CONFIDENCE, DOGMATISM, DISSONANCE, AND RESPONSE SET

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ABSTRACT

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AND RESPONSE SET

By Miles E. Simpson

This study undertakes to explore possible personality correlates of generalized over-confidence in judgment in an ego-involving task ('Defensive Confidence'). Dogmatism or closed-mindedness was hypothesized to be related to 'Defensive Confidence'. Directional response set, e.g., positive setting and negative setting, were hypothesized to be unrelated to Dogmatism as conceptualized by Rokeach; instead directional response set was seen to be an artifact of the Likert Scale and not related to 'Defensive Confidence'.

Confidence in judgment scores were taken after each item of the Pettigrew Category Width Scale which was given under ego-involving instructions. High confidence in judgment, due to the difficulty level of the Pettigrew Category Width Scale, was considered evidence of 'Defensive Confidence'. Dogmatism was measured by the Rokeach Dogmatism Scale and directional response set by the Bass Social Acquiescence Scale. Measures of confidence in belief were taken for both belief scales.

A U-shaped distribution was found between confidence in judgment and the Dogmatism Scale. This was contrary to the main hypothesis.

To explore the U-distribution, positive and negative setters were hypothesized to be closed-minded. Both groups will seem to be acting in terms of the irrelevant aspects of the testing situation by responding to the structure or 'field force' of the items rather than their content. The data were reanalyzed.

Negative setters, positive setters, and non-response setting dogmatics were expected to exhibit 'Defensive Confidence' while only the non-response setting non-dogmatics were expected not to exhibit defensive confidence. The two belief scales were combined to form a more accurate measure of directional response set and the types were isolated by arbitrarily quartering the sample.

Results strongly support the revised hypothesis. Positive response-setters, negative response-setters, and non-setting dogmatics were significantly more confident in their judgments than non-setting non-dogmatics.

As positive setters and negative setters, as well as, non-response setting dogmatics manifest "Defensive Confidence" and both directional response setting and "Defensive Confidence" were hypothesized to manifest closed mindedness, closed mindedness as defined by Rokeach (1960)

was interpreted to be a generic concept which encompasses the more particular concepts of dogmatism, positive setting, and negative setting.

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TABLE OF CONTENTS

LIST OF TABLES

INTRODUCTION

The purpose of this study is to explore the relationship between confidence in judgment, dogmatism, and response set.

Confidence is defined operationally to be the extent to which a person reports his action, decision, or response to be appropriate. It is possible to use confidence in terms of 'self-worth' or the individual's sense of adequacy in dealing with the world. While this may be related to 'confidence in judgment' as defined here, we will only concern ourselves with the former as there has been little evidence relating the two. Therefore, decisiveness of action, vacillation, etc., will not be considered measures of confidence in judgment unless found to relate to the present measure.

The subject's confidence will be elicited by the method of 'subjective probabilities' where the subject selects a number ranging from zero to one hundred which he judges to approximate the probability of his response being 'right' or 'correct.'

Confidence in Judgment

Confidence in judgment generated a great deal of work in the past; yet there appears to have been but one

major study relating it to any type of personality variable.

Block and Peterson (1955), in a study of confidence in judgment and personality, found over-confidence to be related to their criteria of dogmatism. Using a psychophysical apparatus and design developed by Festinger (1943), they tested 53 'normal' army officers and then compared the results with a Q-sort made by clinical psychologists who had been observing the subjects in a 'living in' situation. It was found those subjects overestimating their performance (i.e., were over-confident) tended to be dogmatic, and those cautious tended to be introspective and self-abasing. Individuals with realistic confidence in their decisions appeared to be more self-reliant. Even though the extent of over- or under-confidence was not considered, the preceding results were significant.

Confidence in judgment arose out of the psychophysical tradition, with the first studies made by Fullerton and Cattell (1892), Griffing (1895), Henmon (1911), Hollingsworth (1913) and Metcalf (1917). Here the emphasis was on the subject's estimate of his performance in a situation which he thought to have an objectively right and wrong answer. In general, these early studies found a strong relationship between accuracy and confidence.

Johnson (1939) found a generality between confidence in three psychophysical tasks and a vocabulary test; also, he found a correlation between latency and lack of confidence.

In changing the instructions (i.e., emphasizing speed or accuracy), changes were brought about in latency but the changed instructions had little effect on confidence.

Adams and Adams (1958) linked confidence in judgment and learning by training subjects to improve their confidence estimates. The confidence judgments were made on psychophysical tasks. Subjects were told of their performance after completing a series of tasks. Their performance was compared with a control group who simply repeated the tasks with no feed-back on their performance. The experimental group improved while the control group's performance showed no improvement.

Confidence in Belief

Another line of research beginning with Williamson (1892), Sumner (1898), and Okabee (1910) studied confidence in belief. The first major study (F. Allport and Hartmann, 1925) showed extreme opinions to be related to extreme confidence. Both radicals and reactionaries had higher confidence in controversial issues than did conservatives and liberals. Also, radicals and reactionaries had a higher and inappropriate estimate of their I.Q.'s.

Allport and Hartmann concluded that confidence in belief was related to the extremeness of the person's opinion with extreme confidence compensating for a feeling of insecurity.

To test this conclusion, Johnson (1940) took two uncorrelated Thurstone attitude scales (war) and censorship) and compared them in terms of confidence ratings. The correlation between confidence on the two scales was o.72 $\pm$ 0.04 (raw) or 0.84 $\pm$ 0.02 (corrected), supporting Johnson's hypothesis of a general trait of confidence. It is important to note that Johnson never compared confidence in belief with confidence in judgment.

Thouless (1935 p. 30) points to what he calls 'the tendency to certainty' in religious belief which he finds no less strong in nonbelievers than in believers. He concludes:

> . . . there is a real tendency amongst people to certainty. Doubt and skepticism are for most people unusual, and I think an unstable state of mind . . . the ability to adopt the attitude of partial belief or to hold propositions with less than full certainty is rare, and its acquirement should be one of the aims of a liberal education.

McGuire (1960) studied the effects of logical reasoning and personal desires in attitude expression by having subjects rate the desirability and probability of truth of the premises and conclusions in a set of syllogisms.

The correlation between the judged truth and desirability of the items was 0.40. Further experimental manipulation made either desire or belief more salient and resulted in a shift away or toward logical consistency.

Ego-Involvement and Cognitive Dissonance

Klein and Schoenfeld hypothesized that the generality in confidence found by Johnson (1939) was due to the subject's ego-involvement in the test which produced defensiveness. To test this hypothesis, Klein and Schoenfeld first took a group of subjects aside in the 'low involvement condition' and told them they were observers in the experiment and they were to watch the other students' reactions while pretending to take the group of psychological tests. In the 'high involvement' condition, the group was told they were taking important I.Q. tests that would be recorded. No generality was found with the low involvement condition while a generality across the measures appeared with the high involvement condition. The problem then becomes: why does high ego-involvement result in a generality in confidence in judgment across uncorrelated psychophysical measures?

According to Klein and Schoenfeld, subjects entering a psychological testing situation are on their guard for evaluations of themselves in terms of good or bad, intelligent or not, balanced or unbalanced, healthy or unhealthy. Hence, they become quite apprehensive and ego-involved lest they have a bad label put on them. This leads to the raising of confidence to reduce this apprehension and enxiety.

Using the notion of post-decisional cognitive dissonance as formulated by Festinger (1957), a more complete hypothesis can be developed. According to Festinger,

cognitive dissonance occurs when a person confronts a situation where one set of cognitive elements follows from the obverse of another set. On the other hand, two clusters of cognitive elements are consonant when one follows logically from the other. Cognitive dissonance motivates the individual to reduce it and avoid its recurrence. Thus, presence of cognitive dissonance brings about pressure for change which can be reduced by changing either cognitive cluster by:

> 1. . . . changing one or more of the elements involved in dissonant relations.
>
> 2. . . . adding new cognitive elements that are consonant with already existing cognition.
>
> 3. . . . decreasing the importance of the element involved in the dissonant relations (p. 264).

Festinger describes post-decisional dissonance where

> . . . the cognitive elements corresponding to positive characteristics of the rejected alternatives, and those corresponding to the negative characteristics of the accepted alternative are dissonant with the knowledge of the action that has been taken (p. 262).

Post-decisional dissonance may be reduced by increasing the attractiveness of the chosen alternative, decreasing the attractiveness of the unchosen alternative or both (p. 264).

Further, the amount of dissonance created by two conflicting sets of cognitions will be a function of the resistance to change of the weakest element.

