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THE UNCOVERING PROPERTIES OF
VISUAL IMAGERY, VERBAL ASSOCIATION
WITH EYES CLOSED, AND VERBAL
ASSOCIATION WITH EYES OPEN:
A COMPARATIVE STUDY

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ABSTRACT

THE UNCOVERING PROPERTIES OF VISUAL IMAGERY, VERBAL ASSOCIATION WITH EYES CLOSED, AND VERBAL ASSOCIATION WITH EYES OPEN:
A COMPARATIVE STUDY

By

Donnel Stern

An attempt was made to replicate and expand the results of Reyher and Smeltzer (1968), who found that visual imagery was accompanied by more anxiety than verbal association, more signs of primary process regulation, more direct expression of drives, and less effective defense mechanisms. In the present study, the possibility was evaluated that eye closure is an uncovering technique and that it helped to account for the differences between visual imagery and verbal association in the study by Reyher and Smeltzer. Two measures of degree of primary process regulation were used to evaluate the relative effectiveness as uncovering techniques of visual imagery, verbal association with eyes open, and verbal association with eyes closed.

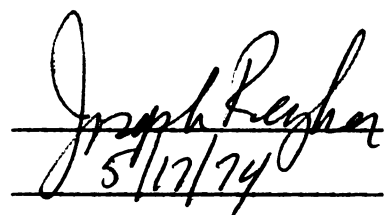
Thirty-six undergraduate subjects, 18 male and 18 female, each participated in ten minutes of visual imagery, ten minutes of verbal association with eyes closed, and ten minutes of verbal association with eyes open. The verbal responses of the subjects were transcribed, broken into sentences by the experimenter, and scored by two extensively trained undergraduates blind to the experimental hypotheses. The scoring

systems used were those devised by Holt (1960, 1970) for scoring primary process manifestations on the Rorschach.

Analysis of the results lent support neither to the hypothesis that eye closure aids uncovering nor to the hypothesis that visual imagery is more primary process regulated than verbal association.

This lack of support for the experimental hypotheses seemed to be due to the differences between the procedures of the present study and those of Reyher and Smeltzer. It was pointed out that different conditions of observation of the same dependent variables tend to produce different kinds of data. The data of the present experiment, though they could not be used to evaluate the experimental hypotheses, did contain spontaneous psychopathological symptoms, both psychosomatic and "psychological" (e.g. paranoid ideas and obsessive compulsive symptoms), and also contained empirical demonstrations of H. S. Sullivan's important concept, security operations. These further data will be presented in a later report.

Since the measures of the dependent variables were theoretically instead of empirically derived, and since some evidence led the writer to doubt the validity of the measures, it was concluded that the measures could not be assumed to be valid.

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Donnel Stern

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To Annie,
who is tender and fiery
and creative and unique
and with whom I have never been lonely

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To Dr. Joseph Reyher, my committee chairman, whose interest and support never flag, I cannot express enough appreciation. When my enthusiasm waned, his rekindled it.

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INTRODUCTION

Freud developed free association at a time when he was trying to dissociate himself from hypnosis, his previous method of choice (Kline, 1958). Even so, in the early days of free association, he did instruct his patients to report visual images. For instance, in the description of one case, he says:

I began the psychoanalytic treatment of a boy of fourteen years who was suffering from tic convulsif, hysterical vomiting, headache, etc., by assuring him that, after closing his eyes, he would see pictures or have ideas, which I requested him to communicate to me. He answered by describing pictures (Freud, 1913, p. 491).

Freud instructed this patient to close his eyes; Jones (1955) points out that it was only later that Freud decided to do away with eye closure. Without eye closure, of course, patients produced few visual images, and so the "pictures" Freud had previously asked his patients to report were no longer used as part of treatment. Kline's (1958) assertion that Freud developed free association at least partly as an escape route from hypnosis is substantiated by an excerpt from one of Freud's own early papers on technique. The paper was written in the third person because it was originally published anonymously (Jones, 1955).

The cathartic method had already renounced suggestion; Freud went one step further and gave up hypnosis as well. At the present time he treats his patients as follows: without exerting any other kind of influence, he invites them to recline in a comfortable position on a couch, while he himself is seated on a chair behind them, outside their field of vision. He does not ask them to close their eyes as well as any other procedure which might remind them of hypnosis (Freud, 1959, pp. 265-266).

Nowhere else in the paper is eye closure mentioned; it is dispensed with in a phrase. Since Freud did not make a rational assessment of the potential usefulness of eye closure, the decision to give it up seems to have been no better than arbitrary. However, since so many professionals have held Freud's words in such awe, few have questioned this decision. Some psychoanalytically oriented practitioners have reported their clients' spontaneous production of visual images during free association (Jellinek, 1949; Kanzer, 1958; Warren, 1961), and others report occasional use of imagery in psychoanalytic psychotherapy (Goldberger, 1957; Kubie, 1943), but there has been little systematic use of visual imagery as a method of uncovering. (See Singer (1972) for a review of the uses of imagery in psychotherapy.)

