category	Main Content		Additional Content	
	x^2	P	x^2	P
Low R	9.72	< .001*	--	--
(H)	0.36	NS*	2.05	< .10
Hd	0.63	NS	--	--
Total A	1.47	NS	0.88	NS
Cloud	0.00	NS	2.21	< .10
Fire	0.83	NS	0.60	NS*
Food	1.99	< .10	0.11	NS
Nature	1.59	NS	1.65	< .10*
Water	0.15	NS*	3.07	< .05
Restricted variety of content	0.31**	NS*	--	--
A***	8.86	< .001*	--	--
Ad***	0.31	NS*	--	--

    * Indicates a trend in the predicted direction, i.e., freshmen being
      more productive in these areas.
   ** t test based on the mean number of content categories used.
  *** Chi-square based on regression analysis.

There are no outstanding trends shown in the production of animal-anatomy responses. Only 16 per cent of all subjects contributed to this category (see Table 11) and there is no great difference among the educational levels in this respect. Males and females were equally productive in this area. Animal-anatomy responses are not frequently mentioned in the literature. Klopfer is the only author who treats it as a separate category, and the interpretations attached to it do not appear to be distinguished from those associated with human-anatomy responses.

The production of abstract content appears to increase with educational level. The graduate students gave twice as many abstract responses as the freshmen and sophomores. In addition, a higher percentage of graduate students contributed to this category as compared to the other educational levels (see Table 11). The females of the sample produced more abstract content than the males, and this difference was found to be significant above the ten per cent level of confidence (see Table 10).

Interpretively, a trend suggests that the higher the educational level, the higher the intellectual level would tend to be (Klopfer, 1962), the more stable and constructive would be their level of adjustment (Phillips and Smith) and the more passively oriented they would tend to be (Rorschach). This would appear to especially hold true for graduate students. There is also a trend which suggests that female college students are generally more stable and mature than the males, and also more passively oriented. One would question whether in fact the females as a group would possess higher intelligence than the males particularly in the face of commonly accepted evidence that this is not true. Considering the interpretive implications of a more stable and

constructive level of adjustment attached to abstract content by Phillips and Smith, as well as their feeling that this content is rare in the records of immature persons, it is interesting to note that Ames' 16 year olds produce a much higher mean number of abstract responses than even the graduate students in this sample (See Table 8). There are several possible explanations for this variance other than the one contained in the interpretation of the category, e.g., differences in scoring method or even chance occurrence. The latter alternative appears to be the most appropriate for the following reasons. Ames (1959) reports the mean number of abstract responses for the age groups 10 to 16 years, and each age level from 10 to 15 produces less abstract content than the college sample (p. 64). The 16 year olds contribute more than double any other age level, thus the extent of this increase appears to be an artifact and a result of chance.

Evaluation of the production of animal object (Aobj.) responses shows a significant difference for the total sample above the .10 level of confidence. Inspection of the data shows the freshmen to produce the least and the graduate students to produce the most in this content. Considering the difference in total response output between freshmen and graduate students which was discussed above, and the fact that several authors list two Rorschach plates (IV and VI) as yielding "popular" animal-object responses, one must be cautious in attaching interpretive significance to this difference. However, the males of the sample produce more main Aobj. responses than the females (significant above the .10 level) and also more additional Aobj. responses (significant above the .05 level) (see Table 10). The difference will more readily lend itself to interpretation.

As was true with animal-anatomy content, animal-object content is scored only in Klopfer's system, and he does not attach to the content itself any particular interpretive meaning. However, it is most usual for this content to be given in relationship with the determinant of differentiated texture (Fc), and is even required in order for the response to be scored as a "popular." Thus, it will be assumed that the interpretation afforded Fc by Klopfer can be applied (although with some reservation) to animal-object content. Considering the above qualifications, the males when compared to the females, would have a tendency to show greater "acceptance of the need for affectional security in terms of awareness of a definite need to relate oneself to other people, to feel part of a group and to belong to it with a sense of acceptance and approval" (Klopfer, 1954; p. 273). In other words, the assumption is that the basic security needs of these subjects have been reasonably well satisfied and they are more aware of what affectional needs they do have in comparison to the other groups.

Analysis of architecture content reveals no significant differences among the groups. However, it should be pointed out that graduate students produce the highest median number and freshmen the lowest. In addition, a higher percentage of graduate students give this content than any other educational level, and again the freshmen are the lowest (see Table 11). Considering the possible influence of R, and the fact that the above mentioned differences were only slight trends, no definite conclusions can be reached. The females also produce more architecture content than males, and although the difference was not significant, it was a consistent trend for all educational levels. This is interesting in light of the interpretation attached to this

category. Both Piotrowski (1957) and Phillips and Smith interpret architecture content as reflecting basic feelings of inadequacy, high aspiration and masculine striving. The females, through their education, are in a sense striving for that which for many years had been considered predominantly masculine. Many of them are competing for such things as positions in the business or professional world. Thus, there may be in fact some feeling of inadequacy among the females in relation to added pressures from society.

A greater percentage of freshmen produce art content than any other educational level (see Table 11). Freshmen also produce the highest median number of main art responses. There are no other evident trends. Interpretively then, there is some indication which suggests that freshmen as a group may tend to be relatively more ineffectual and unrealistic (Piotrowski, 1957), and find it difficult to face problems and deal with difficulties, and do so in an unrealistic and intellectualized fashion (Phillips and Smith). Ames' group of 16 year olds produce even more art content than the freshmen in this sample. Thus, age and education appear to be inversely related to some degree with the production of art responses, and concomitantly with feelings of ineffectuality and inadequacy.

Analysis of blood responses showed a significant difference among the five educational groups above the .01 level (see Table 9). The juniors and graduate students were most productive of this content while the other groups gave fewer responses. The freshmen, sophomores, and seniors gave the same median number of blood responses. In addition, a higher percentage of juniors and graduate students contributed to this category as compared to the 11 per cent of contributors for the total sample. The males of the sample produced

more additional blood responses than the females, and this difference was found to be significant above the .01 level (see Table 10). The males also gave more main blood responses; however, this difference was not statistically significant.

Interpretively, it appears as though the males are more concerned with hostile and destructive impulses than the females (Schafer, 1948; Lindner, 1947; Phillips and Smith). They would also appear to be more capable of demonstrating uncontrolled affective reactions (Klopfer, 1962). However, Phillips and Smith state that the production of blood responses is a contraindication to acting out, and the interpretation of this content refers to basic feelings rather than behavior. It is difficult to interpret the increased number of blood responses for the juniors and graduate students. There does not appear to be a consistent age factor, particularly considering the fact that Ames' 16 and 80 year olds both produce more of this content than the college sample. Perhaps some unique environmental pressures contribute to the production of this content which the high groups share in common, or perhaps these differences are due to chance.

Only five per cent of the entire sample gave biology responses. The median production of this content was very low, and there are essentially no differences among the groups. This category was rarely given as an additional response.

The evaluation of clothing responses shows the graduate students to give almost double the median number of this content in comparison to the other educational levels; this difference when compared with the entire sample was significant above the ten per cent level (see Table 9). The median production of

this content in the other educational levels is essentially even. Fifty per cent of all subjects contributed to this category; however, 70 per cent of the graduate students gave clothing responses. Males produced significantly more main clothing content than females (significant above the .10 level). However, the females produced more additional clothing responses than males, and this difference was also significant above the ten per cent level (see Table 10).

From the standpoint of relative interpretation, it can be said that the graduate students show more concern with their social reputation and attractiveness than the other educational levels (Piotrowski, 1957). Similarly, they appear more sensitive to external social forms (Phillips and Smith) and more concerned with surface aspects of relationships (Klopfer, 1954). There is some indication that the graduate students would also show a comparatively greater concern over sex differences and demonstrate a relatively unresolved problem of sex role (Piotrowski; Phillips and Smith).

The interpretation of the differences between males and females in relation to the production of clothing content is not an obvious one. One possible explanation for the rather interesting difference in approach which is demonstrated may have to do with the unique way in which the interpretive implications affect a man as opposed to a woman. Perhaps by giving main clothing responses the males demonstrate a more objective and detached concern with social reputation and attractiveness than the females, and their concern over sex differences and social forms may be more immediately intense and autonomous. On the other hand, the concern shown by the females in these areas may be more intimately related with other personality traits and be less distinguishable from them. In other words, the females produce clothing content as

an elaboration of other more prominent content categories, and it is possible
that this reflects a deeper, more integrated and more complicated concern with
the above mentioned interpretations.

Fourteen per cent of the entire sample gave cloud responses and there
was an even distribution among the educational levels (see Table 11). There
are no outstanding differences among the various groups in the median produc-
tion of this category.

Only three per cent of the total sample contributed crown responses; how-
ever, nine per cent of the seniors gave this content (see Table 11). In addi-
tion, the seniors gave double the median number of main crown responses of the
other educational groups. Crown content has been associated with prestige
drives (Schafer, 1954) and concern with social position (Piotrowski, 1957).
One cannot help but speculate about the diplomas the seniors are to receive at
the end of the academic year.

Analysis of design content shows the graduate students to produce a
median number which is almost three times greater than any other educational
level. Twenty per cent of all graduate students contributed to this category
compared to three per cent of freshmen, none for sophomores and juniors, and
one per cent of the seniors. Design content is interpreted as reflecting
intellectualization, guardedness and evasion (Schafer, 1954; Phillips and
Smith). Phillips and Smith further state that people who give design responses
are often "pseudo-intellectuals; they are glib, but their verbal adeptness
serves simply as a screen which conceals their inability to face realities"
(p. 131). Thus, the implication is that the intellectual and educational
striving of the graduate students in comparison to the other educational levels

may partially be a reflection of a relative difficulty in facing reality, and a demonstration of a need to remain guarded and evasive. In a sense, their striving can be looked upon as being defensive in determination.

Thirteen per cent of the total sample contributed emblem content and there was an even distribution among the five educational levels (see Table 11). This category was rarely given as additional. There was essentially no difference in the median production of emblem responses among the various groups and no other study reports figures for this category for comparative purposes.

Main explosion content is given in approximately equal amounts by all of the educational levels with the exception of the graduate students; they produce much less of this category. In addition, a much smaller percentage of graduate students contribute to this category as compared to the other groups (see Table 11). Both Phillips and Smith and Schafer (1954) state that this content reflects the presence of aggression and hostility; it is an expression of resentment and reflects an attention getting mechanism. Phillips and Smith elaborate by stating that people who give explosion responses feel themselves as victimized by their own impulses. Thus, the graduate students can be looked upon as being less hostile and less uncontrolled in the sense of immaturely demanding attention. These interpretations are interesting considering the fact that Ames' 16 year olds gave many more of this category than the college sample, and Ames' 80 year olds rarely produced explosion content. Thus, there appears to be somewhat of a continuum involved; the 16 year olds produce a great deal, the college group less, the graduate students even less, and the old age group produces almost none.

Nine per cent of all subjects contributed fire content. There were no remarkable differences observed for either main or additional responses among the educational groups. However, females were found to produce more additional fire content than the males, and this difference was significant above the ten per cent level (see Table 10). The interpretation of this category is much the same as that for explosion content, that is, it indicates hostility, resentment, and attention getting. However, in addition, the interpretation of weakness and passivity is attached to it (Phillips and Smith). Thus, there seems to be a difference in the way the hostility of males and females is reflected in content. Males give more anatomy and blood content, and females give more fire responses. One implication of this would appear to be the possibility that females as a group tend to express their resentments and attention getting behavior in more passive (and perhaps more subtle) ways in comparison to the males.

Analysis of food responses shows that the seniors and graduate students produce more of this content than the other educational levels. They also have a higher percentage of contributors to this category (see Table 11). However, considering that the differences are not great, and the possible effect of the higher R of the seniors and graduate students in relation to the other educational levels, no attempt at interpretation will be made.

The females were found to produce more additional food responses than the males, and this difference attained significance above the .01 level of confidence (see Table 10). In addition, the mean reported for Ames' 80 year old group was well above that for her 16 year olds and the median number of main plant responses for this college sample (see Table 8). Interpretively,

it appears as though the females of the college population and Ames' old people would tend to possess a relatively more dependent orientation, show a more intense preoccupation with supply and demand, and possess a greater desire for nurturance in comparison to the other groups (Klopfer, 1962; Schafer, 1954; Phillips and Smith).

Twenty-five per cent of all subjects gave main geography responses (see Table 11). There were no outstanding differences among any of the groups, and this content was almost never given as an additional response. Ames' 80 year olds produced a much higher mean number of geography responses than any other group. According to the interpretation attached to this content by Phillips and Smith, by giving an increased number of geography responses, the old people are reflecting feelings of depression and attitudes of resentment regarding frustrated dependency needs. This is essentially in accordance with the previous interpretation of food responses for the 80 year olds.

Analysis of ice content shows no remarkable differences among the groups. Only five per cent of all subjects contributed to this category and the distribution was relatively even throughout the educational levels.

The juniors and graduate students produced more mask content than the other educational levels; however, this difference does not seem large enough to be of significance. A comparison of this college sample with Ames' two groups fails to show any remarkable differences.

Only nine per cent of all subjects gave main religion content and the median production in this category was very even among the educational levels. This content was more frequently given as additional as opposed to main. Considering the statements of Schafer (1954) and Phillips and Smith that religion

content is not often given by normals but rather frequently by schizophrenics, it is not surprising that the college group gave so few.

Rock content was not frequently given as a main response; it was more often given as additional. One possible explanation for this could be the fact that rock content can easily be included as part of a larger nature response, and is often seen in this way. There were no large differences among the educational levels, and only seven per cent of the total sample contributed to this category (see Table 11).

Sex content is also more often given as an additional rather than a main response. The juniors produced the most sex responses, both additional and main; however, this difference was not significant when compared to the whole group, and is only a slight trend. Although 13 per cent of the total sample contributed to this category, 20 per cent of the juniors gave main sex responses. The males gave many more sex responses than the females. The difference reached significance above the .01 level for main responses and the .001 level for additional sex responses (see Table 10).

According to the interpretations attached to sex content, the college males would tend to show more problems in heterosexual adjustment than the females (Piotrowski, 1957; Klopfer, 1954; Phillips and Smith), and feel relatively more emotionally withdrawn and insecure (Sandler, 1950). Bergmann (1945) and Phillips and Smith offer an additional interpretation. The males, by using sex responses, are demonstrating opposition tendencies and emancipation from conventionality. It would be unwise to make the above interpretations for the juniors as a group considering only a slight trend was observed. It is interesting to note that Beck reports a mean occurrence of .03 sex

responses for his normal sample which is below the median for this college population. There are several possibilities to account for this difference. There may be differences in scoring technique or in the definition of a sex response, or it may simply be a result of chance. However, considering that the mean age of Beck's group is over 30, the differences may in fact be a result of the interpretations attached to sex responses. That is, the older subjects may tend to feel less insecure and emotionally withdrawn than the college students. They may also show less of a tendency toward opposition and unconventionality, and in a relative sense may have "worked through" problems of heterosexual adjustment.

Smoke responses were infrequently given; only two per cent of the total sample contributed main responses to this category. There are essentially no differences among the educational groups. However, the females produced a larger number of additional smoke responses than the males, and this difference is significant above the .001 level of confidence (see Table 10). Inspection shows that the female graduate students gave more additional smoke responses than any other female group (see Table 8).