A slightly different position is taken by Brehm and Cohen (1962) who introduce commitment as a condition under which ". . . the specification of dissonance and the manner in which it is likely to be reduced are relatively unequivocal. . . ." Evidence for this hypothesis was gathered by Deutsch, Krauss, and Rosenau (1962). They hypothesized that:

> The objects involved in the choice have relevance to the post-decisional dissonance only in so far as they determine what the act of choices signifies concerning the chooser (e.g., to what extent and how reliably it signifies that the chooser is "intelligent," "prudent," "moral," "tasteful," "nice").

In essence, the production of post-decisional dissonance requires the existence of ego-involvement in the decision. The findings supported the hypothesis.

Both Deutsch, Krauss, and Rosenau (1962) and Klein and Schoenfeld (1941) emphasize the importance of ego-involvement in a post-decisional situation which leads us to hypothesize that when a subject has sufficient ego-involvement in a task he will experience dissonance and attempt to reduce it. He has three choices: devalue the situation or reduce ego-involvement (i.e., 'I.Q. tests don't measure anything' or 'what is one item'), reorder his self concept (i.e., I'm not as smart as I thought), or positively reinterpret his performance. The latter leads to over confidence. Festinger (1957) found a final confidence decision increased from that reported on a prior tentative confidence estimate regardless of whether the last piece of evidence

presented supported or contradicted evidence given prior to the tentative confidence estimate. In this study, some but not all subjects increased their confidence. This over-confidence was interpreted to be the result of post-decisional dissonance.

Defensive Confidence

It seems that certain subjects will be over-confident in the face of public contrary evidence, e.g., Festinger (1957), and this is general across uncorrelated judgmental measures under ego-involvement, e.g., Klein and Schoenfeld (1941). Festinger saw post-decisional dissonance as a sufficient condition for increased confidence and post-decisional dissonance arising after any decision; but, the Deutsch, Krauss and Rosenau (1962) study demonstrated the importance of ego-involvement for certain post decisional dissonance 'effects' and Klein and Schoenfeld demonstrated the same for confidence in judgment.

The employment of over-confidence in ego-involving judgments as a defense against 'dissonance' will be referred to as 'defensive confidence' in this study. Defensive confidence will be manifested by certain subjects when they are sufficiently ego-involved.[1]

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[1]It would be useful to know whether the attempt to induce ego-involvement or evaluation apprehension occurs in almost all subjects only some of whom react by evaluating their confidence or whether only a certain portion of the subjects became ego-involved but almost all of these display over-confidence.

Defensive confidence seems quite general over a variety of situations provided ego-involvement exists and therefore, is best characterized as a trait. G. Allport (1939) defines a trait as

> . . . a generalized and focalized neuropsychic system (peculiar to the individual) with the capacity to render many stimuli functionally equivalent, and to initiate and guide consistent (equivalent) forms of adaptive and expressive behavior (p. 295).

In a confidence in judgment situation, the items judged are functionally equivalent in that they arouse 'dissonance' which is handled by a particular adaptive function, over-confidence.

Open and Closed Mindedness

One of the most provocative and productive areas in social psychology has been that of personality structure. Beginning with the seminal work of Adorno (1950) "The Authoritarian Personality," the area has accumulated a mass of research. In "The Authoritarian Personality," as in psychoanalytic theory, Adorno emphasized the social environment in which a person grows. What develops is

> . . . a structure within the individual, something which is capable of self-initiated action upon the social environment and of selection with respect to varied impinging stimuli, something which always modifiable is frequently very resistant to fundamental change. This conceptualization accounts for consistencies of behavior in a wide variety of situations and the persistence of ideological trends in the face of contradicting facts and radically altered social conditions . . . (1950, p. 6).

The focus of "The Authoritarian Personality" was on the relationship of ideology and personality structure and in particular the ideology of the extreme right; hence, ethnocentrism and Fascist tendencies were its first areas of concern. As Rokeach (1958) points out, the F or Fascist Scale was generalized to the "Authoritarian Scale." This resulted in a certain amount of conceptual confusion, because in the shift from fascism and authoritarianism, there is an unwitting leap from the particular to the general (1958, p. 13). Since the high F-scorer was generally more ethnocentric, anti-Semitic, and politically conservative, the existence of people who were none of these but intolerant and authoritarian posed a problem. To rectify this anomaly, Rokeach sharply distinguishes the content and the structure of belief systems. He next developed the concept of open and closed mindedness which was independent of ideology and devised the Rokeach Dogmatism Scale to tape this dimension.

In his conceptualization of the structure of belief systems, Rokeach (1960) delineates a continuum of open- and closed-mindedness.

> We assume that, in any situation in which a person must act, there are certain characteristics of the situation that point to the appropriate action to be taken. If a person reacts in terms of such characteristics, his response should be correct or appropriate. The same situation also contains irrelevant factors, not related to the inner structure or requirements of the situation. To the extent that response depends on such irrelevant factors, it should be unintelligent or inappropriate . . . this leads us to suggest a basic characteristic that defines the extent to which a person's system is open or closed; namely the extent

> to which the person can receive, evaluate, and act on relevant information received from the outside on its own intrinsic merits unencumbered by irrelevant factors in the situation arising from within the person or from the outside. Examples of irrelevant internal pressures that interfere with the realistic reception of information are unrelated habits, beliefs, and perceptual cues, irrational ego-motives, power needs, the need for self aggrandisement, the need to allay anxiety, and so forth. By irrelevant external pressures we have in mind most particularly the pressures of reward and punishment arising from external authority . . . (1960, p. 157).

Using this definition, I am defining the relevant aspects of the confidence in judgment situation as the performance cues, while the irrelevant aspects of the situation involve the need to reduce dissonance produced by the conflict of the perceptual cues and ego needs. Of the two cognitive clusters, the more open-minded subjects ego needs will tend to be less resistant to change, but for the more closed minded individual, the performance cues will be more modifiable.

Response Set

Studies on judgmental tasks have revealed certain clustering of responses at particular points on a scale seemingly independent of the content, e.g., Cronbach (1946, 1950). Mathews (1927), for example, reported position biases that produce responses clustering near the top of a vertical scale and near the left end of a horizontal scale. Similarly the directional response bias has been noted in attitudinal studies, e.g., Bass (1955). Also, there is a

tendency to use polar extremes, e.g., Osgood and Tannenbaum (1955) and a tendency to concentrate responses at the mid-point on the scale, e.g., Lorge (1937).

These non-content factors of the judgment process may have a profound influence on the reporting of attitudes and may be responsible for many inconsistencies in results (Peabody, 1962).

The Likert Scale produces at least two types of response set: directional (i.e., positive set or acquiescence and negative set) and extremeness set. This means that a person may consistently agree or disagree to items regardless of their content, e.g., Cronbach (1946); Bass (1956); Chapman and Campbell (1957). In this study persons tending toward positive set will be referred to as positive setters, and persons employing negative set are called negative setters.

As noted by Lorge (1937) and Osgood and Tannenbaum (1955), there is a tendency for some subjects to pile up their responses in the middle of the scale and for some others to use only the extreme ends of the scale. Peabody (1962) calls these tendencies extremeness sets.

Since Cronbach's (1946) article on the effects of response set, considerable attention has been given the topic. Of positive response set, the most thoroughly explored form, Christie and Lindauer (1963) state:

> One thing can be said about the tendency to agree to items on personality inventories: there is a

> consensus that some people will say yes to some items without paying much attention to the content of the item. How many and what sorts of people, and what kinds of items are moot points (1963, p. 202).

They also point out that as yet there is no evidence which contradicts Cronbach's contention

> . . . the greater the ambiguity of an item the more likely it is to elicit response set. The problem is that one man's certainties are often another man's ambiguities (1963, p. 202).

Bass (1956) developed a Social Acquiescence Scale made up of aphorisms, chosen for their heterogeneous content, which had a reliability of 0.91 and correlated moderately with the Authoritarian Scale. Others followed with reversed items, measures of response in consistence, e.g., Chapman and Campbell (1957); Christie, Havel, and Seidenberg (1958); Jackson, Messick, and Solley (1957); Zuckerman, Norton, and Sprague (1958). All found evidence of positive response set and Christie and Lindauer (1963) noted that "positive correlations were reported between every paper and pencil test of agreement when they were compared" (1963, p. 205).

In their theories, Gage, Leavitt, and Stone (1957), Zuckerman, Norton, and Sprague (1958), and Leavitt, Hax, and Roche (1958), all postulated positive response set to be compatible with authoritarian submission; yet Messick and Frederickson (1958) have found that the content and acquiescence scores from a reversed authoritarian scale did not correlate, suggesting that they measured independent dimensions.

