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DIFFERENTIAL EFFECTS OF MEASURING ATTITUDE CHANGE IN DYNAMIC AND EVALUATIVE DIMENSIONS OF MEANING

APPROVED BY

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DISSERTATION COMMITTEE

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CHAPTER I

INTRODUCTION AND PROBLEM

In the field of social psychology, attitudes have occupied a central position in the literature and have been studied by a variety of researchers. One of the most influential and productive investigators in this area has been Muzafer Sherif who has described attitudes and attitude change in terms of ego involvement, assimilation and contrast effects, subjects' "own" position on an issue, and subjects' latitudes of acceptance, rejection and noncommitment. One of Sherif's standard attitude change paradigms obtains a pretest measure of subjects' feelings toward an issue, presents a communication regarding the issue, and then obtains a posttest measure reflecting any possible changes in the subjects' attitudes after reading the communication. This particular approach was reported in the books Attitude and Attitude Change (Sherif, Sherif, & Nebergall, 1965) and Social Judgment (Sherif and Hovland, 1961).

Sherif's typical pretest-posttest instrumentation employs, in addition, a nine-point, symmetrical scale, in which each end of the scale represents an extremely pro or an extremely anti statement

toward the issue measured, and three increasingly less extreme statements with an equivocal statement as the center (fifth point) of the scale.

Among the various researchers who have employed the Sherifian paradigm in studying different issues, Jones (1968) has suggested a refinement of the communications proper, and has shown that different dimensions of meaning (following Osgood, Suci, and Tannenbaum, 1957) will elicit differential effects from subjects, depending on whether the communication was constructed employing the evaluative dimension of meaning or the dynamic dimension of meaning.

The present study is an extension and an elaboration of Jones' findings. Essentially, whereas Jones (1968) constructed a communication representing the dynamic dimension of meaning and another communication representing the evaluative dimension of meaning, and pitched both communications toward one end of the nine-point Sherifian scale, the present study is an attempt to construct a mixed dynamic-evaluative communication at the pro end of the nine-statement scale and a mixed dynamic-evaluative communication at the anti end of the nine-statement scale, but in addition, to construct a "pure" instrument (nine-point scale) representing the dynamic dimension of meaning, and a "pure" instrument representing the evaluative dimension of meaning. In other words, it is the purpose of the present study to clarify empirically the possible effects which differences in certain qualitative aspects of the <u>instruments</u> used in the standard Sherifian paradigm might have. The purposes and expectations of this study are outlined in detail below, following a preliminary discussion of

the Sherifian position.

Sherif's Conception of Attitudes

According to Sherif, attitudes refer to functional states of readiness which are formed, learned or acquired in relation to objects of value to the individual. They are more or less lasting and imply a characteristic and selective response to relevant objects (Sherif and Sherif, 1956, p. 16).

In another passage, Sherif says:

> Attitudes are formed in relation to situations, persons, or groups with which the individual comes into contact in the course of his development. Once formed, they determine that the individual react in a characteristic way to these related situations, persons, or groups (Sherif and Sherif, 1956, p. 490).

Attitudes are here spoken of as internal factors, but all internal factors are not attitudes. In order to specify the distinction between attitudes and their relation to other factors of development, Sherif and Sherif present the following five statements concerning both social and nonsocial attitudes:

> 1. Attitudes are not innate. They are formed or learned in relation to given objects, persons, groups and events. This criterion differentiates attitudes from biogenic motives.
>
> 2. Attitudes are more or less lasting. This criterion literally means more lasting or less lasting. The implication is that, since they are learned, they are not immutable.
>
> 3. Attitudes always imply a subject-object relationship . . . . They are formed or learned in relation to an identifiable referent, be it a person, a group, an object, an institution, an issue, or an event.
>
> 4. The referent of an attitude may encompass a small or large number of items . . . . This implies the

process of generalization, which is the essential process of concept formation.

5. Attitudes have motivational-effective properties. This criterion differentiates an attitude from other learned items in the psychological make-up of the individual (Sherif and Sherif, 1956, pp. 494-495).

As noted, these criteria apply to social and nonsocial attitudes; they also apply to the general principles underlying the formation and function of all attitudes. There is one feature, however, which differentiates a social attitude from other attitudes: social attitudes are formed or learned in relation to social stimulus situations and are shared by members of a group or a given society (Sherif and Sherif, 1956, pp. 495-496).

Attitude Measurement

The following review of the literature is based on the two principal types of instrumentation used by Sherif and his co-workers, and will be used to clarify Sherif's theoretical position. One instrument employs a nine-point scale, the other, an eleven-point scale. The Sherif-Hovland nine-statement scale (Sherif & Hovland, 1961; Sherif, 1960; Sherif, Sherif, & Nebergall, 1965) presents the subjects with a set of nine ordered statements, ranging from extremely favorable to the issue being judged to extremely unfavorable to the issue, and requires the choice of one single statement as most acceptable. The subjects are then asked to indicate any other positions which they find also acceptable, and following this, they must indicate the one statement which they find most objectionable. Finally, the subjects are asked to indicate any other statements which they find objectionable.

Also, the single position which the person finds most acceptable is often referred to by Sherif as the person's "own position." In employing both the nine and the eleven point scales, it is important to note that no assumptions are made regarding the sizes of intervals between the statements, nor is it assumed that the positions are cumulative, as did Likert (1932) and Guttman (1947), respectively.

The eleven-point scale employed by Sherif and Hovland (1952 and 1953), instead of having subjects rate nine statements about an issue, asks groups of subjects to sort a large number of statements presented on cards and to sort the statements under one or the other of two conditions: sorting the statements into a structured or imposed eleven categories or rating scale system, and sorting the statements into as many categories as the subject chooses. These are called, respectively, "imposed categories" and "own categories." Specifically, subjects are told to sort the statements into eleven piles ranging from most unfavorable to most favorable (imposed categories). Under the own categories, subjects are told to use as many categories as they wish for sorting the statements. After the card sort was completed, they were asked to mark the pile "agree" that indicated their viewpoint, and then to indicate whether they agree "very strongly," "strongly," or "mildly." Similar instructions were given for the pile that did not illustrate their viewpoint. A two week time interval intervened prior to sorting the same cards under the own categories system. Here subjects were told to use as many categories as they wished for sorting the statements.

The results of the Hovland & Sherif (1952) and Sherif &

Hovland (1953) studies showed that Negro subjects and strongly pro Negro white subjects tended to place a disproportionate number of statements into the extreme categories. The undifferentiated white subjects with inbetween stands on the issue tended to use all the categories in a more uniform manner on the eleven category rating scale. Anti Negro subjects displaced neutral statements in extreme categories, bunching the statements at the pro Negro end of the scale.

Under the "own categories" condition, it was found that subjects with extreme stands on the issue tended to use a smaller or more constricted range of categories than did more neutral subjects. These results suggested that subjects do interject their bias or stand on an issue. Also, a subject's stand is revealed through the number of categories used and the displacement of "neutral" statements toward the end of the scale that is opposite his stand on the issue.

Many variations and additions to the basic procedures mentioned above have also been studied. Fehrer (1952) demonstrated that a scale can be reworked by changing its context, a method that tends to produce different effects upon mildly biased items. His results were found using Thurstone's "Attitudes Toward War" scale. A similar effect was accomplished by changing the anchor items (Weiss, 1961). Using the Wang-Thurstone Scale of Attitudes Toward Punishment of Criminals, Weiss found that if a definite middle range was included in the scale, subjects indicated a stronger tendency to rate statements within the middle range of the rating. He also found that introduction of a strong negative statement in the scale yielded contrast effects at the positive, or opposite end of the scale.

This was a result similar to that of Sherif, Taub, and Hovland (1958), who found that in measuring weights, if the anchors were placed at increasing distances away from the end points of the scale, judgments would be displaced away from the anchor and the scale was more restricted.

Another factor of importance in the judgment process is that of the stimulus situation. Sherif, et al. say:

> Appraisal of a particular item is a joint product of the properties of that item relative to the immediate context in which it appears and to preceding stimulus contexts. For example, quite apart from personal attitudes on the issue, a statement that "We must keep the future interests of school children in mind" is appraised differently when it is preceded or surrounded by statements opposed to school desegregation on the one hand, or favoring school desegregation on the other (1965, p. 236).

The importance of set and other factors that are not part of the stimulus situation is greatly increased when the stimulus situation is vague or highly unstructured, according to Sherif and Cantril (1947). Extreme statements, on the other hand, tend to be interpreted by subjects in about the same way. Similarly, neutral statements on an issue are also placed accurately by most subjects, according to studies by La Fave, Szozesiak, Yaquinto and Adler (1963), and Zavalloni and Cooke (1963). Neutral statements therefore define a position on an issue and are thus not subject to displacement as are the more vague and unstructured statements. These studies also indicate that the susceptibility of a statement to displacement is a function of the distance it represents from the extreme positions. However, the types and degrees of verbal ambiguity in some statements that make them displaceable items is a subject for further research.

Positive and negative clauses within an item do determine the direction of displacement. A negative clause at the end of a statement causes subjects to judge these items more negatively than when the statement ended with a positive clause (Nevin, 1964).

Sherif, et al. (1965) emphasize that in addition to the verbal content and structure of the stimulus statement, the arrangement and ordering of statements is related to the judgment process. They say:

> It is exceedingly important to note that the arrangement and order of stimuli, as well as the procedures, in an immediate situation are always variables in social judgment, just as they are in any kind of judgment (1965, p. 145).

Sherif and Hovland (1961) have also demonstrated that the range of the series of statements to be judged contributes to the outcome of the judging process. It is possible to produce changes in the subject placement patterns by varying the range of a series of items.

Other factors, such as place, time and sequence also play major roles in the judgment process. For example, attitudes toward gun control legislation in America will be a function of the current status of gun control bills currently before Congress and the degrees of polarization on the issue.

To further clarify Sherif's theoretical position, brief mention will be made of additional important issues related to the measuring of attitudes and attitude change.

a. Categorization patterns. This refers to the number of categories used by a subject in judging a series of statements

describing a given issue. Sherif, et al. have delineated varying usage of categories as follows:

> If the individual has committed himself to a stand, the upshot is that his categories, hence the judgment scale, when he judges a series of relevant objects exhibit noteworthy differences from those he uses for a series of motivationally neutral objects. Motivationally neutral series are exemplified by weights, lengths, visual inclinations, or intensities in some sense modality, in which there are gradations among members of the stimulus set in question. Judgment here consists of comparing the discriminable differences between stimulus members on the dimension being judged. As far as the individual judge is concerned, the series is neutral.
>
> In contrast, when a highly religious person or a highly anti-religious person judges a stimulus statement on religion, singly or in a series of statements, these items are not neutral. When an individual has thus differentiated a universe of discourse, he consciously or unconsciously judges positions concerning it through comparison of their relative proximity to a distance from those he upholds as his own.
>
> Proportional to his personal involvement in the issue and to the extent that stimulus arrangements allow alternative placements of the items, his judgments are affected by his own stand on the issue (Sherif, Sherif & Nebergall, 1965, pp. 61-62).

The hypothesis that highly involved subjects with extreme stands on an issue use fewer categories in the judgment process has been confirmed in studies by Vaughan (1961), Host (1964), Parrish (1964), Nevin (1964), Fisher (1965), and Peterson (1967). Less involved subjects will use more categories and their judgments will be more evenly distributed along the eleven point scale.

b. Ego-Involvement. This refers to the degree to which an individual commits himself to a stand or position on a given issue. Sherif, et al. define ego-involvement as follows:

> . . . the arousal, single or in combination of the individual's commitments or stands in the context of appropriate situations, be they interpersonal relations

> or a judgment task in actual life or an experiment (Sherif, Sherif & Nebergall, 1965, p. 65).

Thus, when a subject is highly ego-involved with an issue, his stand becomes an anchor for his judgments. Various studies have indicated further that individuals also have hierarchies of ego-involvements. Thus, issues perceived as more important will have different anchor effects than issues perceived as less important (Pilisuk, 1962; Sherif, et al., 1965).

c. Own categories. This refers to a procedure which permits the subject to select as many categories as he wishes to judge a series of items (as opposed to fixed categories, in which the subject may use as many or as few of the specified eleven categories as he chooses). This procedure was first developed by Sherif and Hovland (1953) and has been adapted for the study of attitudes toward Latin-Americans by Vaughan (1961), attitudes toward Negroes by Parrish (1964), and attitudes toward the poor (Peterson, 1967). Whereas the imposed categories method does affect the subject's judgments (Chance, 1968), the own categories approach has the advantage that the subject can develop a system of categorization based upon his own attitudes.

d. Reference Scales. Sherif and Sherif (1956) define reference scales in the following manner:

> Since a single stimulus is judged against the background of functionally related stimuli, this background for judgment can be called the individual's <u>reference scale</u> (Sherif & Sherif, 1956, p. 50, emphasis in original).

Sherif & Hovland (1961) note that this concept of reference scale has also been applied extensively to psychophysical scales. How-

ever, whereas psychophysical scales are defined as reference scales formed in relation to stimuli which are not objectively well graded. They are formed in normal social relations and are much less subject to change than are the psychophysical scales. The most acceptable and most objectionable positions are examples of reference points within reference scales.

e. Anchorages. Sherif & Sherif define anchorages as follows:

> A reference scale generally has one or more salient or outstanding items which have more influence than others in the judgment of something else. These salient or outstanding reference points may be called anchorages or anchoring points (Sherif & Sherif, 1956, p. 50, emphasis in original).

In psychophysical scales, the anchor may consist of a standard stimulus introduced by the experimenter. Or, the end points in a stimulus series may serve as anchorages, with other stimuli being judged according to their appropriate place somewhere between these anchoring points. Anchors are also important in the individual's psychosocial reference scales. Unlike the psychophysical scales, in the psychosocial scales, the items may not be motivationally neutral. In other words, the individual in judging social stimuli such as those typically presented in the Sherif-Hovland nine-statement instrument may already have an internalized reference scale within which there are certain salient points which may serve as anchors.

According to Sherif, the most important salient point as a possible anchor for judgment is that single item which the individual judges as most acceptable to him. Sherif, Sherif & Nebergall stress

the most acceptable position as follows:

> Experimental evidence demonstrates that attitude-relevant items are ordered, or ranked, within the bounds of what is acceptable and what is objectionable in terms of the individual's own stand. In other words, the most acceptable item serves as a standard (anchor) to which other items in that universe of discourse are compared for their proximity or divergence from it. Reaction to the items is a comparison process, whether conscious or not (Sherif, Sherif & Nebergall, 1965, p. 7).

f. Assimilation and contrast effects. This phenomenon refers to variations or differences that occur in the social judgment process as a result of differences and similarities between anchors and items (Sherif, Sherif & Nebergall, 1965). As the differences between external anchors and the stimulus situation or items increase beyond the assimilation range, contrast effects (displacement away from the anchor) are also increased. But, if there are few differences or the anchors and items are more similar, assimilation (displacement toward the anchor) will occur. Placement of items will tend to be toward the anchor if an anchor and the stimulus situation or items are alike. Subjects with high ego-involvement tend to judge items based on their own evaluative categories (anchors). This produces contrast and assimilation effects which are a function of differences and similarities between anchors and items.