Reyher (1963, 1970) has developed a technique employing visual imagery and has demonstrated the technique to be an effective uncovering procedure. In the use of this method, which is called free imagery, or, more recently, emergent uncovering (Reyher, 1968, 1969; Reyher and Morishige, 1969), therapist and client are seated vis a vis and the therapist asks the client to close his eyes and describe visual images and any feelings or bodily sensations which may come to his attention. As the client's images become increasingly depictive of repressed drives, symptoms and/or resistance are produced.

Reyher and Smeltzer (1968) found that visual imagery was accompanied by more anxiety than verbal association, more signs of primary process regulation, more direct expression of drives, and less effective defense mechanisms. These investigators recorded subjects' verbal associations and visual images to stimulus words from the

categories of family relationships (e.g., sister), sex (e.g., masturbation), and hostility (e.g., kill). A modified version of the Holt system (Holt and Havel, 1960) was used to score subjects' responses for level of primary process, successful and unsuccessful attempts at defense, and blatancy of drive expression. Magnitude of subjects' GSR was the index of anxiety. Short trials of association and imagery were systematically alternated.

Since in this study eye closure was used in visual imagery and not during verbal association, it may be that eye closure is the variable responsible for the observed differences between the two methods. The possibility that this is indeed the case is supported by Reyher's (1963) description of the theoretical basis for the effectiveness of free imagery.

The procedures involved in free imagery are designed to minimize secondary process and maximize primary process by eliminating or reducing visual and auditory cues that are necessary for supporting defenses and maintaining an external frame of reference. Without these cues, an external frame of reference and defenses can be maintained only by internal cognitive processes, such as the formulation of thoughts for communication to T (p. 459).

To put the point in another way, it may be that eye closure is the crucial determinant in the success of free imagery, that eye closure is the means by which the client is "thrown back upon more subjective media which are more easily influenced by unconscious material and primary process" (Reyher, 1963, p. 459).

However, it is also possible that the effects of visual imagery and eye closure combine to produce the comparative results cited above. If eye closure and visual imagery both have uncovering properties and, further, if visual imagery is less secondary process than

verbal association, then visual imagery (eyes closed) should be a more effective uncovering technique than verbal association with eyes closed, and eyes-closed verbal association should be more effective than the traditional eyes-open verbal association method.

The purpose of the present study was to explore and expand the results of Reyher and Smeltzer by using some of their criteria to compare visual imagery and verbal association under conditions in which eye closure was systematically varied. The amounts of primary process content and primary process formal deviation of the thought process were compared in verbal association with eyes open, verbal association with eyes closed, and visual imagery (eyes closed).

When the writer made an attempt to review the relevant literature, it was found that, beyond the study by Reyher and Smeltzer, empirical research comparing two or more uncovering techniques does not exist. The second purpose of the present study was to evaluate whether or not an uncovering effect of eye closure contributed to the greater amount of primary process content observed by Reyher and Smeltzer in visual imagery than in verbal association. The only previous research which also attempted to evaluate the uncovering properties of a particular aspect of an uncovering technique is a study by Kroth and Forrest (1969), who found that low-anxious subjects produced more effective free associations when lying in the traditional prone position on a couch than they produced while in a sitting position. High-anxious subjects did not show this difference between the two postures. The only other relevant experimental reference is by Bordin (1966), who presents an experimental analogue for the study of free association. Bordin comments on the lack

of research on free association and states that most of those who have written on psychoanalysis as treatment have been concerned only with resistance.

Hypotheses

Hypothesis I. The content of visual imagery shows more signs of primary process regulation than does the content of verbal association with eyes closed.

Hypothesis II. The content of verbal association with eyes closed shows more signs of primary process regulation than does the content of verbal association with eyes open.

Hypothesis III. Thought process shows more signs of primary process regulation in visual imagery than in verbal association with eyes closed.

Hypothesis IV. Thought process shows more signs of primary process regulation in verbal association with eyes closed than in verbal association with eyes open.