Phillips and Smith describe smoke responses as reflecting marked social maladjustment; this may explain the rarity with which this response was given in the college sample as a whole. Nevertheless, the increased additional smoke responses among the females may reflect the presence of a greater sense of inner strain and depression in comparison to the males of the sample (Phillips and Smith).

Twenty-four per cent of all subjects gave totem-pole content (see Table 11). There was a rather inconsistent trend for the median number of this

category to increase with educational level. Considering that totem-pole is a relatively common response, and the interpretation attached to it reflects at least average intelligence and an average social adjustment (Phillips and Smith), one might suspect that this increase may be a function of increased R in the higher educational levels. Totem-pole responses were almost never given as additional responses.

Water content was most often given as an additional response. As was postulated with rock content, water responses are often given as part of a larger geographical or nature response. The graduate students produced more than double the median number of main water responses as compared to the other educational levels. In addition, 20 per cent of the graduate students contributed to this category as compared to 10 per cent for the total sample. However, sophomores and seniors produced more additional water responses than the graduate students.

This difference presents a problem from the standpoint of interpretation. One approach to a solution could be the possibility that the interpretation underlying the production of water content would be more immediately pertinent and influential when the water response is seen as a main response. In other words, a main water response may be an indication of more importance to an individual than is one given as an elaboration of another percept. For example, in this study, the graduate students may attach more importance to attitudes of dependence and inertia, and feel more immediately ineffectual and inadequate than the other students (Phillips and Smith). These feelings may be more central and urgent for the graduate students as a group.

Graduate students are much more productive in the area of "other" content

than the other educational levels. Twenty-seven per cent of the total sample
contributed to this category in comparison to 44 per cent of the graduate stu-
dents. A comparison of all the groups for main responses in this category
shows a significant difference (.10 level), with the graduate students being
the only outstanding group (see Table 9). There were essentially no differ-
ences among the additional responses. The males were found to produce more of
the infrequently occurring "other" content than the females and this differ-
ence was also significant above the .10 level (see Table 10).

For an adequate interpretive analysis of this rare content, the ideal
would be to evaluate each response. However, because individually they do not
occur in a significant number in any one educational level, this attempt would
be relatively meaningless. Nevertheless, some comments can be made. The grad-
uate students compared to the other educational levels and the males in com-
parison to the females may be said to be less stereotyped and guarded, and more
expressive in their behavior (Phillips and Smith). They also may be looked
upon as being comparatively more productive and creative (Schafer, 1957;
Klopfer, 1954).

Rorschach Content Maturity Index

The results of the statistical analysis comparing freshmen and seniors
on those content categories which reputedly reflect the presence of immaturity
in a subject are reported in Table 12. As can be noted, six out of the ten
categories show a trend in the expected direction. These are: low total num-
ber of responses, increased (H), increased additional fire responses, increased
additional nature responses, increased water responses, and restricted variety

of content. However, four of these six categories failed to reach significance and essentially show no difference between the groups. Those categories that do distinguish between the freshmen and seniors, and in the predicted direction, are low number of total responses (.001 level), and additional nature responses (.10 level). As was stated before, this highly significant difference in the total response output between the freshmen and seniors has the definite effect of increasing the response output in some of the categories, and perhaps in all of them. This may partially account for the relative lack of results in the predicted direction. This effect of R is obviously demonstrated with the category of animal responses. In computing the chi-square for A and Ad, a regression line was used rather than the median of the total sample as the cut-off point for the comparison of freshmen and seniors. This procedure is fully described in the next section. The results of the regression analysis show the freshmen to produce both more animal and animal-detail responses than the seniors. This difference between animal-detail responses did not attain significance. However, the difference in the production of animal responses was significant above the .001 level of confidence. This finding is of particular concern considering that the chi-square analysis of the combined animal score (Total A), using the usual Extension of the Median Test technique, showed the seniors to be more productive, and this difference almost attained statistical significance. This is a further demonstration of the need to adequately control for R in Rorschach research.

It can be observed that certain of the content categories reached statistical significance in a direction which was opposite to that which was predicted, i.e., the seniors were more productive in these areas. Interpretive

hypotheses were offered for these differences in the previous section.

Thus, the only categories which seem to differentiate between freshmen and seniors concerning the construct of immaturity are: low total number of responses, increased number of animal responses, and to a lesser degree, increased number of additional nature responses.

A further analysis was made concerning the category of restricted variety of content. The purpose behind this analysis is the attempt to determine whether or not increased number of total responses on the Rorschach is an adequate measure of productivity in and of itself. The hypothesis is that perhaps increased variety of content and the use of additional content scores should also be considered in that certain individuals give as few as ten responses, yet these are very complex and elaborated, and each response may contain several different content categories.

Table 13 shows the mean number of content categories used for those above and those below the median number of total responses for the five educational levels and the total sample. The mean number of categories used for the entire sample is 14. It can be seen that in each educational level, those subjects who give above the median number of total responses also demonstrate the use of a greater variety of content. In addition, as the educational level increases, the wider is the variety of content use. Thus, it appears that as the number of responses increases in a Rorschach protocol, the wider the variety of content will tend to be. It is interesting to note that as the educational level increases (or as R increases), the difference in the mean number of categories used between those giving above and below the median number of total R diminishes or becomes smaller. However, this factor may at least

Table 13

Mean Number of Content Categories Used For Those

Above and Those Below the Median

Number of Total Responses

Education	Above Median	Below Median	Totals
Freshmen	16.1	11.3	13.1
Sophomores	16.0	10.9	13.5
Juniors	16.8	12.5	14.9
Seniors	15.7	12.8	14.3
Graduate Students	15.9	13.1	15.1
Totals	16.1	11.6	14.0

partially be due to the finite or limited number of categories that can be used by any subject, regardless of the total number of responses given. In other words, as the variety of content used increases with the number of R, a point is reached where there are simply not many new categories left with which to respond. Thus, increased variety of content categories used does seem to be highly related to increased R, and would not appear to be a distinct or different measure of productivity.

An analysis of the mean number of additional content scores given (without respect to category) for those subjects above and those below the median number of total responses yields slightly different results (see Table 14). The mean number of additional content scores given for the entire sample is

Table 14

Mean Number of Additional Content Scores Given For

Those Above and Those Below the Median

Number of Total Responses

Education	Above Median	Below Median	Totals
Freshmen	7.9	5.1	6.2
Sophomores	10.0	4.8	7.2
Juniors	8.4	5.4	7.2
Seniors	6.8	6.1	6.6
Graduate Students	6.7	5.8	6.5
Totals	7.8	5.3	6.7

6.7; however, the number of additional scores given does not increase with educational level. In addition, although the subjects who give above the median number of total responses do in fact give more additional content scores than those who give below the median number of total responses, the overall difference is small. Thus, a consideration of the occurrence of additional content as another measure of productivity along with the total number of responses seems indicated.

Relationship Between R and Content

The five most frequently used content categories for this sample are: animal, human, animal-detail, inanimate object, and anatomy, in that order. The statistical results of the regression analysis relating these five

categories with the total number of responses can be found in Table 15. The
lines of best fit and the .05 confidence limits for these categories can be
found in Figures 1 through 5 in the Appendix.

When referring to Table 15, it will be noted that the correlation between
the number of responses and A, Ad, and Obj. are all quite high, while the cor-
relations for At. and H are somewhat lower. Fiske (1953) reports correlations
between R and four of these content categories: human (.49), animal (.53),
animal-detail (.40), and anatomy (.37). These correlations, with the exception
of human content, are all much lower than the findings in the present study.
Fiske's correlation between H and R, on the other hand, is much higher than
the one reported in this paper. One possible explanation for this variance is
a consideration of sampling differences; Fiske used Beck's group of 157 normal
(non college student) subjects. However, since the differences are so large,
this possibility is unlikely. A more adequate explanation may have to do with
the fact that Fiske found it necessary to use coefficients of contingency
because he could not satisfy the assumption of linearity demanded by the
Pearson product-moment correlations used in this thesis. A contingency coef-
ficient (C) has several obvious limitations. It cannot attain unity because
the upper limit of C is a function of the number of categories. In addition,
two contingency coefficients are not comparable unless they are yielded by
contingency tables of the same size. Finally, and most important, C is not
directly comparable to any other measure of correlation (Siegel, 1956, p. 201).
Because of its limitations, the contingency coefficient is not as powerful a
test as is the Pearson r, and is therefore more open to the occurrence of a
type II error. Thus, the correlations reported in this thesis are a more

Table 15

Statistical Results of Regression Analysis Relating

the Five Most Frequently Used Content Categories

With the Total Number of Responses

Category	Slope	Intercept	r_{xy}	σ_{xy}
A	21.58	-24.61	0.73	2.99
Ad	0.11	- 1.10	0.65	1.90
H	0.06	1.06	0.38	2.06
At	0.05	- 0.13	0.44	1.34
Obj	0.09	- 0.97	0.61	1.68

reliable estimate of the relationship between R and content, in comparison to those reported by Fiske.

In the process of rectifying the curve for animal responses, it was determined that the relationship between R and A is a semi-logarithmic one. It was also found that by adding a constant of 10 to the log of R on the abscissa, this yielded the most satisfactory line of best fit. Thus, for this sample, the number of animal responses increases linearly as log R + 10 increases. More specifically, the formula of the line of best fit for animal responses is: $A = (21.58) (\log R + 10) + (-24.61)$.

A more economical, though not as accurate a method of estimating the number of animal responses that will occur with a given number of total responses is to utilize Figure 1 in the Appendix. The logarithm will not have to be computed because the abscissa is arranged in a logarithmic scale. Thus,

for example, given 30 responses, one could expect 10 animal responses, plus or minus 2.99 (standard error of estimate). Using the .05 confidence limits that are drawn, one can feel sure that 95 per cent of the cases will fall within his prediction by multiplying 1.96 by the standard error of estimate. Thus, given the 30 responses, one can expect 10 animal responses plus or minus 5.86, 95 per cent of the time. Because the standard error is so large for animal responses, this is not as fine a predictor as would be hoped for.

The analysis of animal-detail responses with respect to R shows an approximate linear relationship, and for this sample the number of Ad responses increases linearly as the total number of responses increases. The formula for the line of best fit is: $Ad = 0.11 \ R + (-1.10)$. Utilizing the regression line and .05 confidence limits drawn in Figure 2 in the Appendix, one can predict that a certain number of animal-detail responses will occur with a given number of total responses plus or minus 3.72 (standard error of 1.90 times 1.96), 95 per cent of the time.

The relationship between human responses and R also shows a relationship which approximates linearity; however, the slope of the line is not as great as that for A and Ad responses. Thus, the number of human responses increases linearly as the total number of responses increases, though not at as rapid a rate as that for animal responses. The formula for the line of best fit is: $H = 0.06 \ R + 1.06$. Reference to Figure 3 in the Appendix will graphically demonstrate that a prediction can be made concerning the number of human responses which will occur with a specific number of total responses plus or minus 4.04. This estimate should be correct 95 per cent of the time.

Anatomy responses show a linear relationship with R, and the rate of

increase (slope of the line) of At. responses in relation to increases in total number of responses is only slightly higher than that for human responses. The formula for the line of best fit is: At. $= 0.05$ R $+ (-0.13)$. Utilizing the line of best fit and .05 confidence limits in Figure 4 in the Appendix shows that the prediction can be made 95 per cent of the time that a certain number of anatomy responses will occur with a stated number of R plus or minus 2.63. Of the five content categories considered in this section, anatomy responses has the smallest standard error, and finer predictions can be made for this category.

Finally, object content approximates a linear relationship with the total number of responses, as do the other categories under consideration, with the exception of animal responses. Thus, the number of object responses increases in a linear fashion as the number of R increases. The formula for the line is: Obj. $= 0.09$ R $+ (-0.97)$. By referring to Figure 5 in the Appendix, it can be seen that the prediction can be made that a certain number of object responses will occur with a defined number of R plus or minus 3.29, 95 per cent of the time.

It must be stressed that the formulae that are presented for the five content categories are limited in the sense that they may only be applicable or generalized to groups of college students. Ideally, of course, this question should be tested out. Nevertheless, the usefulness of this technique lies not only with its predictive value, but also in that it is an excellent method of controlling for R when comparing groups (or individuals) in their performance on the Rorschach. This latter use was previously mentioned, and is demonstrated as follows. The five educational levels were compared on the five

content categories (A, Ad, H, At., and Obj.), using two different approaches with Chi-square. First, the groups were compared using above or below the median as the criterion; the groups were then compared again using the regression line as the criterion (see Table 16). The results of the two different approaches show marked differences for four of the five categories.

Table 16

Chi-square of the Five Most Frequently Used Content

Categories for the Total Sample Utilizing

the Regression Line

| Category | Main Content | |
	x^2	P
A	10.86	< .05
Ad	0.75	NS
H	0.09	NS
At.	0.17	NS
Obj.	0.74	NS

In evaluating animal responses, using the median as the cut-off point yields a non-significant chi-square in which the number of animal responses increases with educational level. Using the regression line, this trend is completely reversed (A decreased as educational level increased), and the difference attained significance above the .05 level.

Analysis of animal-detail content shows similar results. Using the

median as the cut-off point, Ad responses increase with educational level and the difference is significant above the .10 level. Using the regression line, the differences among the groups drop out.

Comparison of the five educational levels in the production of human responses using the two techniques shows no differences with either method, and almost identical chi-squares were obtained. This is probably due to the low correlations that was found between R and H.

The analysis of anatomy responses shows a non-significant increase with educational level using the median as the fulcrum for comparison. The differences almost completely dropped out using the regression line; the chi-square was changed from 2.72 to 0.17.

The results were almost identical in the analysis of object content. Object responses increase non-significantly with educational level using the median as the criterion. However, the differences drop out using the regression line, and the chi-square was changed from 4.58 to 0.74.

CHAPTER V

SUMMARY AND CONCLUSIONS

The content from the Rorschachs of 300 college students was examined with a three-fold purpose in view. First, a normative description was presented, and the differences that were found to exist among five educational levels (freshmen, sophomores, juniors, seniors, and graduate students) were evaluated. Interpretations were offered in relation to these differences based on constructs with regard to the meaning of the various categories as reported in the psychological literature. Second, an attempt was made to define a "Rorschach Content Maturity Index" by comparing the performance of freshmen and seniors in relation to specified indices of immaturity as reflected in content. Third, an analysis was made of the relationship that exists between the total number of responses per Rorschach record and the five most frequently used content categories. This was an attempt to demonstrate a method to control for R on the one hand, and to enable predictions to be made regarding the approximate number of a content to expect with a given number of total responses on the other. The following is a summary of the findings in these areas.

In the normative analysis it was discovered that the number of total responses per Rorschach record increases at a significant rate as educational level increases. The median number of 25.32 responses (mean of 29.31) in this study is considered a more reliable estimate than others reported in the literature because of the sample size and because the influence of an examiner variable was minimized. Since the total response difference among the

educational levels attained such a high degree of significance, extreme caution had to be employed in evaluating the other differences found in content. Thus, care was taken not to interpret the effect of R as differences in content. In addition, the results of the regression analysis defining the relationship between R and the five most frequently used categories was taken into consideration when making the interpretations concerning differences in content. The summary of interpretations which is to follow will be integrative in nature, in the sense that those content categories which yield similar dynamics will be combined. It is interesting to note that many of the interpretations for different content categories are similar, and there appears to be minimum contradiction with regard to their applicability to the various educational levels. In addition, many of the interpretations offered appear to follow logically from what is known regarding personality theory. These two factors would seem to lend credence to the interpretations, and in a broad sense, suggest validation.