Sherif et al. (1965) conclude that the variables contributing most to assimilation and contrast effects are the following: the subject's stand in terms of a reference scale; his degree of ego-involvement; reference group membership; the properties of the items or statements; the arrangements of stimuli and procedures; place,

time and sequence; and sources of communication.

> Latitude of acceptance is the position on an issue (or toward an object) that is most acceptable, plus other acceptable positions.
>
> Latitude of rejection is the most objectionable position on an issue, plus other objectionable positions.
>
> . . . latitude of noncommitment, defined as those positions not categorized as either acceptable or objectionable to some degree (Sherif, Sherif & Nebergall, 1965, p. 24).

In order to test these propositions, the above authors investigated the latitudes of acceptance, rejection and noncommitment of subjects' attitudes toward the Democratic and Republican candidates during the 1960 presidential election. They sujmarized their findings as follows:

> The latitude of acceptance incorporates one or two positions adjacent to the subject's own. Latitudes of rejection are polarized at the extreme positions. Advocates of extreme positions reject all opposing stands, including the neutral position. For moderates the latitude of rejection is split between the two polar extremes. Typically, latitudes of rejection increase in size (number of positions) with the extremeness of the position most acceptable.
>
> Latitudes of noncommitment, on the other hand, increase in size with the moderateness of the most acceptable position and are smallest for those who take extreme stands.
>
> As a result of this patterning, subjects who take extreme positions have larger latitudes of rejection than moderate respondents. Persons who take moderate positions typically accept about as many positions as they reject.
>
> The individual taking a more moderate stand may, however, be strongly committed to his position and strongly opposed to contrary stands. When he is, his latitude of rejection is as large as that typical of a strong partisan of an extreme. The latitude of rejection, therefore, appears to be the most useful indicator for singling out moderate individuals highly involved on an issue as well as extremists not highly involved. The level of noncommitment is suggested as an indicator of the general level of involvement in one issue as compared to another (Sherif, Sherif & Nebergall, 1965, p. 59).

With the foregoing brief summary of the Sherifian theoretical

position toward attitude and attitude change in mind, it is appropriate to turn the concepts and studies directly relevant to the present study. As noted in the introduction to this chapter, the present work is an extension of the research of Jones (1967, 1968). These findings are reported in the following section in some detail.

Most Acceptable and Most Objectionable Positions

Jones (1967) notes that considerable research within the Sherifian tradition has been done as to "own" position, or most acceptable position as a major anchor for subjects' judgments. In contrast, little attention has been devoted to that single statement which the subject judges most objectionable. For example, Sherif et al. point out that the position judged most acceptable has the important effect of serving as a major anchor for judgment of attitude relevant items. They say: "Experimental evidence demonstrates that attitude-relevant items are ordered, or ranked, within the bounds of what is acceptable and what is objectionable in terms of the individual's own stand (Sherif, Sherif & Nebergall, 1965, p. 7). According to Jones (1967), therefore, specific attention needs to be given to most acceptable and most objectionable positions. For example, it is not known whether the most objectionable position is in some sense the simple antithesis of the own position, or if it is responded to within some different framework.

In order to compare most acceptable position with most objectionable position, Jones (1967) had subjects respond to a questionnaire which contained the Sherif-Hovland nine statement

scales for two different issues presumably important to college students. The subjects' task was to mark all of their choices for each of the nine statement instruments and then to rate the statements which they had deemed most acceptable and most objectionable on a series of 18 semantic differential scales.

The first part of the data analysis consisted of a factor analysis of the semantic differential data obtained on the most acceptable position, and a second factor analysis of these same scales for the most objectionable positions. The second part of the data analysis consisted of statistical comparisons of the ratings given to most acceptable and most objectionable positions on the single semantic differential scales Accept-Reject and Important-Unimportant, and of similar statistical comparisons of the factor scores derived for comparable components from the analyses of the data for the two position measures.

The results of the factor analysis for most acceptable positions revealed two of the four components to be clearly interpretable. These components were labeled as the evaluative factor and the potency factor. The factor analysis for most objectionable position resulted in the extraction of five factors, the first two of which were, again, evaluation and potency. Jones (1967) concluded that the "overall patterns of common variance accounted for in the two analyses supported the idea that the two semantic structures were not identical" (Jones, 1967, p. 16).

Further analyses of the data for the tests on the factor scores revealed that the most acceptable positions (MA) for the two

issues were rated significantly higher on the evaluative factor than their corresponding most objectionable positions (MO). The exact opposite of this ensued for the potency factor, with the most objectionable positions (MO) significantly higher than the own position of both issues.

The importance of Jones' (1967) findings for the present study is that both MA and MO positions are clearly distinguished, and that Osgoodian dimensions of meaning (Osgood, Suci & Tannenbaum, 1957) are clearly applicable to the Sherif-Hovland nine statement scale. This study of Jones' was the first study known to the present author to make the above distinction.

Attitude Change as a Function of Communication Construction

Since Jones (1967) found that the evaluative and potency dimensions of the Osgoodian scales have differential effects in subjects' judgments of MA and MO positions, the first part of the present section will focus on a summary of aspects of meaning as used by Osgood, et al. (1957). This will be followed by the design and results of Jones' (1968) work, on which the present study is based.

In their book, The Measurement of Meaning, Osgood et al. (1957) theorize that the meaning of any particular concept consists of many complex connotations or dimensions of meanings. They therefore employ the semantic differential as a technique to index the meaning of any given concept. Osgood, et al. say:

> We use the term 'concept' in a very general sense to refer to the 'stimulus' to which the subject's checking operation is a terminal response. What may function as a concept in this broad sense is practically infinite

. . . . (Osgood, et al., 1957, p. 77).

In developing the semantic differential, Osgood, et al. assumed that every concept could be located in an n-dimensional semantic space. To determine the meaning of any particular concept, they require the subjects to respond by rating the concept on a series of bipolar adjective scales. Their goal, in part, is to select an adequate number of these bipolar adjective scales and thus be able to map the dimensionality (meaning) of the concept for the subject or group of subjects.

In the numerous factor analytic studies described by the authors, various combinations of three major dimensions of meaning reappear again and again. For example, the evaluative dimension, based upon the subjects' rating of the concepts goodness or badness, has a consistently high factor loading. In addition to the adjective pair good-bad, kind-cruel, clean-dirty and true-false are other examples that frequently load highly on the evaluative factor.

The potency dimension also has a high factor loading. Osgood, et al. say that the potency factor is ". . . concerned with power and the things associated with it, size, weight, toughness, and the like" (Osgood, Suci & Tannenbaum, 1957, p. 73). Such scale pairs as strong-weak and heavy-light are typical of this dimension.

The third consistently appearing dimension is one called the activity dimension, which is concerned with quickness, excitement, warmth, and agitation. Some typical scales for this factor are active-passive, fast-slow, and relaxed-tense. According to Osgood, et al. (1957, p. 73) it is a common occurrence for the potency and

activity dimensions to fuse and thus form an alternative dynamism dimension of meaning.

Based on the above findings of Osgood, et al., and his own results in applying Osgoodian dimensions of meaning to the most acceptable and most objectionable positions of the Sherif-Hovland nine statement scale, Jones (1968) constructed two relatively "pure" communications, one evaluative, the other dynamic (a fusion of potency and activity dimensions), and pitched them both toward the pro end of the Sherif-Hovland nine statement scale. Jones (1968) says:

> The present study compares the differential effectiveness in changing attitudes of a communication representing the evaluative dimension with a communication representing the dynamism dimension. Both of these communications and a non-attitude-relevant control communication are [also] presented. . . . Inspection of these two communications reveals that the evaluative communication stresses essentially the desirability of change or of adherence to a given position. This communication states that the particular position has good or bad results and advocates change almost solely on a desirability of results criterion. In contrast, the communication representing the dynamism dimension stresses essentially the inevitability of a given result. This emphasizes the potency dimension in the form of the 'probability or possibility' of a particular position or factual outcome. Both the evaluative and the dynamism communications were intended to fall roughly at position B or C on the Sherif-Hovland nine statement scale for the issue employed. No more extreme statement was used because of fear that all change would be canceled by the resulting contrast effects . . . (Jones, 1968, p. 19).

Jones' procedure (1968) was to have subjects respond to a questionnaire containing a Sherif-Hovland nine statement attitude instrument for the issue of censorship of violence in movies, followed by a posttest identical to the pretest nine statement attitude instrument. The questionnaire also obtained information of the

subjects' academic classification and sex, their judgments of how favorable the communication was toward censorship of movies, how probable the communication stated censorship of movies was, and how pleased or irritated they were with the communication. They next indicated whether they felt the communication was biased or unbiased, and whether they felt it was propaganda or fact. They also circled the letter of the single statement on the Sherif-Hovland scale that they felt best represented the position of the article they had read. And finally, they provided information regarding knowledgeableness of the experiment and whether or not they suspected trickery by the experimenter.

The communications were constructed by the author (Jones, 1968) and made to appear as though they had been clipped from a recent newspaper issue and had subsequently been Xeroxed. The authorities (by-lines) were fictitious. The evaluative communication emphasized the desirability of the end results of censorship of violence in movies, and the dynamism communication emphasized the inevitability of censorship of violence in movies. Both articles were designed to fall at or around the second or third point of a nine point scale concerned with censorship of movies.

Analysis of the initial data by dependent t tests was formed for the five dependent measures (most acceptable position, MA, most objectionable position, MO, latitude of acceptance, LA, latitude of rejection, LR, and latitude of noncommitment, LN). The results revealed that the evaluative communication significantly changed all five measures on the Sherif-Hovland scale. The subjects

receiving the evaluative communication shifted their MA positions in the direction of the communication, increased their LA, shifted their MO position away from the communication, increased their LR and decreased their LN.

Subjects exposed to the dynamism article significantly changed their latitude assessments, but did not change MA or MO. Their LA and LR increased and their LN decreased. For the control condition, receiving the non-attitude relevant communication, subjects significantly increased the sizes of their latitudes of acceptance (LA), and decreased the sizes of their latitudes of noncommitment (LN). The MA and MO positions, and the latitude of rejection (LR) did not change.

Jones' (1968) next statistical tests employed are a more rigorous set of independent t tests to compare the experimental samples with each other and with the control sample. He reported no significant changes in any of the five measures (MA, MO, LA, LR, and LN) when the experimental samples were directly compared. The comparison between the evaluative and control communication showed that the evaluative article was more effective for four out of the five measures, with no differences in the two conditions for changes in the latitude of rejection. Also, the dynamism communication was more effective than the control condition in changing the LR (increase) and in decreasing the size of the LN. Jones (1968) therefore concluded that "the evaluative communication was generally quite effective as a method of attitude change, whereas the dynamism communication was considerably less effective" (Jones, 1968, p. 76).

Purpose of the Present Study

Based on the above analysis of the Sherifian approach to attitude and attitude change studies, and specifically on the findings of Jones (1968), the present writer felt that Jones' design should be elaborated to include two communications, one pro and the other anti, pitched toward opposite ends of the Sherif-Hovland nine statement scale. In addition, since Jones demonstrated that evaluative and dynamic dimensions of communication make a significant difference in how subjects perceive attitude change in response to communications, then it should also make a difference in how the Sherif-Hovland scale is constructed. For example, Jones did not attempt to construct "pure" evaluative and dynamic instruments, with the result that his nine-statement scales are mixed in terms of evaluative and dynamism dimensions of meaning. Based on his findings, it is possible that here too, the evaluative and dynamic dimensions of meaning will make a difference in how subjects are measured as perceiving attitude-relevant issues.

The purpose of the present study was, therefore, to construct a "pure" evaluative instrument, and a "pure" dynamic instrument, plus two "mixed" evaluative-dynamic communications, pitched toward the opposite ends of the nine statement scale. The general hypothesis for this study is, therefore, that the mixed communications should make a differential impact on how subjects perceive the communications, depending on whether the evaluative instrument or the dynamic instrument is given to the subjects. Any meaningful pattern of differences

between evaluative and dynamic measurements for the same mixed communication by the two instruments will be taken as supporting the general hypothesis. Also, based on the findings of Jones (1968), the following specific hypotheses are offered:

1. The evaluative instrument should measure more effectively the changes toward the communications for most acceptable position and away from the communications for most objectionable position than should the dynamic instrument.

2. Although there is no basis in Jones (1968) for predicting differential effectiveness of measurement of changes in latitudes, it is to be expected that either the dynamic or evaluative instrument will prove more effective in measuring any changes in latitudes resulting from a mixed communication.

CHAPTER II

METHOD

Subjects

The subjects for the first pre-test were 18 volunteer residents of Norman, Oklahoma, who were members of the Emergency Committee for Gun Control, 14 volunteers who were members of the National Rifle Association, also Norman residents, and 41 volunteers from a lower division psychology class at the University of Oklahoma; a total of 73 subjects. The subjects' responses were used to evaluate the test instrument.

The subjects for the second pre-test were 31 University of Oklahoma students picked at random from the Student Union cafeteria and asked to volunteer for a graduate research project.

The experimental subject sample consisted initially of 223 Oklahoma City University students attending the second six weeks summer session. All of the subjects responded to the questionnaire during regular class time. Only the returned questionnaires of respondents who completed both the pretest and posttest measures in the manner prescribed by the written directions were considered in the data analysis of the following chapter. Out of the original 223 subjects, 213 met these criteria and were retained for the final

analysis of the data.

The experimental subjects were randomly assigned to the four experimental and two control conditions, resulting in the following subject-breakdown: for the four experimental conditions, 38, 34, 36, and 36 subjects were used; for the two control conditions, 34 and 35 subjects were used, respectively. The design employed is described in detail in the procedure section of this present chapter.

The experimentation was carried out over a period of one week, using classes in Psychology, English, Political Science, History and Mathematics in order to get as broad a range of college student subjects as possible. Class sizes varied between four and thirty subjects per class. Of the 213 experimental subjects, there were 118 males and 95 females. Twenty-one were freshmen, 57 were sophomores, 38 were juniors, 51 were seniors, 28 were unclassified, and 18 were "other."

Instrumentation

The response measures used in this study were a modification of the Sherif-Hovland nine statement instruments constructed for the issue of gun control legislation. Based on the findings of Jones (1968) that the evaluative and dynamic communications are differentially effective methods of obtaining attitude chage, an instrument was constructed for each dimension, in a symmetrical fashion. Specifically, the statements for the evaluative dimension read as follows: Gun control legislation is absolutely desirable for the welfare of the nation and its people. With the exception of the middle state-

ment, the other statements of the nine statement instrument substituted for the fifth and sixth words extremely desirable, probably desirable, somewhat desirable, somewhat undesirable, probably undesirable, extremely undesirable and absolutely undesirable (see Appendix A). For the dynamic instrument, the word "necessary" (unnecessary) was substituted throughout the nine statement instrument for the word "desirable." In using the words desirable (undesirable) and necessary (unnecessary), it was intended (following Osgood, et al., 1957, and Jones, 1968) that desirable best expressed the evaluative dimension in terms of desirability, and that necessary best expressed the inevitability of the dynamism dimension of meaning.

The instrument containing the word "necessary" will be referred to as the "dynamic" instrument, and the instrument containing the word "desirable" will be referred to as the "evaluative" instrument.