The notion of negative response set appears later in the literature. Christie, Havel, and Seidenberg (1958) seem to have given the first report of negative response set. A nation-wide sample of college-trained adults displayed more negative than positive response set (5% showed a strong positive set, 28% a slight positive set, 23% were completely consistent (i.e., not set), 33% a slight negative set, and 11% a strong negative set). Yet college students showed almost opposite results with strong positive set (23%) and strong negative set (3%). Washington lobbyists and graduate students showed little response set. The authors interpreted this to mean that they were ". . . least confused ideologically."

Broen and Wirt (1958) factored results from 15 response set scores. They found a factor which seemed associated with positive set and one associated with negative set. Messick (1962), using Edward's social desirability scale and an acquiescence scale, found three factors: impulse-control or negative set, social desirability, and acquiescence.

Couch and Keniston (1960) attempted to identify personality correlates of the direction response sets. They found, using the MMPI with Harvard students, that positive set was related to ". . . impulsivity, dependency, anxiety, mania, anal preoccupation, and anal resentment" (p. 173).

On the other hand, negative setters were characterized by ego strength, stability, responsibility, tolerance, and impulse control.

Asch (1958) began a study of negative set by citing Karen Horney (1937) who had described the neurotic of our time as "basically hostile and negative in orientation. . . ." Three hypotheses were made: (a) the non-setter is better adjusted than persons demonstrating negative response bias; (b) neurotic tendency and negative set are positively related; and (c) obsessive-compulsive persons demonstrate more negative response bias than those with hysterical tendencies. Using the MMPI, Goodenough 'Draw a Person," and a blind Rorschach with a sample of normal veterans, Asch found all relationships to be significant at the .001 level.

The syndromes presented by Asch and by Couch and Keniston are quite different. Asch found negative setting veterans to be neurotic, while Couch and Keniston indicate negative setting Harvard students to have greater ego strength, impulse control and other desirable qualities. Two hypotheses could account for this difference in the Harvard sample like Christie, Havel, and Seidenberg's (1958) college sample may contain only a small number of extreme negative setters while Asch's veterans like Christie, Havel, and Seidenberg's college trained adults may have had a higher proportion of extreme negative setters; or negative setting Harvard students and veterans differ in personality due to

some other factor. The former hypothesis seems more plausible at this point, although no conclusion is possible until more research is done.

Jackson (1958) finds that a positive set represents a generalized tendency to yield to the "field forces of a situation" (i.e., reversal of a Nector cube). Disagreement, on the other hand, may be considered as more or less actively resisting these "field forces." Also James and Stone (1960) find that negative set is associated with retroactive facilitation and positive set with retroactive inhibition. In a Trinidad study, Mischel (1961) found an inverse relationship between the capacity to delay gratification and acquiescence. A study by Zucker (1962) revealed significant correlations between the Bass Social Acquiescence Scale and measures of succurance-autonomy. On the other hand, Foster (1961) found no behavioral correlates of Acquiescence.

Two recent studies of response set and personality by Adams (1962) and Weitman (1962) have delineated more carefully between the positive setters, negative setters and the content responders or non-setters. Adams (1962), using a reversed F-scale, divided his sample of 48 college students into negative setters, positive setters, authoritarian non-setters (i.e., those selecting authoritarian responses regardless of the items direction) and equalitarian non-setters. He then compared the groups on a measure of conceptual rigidity, viz., Berg's 'Perceptual Reaction Test'.

The negative setters were found to be the most rigid; the positive setters, the authoritarians; and the equalitarians followed in order. Thus non-setters were lower in rigidity than both types of response setters.

In a larger study, Weitman (1962) attempted to reconcile response set and authoritarism. To do this, he hypothesized four orientations to authority:

a. Allo-authoritarian individuals (e.g., hermits, recluses, and perhaps some catatonics) whose predominant orientation toward authority is avoidance.

b. Pro-authoritarian individuals ('classical') who are overly concerned with authority.

c. Anti-authoritarian individuals (e.g., chronic opportunists, perennial rebels, 'trouble makers', and many criminals) who are over concerned with authority and resistant to said authority.

d. Non-authoritarians--those individuals hopefully constituting a majority of the population who have no special authority problems (p. 194).

From these definitions, pro-authoritarians were hypothesized to tend to agree, anti-authoritarians to disagree, and non-authoritarians not to exhibit any directional response set. Allo-authoritarians were not expected in the sample.

In the first study, 581 students were screened with an acquiescence test. The author selected 151 out of which 121 showed up [high scorers (50), middle scorers (35), low scorers (36)]. A highly significant relationship ($p < .001$) was found between the acquiescence classification and both

of the authoritarian classifications (the F-scale and a special sentence completion test).

As the theory characterized the anti-authoritarian personality as rebellious and generally anti-social, Weitman examined male and female prisoners with the hypothesis that there would be a greater percentage of anti-authoritarians and pro-authoritarians than non-authoritarians. Out of 103 prisoners only two could be classified as non-authoritarians. Here again like Adams' (1962) data we find differences between setting (regardless of direction) and non-setting subjects. The extremes in both cases look more like those in the other extreme groups than they do the middle; non-setting does not represent a half way mark between positive and negative response setting.

THE DESIGN OF THE STUDY

As previously stated, the main purpose of this research is to determine the relationship between an individual's location on the open- and closed-mindedness continuum and his confidence in judgments. The general hypothesis, derived from Rokeach's second definition of the open and closed mindedness continuum, is that the closed minded subject will be more influenced by the irrelevant aspects of the confidence decision, that of his own ego involvement and dissonance reduction, than the more open individual. Under ego involving conditions the closed minded subject will employ 'defensive confidence' in an attempt to reduce the ego threat or 'dissonance' resulting from the disparity between his performance and his expectations.

In relating directional response set to the present study, Adams' (1962) study of response set, authoritarianism, and rigidity poses another problem. Here the subjects making content responses and scoring high on the authoritarian scale (i.e., Rokeach's persons classified to be dogmatic) are less rigid than either negative or positive setters. While this demonstrates further the importance of directional response set as a personality variable, it furnishes evidence for the independence of dogmatism and directional response set.

Fruchter, Rokeach, and Novak (1958) likewise found the Gough Rigidity Scale and the Rokeach Dogmatism Scale to measure virtually independent psychological dimensions. In delineating between dogmatism and rigidity, Rokeach (1960) states:

> the referent of dogmatic thinking seems to be a total cognitive configuration of ideas and beliefs organized into a relatively closed system; rigidity, on the other hand, points to difficulties in overcoming single sets or beliefs encountered in attacking, solving, or learning specific tasks or problems (1960, p. 183).

The directional response set which arises in the 'attacking' of the problem of placing items on a Likert Scale, appears to be a form of rigid behavior. Considering that rigidity is associated both with positive and negative set, we hypothesize that response set and the open- and closed-mindedness continuum as conceptualized are independent but that as the Rokeach Dogmatism Scale is a Likert scale, the ambiguity of certain items for certain persons results in response setting. Confidence in judgment and response set will be therefore uncorrelated, while the Rokeach Dogmatism Scale and any measure of directional response set will be moderately correlated.

In any factor analysis involving measures of dogmatism, confidence, and response set, we hypothesize the emergence of two factors: one, on which the 'Dogmatism Scale' and confidence in judgment load highly; and a second factor of directional response set on which the 'Dogmatism Scale' and measures of directional response set load.

As stated before, the generality of confidence in belief presents a problem for the ego-involvement theory. Why did Johnson (1940) find a high correlation between confidence scores on two uncorrelated belief scales? An answer other than ego-involvement is provided in terms of Peabody's (1962) extremeness set. Peabody demonstrated that extremeness set or the tendency to use answers at the extreme ends of the scale or in the middle range had a high reliability over a number of Likert Scales, including the Semantic Differential, and the Dogmatism Scale. If all subjects evidence a high degree of confidence in belief (i.e., most subjects averaging above the mid-point), and assuming that the more ambiguous the task, the more response set to be expected, it will be hypothesized that extremeness set as measured by Peabody and confidence in belief will be linearly related.

Therefore, the specific hypotheses are: (1) The closed minded subjects will have higher confidence in their judgments than open minded subjects under ego-involvement; (2) Confidence in judgment will not be related to directional response set; (3) With directional response set removed from the Dogmatism Scale Scores, the relationship between dogmatism and confidence in judgment will improve.

Subjects

The sample for this study consisted of 55 female and 37 male college students taking sophomore-level educational psychology.