One of the more general considerations which was proposed is that the higher the educational level of the group, the higher the intellectual level of the group would tend to be (increased R and abstract content). Conversely, the lower the educational level, the less intellectually assertive and less productive the group would tend to be (low R and increased A). The lower educational levels also demonstrated more defensiveness and evasiveness (low R and increased nature and art content). They are more immature and possess less insight (high A and art content), and generally feel more inferior and ineffectual than the higher educational levels (increased nature and art content). The higher the educational level, on the other hand, the more stable and

realistic would be their level of adjustment (increased abstract and low art content), the more passively oriented they would tend to be, and the less need they would have to demonstrate aggressive or attention getting behavior (high abstract and low explosion content).

The graduate student group appears to be more deviant (both positively and negatively) than the other educational levels, in the sense that quite often they were in an extreme position regarding the median number of responses they would produce in a given category. For this reason, a more thorough analysis can be made regarding the dynamics of the group as a whole. One explanation for the uniqueness of the graduate student group in terms of their content production may have to do with the possibility that they are in fact more of a unique educational group as compared to the undergraduates. They would appear to be a specifically homogeneous group, in that they have all made the choice to continue their training or education beyond the undergraduate level, and many of them have temporarily foregone entering the competitive field of employment. From the interpretations offered below it is suggested that the graduate student group may be a relatively unique and homogeneous group from the standpoint of personality organization as well. It should be pointed out here that the great majority of the graduate students are students in the field of psychology.

Interpretively, the graduate students appear to possess a high degree of self awareness and are more introspective and interested in inner life as compared to the other educational levels (increased human content). They give evidence of possessing a more stable and constructive level of adjustment (increased abstract content), and appear to be more productive and creative

(increased R and "rare" content). They show comparatively more interest in and sensitivity to others (high H). They also demonstrate a heightened concern with social reputation and attractiveness, and appear more sensitive to external social forms than the other groups (increased clothing responses). Related to this, in a sense, they also appear to feel more anxiety about actual interpersonal relationships, and as a result lean toward relative social isolation (increased (H) responses). Thus, even though the graduate students are sensitive and empathic as a group, they tend to be somewhat reserved and non-demonstrative toward society. This is further reflected in water and nature content, which indicates that the graduate students tend to feel comparatively unaccepted, and are more strongly and immediately affected by attitudes of dependence and ineffectuality. However, this does not mean that the graduate students are in fact more ineffectual and dependent than the other educational levels. On the contrary, decreased plant content suggests that the graduate students as a group feel less emotionally self-centered and infantile than the other educational levels, and are less dependent. The interpretation of attitudes of dependence and ineffectuality appears to be related to the factor of sensitivity which was repetitively suggested. That is, because the graduate students are more sensitive and perhaps more keenly aware of their feelings, they are relatively more affected, as a group, by their perceived lacks or deficiencies. This finding is in accord with the increased self-awareness and introspectiveness implied in increased human responses.

Increased clothing content among the graduate students carries with it the implication of a relatively unresolved problem of sex role, and this may also be related to the increased sensitivity of the graduate students. This

finding is to be distinguished from increased difficulty with heterosexual relationships, which is contraindicated (decreased plant and sex content).

Rather than express many of their feelings openly, however, the graduate students are quite guarded and evasive, and utilize intellectualization as a defense against what difficulty they have in facing reality (increased nature and design content). This may be in some way related to the educational and intellectual striving inherent in the label of graduate student. In addition, decreased explosion content suggests less of a need to demonstrate aggressive and attention getting behavior in comparison to the other educational levels.

The only outstanding difference which applies to seniors exclusively is the increased occurrence of crown responses. This carries with it the interpretation of heightened prestige drives and concern with social position.

The analysis of the differences in content production between the males and females showed the following results. The females demonstrate more interest in and sensitivity toward others, and are more introspective and interested in inner life (increased human content). However, in addition, the females tend to be more socially isolated, and show more anxiety concerning interpersonal relationships than the males (increased (H) content). Whereas the males demonstrate a greater acceptance of their need for affectional security and experience approval (increased animal-object content), the females give evidence of a basically dependent orientation and show a greater desire for nurturance (increased food responses). They also show a greater sense of inner strain and depression in comparison to the males (increased smoke responses). Perhaps this is related to the heightened aspiration and masculine striving suggested by increased architecture content.

There is a suggestion that males and females demonstrate hostile attitudes in their use of Rorschach content in different ways. Males give evidence of more open and heightened concern with the expression of destructive impulses by their increased responsiveness with anatomy and blood content. The females, on the other hand, express their resentment and attention getting behavior through the use of increased fire content. Interestingly enough, attached to the interpretation of fire content is the qualification that the hostility, when expressed, is done so in a subtle or passive way; this is not the case for anatomy and blood responses. The interpretation that the females possess a more passive orientation is reinforced by a consideration of increased abstract content. In addition to the above, the males show a greater tendency to be oppositional, and react against conventionality (increased sex responses), and to be more expressive, productive, and original in their thinking (increased "rare" content).

The males consistently demonstrate a greater concern with the establishment of heterosexual relations than the females (increased plant and sex responses). This may be related to the fact that the males also show more signs of feeling more insecure in comparison to the females (increased anatomy and sex content).

An evaluation of the different way in which males and females demonstrate their concern with social reputation and attractiveness, as reflected in clothing content, is rather interesting. The males give evidence of a more immediate and objective concern, whereas the females reflect a deeper and more integrated concern with social reputation and attractiveness, which seems to be more intimately related with other personality traits.

In comparing Ames' sample of 80 year olds (1954) with the college sample, there were several areas in which the old age group were outstanding. The 80 year olds lack in productivity (decreased R) and in the ability to concentrate (increased object content). They demonstrate a dependent orientation, are quite self centered, and show preoccupation with supply and demand (increased food and plant content). They also show feelings of depression and resentment regarding dependency needs which are frustrated (increased geography content).

The attempt to define a "Rorschach content maturity index" met with minimal success. Of the ten categories which were reputed to reflect the presence of immaturity in an individual, only the categories of low total number of responses, increased number of animal responses, and increased number of additional nature responses differentiated between the freshmen and seniors. There are two major factors which seem to have influenced the rather meager results obtained. First, it was demonstrated that an adequate control for R would be necessary since the seniors produced significantly more total responses than the freshmen. Second, and perhaps most important, many of the content categories which were to indicate immaturity have other meanings attached to them in addition to immaturity. Thus, it may be difficult to isolate this factor using the general content categories alone.

An analysis was made of two possible measures of productivity to supplement the frequently used indicator of number of total responses. This was done because it has been noticed in the author's experience that certain individuals, although giving few total R, respond with very elaborate and complex responses. The mean number of content categories used was considered as the first possibility, and those subjects who gave above the median number of responses were

compared with those who gave below the median number of total responses. It was determined that increased variety of content categories used was highly related to increased R, and does not appear to be a distinct measure of productivity.

The second possibility which was considered as a productivity measure is the mean number of additional content scores given, without respect to category. As before, those subjects who gave above the median number of total responses were compared with those who gave below the median number of total responses. It was discovered that the number of additional content scores given does not increase with educational level (as did the variety of content). In addition, although those subjects who give above the median number of total responses do in fact give more additional content scores than those who give below the median number of total responses, the overall difference is small. Thus, a consideration of the occurrence of additional content as another measure of productivity along with total R seems indicated.

Finally, in determining the relationship that exists between R and the five most frequently used content categories, the categories of animal, animal-detail, inanimate object, human, and anatomy were plotted against the total number of responses. The curves were rectified, the lines of best fit were determined, and the .05 confidence limits were computed. It was determined that the correlations between the categories of animal, animal-detail, and object content in relation to R were quite high; those between R and human and anatomy content were somewhat lower.

It was discovered that the relationship between the content categories and the total number of responses all approached linearity with the exception

of animal content; the relationship between R and A is a semi-logarithmic one. The formulae for the lines of best fit were presented so that predictions can be made regarding the number of a given category to expect with a given number of total responses. By multiplying 1.96 by the respective standard error of estimate, one can feel sure that 95 per cent of the cases will fall within his derived prediction.

The lines of best fit and the .05 confidence limits are drawn graphically in the appendix so that a quick estimate can be made of the number of content to expect with a certain number of total responses, 95 per cent of the time, plus or minus a specified margin of error.

The usefulness of this technique as a method to control for R was demonstrated with the five content categories. Rather than using the median as the cut-off point in computing the chi-square when comparing the five educational levels, the regression line was used. The results of the two different approaches show marked differences for four of the five content categories. Comparison of the five educational levels in the production of human responses using the two techniques showed no difference. This is probably due to the low correlation that was found to exist between R and H.

It is felt that other Rorschach variables (location scores and determinants) for a college population should be subjected to the same statistical treatment described above. In this way, one can get a reasonably accurate picture of what to expect from a college population on their Rorschach's. This is making the assumption, of course, that one can generalize from one college population to another. If a large enough sample is used, this assumption would not be unreasonable. In addition, knowing the lines of best fit for the

Rorschach variables in a college population would make research on these variables infinitely more reliable in that there would be a control for R for each individual subject on each Rorschach score. It would be interesting to observe whether or not a normal non-college student sample would differ significantly in their production of these Rorschach scores from the college sample, and if so, to what degree. This technique might also be used with other specified types of groups in order to compare the resultant profiles. It will be recalled that Fiske (1953) found that the forms of the relationships between Rorschach variables and R are fairly similar for a normal and an outpatient group (p. 32).

With regard to the difference of opinion between Fiske and Baughman (1953) and Wittenborn (1950) concerning whether or not the relationships between R and other Rorschach variables are non-linear or linear respectively, it has been demonstrated that at least animal content is non-linearly related to the total number of responses. As was suggested, the other relationships can be tested out using the same methodology. Nevertheless, there is another very crucial question which has not been raised in these discussions of linearity versus non-linearity, and that is to adequately define the slope in these relationships. In other words, even if the relationship of linearity was defined between R and a given Rorschach variable, this would be meaningless unless the researcher possessed the knowledge of how quickly or steeply the category increases with the increase in R. Knowledge of the correlation between R and the variable is not specific enough information for prediction. In addition, the types of correlation coefficients which may be computed (as specified by the types of data which are given and the treatment to which it

is subjected) are often seriously limited in their applicability to other sets of data.

In relation to the argument between Wittenborn (1959) and Glickstein (1959) regarding whether the number of responses in the various scoring categories determines R or vice-versa, it is felt that neither conclusion is entirely warranted. It seems as though they are trying to treat the Rorschach data as purely mathematical, forgetting the origin of the data, and they are now toying with a semantic difference. It was demonstrated in this study (as well as in many others) that those subjects who give the highest number of total responses do not give the highest number of responses in every content category. Dynamic interpretations were offered for the variances that were found in this study and implicit in this approach is contained the arbitration for the difference of opinion between Wittenborn and Glickstein. That is, R does not delimit the number of responses in a given category per se, and the number of responses in a category does not determine R in and of itself. Rather, the psychological predisposition or the personality characteristics of each subject influences both the number of R and the relative number in each category. Thus, a subject with a high number of total responses may have many human responses, and yet give no anatomy responses at all.

There have already been several suggestions made for further research in the area of defining the relationships that exist between the total number of responses and the separate Rorschach categories. In addition to the above, a card by card pattern analysis of Rorschach data should yield interesting results. This type of an approach would be more sophisticated in the sense that even more minute personal variables than the ones considered in this

paper could be considered in the Rorschach evaluation.

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$$A = (21.58)(\log R + 10) + (-24.61)$$
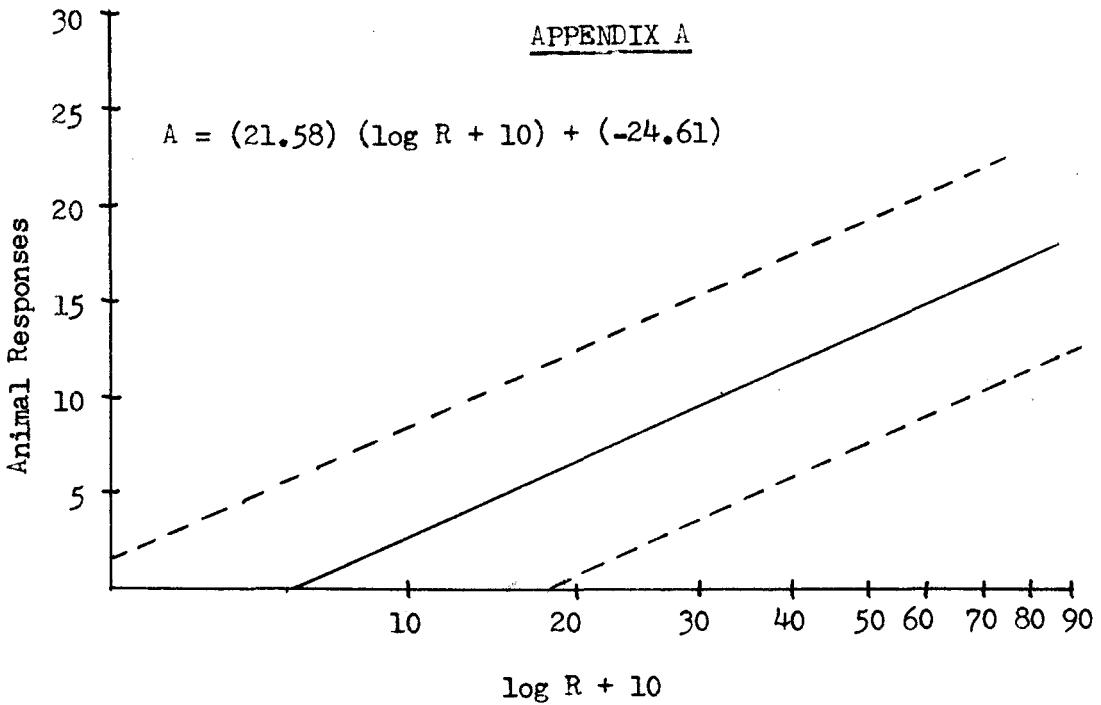
Figure 1. Line of Best Fit and .05 Confidence Limits for Animal Responses.