Pre-Test 1

In order to test the feasibility of the altered nine statement instruments in both dimensions prior to use with the experimental subjects, it was necessary to find two groups of subjects whose stands on the issue of gun control legislation were at opposing ends of the continuum (nine-statement scale). The pro gun control legislation group was selected from volunteers who were members of the Emergency Committee for Gun Control (sometimes called the John Glenn Committee). The anti gun control legislation group was selected from volunteers who were members of the National Rifle Association. An unselected

group of subjects were volunteers from a lower division psychology class.

The purpose of the pre-test of the instrument was to determine whether or not the instrument would adequately represent both pro and anti ends of the continuum, and therefore serve as reliable reference-scale end points for both groups. The expectations for the instrument pre-test were that the Emergency Committee for Gun Control (pro subjects) would place their most acceptable positions (own positions) toward the pro end (i.e., A or 1) of the nine-point scales (the absolutely-desirable/necessary end of the scales). By the same reasoning, it was expected that the National Rifle Association subjects (anti subjects) would place their most acceptable positions (own positions) toward the anti end of the nine-point scale (the absolutely-undesirable/unnecessary end of the scale or toward I or 9). It was further expected that the baseline group of lower division psychology students would be representative of pro, anti, and middle-of-the-road positions, and should therefore approach in mean own position the mid-point, or fifth position of the nine-point scale. It was further expected that subjects in the pro gun control legislation group would place their most objectionable position toward the anti end of the scale and that the anti gun control legislation group would place their most objectionable positions toward the pro end of the scale. No specific predictions were made about the subjects' latitudes of acceptance, rejection and non-commitment.

The results of the instrument pre-test confirmed the hypotheses for both most acceptable and most objectionable positions

for the pro and anti groups. For the pro group (n = 18), on most acceptable position, the mean was 1.9, and for the most objectionable position, the mean was 8.3. For the anti group (n = 14), on most acceptable position, the mean was 7.9, and for most objectionable position, the mean was 2.0. For the baseline group of lower division psychology students (n = 41), on most acceptable position, the mean was 4.3, and for most objectionable position, the mean was 5.7. For instrument pre-test purposes, the responses of the pro, anti, and unselected groups were deemed sufficiently close to the expected values to warrant using the two instruments in the experimental design. Due to the size of the instrument pre-test groups, those subjects receiving the "necessary" or dynamic form of the instrument, and those subjects receiving the "desirable" or evaluative form of the instrument, were combined.

The cover sheet of the instrument pre-test presented the questionnaire as part of a graduate research project, assured the subjects that it was not a test but rather an attempt to see how people feel about an issue, and guaranteed the subjects' anonymity. In addition, subjects were asked to check whether they were freshmen, sophomores, juniors, seniors, unclassified, or "other." They were also asked to check either male or female. All subjects of the instrument pre-test groups were instructed to follow the instructions for each page of the four-page questionnaire exactly, and not to turn back and forth through the questionnaire. Since the instrument pre-test is identical to that used in the experimental design, further amplification will be made in the procedure section of this chapter.

Communication

It may be recalled from the previous chapter that Jones (1968) designed two communications, one to express the evaluative dimension of meaning, the other to express the dynamic dimension of meaning (following Osgood, et al., 1957). Both communications were pitched at the same end of the nine-point scale. In the present study, however, it was decided to have two mixed dynamic-evaluative communications. One mixed dynamic-evaluative communication was designed to fall at the second point of the nine-point instrument (pro end of the scale). The other mixed, dynamic-evaluative communication was designed to fall at the eighth point of the nine-point scale (anti end of the scale).

Each mixed dynamic-evaluative communication was constructed in the following manner. Analyses were made by the present author of the language used in the literature and discussions of both the pro gun control legislation and anti gun control legislation groups (Emergency Committee for Gun Control and National Rifle Association, respectively). Further, special attention was given to the words and phrases used by Osgood, et al., (1957) as descriptive of the dynamic and evaluative dimensions of meaning. Also, the words and phrases used by Jones (1968) were examined for both dimensions of meaning. The present mixed dynamic-evaluative communications at either end of the scale were thus constructed on the basis of these analyses. In addition to the pro and anti communications, a control communication on an irrelevant topic was constructed. For the actual communications, see Appendix B. The experimental communications used in the present

study focused on the specific issues of gun control legislation, whereas the communications constructed by Jones (1968), appropriately for his study, focused on the authority of the pseudo-writer of the communications. Like Jones (1968), however, the present author also gave a by-line to a fictitious author. (For further discussion, see section on procedure in this chapter).

Pre-Test 2

The second pre-test was conducted to determine whether or not the pro gun control and anti gun control communications would be viewed by subjects as falling near the second and eighth positions on the nine-point instrument, respectively. Since it was the end of the summer session at Oklahoma University, no class subjects were available for testing. Volunteers were therefore picked from the Student Union cafeteria and asked if they would participate in a graduate research project, in a quiet corner of the cafeteria. Thirty-one subjects were thus obtained and asked simply to read and judge where on (a single page of) the nine-point scale they thought the communication (they received) was pitched. For this pre-test, only the pro and anti communications were judged, as the author assumed that the control communication was irrelevant. Each of the 31 subjects was handed a communication from a random assortment of pro and anti communications, the order of which was unknown to the author, and asked to check his judgment on the nine-point scale. As in the first pre-test, each subject was guaranteed anonymity and data were collected on his academic classification and sex.

The results of the second pre-test showed that those subjects receiving the pro communications (dynamic-evaluative instruments) judged the communications they received to be pitched at a mean of 1.93 (n = 15). Those subjects receiving the anti communications (dynamic-evaluative instruments) judged the communications they received were placed at a mean of 7.88 (n = 16). These results were deemed sufficiently close to the respective criteria of 2.0 and 8.0 to warrant use in the experimental design of these communications.

Both pre-tests were mimeographed on separate sheets of white paper and stapled together to form the questionnaire. Pre-test 1 consisted of a page of instructions, followed by four "task" pages. Pre-test 2 consisted of a single page from the questionnaire representing one of the two forms of the modified nine-point scales.

Experimental Presentation

Following the initial instructions and obtaining of the demographic data mentioned above in the section entitled Pre-Test 1, the modified four-page Sherif-Hovland instrument was presented to all of the subjects (Cf. pp. 34-36). After preliminary attitude assessment (pretest) was a page of instructions to the subjects stating that they would find on the following page a copy of a recent article published in the Chicago Tribune, Thursday, August 1, 1968. The subjects were requested to read the communication (pro, anti, or control, depending on the experimental condition into which they were randomly assigned), and then again to respond to the same (modified) Sherif-Hovland four-page instrument. All of the communications were

constructed by the experimenter and planted in the newspaper in such a way as to misrepresent their source. All of the authorities cited in each of the articles were fictitious.

Regarding the administration of the modified nine-statement scale displayed in Appendix A, the issue to which the subjects responded was displayed in the form of the usual nine statements on one page and was repeated three more times for a total of four consecutive pages of the same statements (posttest). Appropriate instructions to the subject were given at the top of each of the four pages. On the first page the subjects were required to indicate their most acceptable (own) position, and on the following page, they marked any other positions regarded as also acceptable to them. Next, the subjects marked their most objectionable position, and on the final page, designated any other positions which they found objectionable. In this regard, the pretest and posttest were identical.

The total questionnaire consisted of 16 pages. After the modified Sherif-Hovland pretest-communication-posttest, the subjects were required to rate the articles they read by indicating on two unmarked three-inch lines the positions which they felt best represented the position of the article. One of the lines was bounded on the left by the words "very unfavorable toward gun control legislation," and on the right by the words "very favorable toward gun control legislation." The other line was bounded by the words "very improbable gun control legislation will occur" on the left hand, and by the words "very probable gun control legislation will occur" on the right.

On the next pages the subjects were asked to rate the commu-

nications presented as to how pleasing the communication was to them personally, how biased or unbiased the article was, and whether the arguments presented were propaganda or fact. All of these ratings were on descriptively labeled five-point scales with neutral points. Further, the subjects were requested to circle the letter in front of the single one of the nine statements which they felt best represented the views expressed in the article they had read. Finally, the subjects were asked two questions intended to yield information on the demand characteristics of the experimental situation (Orne, 1962). The first question required the subjects to indicate what they felt the purpose of the experiment was, and the second question inquired if they suspected deception.

As already indicated, the two experimental and one control communications are all presented as Appendix B and the modified Sherif-Hovland instrument is presented as Appendix A. The various directions to the subjects, and the other questions mentioned in the preceding paragraph are all included in Chapter 2 of this dissertation.

Procedure

The data were obtained from the experimental subjects during the fourth week of the second summer semester of 1968 while gun control legislation was still pending House of Representatives ratification. Class scheduling of subjects was confirmed by the secretary of the Oklahoma City University Psychology Department prior to the experimenter's testing of the subjects. The author was introduced to the

classroom instructors and to the respective students as a graduate student in the Oklahoma University Department of Psychology who was involved in an individual research project as a part of the requirements for the Ph.D. Voluntary participation in the study was stressed to all classes, and all members, without exception, chose to take part in the study.

The administration of the questionnaire required approximately 30 to 35 minutes, but because of the deception involved in the study, it was necessary to use an extra 10 minutes of the class hour to inform the subjects of the exact nature and extent of the deception employed (see Jones, 1968, p. 35). Following the debriefing procedure, the subjects were asked not to discuss the study for at least 10 days. This procedure was followed in order to minimize transmission of information throughout the remainder of the testing week. The questionnaires were presented to the subjects in a pre-determined random order.

Table 1 shows the research design employed in the present study. This design is a variation of the pretest-posttest control group design illustrated by Campbell and Stanley (1963) as design four. The present design varies from design four in that four experimental groups, rather than the single group normally used, were employed. Further, it was assumed that the non-attitude-relevant communication was approximately equivalent to a nontreated control group (a frequent assumption noted by Campbell and Stanley).

Departure from the usual practice of coding the questionnaires was eliminated, due to the fact that each questionnaire fell

TABLE 1

Experimental Design Instrument

Communication	Dynamic	Evaluative
Pro	Pretest-Posttest	Pretest-Posttest
Anti	Pretest-Posttest	Pretest-Posttest
Control	Pretest-Posttest	Pretest-Posttest

into one of the four experimental or two control conditions and was easily accessible to inspection. For example, if the pretest used the word "desirable" in the sentence, "Gun control legislation is absolutely desirable for the welfare of the nation and its people," the instrument would be labeled "evaluative." Continuing with the same example, if the pro communication followed the pretest instrument, the questionnaire would then have the double label "pro evaluative" and would be placed in the pro evaluative experimental condition. Following this example, the remaining five conditions of the experimental design would be labeled: pro dynamic, anti evaluative, anti dynamic, control dynamic and control evaluative. For summary purposes, these labels for the four experimental conditions and the two control conditions will be retained throughout the remainder of this report.

After all the questionnaires had been passed out to the particular class, the following instructions were read to the subjects:

> (a) The present study is part of a graduate research project. This is <u>not</u> a test and there are no right and wrong answers. We are only interested in seeing how many different people feel about a particular issue. Do <u>not</u> sign your name to this questionnaire.

Your cooperation in this study is purely voluntary and you may quit at any time during the study. However, it will be appreciated if you will finish the questionnaire because an incomplete one will be of no value in the study.

Classification: Circle the correct one.

Fr. Soph. Jr. Sr. Unclassified Other

Sex: Circle the correct one.

Male Female

In this study several different tasks will be required of you. At each point, appropriate instructions are included and you are asked to follow them exactly. Please do not turn back and forth through the questionnaire. Work straight through following instructions until you read instructions telling you to stop.

(Turn page and begin.)

(b) Then; the instructions for the questionnaire were placed at the top of each page, and are as follows:

Below are some statements expressing various positions on the issue of gun control legislation.

1. Please read all the statements carefully first before making any marks on this page.
2. Now that you have carefully read all the statements, underline that one statement that comes closest to your stand on this matter.

The statements below are the same as the ones on the preceding page. Please go through the statements and circle the letter in front of any others that you also find acceptable or not objectionable.

The statements below are the same as those on the preceding pages.

1. Please read all the statements again before making any marks on this page.
2. Now that you have read the statements again, cross out that one statement which is most objectionable from your point of view.

Now go through these statements and mark an X through the letter in front of any other statements that you find objectionable.

On the following page is a copy of a newspaper clip-

ping from the Chicago Tribune of August 1, 1968. Please read the article and then continue on through the questionnaire.

Remember,

1. Read the article on the following page carefully.
2. Then turn the page and follow the directions given at each point in the remainder of the questionnaire.
3. Do not turn back and forth through the form, but work straight through until you encounter directions telling you to stop.

Below are some questions about the article you read and a list of possible answers under each question. Please give your opinion on each question by checking the one answer that comes closest to your own idea.

Below are the statements regarding gun control legislation to which you have already responded. Think about the article you read and circle the letter in front of the single statement that best represents the views expressed in the article.

We are interested in knowing what you believed to be the purpose of this experiment. What do you think the experimenter was interested in? Please write your answer in the box below.

Did you suspect any trickery; in other words did you at any point think the experimenter was trying to deceive you in any way? If so, describe. If not, just put "no."

This concludes the questionnaire. Your cooperation in this study is sincerely appreciated.

Thank you.

Upon completion of the study, the subjects were asked to place their questionnaires face down and either sit quietly or study until all the forms had been completed. At the end of 30 to 35 minutes all forms were collected. The subjects were then debriefed and requested not to discuss the nature of the study with anyone.

CHAPTER III

RESULTS

The initial step in the data analysis was to tabulate the data numerically onto sheets of lined paper from which Appendix C was constructed. The following data were coded for each subject and identified by an assigned subject number: pretest and posttest measures on most acceptable position, most objectionable position, size of latitude of acceptance, size of latitude of rejection, and size of latitude of noncommitment. Data were also coded indicating college classification, sex, how favorable or unfavorable the subjects felt the articles were toward gun control legislation, their feelings regarding how probable or improbable the article stated gun control legislation was, how pleased or irritated they were with the communication, how biased or unbiased they felt their article was, and whether the subjects felt the articles were propaganda or fact. In addition, the coded data provided a rating of the communication by circling the letter of the most appropriate position on the nine-statement scale, and they also stated what they felt the purpose of the experiment was and answered a question regarding any possible deceit by the experimenter.

Position of Communication

The first analysis of the data was performed to determine where on the nine point scale the subjects judged the pro gun control legislation communication and the anti gun control legislation communication to be pitched. It will be recalled from the previous chapter, that the second pre-test subjects judged the pro communication to be pitched at a mean of 1.93 (n = 15) while the anti communication was judged to be pitched at a mean of 7.88 (n = 16), thus indicating that these pre-test subjects judged the communications to be placed toward opposite ends of the nine point modified Sherif-Hovland instruments. For the analysis of the experimental data, it was decided to use medians as the best measure of central tendency, due to the marked skewness of experimental subject samples' data toward both pro and anti ends of the nine point instruments. It will be recalled from the previous chapter that "pro dynamic" and "anti evaluative," for example, refer to the pro communication, dynamic instrument (using the word "necessary" in the instrument), and the anti communication, evaluative instrument (using the word "desirable" in the nine-point instrument) respectively. Thus, in the pro dynamic experimental condition, only the first five points of the nine-point scale were made use of by subjects in placing their judgments. By the same token, in the anti dynamic experimental condition, the curve was markedly skewed with most of the subjects' judgments falling toward the ninth point of the nine-point scale. Table 2 shows the medians for the four experimental and two control groups. The original data may be found in column 15

TABLE 2

Median Position of Pro, Anti and Control Communications
On Nine-Point Dynamic and Evaluative Scales

	Dynamic	Evaluative
Pro	1.55	1.61
Anti	8.65	8.33
Control	4.82	4.83

of Appendix C. It can be noted that the pro communications were judged to be pitched toward the pro end of the nine-point instrument, but not at the extreme end of that scale. Similarly, the anti communications were judged to be pitched toward the anti end of the scale, but not at the extreme end of the nine-point instrument, thus supporting the experimenter's expectations.