The original plan for this research contained several other hypotheses which the writer was not able to evaluate. Two of these hypotheses concerned anxiety. The measure of anxiety was to be the Gottshalk-Gleser content analysis scale of anxiety (Gottshalk, Winget, and Gleser, 1969; Gottshalk and Gleser, 1969). Upon examination, however, it was found that the Gottshalk-Gleser categories overlapped with the Holt categories; the same aspects of a single verbal production by a subject are scorable both as primary process content and as anxiety. And while the writer feels that anxiety may often accompany the

production of primary process material, the two are certainly not the same thing. The Gottshalk-Gleser scoring system was, therefore, abandoned. Instead, subjects' spontaneously reported anxiety was to be used as the measure of anxiety, and a list of scorable descriptions of anxiety was to be constructed. It became clear, though, that conscious anxiety was reported too infrequently to be a useful measure. Further, without reporting anxiety, subjects manifested many feelings and behaviors which are usually thought to stem from anxiety (e.g., paranoid thoughts, obsessive-compulsive thoughts and actions, psychosomatic symptoms). Conscious anxiety in the present study is now conceptualized as one of many possible indications of disturbance of the psychological equilibrium, and will be discussed in a forthcoming report on these indications.

Two other original hypotheses concerned the degree of direct expression of drive in verbal association and visual imagery. For reasons which will be explored in the discussion of this report, subjects in the present study produced only three or four direct (or Level I, according to the Holt scoring system) drive expressions. Since the two hypotheses about directness of drive expression could be evaluated only by obtaining a ratio of number of direct to number of relatively indirect drive expressions, these hypotheses also had to be discarded. There were simply no data with which to evaluate them.

Finally, two hypotheses concerning the effectiveness of defense had to be abandoned. The dependent variable to be used in the evaluation of these hypotheses was another scoring system devised by Holt (1970) for use on the Rorschach. After the data of the present

study were collected, it was found that the scoring system would have had to have been virtually rewritten to be applicable to free verbal material. Rewriting such a complex scoring system was considered an impractical task to undertake.

METHOD

Subjects

All subjects were selected randomly from a population of male and female undergraduate volunteers who had signed up to participate in an experiment on "unconscious processes." All subjects were enrolled in psychology courses, and most were freshmen. Of the 36 total subjects, 18 were male and 18 were female.

Procedure

Each subject attended one-half hour experimental session in which he participated in three conditions: (1) verbal association with eyes open, (2) verbal association with eyes closed, and (3) visual imagery with eyes closed. Each condition lasted ten minutes. The subjects' verbal responses in each condition were tape recorded. The order of presentation of the three conditions was completely counterbalanced, i.e., six subjects received each of the six possible orders of presentation of the three conditions. Of the six subjects who received each order of presentation, three were male and three were female.

The experimenter's pre-experimental contact with the subjects was minimal. The experimenter contacted the subjects by telephone and made an appointment. At the appointed time, the experimenter met the subject in a waiting area and conducted him into the laboratory, where the experimenter suggested that the subject put his books and/or coat

"on the bed" and "sit down in the big black chair." After requesting permission to tape record, the experimenter gave the subject the first instructions. For the duration of the session, the subject reclined in the comfortable lounge chair. The experimenter's chair was located behind the subject, out of the subject's field of vision. After requesting permission to tape record, the experimenter spoke only to give instructions to the subject. If the subject asked a question about the instructions after the experimenter had given them, the experimenter repeated the instructions once. If the subject asked another question, the experimenter said "I can't answer your questions." If the subject asked further questions, the experimenter did not respond.

The experimental room was small, soundproof, windowless, and contained a 6 Channel Grass #5 polygraph (in storage in the room), the large black lounge chair, the experimenter's straight-backed chair, and a cot (also in storage).

The following instructions were given to the subjects at the beginning of the eyes-open verbal association condition:

Now, with your eyes open, I would like you to describe in detail whatever thoughts and feelings occur to you. These thoughts and feelings may be about anything. Just let your mind wander and tell me the thoughts and feelings that come to your attention without omitting a thing.

The following instructions were given to the subject at the beginning of the eyes-closed verbal association condition:

Now, with your eyes closed, I would like you to describe in detail whatever thoughts and feelings occur to you. These thoughts and feelings may be about anything. Just let your mind wander and tell me the thoughts and feelings that come to your attention without omitting a thing.

The following instructions were given to the subject at the beginning of the visual imagery condition:

Now, with your eyes closed, I would like you to wait until an image appears in your mind's eye. This may be an image of anything. Wait until you see a picture in your mind's eye and describe what you see and feel in detail. Describe the next image or changes in the first one in the same way, without omitting a thing.

Scoring

Two extensively trained undergraduates, blind to the experimental hypotheses, used the tenth draft of Holt's procedure for scoring primary process manifestations on the Rorschach (1970) to score the subjects' transcribed verbal responses for amount of primary process content and amount of primary process formal deviation of the thought process. The scoring systems are sufficiently operational that the scorers were able to use them without a thorough background in psychoanalytic theory.