Instruments

The Pettigrew Category Width Scale

This is a paper and pencil test developed by Pettigrew (1958) to measure response style of judgment. The subject is given a category (e.g., width of windows, speed of birds, etc.) and its mean. He then estimates the largest member 'on record' of the category from four alternatives, and the smallest member 'on record' from another set of four alternatives. Pettigrew (1958) did not attempt to include correct answers among the alternatives.

The Pettigrew Scale reduces the factor of accuracy nearly to zero. Subjects might have special knowledge which would allow them to give the best estimate of the correct answer for one or two items. However, the range and highly specialized nature of the items minimizes the probability of the subject having any notion of what a correct answer would be for a majority of the items.

Confidence in Judgment

Confidence in judgment will be measured by having the subject respond to each item of the Pettigrew Category

Width Scale (CW scale) after which he indicates his confidence in that particular item on a six-point confidence scale (0, 20, 40, 60, 80, 100).

To generate ego-involvement without raising the subject's suspicions, the usual title used with the Pettigrew CW Scale (Estimation Scale) was left on and the following instructions were given:

> This is a 'standard test' of the ability to make 'qualitative estimations'. On each item carefully study the mean of the category, then from the first set of alternatives, select what you consider to be the largest member of the category, and from the second set of alternatives, select what you consider to be the smallest member of the category.

The inclusion of the terms 'ability', 'standard test' and 'quantitative estimation' should result in ego-involvement.

The confidence instructions were:

> Next, I want you to select the number which to you best represents your confidence in your last judgment. The alternatives range from chance (0) to certainty (100). In each case make your confidence judgment before going on to the next alternatives. Any questions?

The Rokeach Dogmatism Scale

The Dogmatism scale is Rokeach's instrument for measuring the Open and Closed mindedness continuum. Rokeach describes the instrument as follows:

> The primary purpose of this scale is to measure individual differences in openness or closedness of belief systems. Because of the way we have defined open and closed, the scale should also serve to measure general authoritarianism and general intolerance. Our procedure in constructing

> the Dogmatism scale was essentially deductive. We scrutinized the various defining characteristics of open and closed systems. We then tried to construct statements designed to tap these characteristics (1960, pp. 71-72).

Items were constructed to tap the major traits of the closed minded person as described by Rokeach: isolated belief systems, intolerance, feelings of helplessness and anxiety, etc.

The Dogmatism Scale form D (66 items) was used for this study. The items are scored unidirectionally and the subjects respond on a six-point Likert Scale (+3 = I Agree Very Much; +2 = I Agree on the Whole; +1 = I Agree a Little; -1 = I Disagree a Little; -2 = I Disagree on the Whole; -3 = I Disagree Very Much). The Dogmatism Scale items were administered with and embedded in the Bass Social Acquiescence Scale.

The Bass Social Acquiescence Scale

To construct the Social Acquiescence Scale, Bass (1956) collected a heterogeneous set of ambiguous aphorms.

The Bass Social Acquiescence Scale was administered under the same instructions as the Dogmatism Scale.

Confidence in Belief

Six point confidence intervals (0, 20, 40, 60, 80, 100, were administered along with each item on the Bass Social Acquiescence Scale and the Rokeach Dogmatism Scale.

Scores were taken separately for a confidence response to each belief scale.

Extremeness Response Set

Measures of set toward extremeness were taken on all five scales: Rokeach Dogmatism Scale, Bass Social Acquiescence Scale, Confidence in Pettigrew Judgments, Confidence in Rokeach Beliefs, and Confidence in Bass Beliefs. On the belief scales, set toward extremeness was scored by summing absolute values for the items. The confidence intervals were scored by weighting responses of 40 and 60 as 1, 80 and 20 as 2, and 100 and 0 as 3, and then summing over the scale.

Summary of Variables

Thus eleven variables were included in the statistical analysis:

1. Score on the Pettigrew Estimation Scale
2. Score on the Rokeach Dogmatism Scale
3. Score on the Bass Social Acquiescence Scale
4. Confidence in Pettigrew Judgments
5. Confidence in Rokeach Beliefs
6. Confidence in Bass Beliefs
7. Extremeness of Response, Rokeach Scale
8. Extremeness of Response, Bass Scale
9. Extremeness of Confidence in Pettigrew Judgment
10. Extremeness of Confidence in Rokeach Beliefs
11. Extremeness of Confidence in Bass Beliefs.

Analysis

Non-linear correlations (eta's) were calculated to test the first two specific hypotheses. Product movement correlations were then calculated for all measures and factored. The factor analysis was a Quartimax rotation analysis with a Kiel-Wrigley criterion of two requiring each factor to have at least two tests with highest loading upon that factor.

The Dogmatism Scales scores and Social Acquiescence scores were normalized and the Social Acquiescence was partialled out from Dogmatism and the adjusted dogmatism score $\overset{o}{D}$ was correlated with confidence in judgment. The partialling of directional response set variance from the Dogmatism scores was accomplished by multiplying the correlation (0.57) between the two scales and the normalized Bass Social Acquiescence Scale scores. The product was then subtracted from the normalized Dogmatism scale scores yielding $\overset{o}{D}$.

RESULTS

Scores for all 92 subjects were obtained on all 11 variables.

Means, Standard Deviations, and Reliabilities

All 11 measures compare favorably with the means, standard deviations, and reliabilities reported in previous studies (see Table 1).

The confidence measures showed high internal consistency; e.g., Confidence in Pettigrew Judgments (0.98), Confidence in Rokeach Beliefs (0.96), Confidence in Bass Beliefs (0.95). The internal consistency of the extremeness measures were also high; e.g., Extremeness of Confidence in Pettigrew Judgments (0.95), Extremeness of Response, Rokeach Scale (0.89), Extremeness of Response, Bass Scale (0.93), Extremeness of Confidence in Rokeach Beliefs (0.96), and Extremeness of Confidence in Bass Beliefs (0.95).

A summary of intercorrelations between the 11 variables is located in Table 2.

The hypothesis that confidence in belief and confidence in judgment measures would not be related did not hold ($r = 0.366$, $p < .0$. and $r = 0.329$, $p < .01$).

Table 1. Means, Standard Deviations and Odd-Even Reliabilities

		Mean	S.D.	r_{xx}
1.	Pettigrew Estimation Scale	63.05	17.70	.86
2.	Rokeach Dogmatism Scale: Form E	188.95	32.98	.87
3.	Bass Social Acquiescence Scale	217.85	36.96	.90
4.	Confidence in Pettigrew Judgments	47.55	20.48	.98
5.	Confidence in Rokeach Beliefs	70.49	14.56	.96
6.	Confidence in Bass Beliefs	66.14	15.35	.95
7.	Extremeness of Confidence in Pettigrew Judgments	65.83	18.02	.95
8.	Extremeness of Response, Rokeach Scale	122.57	22.23	.89
9.	Extremeness of Confidence in Rokeach Beliefs	125.50	29.29	.96
10.	Extremeness of Response, Bass Scale	100.18	20.42	.93
11.	Extremeness of Confidence in Bass Beliefs	104.98	23.14	.95

Table 2. Correlations of the Test Battery

	1	2	3	4	5	6	7	8	9	10
1. Pettigrew Estimation Scale	--									
2. Confidence in Pettigrew Judgments	.08	--								
3. Rokeach Dogmatism Scale	-.03	.07	--							
4. Confidence in Rokeach Beliefs	.11	.37	.04	--						
5. Bass Social Acquiescence Scale	-.11	-.15	.57	-.03	--					
6. Confidence in Bass Beliefs	.02	.32	.15	.91	.10	--				
7. Extremeness of Confidence in Pettigrew Judgments	-.01	-.31	.07	-.00	.03	.03	--			
8. Extremeness of Response, Rokeach Scale	.07	.05	.05	.54	.02	.49	.26	--		
9. Extremeness of Confidence in Rokeach Beliefs	.16	.24	-.06	.74	-.07	.66	.21	.61	--	
10. Extremeness of Response, Bass Scale	-.02	.06	.27	.60	.19	.67	.21	.76	.67	--
11. Extremeness of Confidence in Bass Beliefs	.13	.12	.03	.65	.04	.68	.30	.65	.84	.74

($r > .21$, $r < -.21$, $p > .05$; $r > .28$, $r < -.28$, $p < .01$)

There was a (0.907) correlation between the two confidence in belief scales. Johnson (1941) found a similar relationship using uncorrelated belief scales. On the other hand, the correlation between confidence in judgment and the Dogmatism Scale was (0.07).

The Rokeach Dogmatism scale and the Bass Social Acquiescence scale correlated (0.57).