A further measure of the subjects' judgments as to position of the communications was with respect to how favorable or unfavorable the communications were judged to be toward gun control legislation (Cf. Appendix C, Column 10). The rating scale for this measure consisted of an unmarked three inch line descriptively labeled at each end "very unfavorable toward gun control legislation" on the left and "very favorable toward gun control legislation" on the right. The subjects' responses were scored to the nearest 16th of an inch with a response of zero 16ths indicating the most unfavorable rating possible and a response of 48/16 indicating the most favorable response possible. Although the responses were measured to the nearest 16th of an inch, the data was tabulated in inches. This technique is adapted from that employed in the 1956 and 1960 election studies reported by Sherif,

Sherif, and Nebergall (1965) and by Jones (1968). These data are reported in Table 3.

TABLE 3

Mean Position of Communications in Inches of Unfavorable-Favorable and Improbable-Probable Rating Scales

	Pro		Anti		Control	
	Favorable	Probable	Favorable	Probable	Favorable	Probable
Dynamic	2.47	1.93	0.62	1.61	1.28	1.26
Evaluative	2.71	1.95	0.69	1.48	1.53	1.45

Inspection of the data presented in Table 3 lends further support to the expectations of the experimenter. For purposes of clarity, however, it should be noted that a check mark by the subject on the far left of the unfavorable-favorable line is at the zero inch mark, corresponding to one on the nine point instrument. The 1 1/2 inch mark, therefore, represents the fifth position on the nine point scale, and a three inch mark, at the far right of the unfavorable-favorable line, corresponds with the nine on the nine point instrument.

The purpose of the unfavorable-favorable line was to provide a rough measure of the evaluative instrument, in terms of the communication. In like manner, the improbable-probable line was placed in the questionnaire as a rough measure of the dynamic instruments' effectiveness. The same measuring procedure was followed as that immediately above. Table 3 shows the relationship between the unfavorable-favorable and improbable-probable rating scales. It may be noted that for the improbable-probable line, the subjects' judg-

ments were not placed as far towards either the pro end or the anti end of the line as were the judgments for the unfavorable-favorable line. It may be further noted, however, that the evaluative and dynamic dimensions were showing approximately the same placements on the three inch lines, indicating that they were in substantial agreement as to position of the communication. These results will be discussed in the following chapter.

Within Group Comparisons of Pretest and Posttest

The next statistical analysis of the data resulted in a series of 30 t tests for dependent measures (Cf. Walker & Lev, 1953, p. 153). These tests employed pretest to posttest change scores for each individual subject and they were done for all five of the possible dependent measures of the modified Sherif-Hovland instrument (most acceptable position, most objectionable position, latitudes of acceptance, rejection and noncommitment). All of these tests were performed separately for each experimental and each control sample, and are described below in detail.

The analysis of all 30 of the t tests in this section were performed in the same manner. Specifically, the procedure was to take an individual subject's posttest score on one of the dependent measures and subtract his pretest score on the same measure. In this manner, five plus or minus t values were obtained for each of the four experimental and two control conditions. For example, if a subject receiving a pro communication changed his pretest-posttest score on most acceptable (MA) position in a plus direction, the plus would

indicate he moved his position away from the pro communication, i.e., toward the ninth position, or anti end of the nine point instrument. By the same token, if an individual subject received an anti communication and changed his pretest-posttest score on the MA position in a plus direction, he would be changing his stand toward an anti communication (position nine, on the nine point instrument).

As can be seen by the above examples, for the pro condition, a plus would indicate movement away from the communication, but in the anti condition, a plus would indicate movement toward the communication. In order to avoid confusion to the reader by having a plus stand for "away" in one condition and "toward" in another condition, it was decided, for the sake of clarity, to have plus always mean movement toward the communication and minus always mean movement away from the communication. This procedure will be followed throughout the remainder of this study. By the same token, for the latitudes of acceptance, rejection and noncommitment, a plus will refer to an increase in the size of the latitude from pretest to posttest, and a minus will refer to a decrease in the size of the latitude from pretest to posttest. Also, for the most objectionable position (MO) a plus refers to movement toward the communication and a minus refers to movement away from the communication.

The results for the 30 t tests for dependent measures for pro-evaluative, pro-dynamic, anti-dynamic, anti-evaluative, control-dynamic and control-evaluative communication-instruments are presented in Table 4. This table presents for all four experimental and both control conditions, the five dependent measures, the number in each

TABLE 4

Mean Pretest-Posttest Change Scores for Experimental and Control Conditions with Dependent t Tests of Differences

Condition	Measures	N	Mean Diff.	Std. Error of Mean Diff.	t	p
Pro Dynamic	MA	38	+0.55	0.24	+2.32	.025 - .01
	MO	38	-0.97	0.41	-2.38	.025 - .01
	LA	38	0.00	0.00	0.00	>.50
	LR	38	-0.32	0.22	-1.42	.20 - .10
	LN	38	+0.29	0.46	+0.62	>.50
Pro Evaluative	MA	34	+0.50	0.22	+2.23	.025 - .01
	MO	34	-0.50	0.34	-1.47	.10 - .05
	LA	34	-0.41	0.18	-2.29	.05 - .02
	LR	34	-0.38	0.22	-2.12	.05 - .02
	LN	34	+0.98	0.22	+4.34	<.001
Anti Dynamic	MA	36	+0.39	0.18	+2.18	.025 - .01
	MO	36	-0.92	0.39	-2.37	.025 - .01
	LA	36	+0.44	0.19	-2.35	.05 - .02
	LR	36	+0.19	0.22	+0.86	.40 - .20
	LN	36	-0.58	0.32	-1.82	.10 - .05
Anti Evaluative	MA	36	+0.33	0.19	+1.78	.05 - .025
	MO	36	-0.69	0.44	-1.57	.10 - .05
	LA	36	+0.03	0.11	-0.25	>.50
	LR	36	+0.11	0.18	-0.63	>.50
	LN	36	-0.08	0.21	-0.40	>.50
Control Dynamic	MA	34	-0.03	0.08	-0.00	>.50
	MO	34	-0.03	0.40	+0.07	>.50
	LA	34	+0.44	0.25	-1.74	.10 - .05
	LR	34	+0.15	0.13	-1.10	.40 - .20
	LN	34	-0.09	0.33	-0.26	>.50
Control Evaluative	MA	35	-0.06	0.07	-0.01	>.50
	MO	35	+0.31	0.36	-0.87	.40 - .20
	LA	35	+0.60	0.28	-2.15	.05 - .02
	LR	35	+0.06	0.13	-0.44	>.50
	LN	35	-0.54	0.19	-2.84	.01 - .001

condition, the mean difference scores between pretest and posttest, the standard error of the mean, the value of the resulting t and an indication of which t's are statistically significant and at what level. Position (MA and MO) tests for the four experimental conditions are one tailed, because it was predicted that these scores would move toward the communication, or away from the communication; i.e., MA should move toward the communication and MO should move away from the communication. Latitudes of acceptance (LA), rejection (LR) and noncommitment (LN) are all two tailed since neither increase nor decrease was predicted. For the two control groups, all tests were also two tailed. It should also be noted that for the two control groups, a plus value of MA or MO indicates movement from pretest to posttest, i.e., toward the anti end of the nine point scale (ninth point), and a minus value indicates pretest-posttest movement toward the pro end (first point) of the nine point instrument. This is because no assumptions were made about the irrelevant communication; i.e., the control-communication was assumed by the experimenter to be irrelevant to the issue of gun control legislation.

The following results of the dependent t tests should be viewed in a guarded manner until the independent t tests between groups reveal which of the dependent t's are supported by the more rigorous tests. As can be seen in Table 4, the hypotheses were confirmed in the pro dynamic experimental condition for both most acceptable position (MA) and most objectionable position (MO); i.e., as predicted, MA moved toward the pro gun control legislation communication from pretest to posttest, and MO moved away from the pro gun

control legislation communication (t = +2.32, p, .025-.01, and t= -2.38, p, .025-.01). For this experimental condition, there were no significant increases or decreases between pretest and posttest for the latitude measures (latitudes of acceptance, rejection and non-commitment).

For the pro evaluative experimental condition, there was a significant pretest-posttest movement toward the pro communication for MA (t = +2.23, p = .025-.01). For MO however, no significance was found at the .05 level of confidence, although a trend was observed (t = -1.47, p =.10-.05) away from the communication. Significant decreases were found for the latitudes of acceptance (LA, t = -2.29, p = .05-.02) and rejection (LR, t = -2.12, p = .05-.02). For the latitude of noncommitment (LN), a marked increase in the size of the latitude was observed (t = +4.34, p = <.001).

In the anti dynamic experimental condition, there was a significant pretest-posttest movement toward the anti communication for most acceptable position (MA, t = +2.18, p = .025-.01), and for the most objectionable position (MO), there was a significant shift away from the communication, as predicted (t = -2.37, p = .025-.01). Also, for the anti dynamic experimental condition, a significant decrease was found between pretest and posttest for the latitude of acceptance (LA, t = -2.35, p = .05-.02). No significant increase or decrease was observed for the latitude of rejection (LR), but a trend toward increase between pretest and posttest was found for the latitude of noncommitment (LN, t = -1.82, p = .10-.05).

For the anti evaluative experimental condition, a significant

pretest-posttest change toward the anti gun control legislation communication was found for the MA ($t = +1.78$, $p = .05-.025$), but for MO, like in the pro evaluative experimental condition, only a trend away from the anti communication was observed ($t = -1.57$, $p = .10-.05$). No significant increases or decreases were found for any of the latitude measures (LA, LR or LN) in the anti dynamic experimental condition.

For the control communication, dynamic condition, no significant changes between pretest and posttest were found for the most acceptable and most objectionable positions, as predicted. A trend decrease was observed, however, for the latitude of acceptance (LA, $t = -1.74$, $p = .10-.05$). No significant changes between pretest and posttest were found for the latitudes of rejection and noncommitment (LR and LN).

For the control-dynamic condition, no significant changes between pretest and posttest were found for either MA or MO, as predicted. However, for the latitude of acceptance (LA), a significant decrease in the size of the latitude was noted ($t = -2.15$, $p = .05-.02$). No significant change was noted for latitude of rejection (LR), but a marked increase in size of latitude was noted for the latitude of noncommitment (LN, $t = +2.84$, $P = .01-.001$).

These results will be further discussed in the next chapter. The next section of this chapter, however, will present a series of statistical comparisons between the four experimental and two control conditions with regard to the five measures (MA, MO, LA, LR, and LN). These tests are a series of 45 t tests between independent samples

or basically between noncorrelated data (Cf. Walker & Lev, 1953, p. 156 and 157).

Between Group Comparisons of Pretest and Posttest

Forty-five independent t tests were performed in order to compare the differential effectiveness of the four experimental and two control treatments for all five of the measures in the modified Sherif-Hovland instrument. The dependent measures on which all six of the treatment samples were compared were the mean differences between the posttest and pretest scores on the different measures for the respective samples. This resulted in the comparison of mean difference scores for each of the treatments. Before concluding whether or not a particular t was significant, however, it was necessary to know if the variances of the difference scores in any two samples being tested differed significantly from one another on that particular measure. Such knowledge is necessary because the appropriate estimates of experimental error differ, depending on whether or not there is homogeneity of variance in the two samples. In order to test for this possibility, the F max test was employed; i.e., the larger variance was divided by the smaller variance for the various samples for any given measure, resulting in a two-tailed F ratio which revealed whether the variances differed significantly at the .02 level (Cf. Walker and Lev, 1953, p. 186). The resulting F ratios for the 45 independent t tests of this study were all non-significant.

Table 5 reports for each of the five position and latitude measures (MA, MO, LA, LR and LN), what comparisons (independent t

TABLE 5

Mean Differences Between Paired Experimental and Control Conditions, Communications Tested by Independent t Tests

	Mean Differences	t	p
MA			
PD - CD	.524	2.42	.01 - .005
AD - CD	.418	1.90	.05 - .025
PD - AD	,164	.55	> .50
PE - CE	.443	1.77	.05 - .025
AE - CE	.490	1.96	.05 - .025
PE - AE	.167	.57	> .50
MO			
PD - CD	1.003	1.75	.05 - .025
AD - CD	.888	1.93	.05 - .025
PD - AD	.057	.10	> .50
PE - CE	.186	.37	> .50
AE - CE	1.008	1.77	.05 - .025
PE - AE	.194	.35	> .50
LA			
PD - CD	.441	1.52	.20 - .10
AD - CD	.003	.00	> .50
PD - AD	.444	1.49	.20 - .10
PE - CE	.188	.57	> .50
AE - CE	.572	1.88	.10 - .05
PE - AE	.384	1.78	.10 - .05
LR			
PD - CD	.436	1.12	.40 - .10
AD - CD	.047	.18	> .50
PD - AD	.122	.04	> .50
PE - CE	.325	1.28	.40 - .20
AE - CE	.054	.25	> .50
PE - AE	.271	.96	.40 - .20
LN			
PD - CD	.201	.40	> .50
AD - CD	.495	1.07	.40 - .20
PD - AD	.201	.71	.50 - .40
PE - CE	-.433	1.46	.20 - .10
AE - CE	.460	1.63	.20 - .10
PE - AE	-.893	-2.92	.01 - .001

tests) were made, the mean differences, the value of the resulting t and an indication of which t's were statistically significant, and the probability level associated with each t value. Table 5 shows the comparisons between the pro and anti communications. For these tests, all experimental vs. control comparisons employed one-tailed tests, df = 60. Comparisons between the PD vs. AD and PE vs. AE in the pro, anti and control groups indicate whether the magnitude of change is in the predicted direction (for example, pro vs. anti) are significantly different--not whether algebraic differences between mean change scores are significant; these are two-tailed tests. All latitude tests, however, are two-tailed, df = 60. Table 6 shows the comparisons between the dynamic and evaluative instruments for all five measures (MA, MO, LA, LR and LN). For these comparisons, since the direction of prediction is the same for each tests, only the magnitude of the difference is tested. Therefore, all tests are two-tailed. For both Tables 5 and 6, the following abbreviations are used: Pro-Dynamic (PD), indicating the pro communication and the dynamic instrument, and in like manner, Pro-Evaluative (PE), Anti-Dynamic (AD), Anti-Evaluative (AE), Control-Dynamic (CD) and Control-Evaluative (CE).