$$Ad = 0.11 R + (-1.10)$$
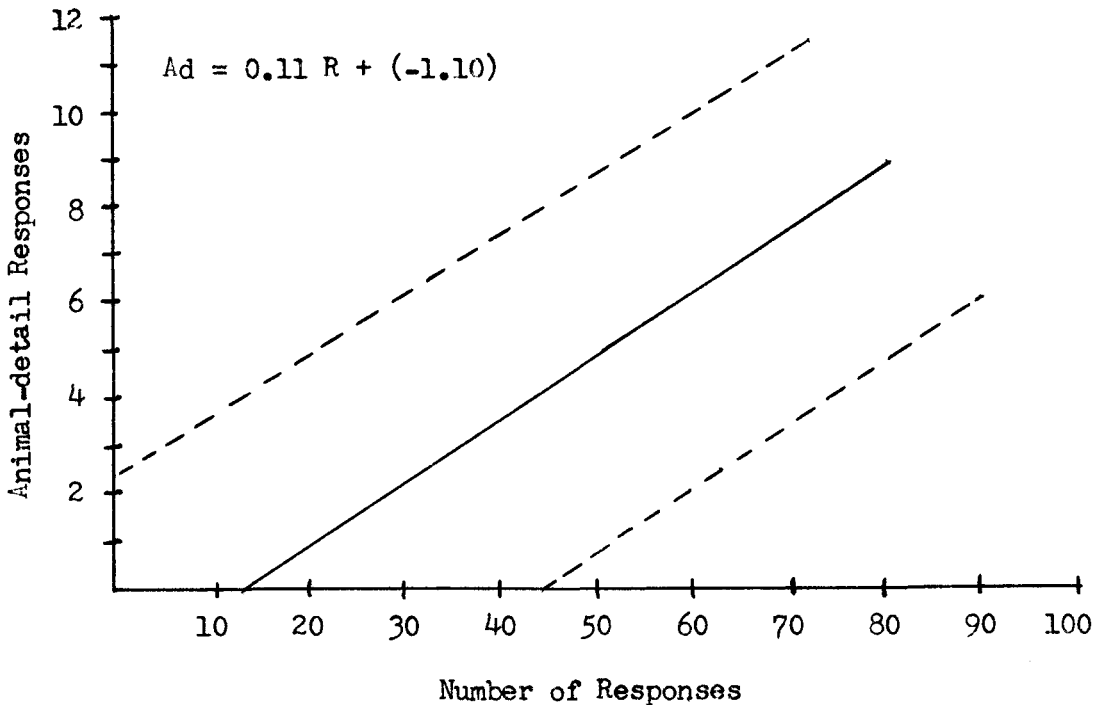
Figure 2. Line of Best Fit and .05 Confidence Limits for Animal-detail Responses.
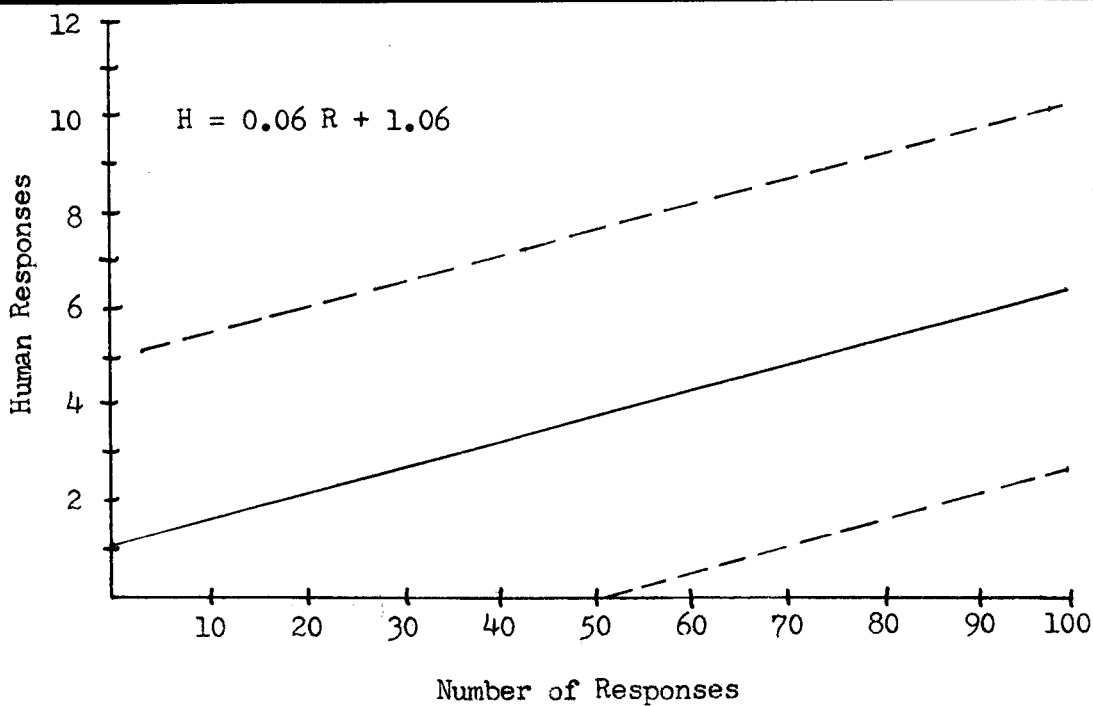
Figure 3.   Line of Best Fit and .05 Confidence Limits
            for Human Responses.

$H = 0.06 R + 1.06$
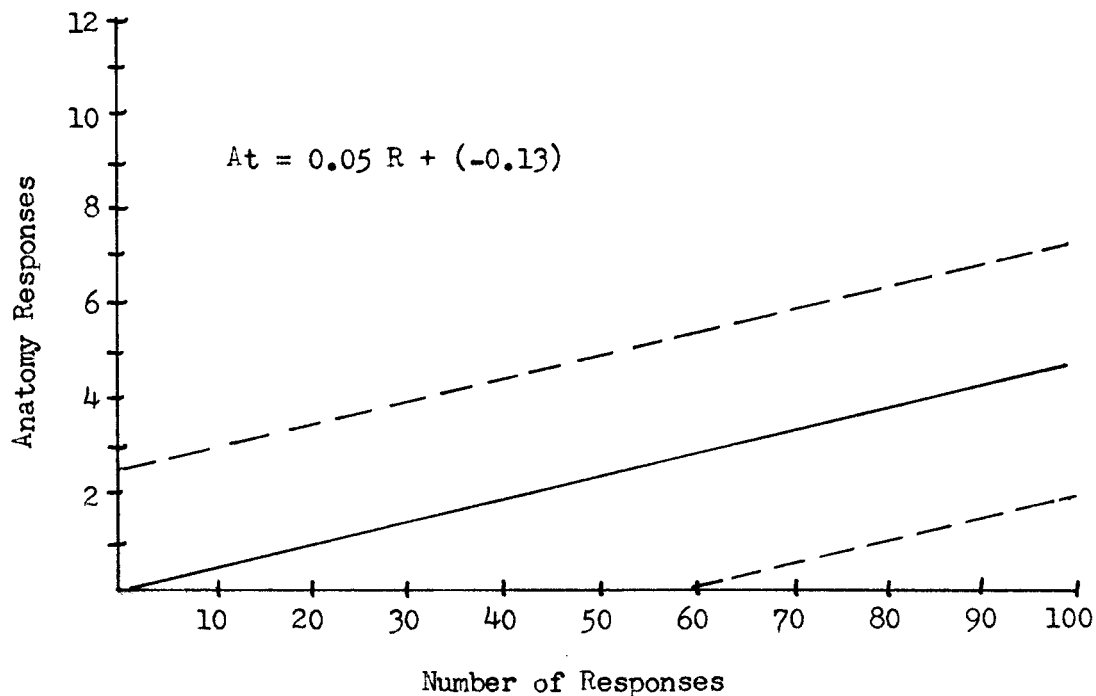
Figure 4.   Line of Best Fit and .05 Confidence Limits
            for Anatomy Responses.

$At = 0.05 R + (-0.13)$
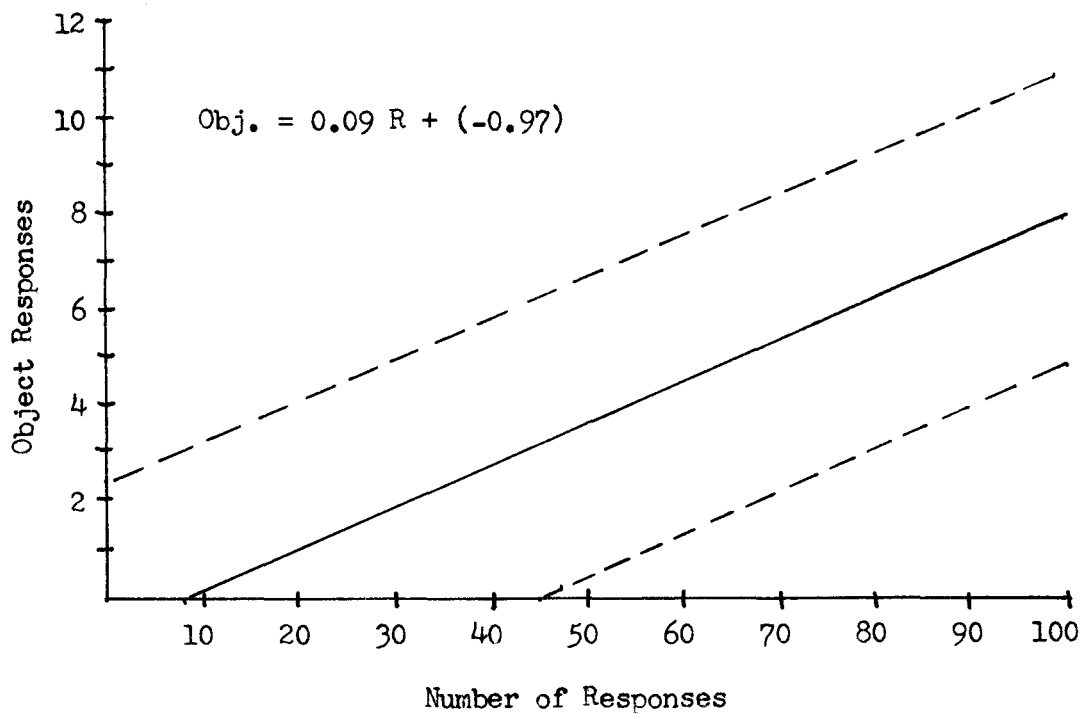
Figure 5. Line of Best Fit and .05 Confidence Limits
for Object Responses.

APPENDIX B

Table 17

Q Deviations for Content Given by Freshmen

Category	Main Responses			Additional Responses		
	Male	Female	Total	Male	Female	Total
R	10.00	7.62	8.60	--	--	--
A	3.62	2.19	2.77	0.40	0.30	0.31
(A)	0.49	0.54	0.53	0.29	0.30	0.30
Ad	1.20	0.76	0.95	--	0.25	0.25
(Ad)	0.28	0.29	0.29	0.26	0.26	0.26
Total A	5.84	2.89	3.75	0.41	0.43	0.42
H	1.35	1.79	1.55	0.28	--	0.26
(H)	0.62	0.53	0.48	0.26	0.26	0.26
Hd	0.93	0.53	0.63	0.28	0.25	0.26
(Hd)	0.42	0.32	0.33	0.28	0.25	0.26
Total H	2.90	2.11	2.29	0.33	0.27	0.29
Obj.	0.65	0.68	0.67	0.53	0.54	0.55
At.	0.55	0.69	0.62	0.28	0.26	0.27
Na.	0.75	0.63	0.52	0.32	0.40	0.36
Pl.	0.72	0.66	0.55	0.60	0.46	0.48
A.At.	0.28	0.28	0.28	--	0.26	0.26
Abs.	0.28	0.28	0.28	0.26	0.27	0.26
Aobj.	0.48	0.59	0.57	0.31	0.28	0.29
Arch.	0.33	0.33	0.33	0.26	0.27	0.26

Table 17 (Continued)

Category	Main Responses			Additional Responses		
	Male	Female	Total	Male	Female	Total
Art	0.33	0.30	0.31	--	0.26	0.26
Blood	0.28	0.27	0.27	0.29	0.29	0.29
Biol.	0.26	--	0.26	--	--	--
Clothing	0.60	0.58	0.61	0.63	0.68	0.60
Cloud	0.33	0.30	0.31	0.28	0.27	0.27
Crown	0.26	0.25	0.26	--	0.26	0.26
Design	--	0.27	0.28	--	--	--
Emblem	0.33	0.28	0.30	0.26	--	0.25
Expl.	0.28	0.27	0.27	0.28	--	0.26
Fire	0.26	0.27	0.27	0.31	0.31	0.31
Food	0.33	0.46	0.42	0.29	0.25	0.26
Geo.	0.40	0.30	0.32	--	--	--
Ice	0.28	0.26	0.27	0.28	0.27	0.27
Mask	0.31	0.28	0.29	--	--	--
Rel.	0.28	0.27	0.27	0.30	0.29	0.29
Rock	0.28	0.27	0.27	0.49	0.30	0.33
Sex	0.28	0.27	0.27	0.30	0.27	0.27
Smoke	--	0.27	0.26	0.28	0.28	0.28
T. Pole	0.31	0.38	0.32	--	--	--
Water	0.26	0.28	0.27	0.40	0.39	0.39
Other	0.41	0.33	0.36	0.28	0.30	0.29

Table 18

Q Deviations for Content Given by Sophomores

Category	Main Responses			Additional Responses		
	Male	Female	Total	Male	Female	Total
R	5.75	9.00	7.65	--	--	--
A	1.91	2.50	2.21	0.36	0.33	0.34
(A)	0.50	0.52	0.49	0.32	0.27	0.29
Ad	0.91	1.02	0.98	0.26	--	0.26
(Ad)	0.30	0.26	0.28	0.26	--	0.26
Total A	2.52	4.84	2.81	0.67	0.38	0.50
H	1.83	2.01	1.95	--	0.26	0.26
(H)	0.59	0.48	0.67	0.27	0.27	0.27
Hd	0.71	1.41	0.86	--	0.30	0.28
(Hd)	0.30	0.52	0.38	--	--	--
Total H	2.93	2.81	2.94	0.27	0.33	0.30
Obj.	1.52	0.71	0.99	0.62	0.63	0.63
At.	0.54	0.53	0.53	0.32	0.28	0.29
Na.	0.70	0.59	0.63	0.30	0.37	0.33
Pl.	0.58	0.69	0.74	0.58	0.52	0.61
A.At.	0.27	0.30	0.29	--	--	--
Abs.	--	0.32	0.29	0.27	0.29	0.29
Aobj.	0.56	0.61	0.62	0.36	0.27	0.29
Arch.	0.30	0.50	0.40	0.29	0.29	0.29
Art	0.29	0.28	0.29	0.26	--	0.26

Table 18(Continued)

Category	Main Responses				Additional Responses		
	Male	Female	Total		Male	Female	Total
Blood	0.27	0.27	0.27		0.30	0.27	0.29
Biol.	0.27	0.27	0.27		--	0.26	0.26
Clothing	0.59	0.53	0.58		0.84	0.72	0.84
Cloud	0.32	0.26	0.29		0.32	0.32	0.32
Crown	--	0.27	0.26		0.26	0.27	0.27
Design	--	--	--		0.02	--	0.02
Emblem	0.02	0.10	0.06		--	--	--
Expl.	0.36	0.26	0.29		0.27	0.27	0.27
Fire	0.26	0.29	0.28		0.30	0.32	0.31
Food	0.29	0.52	0.33		0.29	0.26	0.27
Geo.	0.30	0.33	0.32		--	0.26	0.26
Ice	--	0.28	0.27		0.26	--	0.26
Mask	0.29	0.28	0.29		--	0.26	0.26
Rel.	0.27	0.28	0.28		0.29	0.38	0.32
Rock	0.26	0.27	0.27		0.29	0.38	0.32
Sex	0.11	0.27	0.29		0.29	0.26	0.27
Smoke	0.26	0.27	0.27		--	0.30	0.28
T. Pole	0.36	0.27	0.32		0.26	--	0.26
Water	--	0.28	0.27		0.63	0.52	0.55
Other	0.45	0.32	0.33		0.30	0.33	0.32