Factor Analysis

The Quartimax factor analysis of the 11 variables yielded three factors which were labeled 'Extremeness Set', 'Directional Response Set' and 'Defensive Confidence' (see Table 3).

The Extremeness set factor, which accounted for 41% of the variance had six high loadings: Confidence in Rokeach's Dogmatism Beliefs (0.856), Confidence in Bass's Social Acquiescence Beliefs (0.842), and Extremeness of Response for the two belief scales (0.781 and 0.858), and Extremeness of Response for both confidence in belief measures (0.888 and 0.888). The loading of Extremeness of Response for both belief scales and confidence in belief measures on the same factor indicates the importance of Extremeness set for these measures. On the other hand, set effects these measures differently. When all-most-all subjects have mean scores above or all-most-all below the midpoint of the scale as in the case of the confidence in belief

Table 3. Quartimax Factor Loadings*

Measures	Factors		
	Extremeness of Response	Directional Response Set	Confidence in Judgment
1. Pettigrew Estimation Scale	.120	-.270	.071
2. Confidence in Pettigrew Judgments	.234	-.100	.794
3. Rokeach Dogmatism Scale	.114	.859	.087
4. Confidence in Rokeach Beliefs	.856	.070	.328
5. Bass Social Acquiescence Scale	.052	.868	-.058
6. Confidence in Bass Beliefs	.842	.092	.299
7. Extremeness of Confidence in Pettigrew Judgments	.247	.021	-.758
8. Extremeness of Response, Rokeach Scale	.781	-.017	-.260
9. Extremeness of Confidence in Rokeach Beliefs	.888	-.195	.005
10. Extremeness of Response, Bass Scale	.858	.231	-.139
11. Extremeness of Confidence in Bass Beliefs	.888	-.062	-.141
Per Cent of Variance	41.0%	15.3%	13.9%

*Keil-Wrigley criterion of two high loading per factor.

scales, then the scale scores will linearly correlate with the extremeness scores. Both 40 and 60 are scored as 1 in extremeness which means that if all subjects had mean scores above 40 and used the lower end of the scale (20 and 0) infrequently then the linear effect of extremeness set would be maximized. In the case of the belief scores the lack of linear relationship between scale scores and extremeness set means that the subjects are using both ends of the scale extensively, e.g., Peabody (1962).

The second factor has as its highest loadings the Dogmatism Scale (0.859) and the Social Acquiescence Scale (0.868). As both the Bass' Social Acquiescence Scale and the Dogmatism Scale have been shown to be related to other measures of directional response set, the second factor will be designated as the 'Directional Response Set Factor'.

The third factor has as high loading measures confidence in Pettigrew Judgments (0.794) and Extremeness of Confidence in Judgment, Pettigrew Scale (0.758). Neither of these measures loaded highly on the extremeness set factor.

There would theoretically be two factors operating in Confidence in Judgment: Accuracy and 'Defensive Confidence'. The accuracy factor should be minimized by the Pettigrew Category-Widths Scales' difficulty level. 'Defensive Confidence', on the other hand, would be expected to be present due to the Pettigrew Category-Width Scale instructions.

Klein and Schoenfeld (1941) demonstrated that by increasing the subjects ego-involvement in a series of unrelated tasks, you produce a generality in confidence across tasks. In this case, the negative correlation between Confidence in Judgment and Extremeness of Confidence in Judgment, is an artifact. Subjects with high confidence in Judgment use more 40's and 60's which are scored as 1 on the Extremeness in Response measures; whereas, subjects who are more accurate tend to use 0, 20, and 40 which are scored 3, 2, and 1 respectively. As Extremeness of Confidence in Judgment does not highly correlate with other Extremeness of Response measures, Extremeness set cannot be used to account for its homogeneity or its relationship to confidence in Judgment. 'Defensive Confidence' of some subjects and the 'accuracy' of others (low confidence) would account for 'Confidence in Judgments' homogeneity of extremeness.

Non Linear Analysis

The hypothesis that closed minded individuals would be over-confident did not hold when the Rokeach Dogmatism Scale and Confidence in Judgment were linearly correlated (.07).

A non-linear correlation between Confidence in Judgment, Pettigrew Scale (y) and the Dogmatism Scale (x) was significant ($\eta yx = .52$, $F = 4.39$, $p < 0.01$, $\eta x\, y, = .37$, $F = 1.90$, not significant) but the distribution was not hypothesized (see Table 4).

Table 4. Dogmatism and Confidence in Judgment--Mean Category Score

Dogmatism Scores	-151	152 -164	165 -177	178 -190	191 -203	204 -216	217 -229	239+
Mean								
Confidence in Judgment	66.1	37.7	40.2	46.5	44.8	47.5	51.5	55.6
N	9	13	11	17	16	8	9	9

The Confidence in Judgment means were high for high dogmatism, low for middle to low dogmatism, and high for extremely low dogmatism. The lowest dogmatic group (9 cases) had the highest mean confidence of any group on the continuum. This group due to its limited size creates a serious interpretational problem. In comparing the μ yx = 0.52 and r = 0.07 for linearity, the distribution is non-linear ($f = 4.38$ $p < .01$). The Bass Social Acquiescence scale was found not to be related to confidence in judgment (μ xy = .37 N.S., μ yx = .33 N.S.).

Partial Correlation

When directional response set as measured by the Bass Social Acquiescence Scale is partialled from the Rokeach Dogmatism Scale, assuming a 0.574 correlating, the resulting dogmatism scores $\overset{o}{D}$ linearly correlates ($r_{CD/A} = 0.215$, $p < .025$) with confidence in judgment.

Reanalysis

The emergence of a U-type distribution between dogmatism and confidence in judgment requires a rethinking of this study's basic hypothesis. Rokeach (1960) defines 'dogmatism' or 'authoritarism' (regardless of political affiliation) to be synonymous with closed mindedness. This study will consider closed mindedness as a more generic term of which dogmatism is but one particular variety.

Dogmatism will operationally be defined to mean agreement with dogmatic items without the influence of directional response sets, e.g., positive set, and negative set.

The open- and closed-mindedness continuum will retain Rokeach's and Restle's definition. The closed minded individual is hypothesized to act more in terms of irrelevant aspects of a situation. These irrelevant aspects may include any of the external and internal pressures cited by Rokeach (i.e., "examples of internal pressures . . . are unrelated habits, beliefs, perceptual cues, irrational ego motives, power needs, the need for self-aggrandizement, the need to allay anxiety, and so forth . . . by irrelevant external pressures . . . of reward and punishment arising from external authority. . . ."") (Rokeach, 1960, p. 57).

Directional response set, positive set and negative set, will be defined in terms of the basic definition of closed mindedness. Any response to an item on a personality

inventory can be based on two basic aspects of the item (Jackson and Messick, 1958)--the relevant or content and the irrelevant or non-content (stylistic). To the extent a subject's responses to questionnaire items are influenced by directional response set, he is responding closed mindedly.

As stated previously, the conceptualization of dogmatism advanced by Rokeach implies that dogmatism is synonymous with closed mindedness; yet, directional response set as defined fits the second definition of closed mindedness.

There appears to be a confusion between the generic concept closed-mindedness as defined in the second definition and the more particular concept dogmatism similar to Adorno's (1950) confusion of the particular concept Facism and the more generic concept authoritarism as described by Rokeach (1960).

Not only may a person closed mindedly accept a dogmatic item because of a dogmatic belief system but he may close mindedly accept the prevailing authority or asserted position when faced with a certain amount of ambiguity, or he may, as Weitman (1962) suggests, react negatively to the prevailing authority when faced with an ambiguous item and reject it without considering its content. Most likely with ambiguous items the subjects respond without attempting to arrive at the intended meaning of the item. Again to clarify our concepts, we hypothesize dogmatism and directional response sets to be subordinates of closed mindedness.

Closed-mindedness and mental impairments as Rokeach (1960) noted are subsumed under the generic concept of 'rigidity'.

A reanalysis of the data must discriminate between the two types of directional response set and also the two types of content responders. A subject may agree or disagree with a majority of the items on either scale on the basis of either content or response set. Despite the assumed ambiguity of the Bass Social Acquiescence Scale items, many of the items may have meaning for the subject which is constant with the subjects' value system. For instance, "Love is the greatest of all arts," may very well be responded to by the subject on the basis of his definition of 'art' and his views on 'love'. Both the Social Acquiescence Scale and Dogmatism Scales means are significantly different from the midpoint of 200 which would be gotten if the subjects had accepted as many items as they rejected; yet, on the Dogmatism Scale, the group rejected more items than they accepted while on the Social Acquiescence Scale they accepted more items than they rejected.