Referring to Table 5, for most acceptable position (MA), it can be seen that the pro-dynamic and anti-dynamic conditions were significantly different from the control group, CD. Specifically, PD vs. CD resulted in a t of 2.42, with p = .01-.05; AD vs. CD resulted in a t of 1.90, p = .05-.025. Also, the pro-evaluative and anti-evaluative conditions were significantly different from the

TABLE 6

Mean Differences Between Paired Experimental and Control Conditions, Instruments Tested by Independent t Tests

	Mean Differences	t	p
MA			
PD - PE	.053	.175	> .50
AD - AE	.056	.018	> .50
CD - CE	.028	.267	> .50
MO			
PD - PE	.474	.089	> .50
AD - AE	.223	.380	> .50
CD - CE	.343	.635	> .50
LA			
PD - PE	.412	1.724	.10 - .05
AD - AE	.416	1.857	.10 - .05
CD - CE	.159	0.422	> .50
LR			
PD - PE	.066	0.254	> .50
AD - AE	.083	0.290	> .50
CD - CE	.090	0.481	> .50
LN			
PD - PE	.687	1.924	.10 - .05
AD - AE	.500	1.305	.20 - .10
CD - CE	.455	1.185	.40 - .20

control group CE ($t = 1.77$, $p = .05$-$.025$, and $t = 1.96$, $p = .05$-$.025$, respectively).

When the pro-dynamic and pro-evaluative groups were compared with the control-dynamic and control-evaluative groups, however, no significant differences were found (PD vs. AD, $t = .55$, $p = >.50$, and PE vs. AE, $t = .57$, $p = >.50$),

For the most objectionable position (MO), the pro-dynamic and anti-dynamic conditions both differed significantly from the control-dynamic group. Specifically, PD vs. CD resulted in a t of 1.75, $p = .05 - .025$ and AD vs. CD resulted in a t of 1.93, with a p of $.05 - .025$. For the evaluative instrument, only the anti-evaluative vs. the control-evaluative condition showed a significant difference AE vs. CE, $t = 1.77$, $p = .05 - .025$). The pro-evaluative (PE) vs. control evaluative (CE) was not significant ($t = .37$, $p > .50$). As with MA above, the comparisons between pro-dynamic vs. anti-dynamic and pro-evaluative vs. anti-evaluative were not significant ($t - .10$, $p = >.50$, and $t = .35$, $p = >.50$).

Referring again to Table 5, it is apparent that none of the comparisons was significant for the latitude of acceptance (LA). Whereas in the MA position, both pro and anti dynamic conditions were different from the control groups, those for LA were not significant. The same is also true for the pro and anti evaluative conditions, although in the latter (AE vs. CE) there is a movement toward significance in this comparison, again like MA. Similarly, there is a trend toward difference between the pro-evaluative (PE) vs. anti-evaluative (AE) conditions. For both, the probability is $.10 - .05$.

For the latitude of rejection (LR) no significant differences resulted between the pro and anti communications, for either the dynamic or evaluative instruments.

For the latitude of noncommitment (LN) only one significant difference was found between the six comparisons made, relevant to this study. That was the comparison between the pro-evaluative (PE) and the anti-evaluative conditions ($t = -2.92$, $p = .01 - .001$). This result indicates that, for the evaluative dimension, for both latitude of acceptance (LA) and latitude of noncommitment (LN), the pro and anti communications are having a differential effect on the evaluative instrument, although this is only a trend for the latitude of acceptance (LA). This relationship will be further elaborated below (pp. 54, 55) and in the next chapter.

First, however, Table 6 will be analyzed in terms of the comparisons made between the dynamic and evaluative instruments. For the most acceptable position (MA) no significant differences were found between the measuremental effectiveness of the dynamic as opposed to the evaluative instruments. Nor were any significant differences found between the two instruments for the most objectionable position (MO).

For the latitude of acceptance (LA), there was a trend suggesting that the evaluative instrument was operating somewhat differently than the dynamic instrument, but not at the .05 level of confidence (PD vs. PE, $t = 1.724$, $p = .10 - .05$). There was also a trend for the anti-dynamic instrument to operate somewhat differently from the anti-evaluative instrument (AD vs. AE, $t = 1.857$, $p = .10-.50$),

though again, not at the desired level of confidence.

For the latitude of rejection (LR) no significant differences were found between the effectiveness of the dynamic and evaluative instruments. For the latitude of noncommitment (LN) no significant differences between the two instruments were found either, although there was a trend approaching significance between the pro-dynamic and pro-evaluative instruments (PD vs. PE, $t = 1.924$, $p = .10 - .05$). This would seem to indicate that there may be some difference in the effectiveness of the two instruments, but not enough to meet the confidence limits required by the experimenter.

Summary of Within Groups and Between Groups Results

With the above analyses of the results of the dependent and independent t tests in mind, it remains to compare both sets of results for purposes of a more thorough understanding of the findings. This may most clearly be accomplished by following the pre-established pattern of taking each of the position and latitude measures in order.

For the most acceptable position (MA), both the dynamic and evaluative instruments measured equally well the changes produced in opposite directions by the pro and anti communications, when both experimental groups were compared with the control groups. The changes were in the direction of each communication, and the control groups functioned as a zero-baseline.

For the most objectionable position (MO), the dynamic instrument measured equally well the changes produced in the direction away from both pro and anti communications, when both experimental

groups were compared with the control groups. The evaluative instrument measured the changes produced in the direction away from the anti communication (i.e., MO positions moving toward the pro end of the scale), as validated by the significant experimental-control difference. But, the trend (movement of the MO toward the anti end of the scale) in pretest-posttest difference, in response to the pro communication, was not validated by an experimental-control difference.

Therefore, the difference between the instruments is an interaction between instruments and communications, in which the evaluative instrument does not measure changes in the MO position to the pro communication as well as it does the MA position measure.

For the latitude of acceptance (LA), there were trends indicating an interaction between communications and measuring instruments. Significant pretest-posttest measures in latitude of acceptance for pro-evaluative and anti-dynamic conditions were validated by trends in pro-dynamic-pro-evaluative and anti-dynamic-anti-evaluative differences. For the pro communication, the evaluative instrument measured changes in LA in response to the pro communication better than did the dynamic instrument. Conversely, in the "classical" interaction pattern, the dynamic instrument measured changes in LA in response to the anti communication better than did the evaluative instrument.

Because of significant and trend increases in LA as measured by both control instruments, it is difficult to interpret the trend difference between control and anti communications as measured by the evaluative instrument.

For the latitude of rejection (LR), no significant differences between experimental and control groups were found. Therefore, the significant pretest-posttest increase in LR for the pro communication, as measured by the evaluative instrument, is not validated.

For the evaluative instrument, the pro communication significantly decreased the latitude of noncommitment (LN) relative to the anti-communication, reciprocating with the trend difference in change scores for the LA. Thus, in response to the pro communication only, as measured by the evaluative instrument, only, LA increased as LN decreased. No other reliable changes in latitude measures were found.

The control condition served as an adequate zero-baseline measure for both positions (MA and MO). However, significant pretest-posttest changes in three of the six latitude measures indicates the failure of this control condition to serve as an adequate zero-baseline measure for the latitudes. This result will be discussed further in the next chapter.

The general hypothesis, that the mixed communications should make a differential impact on how subjects perceive the communications, depending on whether the dynamic instrument or the evaluative instrument is presented, is supported by the dependent t tests within group measures. For the evaluative instrument, those subjects receiving the pro communication significantly changed four out of five of their posttest scores. Specifically, the MA moved toward the communication, the LA and LR increased, while LN decreased. For MO, there was a noted trend movement away from the communication. For the dynamic instrument, no latitude increases were noted for subjects receiving

the prc communication, but MA moved toward the communication, and MO moved away from the communication. For the anti evaluative condition, only the MA moved significantly toward the communication, with a trend movement away from the communication for MO. No latitude increases or decreases were found. For the dynamic instrument, those subjects receiving the anti communication showed significant movement toward the communication for MA, significant movement away from the communication for MO, and the latitude of acceptance (LA) increased. No increase or decrease was noted for LR or LN. Thus, the evaluative and dynamic instruments are of differential effectiveness, depending on instrument and pro or anti communication.

Sub-hypothesis one, that the evaluative instrument should measure more effectively the changes toward the communications for most acceptable position and away from the communications for most objectionable position, than the dynamic instrument, was not supported.

The communications produced changes in MA in the predicted direction for both instruments and in MO for the dynamic instrument, with only a trend indicated on the evaluative instrument.

Sub-hypothesis two, which stated that it is to be expected that either the dynamic or evaluative instrument will prove more effective in measuring any changes in latitudes resulting from a mixed communication, was supported, in favor of the evaluative instrument, as far as those receiving the pro communication are concerned. No latitude changes were noted for those receiving the anti communication. The dynamic instrument, however, measured latitude changes better than did the evaluative instrument, for those receiving the anti

communication. For this condition, LA increased, with a trend decrease noted for LN. The pro dynamic condition showed no increase or decrease for the latitude measures. Therefore, a communication-instrument interaction was noted in the second sub-hypothesis.

It is noteworthy that, for the control dynamic condition, a trend increase was found for LA (LR and LN showing no increase or decrease) and also, for the control evaluative condition, a significant increase for LA and a significant decrease for LN were found (LR showing no change).

Theoretically, the most important analyses performed to test the hypotheses were those which employed the series of independent t tests to directly compare the effects of the experimental dynamic and the experimental evaluative samples with each other and with the control samples. The five independent t tests comparing the dynamic and evaluative sampels (MA, MO, LA, LR and LN) revealed no significant differences in their effects on any of the five measures of the modified Sherif-Hovland instruments. Considering the results of the dependent t tests discussed above, this seems hardly surprising, since the significant pretest-posttest changes were all in the same direction. Therefore, it would require rather striking changes in one or more of the measures for any of the experimental conditions to reach statistical significance.

It should be noted, however, that when comparing the pro dynamic sample with the control sample, the pro evaluative sample with the control sample, the anti dynamic sample with the control sample, and the anti evaluative sample with the control sample, significant

independent t's resulted for the most acceptable (MA) position measure. Also, for the most objectional position measure (MO), only the pro evaluative comparison with the control sample was insignificant, while all other experimental-control comparisons were significant. For the latitude measures, however, none of the independent t tests comparing experimental with control conditions were significant. Thus, the hypotheses of the present study were confirmed (with the reversal of sub-hypothesis noted above) by the within group dependent t tests, but only minimally supported by the more rigorous between group, independent t tests.

Knowledge or No Knowledge

The independent variable for this series of analyses was a dichotomization of subjects on the basis of their responses to an open ended question regarding what they thought the purpose of the experiment was. Subjects who indicate some general awareness that the experiment was concerned with attitude change were placed into a "non-naive" category, and subjects who indicated no awareness of the purpose of the experiment were placed into the "naive" category. Of the total 213 subjects who participated in the experiment, 131 were judged naive, and 82 were judged non-naive. Table 7 shows the number of subjects in each of the four experimental and two control conditions, plus the totals for each group.

Since 82 of the total 213 subjects in the experiment were not naive, or knowledgeable about the purpose of the experiment (38.5%), it was decided to determine whether or not the non-naive

TABLE 7

Number of Naive and Non-naive Subjects for Each Experimental and Control Condition

	PD	PE	AD	AE	CD	CE	Totals
Naive	15	19	19	17	31	30	131
Non-naive	23	15	17	21	3	3	82

subjects could have made a significant difference in the change scores from pretest to posttest. Table 8 shows, for both naive and non-naive subjects, the per cent of those subjects who changed their scores on the pretest-posttest measures for all four experimental and control conditions, for both MA and MO. The mean difference scores are also shown for both groups and all six conditions.

From Table 8 it can be seen that a greater number of naive subjects changed their pretest-posttest scores in seven of the eight experimental conditions than did the non-naive subjects on the MA and MO instruments. This implies that since the final data included the smaller percentage of changes from pretest to posttest for the non-naive subjects, the tests of significance reported for the overall results are essentially conservative. In other words, these findings again support the contention that naive subjects should be sought whenever possible for this type of experimentation. It should also be noted that, in the present comparison, for the non-naive subjects in both control conditions, only three non-naive subjects were present in the dynamic and evaluative conditions (Cf. Table 7). Thus the percentages for these conditions are highly distorted.

TABLE 8

Percentage of Naive and Non-Naive Subjects Who Changed Most Acceptable and Most Objectionable Positions And Mean Differences for Each Condition

		NAIVE		NON-NAIVE	
	Condition	Per Cent Changed	Mean Diff.	Per Cent Changed	Mean Diff.
MA	PD	46.7	-2.29	21.7	-1.00
	PE	57.8	-0.82	40.0	-0.83
	AD	26.3	2.00	23.5	+2.00
	AE	43.8	1.00	20.0	+1.25
	CD	16.7	-0.25	0.0	0.0
	CE	12.5	-0.75	0.0	0.0
MO	PD	26.7	6.38	8.7	6.00
	PE	21.1	2.25	6.7	8.00
	AD	21.1	-4.00	17.6	-5.66
	AE	18.8	-1.67	23.8	-4.00
	CD	16.6	+1.20	33.3	-7.00
	CE	9.4	0.00	66.7	+5.50

Following the question of knowledgeableness about the purposes of the experiment, each subject was asked if he felt the experimenter had tricked him in any way. In the breakdown by experimental and control conditions for those subjects who felt they had been tricked, only 18 out of the total 213 subjects who filled out the questionnaires felt this was the case, and 11 of those were in the two control conditions. It was therefore decided that trickery had little if any effect on the subjects' judgments.

Descriptive Data

In the preceding chapter it was noted that the subjects in the four experimental and two control conditions were asked to rate the communications which they had read on several characteristics deemed important by the experimenter. The remainder of this chapter

will be devoted to these results.

These are the descriptively labeled five point scales asking the subjects how pleased or displeased they were with the communication, how biased or unbiased it was, and whether they felt the communication was propaganda or fact (Cf. Appendix C). Although the data in Table 9 were collected primarily to generate hypotheses rather than to test them, they are presented here for descriptive purposes. It may be noted that both the irritated-pleased and the biased-unbiased responses fall essentially around the midpoint of the five point scale, and that for the propaganda-fact scale, subjects in the four experimental and two control conditions consistently placed their judgments between 3 and 4 on the five point scale (with the exception of the AE condition) indicating they felt the communications to be more fact than propaganda.

In the following chapter, several possible interpretations of the data examined in this chapter will be discussed. A brief review of the hypotheses suggested by the experimenter in the opening chapter of this dissertation will be discussed, along with the extent of confirmation of the hypotheses, and suggestions for further research.

TABLE 9

Subjects' Mean Judgments of Communications, by Condition On Irritated-Pleased, Biased-Unbiased, and Propaganda-Fact Scales

Condition	Measure	N	Mean*
PD	Irritated-Pleased	38	2.65
	Biased-Unbiased	38	2.63
	Propaganda-Fact	38	3.89
PE	Irritated-Pleased	34	2.85
	Biased-Unbiased	34	2.24
	Propaganda-Fact	34	3.35
AD	Irritated-Pleased	36	2.67
	Biased-Unbiased	36	2.36
	Propaganda-Fact	36	3.36
AE	Irritated-Pleased	36	2.65
	Biased-Unbiased	36	1.94
	Propaganda-Fact	36	2.97
CD	Irritated-Pleased	34	2.62
	Biased-Unbiased	34	2.42
	Propaganda-Fact	34	3.53
CE	Irritated-Pleased	35	2.52
	Biased-Unbiased	35	2.71
	Propaganda-Fact	35	3.54

*Small values are associated with the first adjective listed, large values with its opposite.