Table 19

Q Deviations for Content Given by Juniors

Category	Main Responses			Additional Responses		
	Male	Female	Total	Male	Female	Total
R	14.07	8.00	12.50	--	--	--
A	2.32	2.83	2.54	0.37	0.42	0.40
(A)	0.59	0.45	0.59	0.29	0.29	0.29
Ad	1.05	1.33	1.17	0.26	--	0.26
(Ad)	0.28	0.26	0.28	0.27	0.26	0.27
Total A	4.50	4.67	4.54	0.57	0.57	0.57
H	2.05	1.50	1.91	0.27	0.26	0.27
(H)	0.67	0.56	0.53	0.26	0.26	0.26
Hd	0.88	0.50	0.75	--	--	--
(Hd)	0.63	0.33	0.56	--	0.28	0.26
Total H	3.34	2.25	3.39	0.27	0.30	0.28
Obj.	0.85	1.10	0.88	0.32	0.50	0.38
At.	0.93	0.67	0.88	0.27	0.26	0.27
Na.	0.63	0.75	0.75	0.27	0.31	0.31
Pl.	0.63	0.74	0.69	0.63	0.54	0.58
A.At.	0.30	0.34	0.32	--	0.28	0.26
Abs.	0.29	0.30	0.29	0.27	0.28	0.28
Aobj.	0.27	0.67	0.44	0.29	0.28	0.29
Arch.	0.37	0.51	0.44	0.26	0.28	0.27
Art	0.30	0.28	0.29	0.26	--	0.26

Table 19 (Continued)

Category	Main Responses			Additional Responses		
	Male	Female	Total	Male	Female	Total
Blood	0.30	0.30	0.30	0.30	--	0.28
Biol.	0.27	0.26	0.27	--	--	--
Clothing	0.56	0.59	0.58	0.60	0.58	0.60
Cloud	0.27	0.28	0.28	0.27	0.32	0.29
Crown	0.26	--	0.26	0.29	--	0.28
Design	--	--	--	--	0.26	0.26
Emblem	0.28	0.28	0.28	--	--	--
Expl.	0.32	0.26	0.29	--	--	--
Fire	0.27	0.29	0.28	0.28	0.34	0.30
Food	0.33	0.48	0.42	0.32	--	0.29
Geo.	0.56	0.34	0.48	--	--	--
Ice	0.27	0.29	0.28	--	0.28	0.26
Mask	0.41	0.28	0.32	0.27	0.26	0.27
Rel.	0.26	0.29	0.28	0.30	0.28	0.29
Rock	0.29	0.28	0.29	0.32	0.29	0.30
Sex	0.33	0.29	0.32	0.59	0.30	0.46
Smoke	0.26	--	0.26	0.27	0.26	0.27
T. Pole	0.37	0.34	0.35	--	--	--
Water	0.29	0.26	0.28	0.45	0.42	0.43
Other	0.37	0.34	0.36	0.33	0.34	0.33

Table 20

Q Deviations for Content Given by Seniors

Category	Main Responses			Additional Responses		
	Male	Female	Total	Male	Female	Total
R	6.75	8.00	7.10	--	--	--
A	2.10	2.60	2.64	0.33	0.28	0.29
(A)	0.41	0.58	0.54	0.25	0.29	0.29
Ad	1.31	1.04	1.17	0.26	0.26	0.26
(Ad)	0.28	0.29	0.28	0.26	0.26	0.26
Total A	3.06	3.81	3.61	0.44	0.33	0.36
H	1.00	1.77	1.58	--	0.28	0.27
(H)	0.46	0.78	0.64	0.28	0.28	0.28
Hd	0.70	0.90	0.84	--	--	--
(Hd)	0.33	0.40	0.37	--	0.27	0.27
Total H	2.92	2.44	2.33	0.28	0.67	0.31
Obj.	1.16	0.84	1.00	0.54	0.72	0.67
At.	0.55	0.80	0.70	0.25	0.27	0.27
Na.	1.00	0.66	0.69	0.33	0.29	0.30
Pl.	0.63	0.46	0.54	0.55	0.33	0.49
A.At.	0.32	0.29	0.30	0.26	--	0.26
Abs.	0.26	0.32	0.30	0.30	0.26	0.28
Aobj.	0.30	0.29	0.30	0.28	0.27	0.27
Arch.	0.30	0.49	0.38	--	0.29	0.27
Art	0.25	0.31	0.30	--	0.26	0.26

Table 20 (Continued)

Category	Main Responses			Additional Responses		
	Male	Female	Total	Male	Female	Total
Blood	0.26	0.28	0.27	0.44	0.26	0.30
Biol.	0.26	0.28	0.27	0.26	--	0.26
Clothing	0.53	0.70	0.64	0.59	1.11	0.76
Cloud	0.32	0.31	0.31	0.25	0.29	0.29
Crown	0.28	0.28	0.28	0.26	0.26	0.26
Design	0.26	--	0.26	--	--	--
Emblem	0.32	0.29	0.30	--	0.26	0.26
Expl.	0.28	0.32	0.30	0.26	--	0.26
Fire	0.32	0.26	0.28	0.28	0.31	0.30
Food	0.56	0.60	0.59	--	0.27	0.26
Geo.	0.76	0.45	0.53	--	--	--
Ice	--	0.26	0.26	0.28	--	0.26
Mask	0.26	0.32	0.30	--	0.26	0.26
Rel.	0.25	0.28	0.28	0.33	0.41	0.38
Rock	0.25	0.28	0.28	0.33	0.32	0.32
Sex	0.33	0.26	0.29	0.56	0.29	0.38
Smoke	--	0.26	0.26	--	0.27	0.26
T. Pole	0.33	0.33	0.33	--	0.26	0.26
Water	0.28	0.26	0.27	0.67	0.79	0.69
Other	0.32	0.30	0.30	0.25	0.29	0.29

Table 21

Q Deviations for Content Given by Graduate Students

Category	Main Responses				Additional Responses		
	Male	Female	Total		Male	Female	Total
R	9.00	8.50	8.62		--	--	--
A	2.39	2.33	2.43		0.31	--	0.29
(A)	0.47	0.33	0.45		0.26	0.28	0.26
Ad	0.95	1.25	1.13		0.27	--	0.27
(Ad)	0.37	--	0.32		0.26	--	0.26
Total A	4.84	3.00	3.92		0.70	0.29	0.33
H	1.91	1.13	1.53		--	--	--
(H)	0.44	0.38	0.41		0.27	0.28	0.28
Hd	1.29	0.92	1.13		0.26	0.28	0.26
(Hd)	0.42	0.33	0.40		0.26	--	0.26
Total H	3.27	2.75	2.69		0.30	0.33	0.31
Obj.	0.63	0.75	0.69		0.49	0.58	0.58
At.	0.68	0.42	0.68		0.26	0.28	0.26
Na.	0.67	0.42	0.48		0.52	0.28	0.46
Pl.	0.66	0.34	0.58		0.57	0.54	0.58
A.At.	0.31	0.33	0.32		--	--	--
Abs.	0.31	0.33	0.32		0.27	--	0.27
Aobj.	0.47	0.42	0.45		0.30	--	0.29
Arch.	0.45	0.55	0.47		0.26	--	0.26
Art	0.28	0.28	0.29		--	--	--

Table 21 (Continued)

Category	Main Responses				Additional Responses		
	Male	Female	Total		Male	Female	Total
Blood	0.31	0.28	0.31		0.30	--	0.29
Biol.	0.27	--	0.27		--	--	--
Clothing	0.48	0.50	0.49		0.61	0.75	0.64
Cloud	0.30	0.28	0.29		--	0.28	0.26
Crown	--	0.28	0.26		0.29	--	0.28
Design	0.33	0.28	0.32		--	0.28	0.26
Emblem	0.30	0.28	0.29		0.26	--	0.26
Expl.	--	0.28	0.26		0.29	--	0.28
Fire	0.27	0.28	0.28		0.27	1.00	0.31
Food	0.70	0.33	0.60		0.33	0.28	0.32
Geo.	0.40	0.33	0.38		--	--	--
Ice	--	0.33	0.27		--	--	--
Mask	0.31	0.55	0.33		--	--	--
Rel.	0.30	--	0.29		0.27	0.55	0.29
Rock	--	--	--		0.37	0.33	0.38
Sex	0.31	0.28	0.31		0.30	--	0.29
Smoke	0.26	--	0.26		--	0.33	0.27
T. Pole	0.45	0.33	0.43		--	--	--
Water	0.31	0.33	0.32		0.56	0.33	0.53
Other	0.60	0.33	0.53		0.31	0.28	0.31

Table 22

Q Deviations for Content given by Total Sample

Category	Main Responses			Additional Responses		
	Male	Female	Total	Male	Female	Total
R	9.30	9.03	9.20	--	--	--
A	2.50	2.73	2.64	0.33	0.30	0.32
(A)	0.52	0.54	0.53	0.29	0.29	0.29
Ad	1.39	1.32	1.38	0.26	0.25	0.20
(Ad)	0.30	0.28	0.28	0.27	0.26	0.26
Total A	4.34	3.77	4.96	0.55	0.41	0.49
H	1.47	1.53	1.50	0.26	0.26	0.26
(H)	0.65	0.84	0.77	0.27	0.29	0.28
Hd	0.76	0.84	0.80	0.26	0.26	0.26
(Hd)	0.45	0.35	0.40	0.26	0.26	0.26
Total H	2.42	1.91	2.31	0.29	0.31	0.30
Obj.	1.15	1.02	1.07	0.65	0.90	0.78
At.	0.96	0.76	0.85	0.28	0.27	0.28
Na.	0.88	0.42	0.75	0.32	0.35	0.33
Pl.	0.90	0.73	0.80	0.59	0.49	0.55
A.At.	0.30	0.30	0.30	--	0.26	0.26
Abs.	0.28	0.30	0.29	0.27	0.27	0.27
Aobj.	0.62	0.67	0.66	0.30	0.28	0.29
Arch.	0.33	0.45	0.39	0.27	0.22	0.25
Art	0.30	0.30	0.30	0.26	0.26	0.26

Table 22 (Continued)

Category	Main Responses			Additional Responses		
	Male	Female	Total	Male	Female	Total
Blood	0.29	0.28	0.28	0.31	0.27	0.29
Biol.	0.27	0.26	0.26	--	--	--
Clothing	0.58	0.62	0.61	0.68	1.03	0.92
Cloud	0.30	0.29	0.29	0.33	0.29	0.29
Crown	0.26	0.27	0.26	0.27	0.26	0.26
Design	0.27	0.26	0.26	--	--	--
Emblem	0.30	0.29	0.29	0.26	--	0.26
Expl.	0.29	0.28	0.29	0.27	--	0.26
Fire	0.28	0.28	0.28	0.29	0.32	0.30
Food	0.42	0.50	0.48	0.30	0.26	0.28
Geo.	0.44	0.32	0.33	--	--	--
Ice	0.26	0.27	0.26	0.26	0.26	0.26
Mask	0.31	0.39	0.33	0.26	0.26	0.26
Rel.	0.28	0.28	0.28	0.30	0.32	0.31
Rock	0.28	0.27	0.28	0.33	0.31	0.32
Sex	0.31	0.27	0.29	0.35	0.28	0.30
Smoke	0.26	0.26	0.26	0.26	0.28	0.27
T. Pole	0.35	0.33	0.33	--	--	--
Water	0.28	0.28	0.28	0.53	0.53	0.53
Other	0.45	0.32	0.36	0.30	0.31	0.30

Appendix C
Table 23

Raw Data for the Entire Sample.

Variable	1	2	3	4	5	6	7	8	9	10
				Subject						
Sex	M	F	F	M	M	F	F	F	F	M
Age	24	18	22	18	19	18	21	19	23	18
Educ.	4	1	4	1	1	1	4	2	4	1
R	32	11	57	35	68	23	31	60	24	20
A	10+1	5	16	14+2	13	9	11	17+2	7	8+1
(A)	+1		2		1	+1		2+1		
Ad		1	11		7	2	3	3	2	1
(Ad)								2		
H	4		4	9	2	2		8	6	1
(H)	2		3+1		2			4+1	1	+1
Hd	5		4		4			5	2	
(Hd)				+1	1			1		
Obj.		1	2+2	2+1	5+1	2		2	1	1+1
At.	3		2		4	3	5	1		
Na.	3		1	2	6	+1	1	4	+1	+1
Pl.	1+1	2	3+2		6	2	4	1		4+2
A.At.			1		1			1		
Abs.					1					
Aobj.	1	1	1	2	4	1	1			1
Arch.			1		2			2+1	1	
Art			1	1						
Blood										
Biol.										
Clothing	2	1	2+3	1	3+1	1	1	2+1	1+3	
Cloud	+3		1			1	1			
Crown					2				1	
Design										
Emblem				2				1		
Expl.								1	1	
Fire					1					
Food							1	1		
Geo.			1	1			3	1		
Ice					1					
Mask			1		1				1	
Rel.	+2				1			1+2	+1	1
Rock								+1	+2	2+1
Sex	1									
Smoke								+1		
T. Pole										1
Water						+1	+1	+1	+1	+1
Other				1						

Table 23

Raw Data for the Entire Sample (Continued).