This together with the fact that both scales have appreciable correlations with other measures of directional response set such as reversed F Scale items and ambiguous true and false tests (Peabody, 1961; McGee, 1962 b) leads us to conclude that the difference between the means and the mid-point of the two scales is due to the group's reaction to the content and not to directional response set. If, for

instance, the Social Acquiescence Scale elicited more positive set from the group because it was a better measure of response set it would contribute more to the directional response set factor; the same holds true for the Dogmatism Scale. This does not occur.

To reduce the effect of content on directional response set, Couch and Keniston (1960) selected items from a wide variety of standard scales to reduce the effects of content in forming the All-over-agreement Scale. Also the same approach was used by Bass (1955) in forming the Social Acquiescence Scale. Instead of borrowing items from other standard scales Bass used aphorism of hetergeneous content.

To reduce the effects of scale content and increase the effect of directional response set, the Dogmatism Scale scores and Social Acquiescence scores were combined to provide a more stable measure of directional response set. This produces a "Directional Response Set Scale" with a mean of 406.31 and a standard deviation of 62.02. The odd-even reliability is (0.91) corrected. This compares favorably with both the Dogmatism Scale (0.87) and the Social Acquiescence Scale (0.90). A scale designed to measure directional response set should have a moderately high reliability in that the non-response-setting subjects are making their responses on the basis of content and their scores should add error variance which the new all-over-directional response set measure includes.

To divide the sample into types, the top and bottom quartiles of the 'Directional Response Set Scale' were arbitrarily designated positive response setters and negative response setters. Subjects in the second and third quartiles were designated as non-response setters and divided into high and low dogmatism $\overset{o}{D}$. The division between the high and low dogmatism groups was arbitrary with 50 per cent appearing in each group.

We now expect to find groups in the following order in terms of confidence in judgment; (a) the negative setting subjects, (b) positive setting subjects, (c) nonsetting dogmatics, and lowest (d) nonsetting low dogmatic subjects. These expectations correspond with Adams' (1962) results, and were confirmed in part (see Table 5).

The results of this analysis are clear; nonsetting non-dogmatics have less confidence in their judgment than negative setters, positive setters, and nonsetting dogmatics. Unlike Adams' (1962) study which used the F scale and rigidity, the negative setters, positive setters, and dogmatic or authoritarian subjects were not significantly different in terms of their degree of confidence. It is important to note that Adams (1962) used the F scale which allowed for the possibility that left wing authoritarians would score low.

Table 5. Types of Respondents and Confidence in Judgment

Type of Respondent	N	Mean Confidence in Judgment		Differences 2	3	4
1. Negative Setting	23	54.04	1	.91	3.56	21.52**
2. Positive Setting	23	53.13	2	--	2.65	20.61**
3. Dogmatic Non-Response Setting	23	50.48	3	--	----	17.96**
4. Non-Dogmatic Non-Setting	23	32.52	4	--	----	------

*$p < .001$

**$p < .0005$.

This data strongly supports the hypothesis that closed mindedness is a generic concept under which dogmatism, negative setting and positive setting fall while open mindedness is a concept referring only to non-response-setting non-dogmatics (equalitarians).

'Defense Confidence' relates to the basic definition of closed mindedness and appears to be a 'Trait' of at least three personality typologies. An important problem yet to be answered is: does the four way classification system described here represent fundamental differences or are there other important types and personality dimensions hidden within this system? The negative setters or positive setters may subdivide into typologies differing in terms of some important unidentified dimension.

DISCUSSION

The typologies isolated in this study present both theoretical and methodological questions.

Theoretical

Adorno (1950) became well aware of the existence of different 'types' of high and low F scale responders; however, he did not consider response set as a means of differentiating between types. High F scale scores were broken down into six different types: "Authoritarian," "Conventional," "Surface resentment," Tough guy," "Crank," and the "Manipulative" types (Adorno, 1951, p. 753). While no percentages were cited, Adorno pointed out that, in his sample, the conventional and the authoritarian types seemed to be by far the most frequent (Adorno, 1950, p. 753).

The "Conventional" syndrome is marked by

> . . . stereotype which come from the outside, but which has been integrated within the personality as part and parcel of a general conformity. In women there is special emphasis on neatness and femininity, in men upon being a "regular" he-man. . . . Thinking in terms of in group and out group prevails. Prejudice apparently does not fulfill a decisive function within the psychological household of the individuals, but is only a means of facile identification with the group to which they belong. They are prejudice in the specific sense of the term: taking over current judgments of others without having looked into

> matters themselves. Their prejudice is a "matter of course," possibly "preconscious," and not even known to the subjects themselves. It may become articulate only under certain conditions (1950, p. 756).

In the psycho-dynamics of the conventional type ". . . the superego was never firmly established and the individual is under sway of its external representatives" (1951, p. 751).

It is not difficult to see the conventional type as a candidate for the positive response setter. Jackson (1958) found that even with holding the up position on Nector Cube reversals the positive setter yields to the field force of a situation. Both Asch (1958) and Couch and Keniston (1960) found positive set related to 'hysteria' which is marked by 'conventionality' and hyper-femininity and masculinity.

More important, the conventional types lack of a completely integrated value system (super-ego) and the tendency to take over the current judgments of others seems to be prime characteristics of positive setters. Further study is needed to determine if these categories are the same.

The true 'Authoritarian' type ". . . follows the 'classic' psycho-analytic pattern involving a sadomasochistic resolution of the Oedipus complex" (Adorno, 1950, p. 759), and Erich Fromm labeled it the 'Sadomasochistic' character (1950, p. 759). 'Internalization' of a value system does take place in this sort of individual resulting

in a strong irrational super-ego and the individual achieving ". . . his own social adjustment only by taking pleasure in obedience and subordination" (Adorno, 1950, p. 759).

The presence of a strong irrational super-ego and internalized value system indicates a personality that while authoritarian or dogmatic would not be a positive setter. Most likely, the true 'Authoritarian' type is also the non-response setting dogmatic.

Among the low scorers there existed five types: "Protesting," "Easy Going," "Rigid," "Implusive" and the "Genuine Liberal." The "Protesting" and "Easy Going" were the most frequent; however, the low scorers were on the whole "less typed." The "Protesting" low scorer was psychodynamically similar to the "Authoritarian" high scorer with the main difference being that

> . . . the further sublimation of the father idea, concomitant with an undercurrent of hostility against the father, leads to the conscientious rejection of heteronomous authority instead of its acceptance. The decisive feature is opposition to whatever appears to be tyranny (1950, p. 771).

Adorno also noted that most of the neurotic low scorers were Protesting low scorers and sometimes show compulsive symptoms. This typology fits the description of Asch's (1958) "negative setter" and Weitman's (1962) "anti-authoritarian."

The "Easy going" low scorer is the opposite of the "Manipulative" high scorer being that they have a "let things go" attitude and ". . . a profound unwillingness to do violence to any object" (1950, p. 778). The Genuine

Liberal has a strong sense of autonomy and independence and has a well developed ego. Adorno sees both the "Easy going" and "Genuine Liberal" low scorers as having well established rational value systems or super-ego's. The "Easy going" and "Genuine Liberal" types most likely make up the non-setting low dogmatic group.

As the Adorno types which appear in personality most like the descriptions of the non-setting types (e.g., Authoritarian," "Easy going," and "Genuine Liberals") are described as having well internalized value systems and the possible response setting types are characterized as not having a well internalized value system, the degree of the internalization of the person's value system may be the key difference between non-setting and directional setting subjects. This brings in a possible new dimension 'Internalization'.

At present no independent measure of the degree of internalization of a value system or lack of it is known to the author. Before further research on determining the existence of such a dimension and its possible relationship to directional response set can begin, some independent measure of the degree of internalization of a subject's value system must be devised.

As this study provides no way in which Adorno's types can be related to the types isolated in this study, further study should be made to determine if there are relationships between them.

Methodology

The literature has shown that the directional response setters have personality characteristics of their own. The lumping of content responding and directional response setting most likely has resulted in the failure of many studies to uncover existing relationships. Loevinger (1959) in the concluding remarks of her article in the Annual Review of Psychology states, ". . . the proliferation of tests of high sounding psychological constructs in disregard of response bias is conspicuous waste of research" (1959, p. 306).

A major problem of future research in the area of attitude and personality measurement is to develop methods that either account for response set or to eliminate it. Peabody (1962) has devised formulas which give the percentage of variance accounted for by extremeness set on Likert Scales and a correction factor could possibly be devised for it.