CHAPTER IV

DISCUSSION

The overall purpose of the present study was to discover if the application of dimensions of meaning (Osgood, Suci & Tannenbaum, 1957) to the Sherif-Hovland nine statement attitude assessment procedures could possibly improve an already existing highly sensitive form of attitude measurement. Based on the works of Jones (1967; 1968), it seemed justifiable to assume that most acceptable and most objectionable positions could be distinguished in terms of evaluative and dynamic dimensions of meaning, and further, that communications constructed in either of these dimensions of meanings would have a differential effect on subjects' judgments regarding a particular issue. The present study was designed to extend Jones' findings to the measuring instruments per se, but by using a mixed, evaluative-dynamic communication instead of a "pure" evaluative or dynamic communication. The major import of this study was, therefore, to discover if further research to apply an Osgoodian dimension of meaning model to Sherif's highly successful attitude scaling techniques would be appropriate. If the construction of "pure" instruments showed any meaningful differential effectiveness between the dynamic and evaluative instruments, this would seem to

indicate that further research in this area could be considered useful.

The results of the within groups comparisons of the present study lend support to the proposition that the application of evaluative and dynamic dimensions of meaning to the Sherif-Hovland nine statement scales do in fact add further refinements to this particular scaling technique. The present results are especially noteworthy in view of the fact that a mixed, dynamic-evaluative communication rather than a "pure" dynamic and a "pure" evaluative communication were presented to the subjects between the pretests and posttests. When comparing the results of the present study with those of Jones (1968) and Sherif, Sherif, & Nebergall (1965), for example, several conflicting differences in the relationships between the two position and three latitude measures indicate, also, that further research in this area could be productive in refining not only instruments and communications, but also in refining the basic Sherifian model of attitude and attitude change.

For example, Jones (1968) found the evaluative communication to produce significant changes toward the communication for the most acceptable position (MA) and away from the communication for the most objectionable position (MO). However, for the dynamic communication, he found no significant changes toward the communication (MA), and no significant changes away from the communication for the most objectionable position (MO). This was contrary to his initial predictions, based on Sherif, Sherif, & Nebergall (1965) which indicate that both MA and MO should serve as anchors for a persons' reference

scale, and therefore should not change either toward the communication or away from the communication, respectively. By contrast, to both Jones (1968) and Sherif, et al. (1965), the results of the present study showed that for the dynamic instrument, for both pro and anti communications, both MA and MO changed in the predicted directions, but that for the evaluative instrument, only MA changed significantly toward the communication, MO showing only a trend movement away from the communication. Thus, it appears that, due to these differential results found by three separate investigators, further research is necessary to delineate the conditions under which changes in MA and MO occur.

Also, with respect to the latitude measures, differential results are reported by Sherif, et al. (1965), Jones (1968), Fisher (1965), and the present author. For example, Sherif et al. say:

> 1. The latitude of rejection of subjects that take an extreme stand on a controversial social issue is greater than the latitude of rejection of those accepting moderate positions on the same issue.
>
> 2. The latitude of rejection of subjects that take an extreme stand on a controversial social issue is relatively greater than their latitude of acceptance.
>
> 3. The latitude of noncommitment . . . varies inversely with the extremeness of the subject's position; that is, the more moderate the stand, the larger the latitude of noncommitment (Sherif, Sherif, & Nebergall, 1965, p. 27).

The important point for this discussion is that Sherif et al. (1965) found that the larger the latitude of rejection, the smaller the latitude of noncommitment, and vice versa. In other words, the latitude of noncommitment varies as an inverse function

of the latitude of rejection.

Jones (1968), however, found that as both the latitudes of acceptance and rejection increase, the latitude of noncommitment decreases. That is, both LA and LR are reciprocally related to LN, whereas Sherif, et al. (1965) report no increase or decrease in the latitude of acceptance, but only in the latitude of rejection. By comparison, Fisher (1965) found all three latitude measures to be reciprocally related.

In the present study, still different relationships between latitudes were observed. For the evaluative instrument, LA and LR increased while LN decreased (similar to Jones) in the pro evaluative sample. But, for the pro dynamic sample, no increases or decreases in any of the latitude measures were found (unlike Jones). Similarly, in the present study, no increases or decreases in sizes of latitudes were noted for the anti evaluative sample, but for the anti dynamic sample, LA increased and LN showed a trend decrease. Thus, it appears that, in the present study, the latitudes are operating differentially depending on interaction between communications and instruments. As with the position measures, the different findings with regard to the latitude measures also indicate the need for further research before more coherent interpretations can be made regarding the relationships between the position and latitude measurements.

It is noteworthy that in the present study, 38.5% of the subjects filling out the questionnaires were not naive. It was reported in the previous chapter that fewer of these subjects changed

their pretest-posttest scores than did the naive subjects. Therefore, it is not known whether these subjects by not changing their judgments from pretest to posttest would have changed their MA and MO positions, or their latitudes, in such a way as to affect the overall results of this study. It seems likely, however, that the non-naive subjects, by not changing their pretest-posttest scores exerted a conservative influence on the results in terms of the position and latitude measures. Again, the importance of keeping subjects naive seems paramount.

Two results which are somewhat difficult to account for are the changes evidenced in the sizes of the latitudes of acceptance and noncommitment by control subjects in the evaluative sample, and the trend increase for LA in the control-dynamic sample. The control subjects were exposed to a communication which the experimenter had considered to be neutral with respect to the issue of gun control legislation. Yet the above noted increases in latitude sizes were found. Jones (1968) observed the same phenomenon. Although he explaines these results as being due possibly to simple regression effects (Jones, 1968, p. 67), it seems more likely to the present author that a more "common-sense" explanation may account for this shift in latitudes for the control samples. Many subjects reported, in the final question of the questionnaire regarding whether or not they felt they had been tricked, that they did not understand what the "neutral" article ("How to Cut the Risk of Heart Attack") had to do with gun control legislation. Several of their comments were quite terse, although only three of the total 213 subjects indicated

that they had in any way been tricked, and even these three did not seem sure. It is therefore suggested that the confusion and perhaps resulting frustration of the non-attitude-relevant article to the issue at hand may have accounted for the increase and decreases in latitudes reported above. Regardless of which explanation seems most plausible, it seems apparent that a non-relevant communication is an uncontrolled variable, rather than operating as a strict baseline for the latitude measures. Perhaps in future studies of this type, presenting no communication between pretest and posttest would provide a more successful baseline.

This problem with the control group not functioning adequately as a baseline may also account for the failure of the independent t tests to reveal significant differences between the experimental samples when compared with the control samples for the latitude measures, in addition to the fact mentioned in the previous chapter that the significant pretest-posttest changes were all in the same direction, thus requiring striking changes in one or more of the measures for any of the experimental conditions to reach statistical significance. Thus, by way of summary, three factors appear to have significantly affected the results found in the present study: first, a mixed communication, rather than "pure" dynamic and evaluative communications were presented to the subjects; second, a large percentage of the subjects were not naive with regard to attitude change procedures and third, the control group did not operate as an effective baseline against which to measure the experimental conditions.

To fully test the hypothesis that the dynamic dimension of

meaning will elicit differential results when compared with the evaluative dimension of meaning, for further research it is suggested that a pro dynamic and a pro evaluative communication be constructed, to be pitched toward the pro end of the nine statement scale, and, that an anti dynamic and an anti evaluative communication be constructed and pitched toward the anti end of the scale. Further, that for all communications mentioned above, both dynamic and evaluative instruments be constructed (as in the present study) and used for the pretest-posttest measures. Also, in the proposed overall design, both communications and instruments typical of the Sherif-Hovland model should be constructed which include mixed dynamic and evaluative dimensions of meaning, and these should then be compared with the "pure" communications and "pure" instruments, in the Osgoodian sense.

It is also suggested that a relatively clearly polarized issue, like that toward gun control legislation, be selected, where on the basis of pre-tests, the subject population is biased toward both extreme ends of the nine statement scale. It would also be interesting to find out if personality differences actually exist between the "far right wing" and the "far left wing" groups. In selecting the pre-test subjects to find the anchorages for the communications used in this study, it seemed that the pro gun control legislation people were as extreme in their stands and just as ego involved as the anti gun control legislation people were extreme in their stands against the proposed legislation. Perhaps similar personality variables between the two extreme groups would be

evidenced when each were tested, for example, by the F scale or the MMPI, since both groups of people seemed to be rigid and authoritarian as far as this issue was concerned.

Finally, it is the contention of the author, based on the findings in this study and a review of the literature on attitude and attitude change, that further exploration would be both fruitful and necessary to refine the Sherif-Hovland nine statement instruments in terms of the dynamic and evaluative dimensions of meaning delineated by Osgoodian theory. And further, in the light of the disparate findings concerning position and latitude measures, it is suggested that a complete model, as mentioned above, could further clarify the nature of latitudes, instruments, and communications and their effects on attitude and attitude change.

CHAPTER V

SUMMARY

The purpose of the present study was to determine whether or not the evaluative dimension of meaning and the dynamic dimension of meaning (Osgood, et al., 1957) would elicit differential effects in position and latitude measures when "pure" evaluative and "pure" dynamic instruments of the Sherif-Hovland type (Sherif, et al., 1965) were constructed and presented to subjects.

Two hundred and thirteen subjects from undergraduate classes attending the second summer session at Oklahoma City University participated in the study. The subjects responded first to a questionnaire containing either the "pure" dynamic or the "pure" evaluative form of the Sherif-Hovland nine statement attitude instrument for the issue of gun control legislation. They then received either a pro or an anti mixed, evaluative-dynamic communication, followed by either the evaluative or dynamic nine statement posttest. The questionnaire also obtained information of the subjects' academic classification and sex, their judgments of how favorable the communication was toward gun control legislation, how probable the communication stated gun control legislation was, and how pleased or irritated they were with the communication. They next indicated whether they felt the com-

munication was biased or unbiased, and whether they felt it was propaganda or fact. Then, they circled the letter of the single statement on the modified Sherif-Hovland scale they felt best represented the position of the communication they had received. Finally, they provided information concerning whether or not they were knowledgeable about the purpose of the study, and stated whether or not they felt they had been tricked by the experimenter.

The pro, anti and control communications read by each of the subjects were constructed by the experimenter and were designed to appear as though they had been clipped from a recent issue of the Chicago Tribune and had subsequently been Xeroxed. The names of fictitious authors were given as by-lines to the three communications. The mixed, evaluative-dynamic communications, following Jones (1968) emphasized the desirability (evaluative) and the inevitability (dynamic) of the end results of gun control legislation in both the pro communication and in the anti communication. The articles were intended to fall toward either the pro or anti end of the nine statement scale. A control communication on an attitude-irrelevant issue was the same length as the two experimental communications.

Initial analysis of the data showed that subjects judged the communications to fall toward opposite ends of the nine statement scales. The positions of the communications were next analyzed in terms of subjects' judgments in terms of whether they felt the communications were very unfavorable or very favorable toward gun control legislation, as measured by a check mark on a three inch line. These results were compared with a similar three inch line on which sub-

jects were asked to check whether they felt gun control legislation was very improbable or very probable. The evaluative and dynamic instruments were approximately the same in their comparisons, both for the unfavorable-favorable and the improbable-probable line, with the former line showing more extreme judgments than the latter.

The general hypothesis, that the mixed communications should make a differential impact on how subjects perceive the communications, depending on whether the dynamic instrument or the evaluative instrument was used, was supported by the 30 dependent t tests for within group comparisons. The pro communication, when measured by the evaluative instrument, showed four out of five possible changes, whereas the dynamic instrument (pro communication) showed only two out of five possible changes. On the other hand, when the anti communication was presented, the dynamic instrument showed three pretest-posttest changes, plus a trend change, out of the five possible changes. The evaluative instrument (anti communication), however, demonstrated only one change out of five, with a trend change for the most objectionable position measure. These results indicate that there is clearly an interaction between communications and instruments.

Hypothesis 1, that the evaluative instrument should measure more effectively the changes toward the communications for most acceptable position and away from the communications for most objectionable position than should the dynamic instrument, was not supported by the dependent t tests. The communications produced changes in MA in the predicted direction for both instruments and in MO for the dynamic

instrument, with only a trend indicated on the evaluative instrument.

The second hypothesis, which predicted that either the dynamic or the evaluative instrument would show more changes in the latitude measures, illustrated that for the pro communication, the evaluative instrument was more sensitive to changing latitudes, whereas the dynamic instrument was more sensitive to changing latitudes for the anti communication.

The results of the forty-five independent t tests for between group comparisons, which compared the experimental samples with one another and with the control sample, showed no significant differences between the dynamic and evaluative instruments for the two position and three latitude measures. However, for MA and MO positions, when the experimental groups were compared with the control groups, seven out of eight of the possible comparisons were found to be significant. No significant differences were found for the latitude measures, when comparing the experimental with the control groups. One possible reason for these results is the fact that pretest-posttest change score differences were all measuring movement in the same direction, and secondly, that the control group did not operate as an effective baseline for the latitude measures--thus suggesting possible use of a different type of control group in further research studies.

It was further noted that of the total 213 subjects, 38.5% were knowledgeable about the experiment. These non-naive subjects did not change their pretest-posttest scores to the extent the naive subjects did, suggesting possible confounding of the results and again emphasizing the need for naive subjects.

Finally, the descriptive data, concerning whether the subjects felt they were irritated or pleased with the communication, how biased or unbiased they felt the communication was, and whether they felt the communication was propaganda or fact, showed that subjects placed their judgments toward the pleased, unbiased and fact end of the five point scales constructed for these measures.

The results were discussed in terms of the meaningfulness of continuing the present line of research, and a more elaborate design, based on Jones (1968) and the present study was suggested.

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APPENDIX A

MODIFIED SHERIF-HOVLAND INSTRUMENTS

APPENDIX A

DYNAMIC INSTRUMENT

Below are some statements expressing various positions on the issue of gun control legislation.

1. Please read all the statements carefully first before making any marks on this page.

2. Now that you have carefully read all the statements, underline that one statement that comes closest to your stand on this matter.

A. Gun control legislation is absolutely necessary for the welfare of the nation and its people.

B. Gun control legislation is extremely necessary for the welfare of the nation and its people.

C. Gun control legislation is probably necessary for the welfare of the nation and its people.

D. Gun control legislation seems somewhat necessary for the welfare of the nation and its people.

E. It is hard to decide whether gun control legislation is necessary or unnecessary for the welfare of the nation and its people.

F. Gun control legislation seems somewhat unnecessary for the welfare of the nation and its people.

G. Gun control legislation is probably unnecessary for the welfare of the nation and its people.

H. Gun control legislation is extremely unnecessary for the welfare of the nation and its people.

I. Gun control legislation is absolutely unnecessary for the welfare of the nation and its people.

The statements below are the same as the ones on the preceding page. Please go through the statements and circle the letter in front of any others that you also find acceptable or not objectionable.

A. Gun control legislation absolutely necessary for the welfare of the nation and its people.

B. Gun control legislation is extremely necessary for the welfare of the nation and its people.

C. Gun control legislation is probably necessary for the welfare of the nation and its people.

D. Gun control legislation seems somewhat necessary for the welfare of the nation and its people.

E. It is hard to decide whether gun control legislation is necessary or unnecessary for the welfare of the nation and its people.