The primary process content scoring system measures the amount of primary process representation of libidinal (oral, oral-aggressive, anal, exhibitionistic-voyeuristic, homosexual, sexual, and miscellaneous libidinal) and aggressive (sadistic, masochistic, and results of aggression) drives. The scoring system for primary process formal deviations of the thought process is a way to "catch those instances where the tool-marks of the primary process have been left on the finished product" (Holt, 1970, p. iv). From these "tool-marks" is inferred the operation of condensation, displacement, symbolization, and other aspects of the primary process described by Holt. In the case of both scoring

systems, the specific categories were not used; only the total number of scores in each of the scoring systems was used in the analyses.

The basic unit to be scored in the data was the sentence. Before scoring began, the experimenter broke the data into sentences and numbered them consecutively. All scorers then used the experimenter's breakdown of the data.

The sentences were examined one at a time. If a sentence contained primary process content and/or primary process formal deviation of the thought process, the information was recorded. This procedure was repeated for each sentence in the data. If a primary process manifestation continued from one sentence to the next, it was scored in both sentences. Also, it was possible for one sentence to receive more than one primary process content score and/or more than one score for primary process formal deviation of the thought process, although doubly scored sentences were rare.

The number of primary process content scores in each condition was totaled for each subject. The number of scores for primary process formal deviation of the thought process was totaled in the same manner. The data from each subject were therefore consolidated to three primary process content totals and three totals for primary process formal deviation of the thought process.

RESULTS

Reliability

One condition was chosen from the transcript of each subject's verbal responses. The total number of primary process content scores and scores for primary process formal deviations of the thought process was calculated for each of these 36 ten-minute segments of data. The 36 ten-minute segments were then ranked according to their total scores, and the Spearman rank-order correlation of the rankings of the two scorers was calculated. The degree of interjudgement agreement was .87 for primary process content and .89 for primary process formal deviations of the thought process. These correlations indicate adequate reliability.

Primary process content

Initially, a four-way analysis of variance with repeated measures and equal group sizes (Winer, 1962) was performed. It is presented in Table 1. This analysis used as data the total number of scores. There were no significant effects, although the method of uncovering X order of presentation of methods of uncovering interaction approached significance ($p = .077$).

It was found that the number of primary process content scores, though, correlated significantly with the number of sentences spoken ($r = .52$, $p = .001$). In order to control for the influence of the number of sentences, the number of primary process content scores was divided

Table 1. Analysis of variance of primary process content (raw scores) for sex, methods of uncovering, and order of presentation of experimental treatments.

Source	<u>df</u>	<u>MS</u>	<u>F</u>
Order of presentation of experimental treatments (A)	5	174.21	.97
Sex (B)	1	228.23	1.27
A X B	5	356.43	1.98
Error between	24	180.12	
Methods of uncovering (C)	2	2.56	.05
A X C	10	89.56	1.85
B X C	2	36.23	.75
A X B X C	10	49.83	1.03
Error within	48	48.38	
Total	107		

by the number of sentences in that condition for that subject. A second four-way analysis of variance with repeated measures and equal group sizes was then performed using the transformed scores. This analysis is presented in Table 2. Again, there are no significant results. The method of uncovering X order of presentation of conditions interaction does not approach significance in this analysis.

Neither of the two analyses provided any support for Hypothesis I or Hypothesis II.

Primary process formal deviations of the thought process

Again, an initial four way analysis of variance with repeated measures and equal group sizes was performed. It is presented in Table 3, and shows no significant effects.

Table 2. Analysis of variance of primary process content (transformed scores) for sex, methods of uncovering, and order of presentation of experimental treatments.

Source	<u>df</u>	<u>MS</u>	<u>F</u>
Order of presentation of experimental treatments (A)	5	.0509	2.06
Sex (B)	1	.0655	2.65
A X B	5	.0218	.88
Error between	24	.0248	
Methods of uncovering (C)	2	.0093	.56
A X C	10	.0259	1.57
B X C	2	.0187	1.13
A X B X C	10	.0108	.66
Error within	48	.0165	
Total	107		

Table 3. Analysis of variance of raw scores for primary process formal deviation of the thought process for sex, methods of uncovering, and order of presentation of experimental treatments.

Source	<u>df</u>	<u>MS</u>	<u>F</u>
Order of presentation of experimental treatments (A)	5	246.34	.54
Sex (B)	1	66.90	.15
A X B	5	500.96	1.10
Error between	24	455.81	
Methods of uncovering (C)	2	52.12	.98
A X C	10	55.85	1.05
B X C	2	60.18	1.13
A X B X C	10	29.64	.56
Error within	48	53.13	
Total	107		

As in the case of primary process content, the number of primary process formal deviations of the thought process was found to correlate significantly with the number of sentences spoken ($r = .44$, $p = .001$). In order to control for the influence of the number of sentences spoken, the number of scores for primary process formal deviations of the thought process was divided by the number of sentences in that condition for that subject. A second four-way analysis of variance with repeated measures and equal group sizes was performed using the transformed scores. Results of the analysis are presented in Table 4. There were no significant results.