Several researchers (Jackson and Messick, 1960; Messick and Jackson, 1961; Helmstadter, 1958; Webster, 1957) have constructed methods for separating directional response set from content; yet, directional response set creates special problems. If a person has high directional response set, you have little or no idea of how the contents of your items fit into his belief system, and if he has answered on the basis of directional response set to a larger number of

items, it would be next to impossible to determine his content score by partialling out directional response set.

To eliminate the effects of response set new methods of assaying beliefs and attitudes must be devised. Forced choice methods seem to be promising. Each alternative would represent a true difference in content. Heineman (1957) developed a tripartite multiple choice Manifest Anxiety Scale using items from the Taylor Manifest Anxiety Scale plus additional alternatives. Silverman (1957) in comparing the Heineman Manifest Scale and the Taylor Manifest Anxiety Scale found that the Taylor Scale correlates with the K scale of the MMPI, whereas the Heineman Scale does not. Furthermore, the Heineman Scale correlates with changes in skin conductivity under the threat of shock, while the Taylor Scale does not. Jackson and Messick (1960) have introduced forced choice in the MMPI to reduce the effects of directional response set and social desirability set. While response set itself seems indicative of certain personality types and important in itself, to get at the actual beliefs held by the person at a given moment measures other than the Likert Scale must be used.

SUMMARY

This study undertakes to explore possible personality correlates of generalized over-confidence in judgment in an ego-involving task ('Defensive Confidence'). Dogmatism or closed-mindedness was hypothesized to be related to 'Defensive Confidence'. Directional response set, e.g., positive setting and negative setting, were hypothesized to be unrelated to Dogmatism as conceptualized by Rokeach; instead directional response set was seen to be an artifact of the Likert Scale and not related to 'Defensive Confidence'.

Confidence in Belief and Confidence in Judgment were not expected to correlate; instead confidence in belief was hypothesized to be related to extremeness set.

Confidence in judgment scores were taken after each item of the Pettigrew Category Width Scale which was given under ego-involving instructions. High confidence in judgment, due to the difficulty level of the Pettigrew Category Width Scale, was considered evidence of 'Defensive Confidence'. Dogmatism was measured by the Rokeach Dogmatism Scale and directional response set by the Bass Social Acquiescence Scale. Measures of confidence in belief were taken for both belief scales.

Extremeness set measures were obtained for both belief scales, the confidence in judgment scale, and both confidence in belief scales. The eleven measures were factored.

The factor analysis yielded three factors: (1) Extremeness set, (2) Directional response set, and (3) Defensive Confidence.

A U-shaped distribution was found between confidence in judgment and the Dogmatism Scale. This was contrary to the main hypothesis.

To explore the U-distribution, positive and negative setters were hypothesized to be closed-minded. Both groups will seem to be acting in terms of the irrelevant aspects of the testing situation by responding to the structure or 'field force' of the items rather than their content. The data were reanalyzed.

Negative setters, positive setters, and non-response setting dogmatics were expected to exhibit 'Defensive Confidence' while only the non-response setting non-dogmatics were expected not to exhibit defensive confidence. The two belief scales were combined to form a more accurate measure of directional response set and the types were isolated by arbitrarily quartering the sample.

Results strongly support the revised hypothesis. Positive response-setters, negative response-setters, and

non-setting dogmatics were significantly more confident in their judgments than non-setting non-dogmatics.

As positive setters and negative setters, as well as, non-response setting dogmatics manifest "Defensive Confidence" and both directional response setting and "Defensive Confidence" were hypothesized to manifest closed mindedness, closed mindedness as defined by Rokeach (1960) was interpreted to be a generic concept which encompasses the more particular concepts of dogmatism, positive setting, and negative setting.

The results were found to compare favorably with Adorno's (1950) descriptions of types of F scale responders: the positive setter with the "Conventional" type; the negative setter with the "Protesting" low scorer; the non-response setting dogmatic with the 'true' "Authoritarian;" and the non-response setting non-dogmatic with the "Easy going" and "Genuine Liberal."

From Adorno's (1950) typologies it was suggested that directional response setters and non-setting subjects differed in terms of the presence or absence of a well developed super-ego or an 'Internalized' value system. Content responders (e.g., non-response setting non-dogmatics or Adorno's "Easy going" and "Genuine Liberal" and non-response setting dogmatics or Adorno's true "Authoritarian") were marked by internalized value system or strong super-ego's; whereas the response setters seem to have weaker

super-ego's. Further research into the compatibility of this study's typology and those described by Adorno (1950) was suggested.

BIBLIOGRAPHY

Adams, Henry E. (1962) "Authoritarism, statistical rigidity, and a sampling control of response set," J. Psychol., 53:47-53.

Adams, Joe K. (1957) "A confidence scale defined in terms of expected percentages," Amer. J. Psychol., 70:432-436.

Adams, Pauline A., and Adams, J. K. (1958) "Training in confidence-judgments," Amer. J. Psychol., 71:747-751.

Adams, Pauline A., and Adams, J. K. (1960) "Confidence in the recognition and reproduction of words difficult to sell," Amer. J. Psychol., 73:544-552.

Adorno, T. W., Frenkel-Brunswick, Else, Levinson, Daniel J., and Sanford, R. Nevitt. (1950) The authoritarian personality. New York: Harper.

Allport, F. H., and Hartmen, D. A. (1925) "The measurement and motivation of a certain group," Amer. Polit. Sci. Rev., 19:753-763.

Allport, G. W. (1937) Personality: a psychological interpretation. New York: Henry Holt.

Asch, M. J. (1958) "Negative response bias and personality adjustment," J. Counsel. Psychol., 5:206-210.

Bass, B. M. (1955) "Authoritarianism or acquiescence?" J. abnorm. soc. Psychol., 51:616-623.

Bass, B. M. (1956) "Development and evaluation of a scale for measuring social acquiescence," J. abnorm. soc. Psychol., 53:266-299.

Block, J., and Peterson, P. (1955) "Some Personality correlates of confidence, caution and speed in a decision situation," J. abnormal. soc. Psychol., 51: 34-41.

Brehm, J., and Cohen, A. C. (1962) Explorations in Cognitive Dissonance. New York: Wiley.

Broen, W. E., Jr., and Wirt, R. D. (1958) "Varieties of Response Sets," J. consult. Psychol., 22:237-241.

Carey, Gloria, Rogow, A. A., and Farrell, C. (1957) "The relationship between the F scale and aphorm usage and agreement," J. Psychol., 43:163-167.

Chapman, L. J., and Campbell. (1957) "Response set in the F scale," J. abnorm. soc. Psychol., 54:129-132.

Christie, R., Havel, Joan, and Seidenberg, B. (1958) "Is the F scale irreversible?" J. abnorm. soc. Psychol., 56:143-195.

Christie, R., and Lindauer, Florence. (1963) "Personality structure," In R. P. Farnsworth and Q. McNemar (eds.), Annu. Rev. Psychol., 14:201-230.

Couch, A., and Keniston, K. (1960) "Yea sayers and nay sayers: Agreeing response set as a personality variable," J. abnorm. soc. Psychol., 60:151-174.

Cronbach, L. J. (1946) "Response sets and test validity," Educ. psychol. Measmt., 6:475-494.

Cronbach, L. J. (1950) "Further evidence on response sets and test design," Educ. psychol. Measmt., 10:3-31.

Deutsch, M., Krauss, R. M., and Rossenau, Norah. (1962) "Dissonance or defensiveness," J. Pers., 30:16-28.

Edwards, A. L. (1957) The social desirability variable in personality assessment and research. New York: Dryden.

Edwards, A. L., and Walker, J. N. (1961) "Social desirability and agreement response set," J. abnorm. soc. Psychol., 62:180-183.

Feather, N. T. (1959) "Subjective probability and decision under uncertainty," Psychol. Rev., 66:150-164.

Festinger, L. (1943) "Studies in decision: Decision-time relative frequency of judgment and subjective confidence as related to physical stimulus difference," J. exp. Psychol., 32:291-306.

Festinger, L. (1957) A theory of cognitive dissonance. Stanford, California: Stanford University Press.

Foster, J. R. (1961) "Acquiescent response set as a measure of Acquiescence," J. abnorm. soc. Psychol., 63:296-299.

Frederiksen, N., and Messick, S. (1959) "Response set as a measure of personality," Educ. psychol. Measmt., 19:137-157.

Fruchter, B., Rokeach, M., and Novak, E. G. (1958) "A factorial study of dogmatism, opinionation, and related scales," Psychol. Rep., 4:19-22.