Variable				Subject						
	11	12	13	14	15	16	17	18	19	20
Sex	M	M	F	F	F	F	F	F	M	M
Age	20	18	21	18	22	21	21	21	24	19
Educ.	2	1	4	2	4	4	3	4	5	1
R	24	50	20	12	29	40	16	33	64	55
A	11	13	7	3	16+1	14	3	12	20	18
(A)		1	1	1	3	1		1		3
Ad	1	5	2	2	1	1+1	3	2	6	3
(Ad)			+1			1				1
H	1	3	2	2		6		4	2	2
(H)		1			1	2	2	2	1	1
Hd	2	3	2			4			4	3
(Hd)				1						1
Obj.	2	4	1+2		+1	2+1	2	3+1	8	2
At.		2			1	1				4
Na.		2		1	1	1	2	1	3	2
Pl.	2	3+1	+1	+2	1		1		5+4	
A,At.							2	1		
Abs.		1						+1		
Aobj.	2		2	1	1	1			2	3
Arch.		3	2		+1	2			2+1	
Art	2						1			
Blood		1+2							1	
Biol.					1					
Clothing	2		+1			1+3		1+1		3
Cloud						+1		1+1		
Crown					1					
Design										
Emblem									1	
Expl.		2								
Fire						+1	+1		1	
Food		2				1		2	2+1	4
Geo.		1				1	2	3		
Ice										+1
Mask										1
Rel.						+1		+4	2	+1
Rock		+1		+1						1
Sex										3
Smoke	1									
T. Pole		1	1		1	1	1			
Water			+1	+1				+1	1+2	
Other				1	1+1	+1				2

Table 23 (Continued)

Variable	Subject									
	21	22	23	24	25	26	27	28	29	30
Sex	M	F	M	M	M	M	M	F	M	M
Age	23	18	22	19	19	25	21	19	19	18
Educ.	3	1	4	2	1	3	2	1	2	1
R	57	80	27	24	45	24	27	38	18	21
A	29	20	11	5+1	10	8	6	14	11+1	6
(A)	2+1	+1			1	2	2+1	+1		
Ad	5	9			5	3	2	4		
(Ad)		+1			+1		2			
H	5	3	7	5	2	2	2	1	1	1
(H)	2	2						3	+1	
Hd	4	3		1	2	1	2	4		
(Hd)	1	1			1					
Obj.		9	3	3	3+1	+2		2+1	3+1	3+2
At.	2	3			2		3+1	4		2
Na.	1	2	1	1+3	4		2		1	4
Pl.	1	8	1+1	2+1	4	1			+1	1+1
A.At.		3			2			2		
Abs.										
Aobj.			1	2	2	3		2		
Arch.		2			1		2+1			
Art		5								2
Blood	1	+1	+1		1		1+1			
Biol.			1	1						
Clothing	1+1	2	+4	1+1	1+1	+2		+2		
Cloud		1		+1	1	2		1	+1	
Crown										
Design										
Emblem		2						1		
Expl.				1						
Fire					1		1			
Food										
Geo.			2	1	1	1			1	1
Ice		1+1								
Mask	1					1				
Rel.	+2	1+1	+1							
Rock										+1
Sex		1+1					2			
Smoke										
T. Pole				1						
Water	+1	1	+1		1	+1			+2	+2
Other	2	1							1+1	1

Table 23 (Continued)

Variable	Subject									
	31	32	33	34	35	36	37	38	39	40
Sex	F	M	F	F	F	F	F	F	M	M
Age	21	20	19	20	18	18	23	20	22	19
Educ.	1	2	1	3	1	1	4	3	5	2
R	35	61	22	58	27	36	38	13	51	49
A	9+2	14+2	7	22+1	7+3	6	7	6+1	15+1	20
(A)	+1	+1			+2				1	1+1
Ad	1	5	3	5	3	5	2		4	2
(Ad)	+1			+4		1			1	
H	2			3	2	6	3	4	5	6
(H)	1	3+1	1	3	2	3	+2			
Hd	3		1	2	1	4	2		4	1
(Hd)		1		3					1+1	2
Obj.	9+1	6+1		7+4	1+1	4+1	4+1	+2	3+2	5
At.	1	5+1	2	2	1	1	1		2	1+2
Na.	1	2+1	2	3+2	3+4	1+1	6	+1	2+1	1
Pl.		+1	1	2	+1	1+1	3			+2
A.At.		4		1+1					2	
Abs.										
Aobj.	2	4+1	1			+4	3+1	2	5+2	2+1
Arch.	1+1	1			2	1+2	1+1			
Art									1	1
Blood	1								+1	
Biol.				1					1	1
Clothing	1+1	3+1	2	1+3	1	+1	3	+2	+2	1+3
Cloud										+3
Crown										
Design									1	
Emblem	1				1					
Expl.										1
Fire	+3									
Food						1	2	1	1	2
Geo.			1	2						
Ice				1						
Mask	1	1	1							
Rel.					2+1	+2				
Rock		1							+1	
Sex										2
Smoke	+2								1	
T. Pole		1			1		1			
Water	1+1	+2					+2		1+2	+1
Other	2					+1+1				

Table 23 (Continued)

Variable					Subject					
	41	42	43	44	45	46	47	48	49	50
Sex	M	M	M	M	M	M	M	F	M	F
Age	19	18	19	18	18	20	26	19	19	18
Educ.	1	1	1	1	1	3	3	2	2	2
R	78	48	48	28	18	65	27	43	30	35
A	14+1	19	18+2	15+1	6	18+1	10	12	10	13
(A)	+1		1			+1	1	2		+1
Ad	10	9	6	2	1	7	2	5		4
(Ad)	1	1+1								
H	3+1	4	3	3	3	3+1	4	5	1	2
(H)	4		1			1+1		1	1	
Hd	2	7	4	1		3		1		4
(Hd)	4+1		1			4	1			1
Obj.	10+2	1+3	4+1	1+1	1+2	15	2+2	4+2	6+1	3+1
At.	4		1	1+1	1	5	1			
Ms.	11	+1	+1		1			+1	6	1
Pl.	3+9	2+2	2+1	1+1	1	2		1+1	+1	1
A.At.			1					1		
Abs.							1+1	+1		
Aobj.	1			1	2	1	2	2	1+1	2
Arch.	1+1		1					1+1		1
Art	1							1		
Blood						+1				
Biol.	2		1			1				
Clothing	+1	1+1	1+2	2	1+1	1+3	2+1	1+2	1	1+2
Cloud	2+2			+1					1	
Crown										
Design										
Emblem	1+1	1	1							
Expl.	+1	1		1					1+2	
Fire	+1				+1	+2			+1	+1
Food		1	2		+1	+1	+1	2		
Geo.					1	1	1	2		
Ice			1					1		
Mask	2									
Rel.	1+1		+1							
Rock			+2	+1				+1	1	
Sex	1+1			+2						
Smoke	+2				+1	+1				
T. Pole						1				1
Water	+4					1		1+2	+1	
Other						1			1	1

Table 23 (Continued)

Variable	51	52	53	54	55	56	57	58	59	60
					Subject					
Sex	F	M	F	M	F	M	M	M	M	F
Age	24	19	26	23	18	22	20	22	22	20
Educ.	2	2	4	5	1	5	2	3	4	3
R	42	18	42	33	14	26	16	60	38	17
A	14	8	13	8	5	12	6	24+1	12	3+3
(A)				2		1		1	1	+2
Ad	7	2	6	3+1		2		3	7+1	
(Ad)			1	1	1				1	
H		1	7	1	1	1	1	7		2
(H)	1		+1				1		6	1
Hd	4+1		6	2+1				2	1	
(Hd)			1					1		
Obj.	1		1	1	2+1	2	2	5+1	3	
At.	2	2		1	1	1	1	6	2	
Na.	1		1	2	1+1	1	1	4		1
Pl.	1	3	3	2		1	3	2+3	+1	+3
A.At.				2		1		1		
Abs.				1						1
Aobj.	3	1	1			1		1	1	1
Arch.	1							1		3
Art										
Blood				+1				+1		
Biol.										
Clothing		1	+1	1		1		+1	1	1
Cloud	+1								+1	+1
Crown										
Design										
Emblem										1
Expl.										
Fire					+1					1+1
Food	2		1	+1		+1		2+1	1	1
Geo.	2			1						1
Ice									+1	
Mask	1						1			
Rel.	+1		1+1						+1	
Rock	1			+1					+2	
Sex				5				+2		
Smoke					1+1					
T. Pole						1			1	
Water	+1				+1	+1	+1			+2
Other					2	1+2		+2	1	

Table 23 (Continued)

Variable					Subject					
	61	62	63	64	65	66	67	68	69	70
Sex	M	M	F	M	M	M	F	M	F	M
Age	22	20	21	23	19	21	21	18	22	19
Educ.	4	3	4	1	1	4	4	1	4	2
R	44	31	47	36	25	33	48	44	30	20
A	8	8	19	18	10+1	10	12	10	17	5
(A)							1	3+1		
Ad	8	3	8	5	1	3	4	2	1	1
(Ad)										
H	4	1		1	6	5	1	5	3+1	2
(H)					2	1		3	2	
Hd		1	5	1	1	1	6	4	2	4
(Hd)	1									
Obj.	5+1	4	6	4	1+2	2	5+1	3+3		4
At.	3	3	1		1	4+1	1	1	1	
Ne.	3	2				2	6	2		
Pl.	2	2	1+1	4	1	1+1	2		2	1
A.At.						1		1		
Abs.										
Aobj.	1	3	+1	1		1	1	1+1	1	1
Arch.	1		2				1	2		
Art							+1	2		
Blood	1									
Biol.							1			
Clothing		1	4	1+1	2	1	2	2+1	1+1	1
Cloud				1			1+1			+1
Crown										
Design										
Emblem		1						1		
Expl.							1			1
Fire							+1			
Food	3		1	+2					+1	
Geo.	1						2			
Ice	+2									
Mask								1		
Rel.			+1							
Rock		+1				+1	1			
Sex	2+2	1+1								
Smoke								+1		
T. Pole						1		1		
Water	1+2						+1	+1	+1	
Other		1								

Table 23 (Continued)

Variable	Subject									
	71	72	73	74	75	76	77	78	79	80
Sex	F	F	F	F	F	F	M	M	F	M
Age	20	21	17	18	22	21	20	22	21	20
Educ.	3	4	1	1	4	3	3	4	4	3
R	21	25	31	24	12	31	35	48	13	64
A	7	8	10+1	9	3	12+1	9	15	2+1	17
(A)	1		1	1		+1	5		1+1	
Ad	2	2		3		1	3	9	1	5
(Ad)							+1			
H	1	4	3	1	3	1	6	1	5+1	7
(H)		3	2				2		1	1
Hd	1	1	1			1	4	5		
(Hd)		1				+1	1	1		
Obj.		2+1	2+2		+2	2	+2	5+1	1+3	7+1
At.	1		2	3		2	1	5		5+1
Na.		1	1	2	2	1+2				1
Pl.	1	1	2		+1	2+2				5+5
A.At.	2									2
Abs.	1		1		1				1	
Aobj.						2+1	1	1	1	2+2
Arch.	1		2	2		1				
Art								1		2
Blood										1
Biol					1					
Clothing		+3	1+1			3+2	+1	2+1	+6	+4
Cloud	2									
Crown										
Design										
Emblem							1			
Expl.										
Fire			1+2						+1	
Food		1				1	1	1		3+1
Geo.	1		1					3		1
Ice										1
Mask		1								
Rel.		+1				1	+1		+1	
Rock		+1		1					+1	1+1
Sex						+1		+1		1+1
Smoke										
T. Pole			1	1	1	1				1
Water			+1			+1				1+1
Other				1	1	+1				

Table 23 (Continued)

Variable					Subject					
	81	82	83	84	85	86	87	88	89	90
Sex	M	F	M	F	F	F	M	F	F	F
Age	25	20	20	19	22	23	18	18	22	18
Educ.	4	1	1	2	3	5	1	1	2	1
R	31	85	54	28	22	15	18	36	15	19
A	9	21	10	12	13	6	8	11	6	5
(A)		2+1			1			1		
Ad	3	8+1	8	2	1			1		4
(Ad)		2	1							
H	4	11	1	4	1	2	3	1	2	4
(H)	1+2	2				1		2		
Hd		14	10	1		+1		1		
(Hd)		3		1						
Obj.	+1	7+5	5+1	2+1	+1	+2	+2	+2	+1	1+2
At.			9			1		1	1	
Na.	1+1		2	1				5	1	1
Pl.	3+1		1	1	4		2	3+1	1	
A.At.								1		
Abe.										
Aobj.	2	2+1	1+1	3	1	1	1	1	2	
Arch.										
Art		1				1				
Blood	+1	2					+1			
Biol.									1	
Clothing	1+4	2+12	1+1	+4	+1	1+1	+1	+1		1
Cloud	1			+1				2		
Crown		+1								
Design								1		
Emblem	2								1	
Expl.								1		
Fire			+2			+1	+1			
Food		3	+1					1		2
Geo.	1	1					1	2		
Ice			1							
Mask	1	1		+1		1	1			
Rel.	2	+3	1+1					1		
Rock			+1	1+1						1
Sex			+1							
Smoke						+1				
T. Pole		1	1							
Water						1		1+1		
Other		2	2		1		1		+1	1

Table 23 (Continued)

Variable					Subject					
	91	92	93	94	95	96	97	98	99	100
Sex	F	M	M	M	M	F	F	F	F	M
Age	18	24	24	18	24	18	21	21	23	25
Educ.	1	5	5	1	3	1	1	1	4	2
R	21	30	19	20	24	48	33	29	25	31
A	6	7	6	7	8	16	14	11	12	10
(A)	2+1				1			1		
Ad	1		1		2	7				6
(Ad)	1									+1
H	3	2		3	2	4		3	1	4
(H)		1	1		2	1	2	2	4	
Hd	1	3			2	3	2	3	1	2
(Hd)							1			
Obj.	4+2		2	1+1	2	2+1	1+1	2+2	1+2	+1
At.		4	1	1	1	3	3	2		3
Na.		1		2					1	
Pl.		1		2+1		3+1	4			
A.At.										
Abs.										
Aobj.		1	1	1+1	2	3+1	1	1	2	1+1
Arch.			1							
Art										
Blood									1	
Biol.		3								
Clothing		1+2	1	1+1	1+1	2+2		+2	1+3	2
Cloud				+2						1
Crown										
Design		1	1							
Emblem										
Expl.				+1			1			
Fire	+1						1			
Food		1	1			1		1		
Geo.			1				1			
Ice										
Mask				1						
Rel.	2		1							
Rock							1	1	1+2	
Sex		2	1							+1
Smoke	1									
T. Pole					1	1		1		1
Water		1	+1		+1	2				
Other		1		1+1			1	1		1

Table 23 (Continued)

Variable	Subject									
	101	102	103	104	105	106	107	108	109	110
Sex	M	M	F	F	F	F	F	F	M	M
Age	25	20	23	25	19	21	18	21	21	20
Educ.	5	3	4	3	3	4	1	2	3	2
R.	48	53	38	50	34	27	18	63	24	48
A	9	8	13	10	13	7	8	9	6	12+1
(A)				1	1		1	1		+1
Ad	15	4	8	8	9	4	1	1	1	
(Ad)		+1								
H	4	8	2	5	2	2		5	2	4
(H)	2		3	1	1		1	2		1
Hd	10	13	5	6	5	2		4+1	2	
(Hd)		1		1		1				
Obj.	1+3	2+2	3+2	4+1	+2	+2	1	16+3	2	7+4
At.		3		2	1	2	1	4	1	1
Na.	2	1		1+1		1		4	1	6
Pl.	1	3+2		2	+1	1	1	1+2	4	4+3
A.At.										
Abs.			1					4+1		
Aobj.	2	1+2	1	3	1	2	1	3+1	1	3
Arch.		1	+1					1	1	1+1
Art										+1
Blood		+1		1						1
Biol.										
Clothing	1+1	1+7	1+5	2+2	+1	+1		1+3		1+3
Cloud	1			+1		1		+1	+1	+1
Crown	+1							1+1	+1	
Design										+1
Emblem								1		
Expl.		1							1	1+1
Fire		1	1	+1						1+1
Food						2	1	2	1	2
Geo,							2	1+1		
Ice				1						
Mask		1				1				
Rel.				1	1			+1		1+1
Rock		+1				+1			1	
Sex		2		+1					+1	
Smoke			+1							
T. Pole		2		1						
Water		+1	+1					+2		+4
Other				+1		1		2+1	+1	2+1

Table 23 (Continued)