Neither of the analyses provided any support for Hypothesis III or Hypothesis IV.

Table 4. Analysis of variance of transformed scores for primary process formal deviation of the thought process for sex, methods of uncovering, and order of presentation of experimental treatments.

Source	<u>df</u>	<u>MS</u>	<u>F</u>
Order of presentation of experimental treatments (A)	5	.1668	1.39
Sex (B)	1	.0400	.33
A X B	5	.1148	.96
Error between	24	.1200	
Methods of uncovering (C)	2	.0013	.05
A X C	10	.0219	.89
B X C	2	.0326	1.32
A X B X C	10	.0096	.39
Error within	48	.0246	
Total	107		

Subjective reports

Although the numerical data do not support the hypotheses about eye closure, the reported experiences of several subjects do. From the spontaneous remarks presented below, it appears that at least some subjects were acutely aware, during and after the eyes-closed conditions, of difficulty in "maintaining an external frame of reference" and found themselves "thrown back upon more subjective media" (Reyher, 1963, p. 459). There were no subjects who described similar experiences due to having their eyes open. These subjective reports suggest that eye closure may be an uncovering technique even though its effect was not measured in this study.

The first quotation comes from a female subject during the eyes-open verbal association condition. The order of presentation of the treatments to her was: (1) eyes-closed verbal association, (2) eyes-open verbal association, and (3) visual imagery.

Really glad to open up my eyes. Makes me feel a bit more comfortable to be able to see things. Cause everything--being in a strange place--the chair doesn't feel so weird with my eyes open.

A male subject commented at some length on his perception of the effects of eye closure. His remarks are from the eye-closed verbal association condition. The order of presentation he received was: (1) eyes-open verbal association, (2) eyes-closed verbal association, and (3) visual imagery.

Well, now it seems more restricted because my mind could pick up certain things about the room that--the geometrics, like the tiles on the walls, and now I can't do that, so I'm restricted to what's in my, in my head . . . I probably feel less comfortable now than with my eyes open Again, I feel like I want to cooperate, but just, you know, I just Seems like you'd

be able to let your mind wander more with your eyes closed, but again, I might, I might have the fear of what--my mind wander and saying things that are--whatever. I don't know. I might be afraid of it. . . . Probably the distractions that you can experience with your eyes open are comfortable. Your mind will--I wasn't thinking about how much I wasn't talking with my eyes open, 'cause I could be distracted.

Perhaps the most interesting and striking point in the above remarks is the clear description of this subject's loss of an external frame of reference. This description is augmented by the words spoken by a female subject in the eyes-closed verbal association condition. A second quotation from the record of this subject data from the eyes-open verbal association condition immediately follows the first description. The order of presentation of treatments for this subject was: (1) visual imagery, (2) eyes-closed verbal association, and (3) eyes-open verbal association.

With your eyes closed like this, you're trying to see, look inside. Instead of outside, you look inside at yourself Like you were walking around inside of your own head. Looking for something Most of this I put in the eyes of a child's world. And it's drawn to yourself It's like walking through the night and seeing things--or trying to see things Forget everything from outside Then something reminds you there is an outside. And knowing, or a feeling. You realize you can't really look into yourself and ignore the outside Each voice makes you feel off alone (Note: E heard no voices.) Everything seems far away Most of the other people become very, very small When you can't see, your world is sort of shrunken Shrinks down into a very small space Like somebody put a wall between you and everything else You only catch glimpses of what's going on outside And when it's dark all around, time slows down. It almost stops Like you're standing still The things that are happening around you don't exist.

When you open your eyes, you're more aware of other things. Outside, and you can't forget them I guess things are more noticeable.

The loss of an external frame of reference in the first of the two descriptions is obvious. As well, this subject has described the

process of falling back on an internal frame of reference. In the second, shorter excerpt, the subject returns to the external reality.

Two last short excerpts come from the remarks made in the eyes-open verbal association condition by two subjects. Both descriptions are from females. The subject whose remarks are presented first received the following order of presentation: (1) eyes-closed verbal association, (2) visual imagery, and (3) eyes-open verbal association. Her remarks were the first words she spoke in the eyes-open verbal association condition.

That's good. I can look around. Still feels like a dentist's chair, though. That tile is like we have at--like we had at home on the ceiling. Except this goes all over. Good, oh, I can look around. That will be nice to talk about.

The subject who described her experience in the following words received this order of presentation of treatments: (1) visual imagery, (2) eyes-closed verbal association, and (3) eyes-open verbal association.