F. Gun control legislation seems somewhat unnecessary for the welfare of the nation and its people.

G. Gun control legislation is probably unnecessary for the welfare of the nation and its people.

H. Gun control legislation is extremely unnecessary for the welfare of the nation and its people.

I. Gun control legislation is absolutely unnecessary for the welfare of the nation and its people.

The statements below are the same as those on the preceding pages.

1. Please read all the statements again before making any marks on this page.

2. Now that you have read the statements again, cross out that one statement which is most objectionable from your point of view.

A. Gun control legislation is absolutely necessary for the welfare of the nation and its people.

B. Gun control legislation is extremely necessary for the welfare of the nation and its people.

C. Gun control legislation is probably necessary for the welfare of the nation and its people.

D. Gun control legislation seems somewhat necessary for the welfare of the nation and its people.

E. It is hard to decide whether gun control legislation is necessary or unnecessary for the welfare of the nation and its people.

F. Gun control legislation seems somewhat unnecessary for the welfare of the nation and its people.

G. Gun control legislation is probably unnecessary for the welfare of the nation and its people.

H. Gun control legislation is extremely unnecessary for the welfare of the nation and its people.

I. Gun control legislation is absolutely unnecessary for the welfare of the nation and its people.

Now go through these statements and mark an X through the letter in front of any other statements that you find objectionable.

A. Gun control legislation is absolutely necessary for the welfare of the nation and its people.

B. Gun control legislation is extremely necessary for the welfare of the nation and its people.

C. Gun control legislation is probably necessary for the welfare of the nation and its people.

D. Gun control legislation seems somewhat necessary for the welfare of the nation and its people.

E. It is hard to decide whether gun control legislation is necessary or unnecessary for the welfare of the nation and its people.

F. Gun control legislation seems somewhat unnecessary for the welfare of the nation and its people.

G. Gun control legislation is probably unnecessary for the welfare of the nation and its people.

H. Gun control legislation is extremely unnecessary for the welfare of the nation and its people.

I. Gun control legislation is absolutely unnecessary for the welfare of the nation and its people.

APPENDIX A

EVALUATIVE INSTRUMENT

Below are some statements expressing various positions on the issue of gun control legislation.

1. Please read all the statements carefully first before making any marks on this page.

2. Now that you have carefully read all the statements, underline that one statement that comes closest to your stand on this matter.

A. Gun control legislation is absolutely desirable for the welfare of the nation and its people.

B. Gun control legislation is extremely desirable for the welfare of the nation and its people.

C. Gun control legislation is probably desirable for the welfare of the nation and its people.

D. Gun control legislation seems somewhat desirable for the welfare of the nation and its people.

E. It is hard to decide whether gun control legislation is desirable or undesirable for the welfare of the nation and its people.

F. Gun control legislation seems somewhat undesirable for the welfare of the nation and its people.

G. Gun control legislation is probably undesirable for the welfare of the nation and its people.

H. Gun control legislation is extremely undesirable for the welfare of the nation and its people.

I. Gun control legislation is absolutely undesirable for the welfare of the nation and its people.

The statements below are the same as the ones on the preceding page. Please go through the statements and circle the letter in front of any others that you also find acceptable or not objectionable.

A. Gun control legislation is absolutely desirable for the welfare of the nation and its people.

B. Gun control legislation is extremely desirable for the welfare of the nation and its people.

C. Gun control legislation is probably desirable for the welfare of the nation and its people.

D. Gun control legislation seems somewhat desirable for the welfare of the nation and its people.

E. It is hard to decide whether gun control legislation is desirable or undesirable for the welfare of the nation and its people.

F. Gun control legislation seems somewhat undesirable for the welfare of the nation and its people.

G. Gun control legislation is probably undesirable for the welfare of the nation and its people.

H. Gun control legislation is extremely undesirable for the welfare of the nation and its people.

I. Gun control legislation is absolutely undesirable for the welfare of the nation and its people.

The statements below are the same as those on the preceding pages.

1. Please read all the statements again before making any marks on this page.

2. Now that you have read the statements again, cross out that one statement which is most objectionable from your point of view.

A. Gun control legislation is absolutely desirable for the welfare of the nation and its people.

B. Gun control legislation is extremely desirable for the welfare of the nation and its people.

C. Gun control legislation is probably desirable for the welfare of the nation and its people.

D. Gun control legislation seems somewhat desirable for the welfare of the nation and its people.

E. It is hard to decide whether gun control legislation is desirable or undesirable for the welfare of the nation and its people.

F. Gun control legislation seems somewhat undesirable for the welfare of the nation and its people.

G. Gun control legislation is probably undesirable for the welfare of the nation and its people.

H. Gun control legislation is extremely undesirable for the welfare of the nation and its people.

I. Gun control legislation is absolutely undesirable for the welfare of the nation and its people.

Now go through these statements and mark an X through the letter in front of any other statements that you find objectionable.

A. Gun control legislation is absolutely desirable for the welfare of the nation and its people.

B. Gun control legislation is extremely desirable for the welfare of the nation and its people.

C. Gun control legislation is probably desirable for the welfare of the nation and its people.

D. Gun control legislation seems somewhat desirable for the welfare of the nation and its people.

E. It is hard to decide whether gun control legislation is desirable or undesirable for the welfare of the nation and its people.

F. Gun control legislation seems somewhat undesirable for the welfare of the nation and its people.

G. Gun control legislation is probably undesirable for the welfare of the nation and its people.

H. Gun control legislation is extremely undesirable for the welfare of the nation and its people.

I. Gun control legislation is absolutely undesirable for the welfare of the nation and its people.

APPENDIX B

COMMUNICATIONS

APPENDIX C

INITIAL DATA TABULATION

APPENDIX C

LEGEND

On the following pages the initial data tabulation is given for the four experimental and two control conditions of this study. Below is the legend for the 17 columns of figures.

1. Subjects
2. For numbers 3 through 7, the top number is the pretest judgment and the bottom number is the posttest judgment of the subject.
3. Most Acceptable Position
4. Most Objectionable Position
5. Latitude of Acceptance
6. Latitude of Rejection
7. Latitude of Noncommitment
8. Classification
9. Sex
10. Unfavorable-favorable line toward gun control legislation
11. Improbable-probable line toward gun control legislation
12. Irritated-pleased five point scale
13. Biased-unbiased five point scale
14. Propaganda-fact five point scale
15. The single statement best representing the view expressed in the communication as judged by the subject.
16. Naivete or non-naivete of the subject--yes or no
17. Suspicion of trickery--yes or no

Pro Dynamic

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1.	Pre	3	9	4	3	2	Jr.	M	2 14/16	1 10/16	3	3	4	1	Yes	No
	Post	3	9	4	4	1										
2.	Pre	1	9	2	7	0	Jr.	F	2 15/16	2 15/16	1	1	4	1	No	No
	Post	1	9	2	7	0										
3.	Pre	9	1	4	2	3	Sr.	M	1 10/16	1 11/16	3	3	3	3	Yes	No
	Post	9	1	4	4	1										
4.	Pre	5	1	2	5	2	So.	M	2 11/16	1 14/16	2	4	4	1	No	No
	Post	5	9	3	3	3										
5.	Pre	7	1	2	4	3	Un.	M	2 12/16	2 5/16	3	2	4	2	No	No
	Post	7	1	2	4	3										
6.	Pre	3	9	2	1	6	Un.	F	3.0	2 6/16	1	3	3	4	No	No
	Post	3	9	4	4	1										
7.	Pre	9	5	4	3	2	Jr.	F	2 15/16	1 9/16	3	2	4	2	No	Yes
	Post	9	5	2	3	4										
8.	Pre	3	9	2	6	1	So.	M	2 11/16	1 4/16	2	4	4	2	No	No
	Post	2	9	2	6	1										
9.	Pre	8	1	2	4	3	Sr.	F	2 14/16	1 13/16	4	2	3	1	No	No
	Post	9	1	3	5	1										
10.	Pre	7	1	1	4	4	Sr.	M	2 12/16	1 13/16	3	2	2	2	No	No
	Post	7	1	1	3	5										
11.	Pre	5	8	2	4	3	So.	F	3.0	1 8/16	1	4	5	1	Yes	No
	Post	1	9	3	5	1										
12.	Pre	3	5	2	2	5	So.	M	2 8/16	1 7/16	3	3	4	1	No	No
	Post	2	9	5	4	0										

13.	Pre	6	1	2	2	5	Oth-	F	4/16	1 8/16	4	2	4	2	Yes	No
	Post	7	1	2	2	5	er									
14.	Pre	2	9	5	3	1	Fr.	M	3.0	2.0	3	1	3	1	No	No
	Post	2	9	5	3	1										
15.	Pre	2	9	3	4	2	So.	F	2 15/16	1 20/16	1	4	4	2	No	No
	Post	2	9	3	3	3										
16.	Pre	3	9	3	5	1	So.	F	3.0	1 2/16	2	4	4	2	No	No
	Post	3	9	4	5	0										
17.	Pre	9	1	3	4	2	So.	M	3.0	1 11/16	3	2	5	2	No	No
	Post	9	1	3	5	1										
18.	Pre	5	1	2	2	5	Jr.	M	2 3/16	1 11/16	3	2	4	5	No	No
	Post	5	1	2	2	5										
19.	Pre	5	1	3	4	2	Sr.	F	3.0	7/16	3	1	4	1	No	No
	Post	5	1	3	4	2										
20.	Pre	4	8	2	2	5	Und.	M	2 11/16	1 7/16	3	2	4	4	Yes	No
	Post	4	8	2	2	5										
21.	Pre	2	9	4	5	0	Sr.	F	2 15/16	2 14/16	2	2	3	1	No	No
	Post	2	9	4	5	0										
22.	Pre	7	1	2	5	2	So.	M	1 2/16	1 9/16	3	4	4	3	Yes	No
	Post	4	1	1	3	5										
23.	Pre	2	9	5	2	2	Jr.	F	3.0	2 7/16	3	1	3	1	No	Yes
	Post	2	9	3	4	2										
24.	Pre	6	1	1	1	7	Sr.	M	1/16	2 3/16	4	2	4	4	No	No
	Post	6	1	1	2	6										
25.	Pre	7	1	4	4	1	Sr.	F	2 4/16	1 11/16	3	2	3	2	No	No
	Post	6	1	3	4	2										

26.	Pre	5	1	2	1	6	Jr.	F	2 7/16	2 12/16	1	4	4	1	Yes	No
	Post	1	9	1	5	3										
27.	Pre	4	1	3	2	4	Sr.	F	1/16	1 8/16	3	2	4	5	No	No
	Post	4	1	2	1	6										
28.	Pre	4	9	3	4	2	Und.	F	2 14/16	2 6/16	1	5	3	1	Yes	No
	Post	1	9	2	7	0										
29.	Pre	1	9	2	1	6	Fr.	F	3.0	2 15/16	2	3	3	1	Yes	No
	Post	1	9	2	2	5										
30.	Pre	9	1	4	5	0	So.	M	2 9/16	2 9/16	4	2	2	2	No	No
	Post	9	1	4	5	0										
31.	Pre	5	1	2	3	4	So.	F	2 12/16	2 6/16	3	3	4	2	Yes	No
	Post	3	9	1	3	5										
32.	Pre	6	1	2	2	5	So.	F	2 4/16	1 15/16	3	4	4	1	No	No
	Post	3	1	2	2	5										
33.	Pre	9	1	1	7	1	So.	M	2 15/16	2 15/16	5	1	5	1	Yes	No
	Post	9	1	2	4	3										
34.	Pre	1	5	1	2	6	Jr.	M	3.0	1 15/16	1	4	5	1	Yes	No
	Post	1	5	2	2	5										
35.	Pre	4	1	3	4	2	Sr.	M	2 11/16	2 2/16	3	2	3	2	Yes	No
	Post	3	9	3	3	3										
36.	Pre	1	9	1	1	7	Fr.	M	0.0	0.0	3	2	5	1	Yes	No
	Post	1	9	1	1	7										
37.	Pre	4	1	3	5	1	Sr.	F	2 12/16	1 9/16	3	2	4	1	Yes	No
	Post	4	1	2	5	2										
38.	Pre	4	9	2	2	5	So.	M	2 9/16	3.0	3	4	4	1	No	No
	Post	4	9	2	3	4										

Pro Evaluative

1.	Pre	8	1	5	3	1	Und.	F	2 15/16	2 2/16	3	2	2	1	No	No
	Post	8	1	5	3	1										
2.	Pre	3	9	2	3	4	So.	M	2 8/16	8/16	2	1	4	2	No	No
	Post	2	9	3	3	3										
3.	Pre	3	9	3	6	0	So.	M	2 12/16	2 7/16	1	2	3	2	No	No
	Post	3	9	3	5	1										
4.	Pre	5	9	2	6	1	Grad	F	2 15/16	2 12/16	1	4	5	1	No	No
	Post	1	9	2	7	0										
5.	Pre	4	9	2	2	5	Und.	M	2 10/16	2 9/16	2	2	2	2	Yes	No
	Post	2	9	3	2	4										
6.	Pre	4	9	3	4	2	Jr.	F	2 9/16	2 2/16	3	3	3	2	Yes	No
	Post	3	9	5	4	0										
7.	Pre	3	9	3	5	1	Oth-	M	2 10/16	1 6/16	3	2	3	1	Yes	No
	Post	3	9	3	5	1	er									
8.	Pre	3	9	2	3	4	Jr.	F	2 11/16	1 12/16	2	2	2	3	Yes	No
	Post	2	9	3	3	3										
9.	Pre	1	9	2	4	3	Jr.	F	2 14/16	2 4/16	2	3	4	1	Yes	Yes
	Post	1	9	2	5	2										
10.	Pre	4	1	2	3	4	So.	M	3.0	1 12/16	4	1	3	1	No	No
	Post	5	1	2	4	3										
11.	Pre	2	9	4	4	1	Sr.	F	2 15/16	1 4/16	1	5	5	1	No	No
	Post	2	9	4	5	0										
12.	Pre	3	9	1	4	4	So.	F	2 11/16	1 7/16	2	1	4	1	No	No
	Post	3	9	3	5	1										
13.	Pre	2	6	4	5	0	Jr.	M	3.0	2 4/16	4	4	5	1	Yes	No
	Post	1	9	4	5	0										