Variable					Subject					
	111	112	113	114	115	116	117	118	119	120
Sex	M	M	M	M	F	M	M	M	M	M
Age	20	21	21	20	19	20	23	17	19	29
Educ.	2	3	3	2	2	3	5	1	2	5
R	29	38	43	20	33	29	32	24	19	32
A	9+1	10	10+1	8	9	11	12	9	7	15
(A)	1		2						2+1	
Ad		7	2			1	2	7		1
(Ad)							1			
H	4	4	3	3	2	4	1	1	1	3
(H)	1	1	1							1
Hd	1	8	7	2	4	2	8	7		
(Hd)		2	1							
Obj.	3	+1	4+2	+1	1+1	1+1	1		+1	3
At.	1+1	3	1	2	3+1	3	1			
Na.	1		2		2	1			2+1	
Pl.	2+3	+1	+3	1+1	2	1			+1	1
A.At.		1								1
Abs.	+1		1				2+1		+1	
Aobj.		1	1	2		1	2		2	2
Arch.	1				1	+1				1
Art		+1	2							
Blood	+1	1	+1							
Biol.										
Clothing	+1	+2	1+2	+3	3+1	+2		+2		2+1
Cloud	1									
Crown			+1							
Design										
Emblem									1	
Expl.										
Fire										
Food		+1	2		5	2				1
Geo.	1			1		2	1		4	
Ice										
Mask				1						
Rel.	1				+2					
Rock					+1					
Sex		+1				+1	1+1			
Smoke										
T. Pole	1									1
Water	+1					+1			+4	
Other	1		3		1+1					

Table 23 (Continued)

Variable	Subject									
	121	122	123	124	125	126	127	128	129	130
Sex	F	F	F	F	M	M	M	M	M	M
Age	21	18	21	19	22	23	21	26	28	27
Educ.	4	1	4	3	4	1	4	5	1	5
R	50	23	49	12	21	13	22	42	19	36
A	13	11	11	4	8+1	2	6	11	3	12
(A)		1	5	+1						
Ad	4	1	2	1	2	1	1	3	1	8
(Ad)			1					1		1
H	4	2	8	1	2	1	2	2	1	5
(H)	2	2	9		1			2	1	2
Hd	3		2	2	1			1	+1	4
(Hd)			1+1				2	1		1
Obj.	5+2	2+1	1+4	1		1	2	3+1	4+2	1+1
At.	3	1	5		1+1		1+1	2		4
Na.	1	1	+1	+1	3+1	2	3	2		1+1
Pl.						1	1	1	2	
A.At.					1			1		
Abs.			1							
Aobj.	3	1	1		1	1		2	1	3
Arch	6		1					1	2	
Art				1						
Blood			1		+1	+1	+1	1		
Biol.										
Clothing	3+3			+1	+2		1	1	1	1
Cloud	1	1		+1		1	+2		1	
Crown										
Design								1		
Emblem										
Expl.					1	1				
Fire			+2	+1						
Food								4	1	2
Geo.	1									
Ice										
Mask										
Rel.	1									
Rock				1			+1		+1	
Sex			+1		1+1	1	1+1			
Smoke										
T. Pole								1	1	
Water	+1				+1		+1		+2	
Other						1	2	1		1

Table 23 (Continued)

Variable					Subject					
	131	132	133	134	135	136	137	138	139	140
Sex	M	F	F	F	M	M	F	F	F	M
Age	25	19	18	29	28	21	23	19	20	19
Educ.	5	2	1	2	5	5	4	2	4	1
R	29	27	17	29	27	29	33	24	42	13
A	9	14+3	3	8	10	14	6	10+1	8	5
(A)	2					+1	1		2	2
Ad	1	3		1	2	1	1	1	1	
(Ad)			1							
H	5	4	6	6	1	2	1	2	3	
(H)		2		2	1		2		2	
Hd	2	1		1					1	
(Hd)				2	1				2	
Obj.	1+2	+2		2	2	1+2	5	2+1	2+1	2
At.			+1				3	3	5+1	1
Na.			+1	1+2		1+1	5		2	
Pl.	2	1+4	1	1+1	5	+1	2	2+1	1	
A.At.										
Abs.										
Aobj.	3	1	2	2	1	1	2	1	1	1
Arch.			2	1		1			1+1	
Art							1	1		1
Blood			+1							
Biol.										
Clothing	1+4	1+2	+2	2+5	1	2+1	1	1		
Cloud				+1		1				
Crown	+1									
Design										
Emblem	+1					2	1	1	2	1
Expl.						+1				
Fire			1		2		1+1			
Food						+1			1	
Geo.									3	
Ice										
Mask	2									
Rel.										
Rock										
Sex									3+1	+2
Smoke										
T. Pole			1			1	+1			
Water				+1			1+2	+1		
Other	1+1	+2	+1	+1	1	2			2	

Table 23 (Continued)

Variable					Subject					
	141	142	143	144	145	146	147	148	149	150
Sex	M	F	M	M	M	M	F	F	F	F
Age	21	18	18	18	21	21	25	22	25	18
Educ.	3	2	1	1	4	4	3	3	3	1
R	14	20	11	15	26	26	26	52	11	13
A	3	6	5+2	2	10	6	9	10	4	6
(A)				1				1		
Ad	4			1	4	3	1	10		1
(Ad)										
H	2	1	2	3			1	4		2
(H)			1			1		2	2	
Hd		1			8	1	1	12		
(Hd)	1					1		1		
Obj.	+1	3+1	+1	+1			3	1+3	+1	1+1
At.	1	2				1	2+1			
Na.	1	1	2	1		3	2		2	1
Pl.			+1	2		2		1	+1	
A.At.										
Abs.		1	1							
Aobj.	1			1	3	2	1	4+2	1	
Arch				+1				+1		1+1
Art				1						
Blood								1		
Biol.										
Clothing	1	1		2	+1			2+1		1
Cloud						1				
Crown						1				
Design										
Emblem				1		1				
Expl.		+1				+1				
Fire							1		1	
Food		1		+1		1	1			
Geo.		2				2				
Ice							1		+1	
Mask								1		
Rel.			+1							
Rock					1		+1			
Sex							1	2		
Smoke		1								
T. Pole									1	
Water							+1		+1	
Other							2			

Table 23 (Continued)

Variable					Subject					
	151	152	153	154	155	156	157	158	159	160
Sex	F	F	F	F	F	F	F	M	F	M
Age	18	18	22	21	18	18	21	22	21	23
Educ.	1	1	4	4	1	1	2	5	4	3
R	33	15	11	53	13	23	27	39	25	19
A	7	6	6	13	5	9+1	8+2	17+2	8	4+1
(A)	1	2		+1					1	
Ad	6	1	1	4		1	3	3	1	1
(Ad)				1		1				
H	1	5	1	8	2	4	1	7	2	1
(H)	1			2		1+1		3	2	
Hd	2			2				2	2	
(Hd)	1				1		1	1	1	1
Obj.	4	+2	+2	4+4	+1	1+1	+3	2+4	2+1	+1
At.	1+1		+1	1+1	1	1	2		1	3
Na.	2			+1		1+1		1	2	3
Pl.	3			1+1	+1			+3	2+1	3+2
A.At.			1		+1		2			
Abs.				3			1			
Aobj.		1	1	2	1	1	1	2	1	1
Arch.					1					
Art			1	1					1	
Blood		+1		1			+1			
Biol.								2+1		
Clothing	1	+2	+1	3+2	+1	+3	+2	1+4	+1	
Cloud						1			+1	
Crown								+1		
Design										
Emblem						1				
Expl.				1					1	
Fire				+1		+1				
Food	1			3				+1	1	
Geo.				2	1	1				2
Ice				+1						
Mask								1		
Rel.					+1					
Rock						+1		+1	+1	+2
Sex	1		+1	1+1						
Smoke									+1	
T. Pole	1				1					
Water		+1		+1		+1	1		+1	+2
Other									1	

Table 23 (Continued)

Variable	Subject									
	161	162	163	164	165	166	167	168	169	170
Sex	F	M	F	F	F	F	F	F	F	F
Age	18	24	19	18	18	19	19	18	22	22
Educ.	1	5	3	1	1	2	4	2	5	4
R	26	28	26	20	17	13	29	12	28	41
A	10+1	9+2	10+1	9+2	6	5	8	7+1	9	13
(A)	1	1			1		1		2	
Ad	1	1	2					1	1	5
(Ad)										
H	3	5	2	2	5	3	2	1	2	
(H)	1	1		+1	1		2		3	
Hd	2+1	1	1		1	1	1	1		6
(Hd)					2		1		1	
Obj.	1	1		+1	+1	1+1	3+1	1	2+3	4
At.	2	1	1			1	1		1	1
Na.		1+1	2+1	3		1+1	1		1+1	
Pl.	2	1	3+1	2+2	+1	+1	1+1		+2	1
A.At.										
Abs.				;						
Aobj.		2	3			1	1	1	3	2
Arch.			1						1	1
Art										1
Blood		+1		1+1						
Biol.										
Clothing	+3	2+1	+2	1+1	+2	+2			1+2	3+1
Cloud										
Crown										
Design										
Emblem			1							
Expl.							1			
Fire									+1	
Food	1						4			
Geo.							1			1
Ice										1
Mask		1					1			1
Rel.	1+1									+1
Rock									+4	
Sex										
Smoke										
T. Pole				1	1				1	
Water						+1	+2			
Other	1	1	+1	+1			+1		1	1

Table 23 (Continued)

Variable					Subject					
	171	172	173	174	175	176	177	178	179	180
Sex	F	F	M	M	F	M	M	M	F	F
Age	21	20	30	30	24	22	22	21	19	20
Educ.	4	3	5	5	4	4	3	3	1	2
R	42	49	16	18	19	16	28	28	65	26
A	11+1	14+1	4	6	3	3	17	7	18	10
(A)	+1	1		1	1					
Ad	2	2		3	3		1	4+1	5	6
(Ad)										
H	14	11	2	1	1	5	1	1	11	5
(H)	1	1	1	2+1	1			1	7	1
Hd	3	1	1	1	1		1	2	2	
(Hd)		1	1		1					
Obj.	1+4	2+1	2+1	+1	1	+2	1+1	1+1	1+3	1
At.		5	1		2	1		3	1	1
Na.	1		+1	+1		+1			1	
Pl.	1	2+1	+1	+1		+1	3	1	2	
A.At.	1				1			2	1	
Abs.	3	+1								
Aobj.			1	2	1	2+1	1		6	1
Arch.	1+1	1						1		
Art		1				2				
Blood	+2						+3		+1	
Biol.										
Clothing	+4	+4	1+1	1	+3	1+1		+1	2+4	+2
Cloud		+1								
Crown										
Design		+1								
Emblem	1		1					1		
Expl.								1		
Fire									2	
Food		1							4	
Geo.							1			
Ice	1								1	
Mask	1	2								
Rel.	+2	+1		1						1
Rock		1						1		
Sex						1	1		+1	
Smoke	+1									
T. Pole		1	1		1	1			1	
Water	+2	+1		+1			1	+2	+1	
Other		2			2	+1	+1		+2	

Table 23 (Continued)

Variable				Subject					
	181	182	183	184	185	186	187	188	189	190
Sex	F	F	F	F	F	M	F	M	M	M
Age	22	18	19	20	21	25	18	26	26	22
Educ.	1	1	1	1	2	5	1	4	2	2
R	18	17	16	12	58	30	13	31	14	12
A	7	6+1	7	5	14	9	4+1	6	8	2
(A)	1+1				1			1	1	1
Ad	1		1			2		4		
(Ad)										
H	1	1	1	1	2	5	1	2	1	
(H)	1	1			1	1				
Hd	1	1			7	3	1	3		
(Hd)					1	1				
Obj.	+1	4+1	1	1+1	4+2	2+1	1	3	2	2
At.					1+1	2+1		2		4
Na.	1	+2	1	+1	1+1		2			
Pl.	+2	1	1+1		3+2	+1	1+1		1+1	
A.At.			1	+1					1	
Abs.	+1				1		+2			
Aobj.	2				2	1	1	3	1	
Arch.				1	5+1					
Art		2	+1	1				1+1		1
Blood					1					
Biol.										
Clothing	+2			2+1	1+2	1		+1		1
Cloud			+1		1			1		
Crown										
Design			1							
Emblem								1		
Expl.			1							
Fire	1	+1	+1		1	+1	+1		+1	+1
Food	1				2			2		
Geo.					3			2		
Ice	+1				1					
Mask					1					
Rel.					+3					
Rock	+1	+1				+1				
Sex						1+2		1+1		1
Smoke			1							
T. Pole	1					1				
Water				+1	4+1	+1	+1			
Other		1+1	+1		1+1	1	+3		+1	

Table 23 (Continued)

Variable	Subject									
	191	192	193	194	195	196	197	198	199	200
Sex	M	M	M	M	M	M	M	F	F	M
Age	21	24	22	22	23	24	21	21	22	21
Educ.	1	2	1	1	1	5	4	4	5	3
R	14	17	20	14	25	22	18	33	32	17
A	4+2	7	10	6	17	2+2	5+1	10	14+1	4+2
(A)			1					1	1+1	1
Ad		3	1	1	2	2+1		3		
(Ad)						1				
H	1	1	4	1		4	3		2	1
(H)	2	4				1		1	2+1	
Hd		1	2	1		2	2		2	3
(Hd)				1						
Obj.	2	+2	+1			1+3	3+1	1	2+3	+2
At.			1	1			1	4		2
Na.	1+1		+1	+1		2+2	3		2	
Pl.	+2	+1			1	+1	+1	1+1	+1	
A.At.					1					
Abs.						1			1	
Aobj.					2			3		1
Arch.						1		1	1	
Art	3									1
Blood						1+2				
Biol.										1
Clothing		1+1	1	1	2	+1		2	1+1	
Cloud				1						
Crown								+1		+1
Design										
Emblem						1			1	
Empl.										
Fire										
Food		+1					1	1+1	2	
Geo.						2		2		1
Ice									1	
Mask										1
Rel.								+1		
Rock		+1		+1		+1	+2	1		
Sex										
Smoke										
T. Pole										1
Water							+1	+1	+1	
Other	1+1					1+2		2+1		

Table 23 (Continued)

Variable				Subject						
	201	202	203	204	205	206	207	208	209	210
Sex	F	M	M	M	M	M	M	F	M	F
Age	23	19	24	18	20	23	22	20	19	21
Educ.	5	2	4	1	2	5	4	2	1	1
R	39	36	24	22	14	65	52	16	38	36
A	10	8+1	8+1	11	7	12	22+1	7	12	11
(A)		3		+1		4	2+1	1		2
Ad	2	4	1	1	1	5	1		5	1
(Ad)		2					+1		2	
H	1	3	3	2		2	1	4	1	5
(H)			+1	1	3	5+1		1	3	2
Hd		3	1			11		1	4	1
(Hd)		1		1	1				1	2
Obj.		1+1	1+1	+3	1+1	6+2	8+1	1+3	+1	2+2
At.	4	+1			1	3	1		2+2	1
Na.	7		1	1		3+2	1+1		3	+1
Pl.	2+1	1	2+1	2+1	+1	+1	7+2		+1	1
A.At.							1+1			
Abs.			1+2							
Aobj.	1		1	1+1					1	1
Arch.	5	+1	1			4	2			
Art		1				2				2
Blood		+1	+2						+2	
Biol.										
Clothing		2+2	+5		+1		1	1+2	+1	1+2
Cloud	1+1								1	
Crown										
Design										
Emblem				2						
Expl.						+1				
Fire			1			+2				
Food	1	2+1	1			2	2			1
Geo.	1					1			2	2
Ice	1								+1	
Mask						1				
Rel.	+1		1+1			+3	1			
Rock							1+5		+1	
Sex	1	3	+2							
Smoke	+1							+1		
T. Pole	1						1			
Water	+3					1+2	+6		+1	
Other	1	2	1			3			2	1