Strange to have your eyes open. It's not easy to think about things that are far away. You focus your attention on things you can see, objects.

These subjective reports have not been presented as evidence. Rather, they are suggestive. Several reasons to doubt the validity of the data have arisen; in light of these doubts, the spontaneous reports of the subjects must be taken as further indications of the possibility that the measurement tools used in this study were not appropriate to the experimental hypotheses.

DISCUSSION

Validity of the Holt scoring system

A post hoc examination of the data on primary process formal deviations of the thought process convinced the writer that, at least in the case of the type of data collected in the present study, the formal deviations scoring system does not measure any phenomenon unitary enough to be comprehensible. The data is a hodge-podge of behaviors which could be stuffed into one conceptual mold only if this writer made a strenuous effort to do so. It is unfortunate that this is the case, but it is unavoidable. Consider the following set of examples, all of which make the sentence in which they occur scorable: puns or malapropisms, great exaggeration for the sake of emphasis, contradiction of previously expressed effect, description of unlikely or inappropriate activities or attributes, autistic logic, a factual error made by someone who presumably knows the correct information, verbal incoherence.

There are other reasons to reject the data on primary process formal deviations of the thought process. For instance, between one quarter and one third of the total number of formal deviations scores were from the category called "intrusion of irrelevancy." A sentence is scored in this category when the associative link between it and the one immediately prior to it is not at all clear to the scorer. In both verbal association and visual imagery, of course, since subjects were

asked to let their minds wander, it was the subject who successfully followed the instructions who scored the greatest number of "intrusions." It could reasonably be asserted that production of loose associations more or less on command is a secondary process function, not a primary process one. Holt certainly did not observe a large number of "intrusions" in the Rorschach data which his scales were devised to score. Further, fully half the categories in the formal deviations scoring system were not applicable to the type of data collected in the present study, and so were never used. The data from the present study are vastly different than those for which Holt devised the scoring systems; and if the data are different, there is no way to tell whether or not the scales measure the same variables in both cases. That is, even the validity that the Holt systems may have when applied to the data for which they were devised cannot be assumed to hold in the case of different types of data.

There is yet another reason to doubt the validity of the formal deviations data. Holt has developed a scoring system which he hopes will detect the operation of condensation, displacement, symbolization, and other aspects of the primary process. He has built this scoring system by constructing a set of rules which seem to compare the form of a subject's interpretation of the reality with the reality itself. The "reality" seems usually to be defined as the consensual reality. So, for instance, if a subject uses a word or phrase in a strange way (e.g., buttermoth), the word or phrase is scorable. In the data for which Holt developed the scoring systems, Rorschach responses, it is often possible to compare a subject's interpretation of the reality with the reality

itself. However, in free verbal responses there exist no objective external stimuli which can be compared to the response. The formal deviations scoring system is, therefore, much more difficult to use on free verbal data than on Rorschach responses.

The primary process content data are prone to some of the same criticisms and objections that have been made to the formal deviations data. The only difference is that the content scoring system has more face validity, as long as one is psychoanalytically oriented; that is, by referring to psychoanalytic theory, it becomes clear why a scorable verbalization is scorable. The face validity comes about because the content scoring system measures derivatives rather than the processes which form derivatives; and it seems intuitively obvious that relatively static and concrete results are easier to measure than ongoing processes. Also, the sentence scorable for primary process content is usually several steps less abstracted from the category it represents than is the sentence scorable for primary process formal deviations. For instance, a mouth seen in visual imagery or described in verbal association is scorable as primary process oral content; the step from "oral" to "mouth" is obvious. It is much less obvious how to measure a fluid process like displacement. However, even given the face validity of the content scoring system, it is not a completely acceptable measure because it, too, is a theoretical creation.

There is perhaps only one measure in the Holt systems which can very safely be assumed to have validity: the distinction between Level I and Level II responses. Level I responses are very direct,

blatant drive expressions; Level II responses are more socialized drive expressions.

The conclusion to this discussion of the validity of the experimental measures must be that no validity has been demonstrated. This conclusion does not mean to imply that the validity is, therefore, non-existent. Rather, especially since one of the measures seems to have doubtful face validity, validity cannot be assumed to exist. Empirical demonstrations of the validity of these scoring systems need to be done if the systems are to be used in research.

Comparison of the present study with Reyher and Smeltzer

Even given the serious doubts about the validity of the dependent measures, the apparent lack of support for the hypotheses in the present study seems surprising in light of the unambiguous support Reyher and Smeltzer (1968) reported for their hypothesis that visual imagery is more regulated by primary process than is verbal association. Reyher and Smeltzer, however, used a different procedure than the one used in the present study; it will be suggested that the procedural difference accounts for the difference in results.