Frenkle-Brunswik, Else. (1951) "Patterns of social and cognitive outlook in children and parents," Amer. J. Orthopsychiat., 21:543-558.

Fullerton, G. S., and Cattell, J. M. (1892) "On the perception of small differences," Univ. Penn. Pub., 2:159.

Gage, N. L., and Chatterjei, B. B. (1960) "The psychological meaning of acquiescence set: Further evidence," J. abnorm. soc. Psychol., 60:280-283.

Gage, N. L., Leavitt, G. S., and Stone, G. C. (1957) "The psycholigical meaning of acquiescence set for authoritarianism," J. abnorm. soc. Psychol., 55:98-103.

Green, B. F. (1954) "Attitude measurement," In G. Lindzey (ed.), Handbook of social psychology, Vol. 1. Cambridge, Massachusetts: Addison-Wesley.

Griffing, H. (1895) "On sensation from pressure and impact," Psychol. Monog., 1.

Heineman, C. E. (1953) "A forced choice form of the Taylor Anxiety Scale," J. consult. Psychol., 17:447-454.

Helmstadter, G. C. (1957) "Procedures for obtaining separate set and content components of a test score," Psychometrika., 22:381-394.

Henmon, V. A. C. (1911) "The relation of the time of a judgment to its accuracy," Psychol. Rev., 18:186-201.

Hollingsworth, H. L. (1913) "Experimental Studies in Judgment," Arch. of Psychol., No. 29.

Horney, Karen. (1937) The neurotic personality of our time. New York: Norton.

Jackson, D. N. (1958) "Independence and resistence to perceptual field forces," J. abnorm. soc. Psychol., 56:279-281.

Jackson, D. N. (1959) "Cognitive energy level, response acquiescence, and authoritarianism," J. soc. Psychol., 49:65-69.

Jackson, D. N. (1960) "Stylistic response determinants in the California psychological inventory," Educ. psychol. Measmt., 20:339-346.

Jackson, D. N., and Messick, S. J. (1958) "Content and style in personality assessment," Psychol. Bull., 55:243-252.

Jackson, D. N., and Messick, S. J. (1960) "Acquiescence and desirability as response determinants on the MMPI," Princeton, N. J., Educational Testing Service, Report RB-60-10.

Jackson, D. N., Messick, S. J., and Solley, G. M. (1957) "How 'rigid' is the 'authoritarian'," J. abnorm. soc. Psychol., 54:137-140.

James, R. L., and Stone, L. A. (1960) "Individual differences in the production of retroactive facilitation and inhibition," Percept. mot. Skills, 11:223-227.

Jersild, A. (1929) "Determinants of Confidence," Amer. J. Psychol., 41:640-642.

Johnson, D. M. (1939) "Confidence and speed in the two-category judgment," Arch. of Psychol., No. 241:52.

Johnson, D. M. (1940) "Confidence and the expression of opinion," J. soc. Psychol., 12:213-220.

Johnson, D. M. (1955) The psychology of thought and judgment. New York: Harper.

Klein, G. S., and W. Schoenfeld. (1941) "The influence of ego-involvement on confidence," J. abnorm. soc. Psychol., 36:249-258.

Kogan, N., and Wallach, M. A. (1960) "Certainty of judgment and the evaluation of risk," Psychol. Rep., 6: 207-213.

Leavitt, H. J., Hax, H., and Roche, J. H. (1955) "'Authoritariansim' and agreement with things authoritarian," J. Psychol., 40:215-221.

Lichtenstein, E., Quinn, R., and Hover, G. L. (1961) "Dogmatism and acquiescent response set," J. abnorm. soc. Psychol., 63:636-638.

Lorge, I. (1937) "Gen-like: halo or reality," Psychol. Bull., 34:545-546.

Loevinger, Jane. (1959) "Theory and technique of assessment," In P. R. Farnsworth and Q. McNemar (eds.), Annu. Rev. Psychol., 10:287-317.

Lund, F. H. (1926) "Criteria of Confidence," Amer. J. Psychol., 37:372-381.

Mathews, C. O. (1927) The effects of position of printed response words upon children's answers to questions in two-response types of tests," J. Exp. Psychol., 18:445-457.

McGee, R. K. (1962a) "The relationship between response style and personality variables: The measurement of response acquiescence," J. abnorm. soc. Psychol., 54: 229-233.

McGee, R. K. (1962b) "The response style as a personality variable: By what criterion?" Psychol. Bull., 59: 284-295.

McGuire, William J. (1960) "A syllogistic analysis of cognitive relationships," In M. J. Rosenberg, C. I. Hovland, W. J. McGuire, R. P. Abelson, J. W. Brehm, Attitude organization and change: An analysis of consistency among attitude components. New Haven: Yale University Press, 65-112.

Messick, S. (1961) "Personality structure," In P. R. Farnsworth and Q. McNemar (eds.), Annu. Rev. Psychol., 10:287-317.

Messick, S. (1962) "Response style and content measure from personality inventories," Educ. psychol. Measmt., 22(1):41-56.

Messick, S., and Jackson, D. N. (1961) "Desirability scale values and dispersion for MMPI items," Psychol. Rep., 8:409-414.

Metcalf, J. T. (1917) "An experimental study of the conscious attitudes of certainty and uncertainty," Psychol. Monog., 23:181-240.

Mischel, W. (1961) "Preference for delayed reinforcement and social responsibility," J. abnorm. soc. Psychol., 62:1-7.

Neuhaus, J. G., and Wrigley, C. F. (1954) "The quartimax method: an analytical approach to orthogonal simple structure," Brit. J. statist. Psychol., 7:81-91.

Okabee, T. (1910) "An experimental study of belief," Amer. J. Psychol., 21:563-596.

Osgood, C. E., and Tannenbaum, P. H. (1955) "The principle of congruity in the prediction of attitude change," Psychol. Rev., 62:42-85.

Peabody, Dean. (1961) "Attitude content and agreement set in scales of authoritarianism, dogmatism, anti-semitism, and economic conservatism," J. abnorm. soc. Psychol., 63:155-160.

Peabody, Dean. (1962) "Two components in bipolar scales: directional and extremeness," Psychol. Rev., 69:65-73.

Pettigrew, T. F. (1958) "The measurement and correlates of category width as a cognitive variable," J. Pers., 26:532-544.

Rokeach, M. (1956) "Political and religious dogmatism: An alternative to the authoritarian personality." Psychol. Monogr., 70, No. 18.

Rokeach, M. (1960) The open and closed mind. New York: Basic Books.

Schultz, R. E., and Foster, R. J. (1963) A factor analytic study of acquiescent and extreme response set." Educ. Psychol. Measmt., 23:435-446.

Seward, G. H. (1928) "Recognition time as a measure of confidence," Arch. Psychol., No. 99.

Silverman, R. E. (1957) "The manifest anxiety scale as a measure of drive," J. abnorm. soc. Psychol., 55:94-97.

Small, D. O., and Campbell, D. T. (1960) "The effect of acquiescence response-set upon the relationship of the F scale and conformity," Sociometry, 23:69-70.

Stone, L., and James, R. L. (1961) "Stability of agreeing response set over a period of time," Psychol. Rep., 8:350-351.

Sumner, F. B. (1898) "A statistical study of belief," Psychol. Rev., 5:616-631.

Thouless, R. H. (1935) "The tendency to certainty in religious belief," Brit. J. Psychol., 27:16-31.

Trow, W. C. (1923) "The psychology of confidence," Arch. Psychol., No. 67, 33:47.

Volkmann, John. (1934) "The relation of time of judgment to the certainty of judgment," Psychol. Bull., 31: 672-673.

Walker, H. M., and Lev, J. (1953) Statistical inference. New York: Holt, Rinehart and Winston.

Webster, H. (1958) "Correcting personality scales for response sets or suppression effects," Psychol. Bull., 55:62-64.

Weitman, M. (1962) "More than one kind of authoritarian," J. Pers., 33:193-208.

Williamson, G. F. (1915) "Individual differences in belief measured and expressed by degree of confidence," J. Phil. Psychol., etc., 12:127-137.

Zajonc, R. B., and Moriessette, J. (1960) "Cognitive behavior under uncertainty and ambiguity," Psychol. Rep., 6:31-36.

Zucker, M., and Eisen, B. (1962) "Relationship of acquiescence response set to authoritarianism and dependency," Psychol. Rep., 10:95-102.

Zuckerman, M., Norton, J., and Sprague, D. S. (1958) "Acquiescence and extremeness set and their role in tests of authoritarianism and parental attitudes," In Social aspects of psychiatry, Psychiat. res. Rep., 10:28-45.