Table 23 (Continued)

Variable	Subject									
	211	212	213	214	215	216	217	218	219	220
Sex	F	F	F	F	F	F	F	M	M	F
Age	23	22	21	20	21	24	22	21	19	19
Educ.	2	2	4	2	4	2	4	3	1	1
R	44	20	33	28	29	14	29	27	15	15
A	6+1	3+1	11+2	5	7	4	11	7	5	7
(A)	2	1			1	1	1			1
Ad	12				3	2	+1	3	2	
(Ad)										
H	1	3	3+1	5+1	3	3	5	5	2	2
(H)	2	1+1		1	7		2	3	+1	1
Hd	5+1	1		1+1		+2		2	1	
(Hd)	3		+1		+1					
Obj.	1	2	2	2+3	+1	+1	1+1	1+2	1	1+1
At.	4	1	4	1+1			1	1	1	1
Na.		+1	3	6+1		1+1			+1	
Pl.	1		1	+4	3	+1	2	+1		
A.At.		1								
Abs.		1	1+1	1+1	1					
Aobj.	3	1	1				2	2	1	1
Arch.	1	1		+1						
Art			1	1						
Blood				1					1	
Biol.			2							
Clothing	+2	+2	1		2+1	+1	1	1+3		+1
Cloud				+2	1				1	+1
Crown		+1		1			1	1+1		
Design										
Emblem		1	1							
Expl.							1			1
Fire		+1		1+1		+1				
Food	1	1						+1		
Geo.	1									
Ice										
Mask						1		1		
Rel.			1	1+1		+1				
Rock		+1		+1						+2
Sex	1					1		+2	+1	
Smoke				1+1						+1
T. Pole			1		1	1	1			
Water			+1					+1	+1	
Other	+1							+1		

Table 23 (Continued)

Variable					Subject					
	221	222	223	224	225	226	227	228	229	230
Sex	F	M	M	M	M	M	M	M	MF	F
Age	21	23	19	26	22	23	20	19	21	19
Educ.	3	5	1	5	4	3	3	2	4	1
R	24	65	33	24	23	16	24	23	34	25
A	8+1	8	14	7	7	7	6	10	6	3
(A)	1		2	1	2		1		2	2
Ad	1		2		2	1	1	1	9	2
(Ad)		17		+1				1		1
H	5+1	3	6	2	2	1	1	1	2	1
(H)	2+1	2		2				1		2
Hd		5	1	3		1	2	5	5	2
(Hd)			1					1		
Obj.	1+5	1	2+3	1+1	1+2	2+1	2		1	2+3
At.		4		1			1	1		
Na.	+1	4+1	1		1	+1		1+1		
Pl.	+1	5+2	1+1		2+2		1			1
A.At.									1	
Abs.	1+1	1+2		1					+1	
Aobj.	1	3+1	1+1	+2	1+1	1	1		3	2
Arch.		1	1				2			
Art				1						
Blood		1							+1	
Biol.					+1					
Clothing	1+3		+3	1+1	+1	1+1	1+1	+3	2+1	3
Cloud	1	1		1						2
Crown									1+1	
Design		2		1						
Emblem										
Expl.				+1		1	2	1		
Fire					1+1		+1		1+1	
Food		1	1		1					
Geo.		2								
Ice								+1		
Mask	+1					1	1			
Rel.	1	1+1					+1		+1	
Rock	+1				2				+1	
Sex						+1			+1	
Smoke								+1		
T. Pole		1		1	1			1		
Water	+1	1+2							+2	
Other	1	1	+2	1+1		+1	1		1	2

Table 23 (Continued)

Variable	Subject									
	231	232	233	234	235	236	237	238	239	240
Sex	F	M	M	F	M	F	F	F	F	M
Age	18	19	20	18	21	19	21	18	19	27
Educ.	1	2	3	1	1	2	5	1	2	5
R	32	23	30	32	30	19	31	17	33	26
A	12	6	9+1	15	9	8	10	8	9	9
(A)	+1	1	1					1	1	
Ad	1	1		5	3	2	6	1	2	3
(Ad)		1								
H	3	5	2	2	1+1	2	2	4	3	1
(H)	1	1	2		1	2	2		1	
Hd	2	4		5	1+1		2	1	4	3
(Hd)					+1		1		2	
Obj.	+2	1+2	3+1		1+2	+1	1+1		1+2	2+1
At.			2	2	2				2	1
We.	6		1		4	+1				2+1
Pl.	1+2	+1	1+1			+1			2	+1
A.At.			1			2	1			
Abs.	+1				+1					
Aobj.	1+1	2	1	1		2+1	2		2	1
Arch.									1	
Art										
Blood		+1	+2		1					
Biol.										
Clothing	+2	+5	3+1	2+4	1+2	+2	2+5	+2	+5	+1
Cloud	1								+1	
Crown		+1								
Design										
Emblem										
Expl.										
Fire					+1	1+1	+1			
Food									1	2
Geo.					4			1		
Ice					+1					
Mask	1		1+1					1		1
Rel.		+1			1+1				+1	
Rock	+1		+1	+1		+1				+1
Sex		+1	+4		+1			1	+2	
Smoke	+1		2			+1				
T. Pole	1		1		1				1	1
Water	1+3				+1	+1	1		1	
Other	1	1			+1					+1

Table 23 (Continued)

Variable					Subject					
	241	242	243	244	245	246	247	248	249	250
Sex	F	F	M	M	M	M	F	F	M	M
Age	18	22	24	18	22	25	18	19	19	26
Educ.	1	5	4	1	4	5	1	2	2	3
R	12	25	17	29	18	18	19	34	14	23
A	6	10	4	10	9	9	8	9	3	6
(A)			1	2				1		1
Ad				3	1	2	1	2	1	1
(Ad)										1
H	1	4	1	1+1	2	1	1	10	5	1
(H)	1	1	1			1	1	2	1	1
Hd	1	2	1	1	1	1		4		6
(Hd)					1		1			2
Obj.		+1	+1	1+1		+1	1	+2		+1
At.		4	1	1	1	3	2		1	
Na.							2+1			
Pl.				2+1	1+1	+1		2+1		
A.At.										
Abs.		1								
Aobj.			1	1	1	1	1	2	1+1	2
Arch.			1							
Art			2							
Blood				+1			+1			
Biol.										
Clothing	1+1	1+3	+1		+1	+1		+9	+2	1+2
Cloud									1	
Crown										
Design										
Emblem	1		1	1						
Expl.				+1				+1		
Fire				+1	1					
Food				1			1	1		
Geo.			2	1						
Ice	+1						+1			
Mask		2								
Rel.							+1			+1
Rock			+1	1					+1	
Sex					+1	+2				1
Smoke										
T. Pole	1		1					1	1	
Water				+1				+1		
Other				3+1						+1

Table 23 (Continued)

Variable	Subject									
	251	252	253	254	255	256	257	258	259	260
Sex	F	M	F	M	M	F	F	F	M	M
Age	21	29	21	17	20	21	18	18	21	23
Educ.	5	3	4	1	3	4	1	1	4	4
R	11	56	31	17	47	38	15	35	10	16
A	5	21	12	5	7+1	11	6	11	3	4
(A)				+2	5+1	2				
Ad		2	1		6	2		8		3
(Ad)		1				1			1	
H	3	2	5	1+1	7	6+1	2	5	1	1
(H)	1				5	2+2	1	2		
Hd		2	1	1	1			2		1
(Hd)		2		1	4	1		1		1
Obj.	+1	1+1	1+1	1+3	1+4	1+2	1		+1	+1
At.		2	5	+1	1	3			1	1
Na.	1	+1		+1						+1
Pl.	+1	2+1	1	1+1		1	1		2	1+1
A.At.	1									
Abs.					1		1			
Aobj.		3	2+1	1+1	4+1	1		1+1	1	1
Arch.		1					1	1		
Art				1						1
Blood			1							
Biol.										
Clothing		1+1	1+3	1	+7	+6	1+1	1+1	+1	1
Cloud		+1				+1				1
Crown										
Design								1		
Emblem						+1	1			
Expl.		1	1						1	
Fire	+1	1				+2				
Food		2		1+1		2+1		1		
Geo.		8		2	2					
Ice					1					
Mask					1+1	1		1		
Rel.	+1				+2	3+1				+1
Rock	+1	2		+1		+1				+1
Sex		1	+2	1	+3				+1	+1
Smoke										
T. Pole		1								
Water								+1		
Other					1	1				+1

Table 23 (Continued)

Variable	261	262	263	264	Subject 265	266	267	268	269	270
Sex	M	F	F	F	F	F	M	M	F	F
Age	22	20	18	20	18	18	21	22	18	20
Educ.	5	3	1	3	1	1	4	4	1	2
R	23	24	13	16	23	14	40	14	17	11
A	7	8	5+1	6	6	8	6	6+1	5+1	4
(A)						1				
Ad	1	1			2		3		2	
(Ad)	1			1						
H	6		2	1	1	2		2	1	1
(H)	2	1	2		2			1	1	1
Hd	2	1		1						2
(Hd)	1	+1				1				
Obj.	1+1	3+1	3+2	+1	1+1	+2	4	1	3+1	
At.				4	1	1	7			
Ne.		+1	+1		+2	+1	4+2	1		
Pl.		2	+1		1		3+1	3	+1	1
A.At.				1+1			1		1	
Abs.			1		2		+1	+1		+1
Aobj.	2+1	1		3	1		1		2	
Arch.		1					2			
Art						1				
Blood		1					2			
Biol.										
Clothing	1+1	1	+2	+2	2+1			+1	+1	1+1
Cloud									1	
Crown										
Design							2			
Emblem										
Expl.										
Fire							1			+1
Food	+1	3			2					
Geo.							2			
Ice										1
Mask										
Rel.										
Rock						+1				
Sex	+1			+1		+1				
Smoke									+1	
T. Pole										
Water	+1				1		2+3			+1
Other					2				1	

Table 23 (Continued)

Variable	Subject									
	271	272	273	274	275	276	277	278	279	280
Sex	M	F	M	F	M	M	F	M	M	F
Age	18	25	22	21	20	21	18	21	20	21
Educ.	1	5	4	3	3	3	1	3	2	3
R	31	42	26	49	25	36	21	20	17	32
A	11+1	5	9	19	7	11	12	4+2	6	6
(A)			+1		1	1		+1	1	
Ad	.	5	2	3	1	2	1		3	4
(Ad)										
H	4	3	1	8	1+1	6		3	4	3
(H)	1	1		2					1	1
Hd		3		4	3	3	2	2	1	1
(Hd)	1			1				1		1
Obj.	1+3	6+2	3	2+1	+1	5+1	1		+2	5+2
At.	4	1+1				5	1	4+1		
Na.	1+1	1	2	1+1	4	2	1	1	+1	4
Pl.	1+1	6+1	1	1	2	1	+1	1+2		5+1
A.At.				1						
Abs.								1+1		
Aobj.	1+1	1	1		1+1				+1	
Arch.				3	1		1			1+1
Art						1	1			
Blood		1	+1		1					
Clothes	1+3	2+1		1+1	1+1	+4		1+1		+1
Cloud	1		2		2				1	
Crown		1								
Design		1+1								
Emblem			2							
Expl.		1	1							
Fire		1				+1				+1
Food		+1	1	1			1		+1	
Geo.		2		1		1				
Ice										
Mask										
Rel.		+2		+3		1			+1	
Rock	2+1							+1	+1	
Sex				1	+1	6+1		+1	+1	
Smoke										+2
T. Pole	1							1	+1	
Water	1+1		+2		+2		+1	1	+1	1
Other		1	1+1	+1	+1	1				+1

Table 23 (Continued)

Variable		Subject								
	281	282	283	284	285	286	287	288	289	290
Sex	F	F	F	F	F	F	F	F	F	F
Age	21	18	18	18	19	18	19	17	21	22
Educ.	3	1	1	1	1	1	1	1	4	4
R	28	16	13	13	28	29	16	27	29	22
A	11	7	7	6	10+1	12	5	11	8	10
(A)					1		2		1+1	
Ad	4				1			1	1	3
(Ad)										
H	3	2	1	4	4		5	4	3	1
(H)	2			1		2	1	2		2
Hd	1				1	1	1	1	1	
(Hd)						1			1	
Obj.	3+1	2+1	+2	+2	+1	3		1+1	1+1	1
At.					3	2		1		1
Na.		1	1+1				+1	2	4	1+1
Pl.		2	1		2	2		1	1+2	
A.At.										
Abs.						2				
Aobj.	2	1		1	1	1		1	1	3
Arch.							1	+1		
Art					1		1			
Blood		+1						+1		
Biol.										
Clothing	+2	+1	1	+2	1+2	1+1	+3	1+3	1	
Cloud					1			1		
Crown						1			1	
Design										
Embelm									1	
Expl.									1	
Fire			+1							
Food		1	1		3	1			1	
Geo.	1		1							
Ice										
Mask										
Rel.										
Rock	+1			+1					+1	
Sex										
Smoke									1	
T. Pole										
Water		+1	+2				+1		1	
Other	1			+1				+1		+1

Table 23 (Continued)

Varible	Subject									
	291	292	293	294	295	296	297	298	299	300
Sex	F	F	F	M	F	F	F	F	F	F
Age	18	19	20	18	18	17	18	19	21	18
Educ.	1	2	2	1	1	1	1	1	4	1
R	17	19	18	15	15	28	16	39	16	23
A	6	2	7	6+1	8	15	4	15	10	10
(A)	1+1	1		+1				1		
Ad				1		2	1	3		2
(Ad)						1				
H	4	5	4	3	5	3	6	5	1	1
(H)	4	1		1		1		2		
Hd		1		1+1		1	1			2
(Hd)		2			1		+1		1	1
Obj.	1+4	+3	2	+1	1+4	2+1	+3	4+4	+1	1+2
At.		1	1			1			1	
Na.	+2				+2			1+1	+1	1
Pl.	+1	3		+3	+1		1+2	1+1		+2
A.At.		1						1		
Abs.										
Aobj.	1	2	2	1				3+1	1	1
Arch.				1						1
Art										
Blood			+1			+1				
Biol.										
Clothing	+5	+3	+2	+3	+2	+2	+1	+3		
Cloud						+1			1	
Crown						+2				
Design										
Emblem										
Expl.										1
Fire	+1		1	+2	+1			+1		
Food		+1					1	2+1		
Geo.										
Ice										
Mask									+1	1
Rel.					+2					
Rock				+2		2+1		+1	1	
Sex				+1						
Smoke			+1					+1		+3
T. Pole			1							
Water							+1			+1
Other				1			1			1+1

APPROVAL SHEET

The dissertation submitted by William S. McGurk
has been read and approved by five members of the Depart-
ment of Psychology.

The final copies have been examined by the director
of the dissertation and the signature which appears below
verifies the fact that any necessary changes have been
incorporated, and that the dissertation is now given final
approval with reference to content, form, and mechanical
accuracy.

The dissertation is therefore accepted in partial
fulfillment of the requirements for the Degree of Doctor of
Philosophy.

November 28, 1963
Date

Frank J. Kobler
Signature of Adviser