Instead of employing the open ended instructions of the present experiment, Reyher and Smeltzer asked the subjects to describe the visual images (along with concomitant "feelings and sensations") or verbal associations they experienced immediately after the presentation of stimulus words or phrases. The words and phrases represented three common areas of conflict: sex (e.g., masturbation, pregnant, breasts, orgasm),

hostility (e.g., slaughter, kill, maim, punch), and family relationships (e.g., fatherly advice, brother, master of the house, childhood). These words and phrases are clearly blatant derivatives. It is not surprising, then, that the subjects' responses to these stimuli were significantly influenced by primary process.

In general, there was more blatant expressions of drive in Reyher and Smeltzer's data than in the data of the present study. In the Holt scoring system, primary process responses are divided into two levels: Level I represents very direct, intense, or blatant drive expression; Level II represents more socialized drive expression. In Reyher and Smeltzer's data, the mean proportion per subject of Level I to Level II responses in visual imagery and verbal association was .45 and .14, respectively. In the present study, there were no more than three or four Level I responses in the total of more than one thousand sentences scorable for primary process content.

This difference in number of Level I responses in the two experiments suggests one speculative way to interpret the difference in results: visual imagery is a more effective uncovering technique than verbal association only when drive strength is high, as in Reyher and Smeltzer's study. When drive strength is relatively lower, as in the present study, neither uncovering technique is more effective than the other. Experience with the clinical use of visual imagery in the technique called emergent uncovering or free imagery (Reyher, 1963, 1970) tends to support this speculation. The psychotherapist using emergent uncovering tries to discover the derivatives which are "hot" for the client by watching for the association of particular images with anxiety,

psychopathological symptoms and/or resistances. It is usually only when the client is struggling with these "hot" images that significant uncovering takes place. That is, visual imagery is an effective uncovering technique in psychotherapy only when the images being seen by the client are blatant enough expressions of repressed drive that the client begins to experience the anxiety which initially caused the material to be repressed. It may be said that this conclusion is a truism; obviously, uncovering can occur only when the client can begin to tolerate the previously intolerable drive expression. However, to accept this as a clinical and theoretical truism logically necessitates that the results of the present investigation be viewed as an unfair test of the original experimental hypotheses, i.e., uncovering techniques can only be fairly compared under conditions in which it is reasonable to assume that uncovering is possible. Certainly a possible conclusion, then, as earlier stated, is that visual imagery is a more effective uncovering technique than verbal association only when drive strength is high.

The rather obvious difference in the procedures of the two experiments is probably responsible for the difference in number of blatant drive expressions. It is likely that Reyher and Smeltzer's subjects felt that blatantly drive related material was acceptable to the experimenter. As a matter of fact, the subjects may have felt that a primary process response was expected. After all, college students are psychologically sophisticated enough to suspect something very defensive about a non-sexual response to a word like "orgasm." On the other hand, since in the present study the experimenter did not interact with the subjects beyond giving instructions, subjects had no reason to

think that blatant drive expression was any more acceptable to the experimenter than to any other unknown person. In order to blatantly express drive, subjects in the present study would have had to initiate a behavior which under normal circumstances is considered inappropriate.

H. S. Sullivan's concept of security operations is useful here as a further explanatory device. Security operations are those activities or lack of activity (e.g., selective inattention) which preserve the self-system's accustomed manner of interaction.

I think it will suffice for my present purpose to say that anything which would seriously disturb the equilibrium, any event which tends to bring about a basic change in an established pattern of dealing with others, sets up the tension of anxiety and calls out activities for its relief. This tension and the activities required for its reduction or relief--which we call security operations because they can be said to be addressed to maintaining a feeling of safety in the esteem reflected to one from the other person concerned--always interfere with whatever other tensions and energy transformations they happen to coincide with (Sullivan, 1953, p. 373).

In other words, security operations are those activities undertaken by the self to protect and maintain self-esteem; further, the anxiety concerning loss of self-esteem and the activities required to allay this anxiety are so important to the self that they supersede all other feelings and psychological functions.

In Reyher and Smeltzer's study, keeping his self-esteem intact was relatively simple for the subject. The relationship of subject and experimenter was a traditional one--passive dependent student and demanding authority figure. Stable, traditional relationships have familiar security operations built into them. It may be said that the particular constellation of security operations appropriate to a certain type of relationship is the description and definition of the roles (in the

sociological sense) being played by the participants in that relationship. A student plays his role by performing the tasks set before him by the teacher and derives his self-esteem from the assurance that he (the student) has satisfied the demands of the authority figure. In Reyher and Smeltzer's study, the experimenter's demand was the accomplishment of a specific task, and the subject was able to discriminate when he had accomplished it; i.e., the subject knew that the experimenter wanted an image or an association, and knew that he had satisfied the demands of the experimenter by giving one image or one association. Thus, though subjects may have been anxious about the new environment in which the interaction took place, the familiar structure of the relationship gave him a way to cope with the anxiety.

Subjects in the present study, though, could not use the familiar routes to the maintenance of their self-esteem. Since the situation was so unusual and unstructured, subjects found that security operations appropriate and effective in other interactions simply did not work in this one. The experimenter did not interact with subjects, so subjects could not directly appease him or accede to his wishes; and how to successfully complete the task set by him was so unclear that subjects had no way of knowing when they had done so. Thus, self-esteem was threatened. When self-esteem is threatened, one does not do something which will threaten it even further, e.g., volunteering a drive-related remark which is usually considered unacceptable. And not only would a person in these circumstances of threat suppress unacceptable behaviors, he would also display behaviors which he thought would retrieve some of his threatened self-esteem. If these methods did not work, he would dredge

up others until his repertoire was exhausted. At the point of failure of interpersonal defenses, or security operations, the relatively more intrapsychic defenses (denial, undoing, projection, etc.) would come into play in an attempt to bind the anxiety. If these defenses were effective, the subject would begin to manifest the various psychopathological symptoms displayed by persons whose egos are too weak to handle anxiety consciously. Just as in neurosis, these symptoms would simultaneously express and defend against the anxiety. For example, it might be expected that some subjects trying to master this type of anxiety would eventually resort to self-depreciation, since the reinforcing value to the student of the completion of a task set by an authority figure rests on the disparity in the statuses of the student and the authority figure. Unconsciously, perhaps, most of the students would know that the authority figure's security operations required the demonstration of his higher status. In fact, the authority figure's benevolent acceptance of the student's attempt to satisfy the demands of the task is such a demonstration and is, therefore, an integral part of the security operations of the authority figure. By self-depreciation, then, the student might hope (unconsciously) to emphasize the status disparity enough to satisfy the authority figure and persuade him to dispense the withheld acceptance of the student's efforts. Finally, if neurotic defenses failed, the ego would retreat from the anxiety-provoking stimuli; psychotic symptoms would then appear.

Indeed, subjects in the present study did spontaneously show psychopathological symptoms. The example given, self-depreciation, was one of them. The data on these symptoms will be presented in another

report, but it was felt that a knowledge of the existence of these results would be helpful to anyone attempting to understand the data presented in this report.

To return to the original point, it is clear that subjects in the present study had good reason not to give responses which were blatant expressions of drive. It can even be said that the conditions of this experiment stimulated repressive forces awakened by the threat to self-esteem. The only way a subject could maintain his self-esteem was to take no risks. Several subjects became so constricted that they spoke only five or six sentences during each ten-minute period. Others spoke many sentences, but concentrated on descriptions of the experimental room or scenery on a roadside or the objects in their homes or dormitory rooms. Under such constriction, with subjects being extra careful to monitor everything communicated to the experimenter, it is not surprising that any differences between experimental treatments which might have existed under other conditions were obscured under the conditions of the present study. To put it simply, the fear of loss of self-esteem is a more powerful effect than any other in the experiment. If subjects systematically suppressed (or repressed) the very type of response which was used as the dependent variable in this study, there is very little logical basis on which to make comparative statements about the relative effectiveness of the three experimental conditions.

SUMMARY AND CONCLUSIONS

Because the Holt scoring systems were theoretically instead of empirically derived, and because the writer found reason to doubt their validity, it was decided that the scoring systems could not be assumed to be valid. The reasons to doubt the validity of Holt's measures as applied to the present data were presented.

It was pointed out that drive strength was much higher in Reyher and Smeltzer's data than in the data of the present study, and it was suggested that uncovering techniques work most effectively only when drive strength is high. Therefore, the present study was an unfair test of the experimental hypotheses.

The explanation of the large difference between the two studies in blatancy of drive expression was explored. It is clear that the different experimental procedures produced different types of data. Sullivan's concept of security operations was used to explain the effects of the two procedures, and it was briefly mentioned that psychopathological symptoms, both psychosomatic and "psychological," were spontaneously reported by the subjects. The nature and causes of the symptoms will be explored in a future report.

The subjects' own spontaneous descriptions of the effects of eye closure were presented. These descriptions contradicted the numerical findings and supported the hypothesis that eye closure is an uncovering technique.

The first conclusion, unfortunately, must be that the theory described briefly in the introduction was not fairly tested. This study was not in any way a replication of Reyher and Smeltzer, and did not accomplish what it set out to do. One valuable lesson to be learned, though, is that the phenomena observed depend entirely upon the methods used to observe them. The data of the present study are not what they were planned to be, but they are rich in information about psychopathological symptoms and the function and process of security operations.

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