14.	Pre	5	1	3	5	1	Jr.	M	3.0	1 15/16	3	2	4	1	No	No
	Post	4	1	4	5	0										
15.	Pre	1	9	3	4	2	Sr.	F	3.0	3.0	1	4	4	1	No	No
	Post	1	9	3	5	1										
16.	Pre	5	1	3	3	3	Und.	M	2 11/16	1 11/16	3	1	3	1	No	Yes
	Post	5	1	3	3	3										
17.	Pre	8	1	5	3	1	Oth-	F	3.0	2 2/16	3	2	4	2	No	No
	Post	8	1	5	4	0	er									
18.	Pre	4	9	2	7	0	Fr.	M	1 9/16	1 7/16	3	2	4	1	Yes	No
	Post	3	9	4	4	1										
19.	Pre	3	9	2	2	5	Jr.	F	3.0	3.0	4	3	3	1	No	No
	Post	1	9	1	2	6										
20.	Pre	6	1	2	2	5	Sr.	M	3.0	1 8/16	3	2	3	1	Yes	No
	Post	6	1	2	4	3										
21.	Pre	5	1	1	1	7	So.	M	2 2/16	2 2/16	3	2	4	5	Yes	No
	Post	5	1	1	1	7										
22.	Pre	1	9	2	4	3	So.	F	3.0	2 2/16	4	3	5	1	Yes	No
	Post	1	9	2	2	5										
23.	Pre	3	1	3	2	4	Sr.	M	3.0	1 9/16	1	2	4	2	No	No
	Post	3	9	1	3	5										
24.	Pre	3	8	2	2	5	So.	F	2 14/16	2 10/16	2	3	4	2	Yes	No
	Post	4	8	2	2	5										
25.	Pre	5	1	3	2	4	Sr.	M	3.0	2 15/16	3	2	4	2	No	No
	Post	5	1	3	2	4										
26.	Pre	5	9	2	4	3	So.	F	2 10/16	2 4/16	2	3	3	2	Yes	No
	Post	1	9	3	5	1										

27.	Pre	4	1	2	4	3	Uncl.	F	2 15/16	1 12/16	3	1	3	1	Yes	No
	Post	2	9	2	6	1										
28.	Pre	1	8	2	2	5	Sr.	M	1 1/16	1 8/16	2	3	5	2	Yes	No
	Post	1	8	2	2	5										
29.	Pre	6	1	1	1	7	Sr.	M	2 15/16	9/16	3	2	4	1	Yes	No
	Post	8	1	4	3	2										
30.	Pre	9	2	2	1	6	Oth-	M	3.0	1 7/16	4	2	2	1	Yes	No
	Post	9	1	1	6	2	er									
31.	Pre	5	6	2	2	5	Fr.	M	2 8/16	2 2/16	3	2	5	4	Yes	No
	Post	3	6	2	2	5										
32.	Pre	2	9	3	5	1	Oth-	F	2 15/16	2 13/16	1	2	4	1	No	No
	Post	1	9	3	5	1	er									
33.	Pre	3	9	1	4	4	So.	F	2 7/16	6/16	2	3	4	3	Yes	No
	Post	3	9	4	3	2										
34.	Pre	6	2	1	2	6	So.	F	2 5/16	2.0	4	3	3	2	Yes	No
	Post	8	1	2	2	5										
Anti Dynamic																
1.	Pre	8	1	3	3	3	Sr.	F	2 14/16	2 9/16	1	4	5	8	Yes	No
	Post	9	1	3	3	3										
2.	Pre	5	9	1	2	6	So.	F	1/16	1 5/16	2	4	4	9	No	No
	Post	5	9	2	1	6										
3.	Pre	3	9	5	4	0	So.	M	5/16	1 7/16	4	2	2	8	Yes	No
	Post	3	9	5	4	0										
4.	Pre	3	6	3	4	2	Jr.	M	6/16	2 10/16	4	2	2	8	Yes	No
	Post	3	6	3	4	2										

5.	Pre	1	9	1	4	4	Sr.	M	0	0	1	4	4	1	No	No
	Post	1	9	2	4	3										
6.	Pre	2	9	2	4	3	So.	F	11/16	1 6/16	3	1	2	9	No	No
	Post	4	9	2	4	3										
7.	Pre	4	1	0	2	7	Sr.	M	1 7/16	1 9/16	3	2	3	7	Yes	No
	Post	4	1	0	2	7										
8.	Pre	7	9	2	5	2	Sr.	M	0	2 11/16	3	2	4	9	No	No
	Post	7	1	2	5	2										
9.	Pre	3	1	3	2	4	So.	F	0	0	2	3	4	9	No	No
	Post	3	1	3	2	4										
10.	Pre	5	1	3	3	3	So.	M	1 3/16	1 8/16	2	4	4	5	No	No
	Post	5	1	2	3	4										
11.	Pre	7	1	3	2	4	Sr.	M	2/16	2 5/16	3	2	4	9	No	No
	Post	7	1	3	2	4										
12.	Pre	2	5	2	2	5	Sr.	F	5/16	2 14/16	3	3	5	8	No	No
	Post	5	4	2	2	5										
13.	Pre	1	9	4	4	1	Sr.	F	2/16	1 7/16	3	1	3	9	No	No
	Post	1	9	4	4	1										
14.	Pre	5	1	2	4	3	Sr.	F	2/16	1 3/16	4	1	3	1	Yes	No
	Post	5	1	2	4	3										
15.	Pre	4	1	2	3	4	Fr.	M	4/16	1 6/16	3	2	2	9	No	No
	Post	4	1	2	7	0										
16.	Pre	4	9	2	2	5	So.	F	3.0	3.0	2	3	4	3	Yes	No
	Post	4	8	2	2	5										
17.	Pre	5	1	5	4	0	Oth-	F	0	6/16	2	4	4	9	No	No
	Post	9	1	4	4	1	er									

18.	Pre	6	1	3	3	3	So.	F	8/16	2 5/16	2	2	2	9	No	No
	Post	6	1	2	5	2										
19.	Pre	2	9	2	2	5	Sr.	M	0	0	4	1	2	9	No	No
	Post	2	9	2	2	5										
20.	Pre	1	9	4	2	3	Oth-	M	0	1 4/16	4	2	2	6	Yes	Yes
	Post	1	9	5	3	1	er									
21.	Pre	4	1	1	2	6	Uncl.	M	5/16	1 7/16	2	2	4	9	No	No
	Post	3	1	2	2	5										
22.	Pre	4	9	3	5	1	So.	M	0	2 4/16	3	1	3	9	No	No
	Post	4	9	3	5	1										
23.	Pre	6	1	1	2	6	Sr.	M	0	2 15/16	3	1	5	9	No	No
	Post	6	1	5	4	0										
24.	Pre	5	4	1	2	6	So.	M	2/16	13/16	1	3	4	7	Yes	No
	Post	8	1	1	1	7										
25.	Pre	3	1	2	2	5	Sr.	M	7/16	1 7/16	3	2	4	9	Yes	Yes
	Post	3	1	2	2	5										
26.	Pre	2	9	4	5	0	Sr.	M	1/16	8/16	4	1	2	9	Yes	No
	Post	2	9	4	5	0										
27.	Pre	4	1	2	6	1	Fr.	M	2 8/16	2 3/16	1	5	1	5	Yes	No
	Post	6	1	2	6	1										
28.	Pre	9	1	1	1	7	Sr.	M	0	1 8/16	1	1	5	9	Yes	No
	Post	9	1	3	4	2										
29.	Pre	5	5	1	6	2	Sr.	F	3/16	1 5/16	3	2	4	9	Yes	No
	Post	5	1	2	2	5										
30.	Pre	3	9	3	4	2	So.	F	6/16	1 5/16	2	2	4	6	Yes	No
	Post	6	1	4	5	0										

31.	Pre	4	9	2	6	1	Sr.	F	7/16	1.0	3	2	2	9	No	No
	Post	4	1	2	5	2										
32.	Pre	2	8	2	4	3	Sr.	F	3.0	3.0	2	4	3	8	Yes	No
	Post	2	8	4	3	2										
33.	Pre	5	9	2	2	5	Fr.	F	2/16	1 20/16	3	2	3	9	Yes	No
	Post	5	9	2	2	5										
34.	Pre	6	1	3	3	3	So.	M	7/16	2 2/16	2	2	4	7	Yes	No
	Post	6	1	3	3	3										
35.	Pre	6	1	2	5	2	Fr.	M	2 12/16	0.0	4	3	3	0	Yes	No
	Post	7	1	1	4	4										
36.	Pre	9	1	1	2	6	Sr.	M	0.0	4/16	2	2	4	9	Yes	No
	Post	9	1	4	5	0										
Anti Evaluative																
1.	Pre	2	9	2	6	1	Jr.	F	2/16	1/16	3	1	2	7	No	No
	Post	2	9	2	6	1										
2.	Pre	5	9	1	2	6	Jr.	F	1/16	1 13/16	3	1	2	9	No	No
	Post	5	9	1	2	6										
3.	Pre	3	1	1	1	7	Grad	F	0	3	3	3	3	6	Yes	No
	Post	5	1	3	2	4										
4.	Pre	5	9	4	3	2	Sr.	M	9/16	2 3/16	3	2	2	9	No	No
	Post	5	9	3	3	3										
5.	Pre	2	9	1	3	5	Sr.	M	0	1 15/16	3	2	2	9	No	No
	Post	1	9	2	4	3										
6.	Pre	7	1	5	3	1	Sr.	F	0	1 10/16	1	2	2	9	No	No
	Post	7	1	4	3	2										
7.	Pre	9	1	1	8	0	Jr.	M	11/16	1 7/16	3	2	4	6	No	No
	Post	9	1	1	8	0										

8.	Pre	4	5	2	1	6	Jr.	M	0	1 14/16	3	1	2	9	Yes	No
	Post	5	9	1	6	2										
9.	Pre	7	1	2	5	2	Grad	M	0	1 6/16	2	2	4	9	No	No
	Post	7	2	2	5	2										
10.	Pre	5	1	2	6	1	Uncl.	F	3.0	1 7/16	3	2	3	9	No	No
	Post	5	1	2	7	0										
11.	Pre	1	4	1	1	7	Fr.	F	-1/16	0	2	3	4	6	No	No
	Post	1	6	1	1	7										
12.	Pre	1	9	2	2	5	Uncl.	F	3 2/16	3.0	2	2	2	9	Yes	No
	Post	1	9	2	2	5										
13.	Pre	1	9	4	5	0	Oth-	F	1/16	3.0	3	3	3	9	No	No
	Post	5	1	4	4	1	er									
14.	Pre	1	9	2	5	2	Oth-	F	9/16	1 7/16	3	2	3	8	No	No
	Post	1	9	4	5	0	er									
15.	Pre	2	9	4	4	1	Sr.	M	1/16	1 8/16	4	2	2	9	No	No
	Post	2	9	4	4	1										
16.	Pre	5	1	1	6	2	Fr.	M			3	3	5	7	Yes	No
	Post	6	1	2	5	2										
17.	Pre	9	1	2	5	2	Sr.	M	0	0	2	1	3	9	Yes	No
	Post	9	1	2	5	2										
18.	Pre	8	1	3	5	1	So.	F	8/16	2 12/16	3	1	2	7	Yes	No
	Post	8	1	3	5	1										
19.	Pre	1	9	2	2	5	Grad	M	1/16	0	4	1	2	9	Yes	No
	Post	1	9	2	2	5										
20.	Pre	5	9	3	3	3	So.	F	2/16	2 4/16	3	1	4	8	No	No
	Post	6	2	1	3	5										

21.	Pre	3	9	2	4	3	Sr.	M	0	0	3	2	2	3	No	No
	Post	3	9	2	3	4										
22.	Pre	5	1	4	4	1	Uncl.	F	6/16	1 9/16	3	2	2	9	Yes	No
	Post	7	1	4	3	2										
23.	Pre	4	8	4	5	0	Fr.	M	3	0	2	2	4	1	Yes	No
	Post	4	8	4	4	1										
24.	Pre	6	1	4	4	1	So.	F	1/16	1 1/16	3	1	4	9	No	No
	Post	7	1	4	5	0										
25.	Pre	6	2	3	3	3	Jr.	M	2.0	10/16	4	2	2	3	Yes	No
	Post	7	2	2	2	5										
26.	Pre	5	9	2	5	2	Sr.	M	0	2 4/16	4	1	4	9	Yes	No
	Post	5	9	2	5	2										
27.	Pre	4	1	2	6	1	Jr.	M	1 2/16	2.0	3	2	4	8	No	No
	Post	4	1	2	6	1										
28.	Pre	5	1	2	2	5	Jr.	M	0	1/16	2	2	3	8	No	No
	Post	5	1	2	2	5										
29.	Pre	3	9	4	3	2	Sr.	M	4/16	15/16	3	4	3	4	No	No
	Post	3	1	3	4	2										
30.	Pre	5	9	2	2	5	So.	F	2/16	2.0	3	2	3	8	No	No
	Post	5	9	2	4	3										
31.	Pre	6	1	2	2	5	Sr.	M	3.0	1 10/16	2	2	4	9	No	No
	Post	6	1	2	2	5										
32.	Pre	4	5	2	2	5	Jr.	M	13/16	1 7/16	2	2	4	7	Yes	No
	Post	4	5	2	2	5										
33.	Pre	2	9	2	4	3	Jr.	F	0	2 10/16	4	2	2	9	Yes	No
	Post	2	9	3	4	2										

34.	Pre	3	9	4	4	1	Fr.	F	2 1/16	1 6/16	3	3	3	5	Yes	No
	Post	3	9	4	4	1										
35.	Pre	5	9	2	2	5	So.	M	3.0	3.0	2	1	4	2	Yes	No
	Post	2	8	1	2	6										
36.	Pre	2	9	4	3	2	Sr.	F	3/16	1 15/16	2	3	3	8	Yes	No
	Post	5	1	4	3	2										
Control Dynamic																
1.	Pre	8	2	1	4	4	Jr.	F	0	0	3	3	3	1	Yes	No
	Post	8	1	9	1	0										
2.	Pre	9	1	4	4	1	So.	M	1 11/16	2 1/16	4	2	4	3	No	Yes
	Post	9	1	3	4	2										
3.	Pre	9	1	3	3	3	Sr.	M	1 7/16	1 6/16	3	4	3	5	Yes	No
	Post	9	1	3	4	2										
4.	Pre	8	1	5	4	0	So.	F	1 8/16	1 6/16	1	2	4	5	Yes	No
	Post	8	1	5	4	0										
5.	Pre	4	8	2	2	5	Oth-	F	2 3/16	1 6/16	3	3	4		Yes	Yes
	Post	3	1	3	4	2	er									
6.	Pre	4	1	3	4	2	Jr.	F							Yes	No
	Post	4	1	3	4	2										
7.	Pre	9	5	3	5	1	So.	F	1 8/16	1 8/16	3	3	3	5	Yes	No
	Post	9	5	3	5	1										
8.	Pre	9	1	2	4	3	Sr.	M			3	3	4		Yes	No
	Post	9	1	2	6	1										
9.	Pre	2	5	3	6	0	Sr.	F	1 6/16	1 8/16	2	2	4	5	Yes	No
	Post	2	5	3	6	0										

10.	Pre	5	9	2	1	6	Oth-	F	1 6/16	1 7/16	3	4	4	5	Yes	No
	Post	5	9	2	2	5	er									
11.	Pre	7	1	2	2	5	Jr.	M	1 7/16	1 7/16	4	4	4	2	Yes	No
	Post	6	9	2	2	5										
12.	Pre	9	1	1	1	7	So.	M	0	0	4	1	4	9	Yes	No
	Post	9	1	1	1	7										
13.	Pre	2	9	3	2	4	Fr.	F			3	2	4	4	No	No
	Post	2	2	3	3	3										
14.	Pre	4	9	1	6	2	Uncl.	M	2 15/16	2 15/16	3	2	4	4	Yes	No
	Post	4	9	2	6	1										
15.	Pre	3	9	2	4	3	Sr.	F	0		3	3	4	5	Yes	No
	Post	3	9	2	4	3										
16.	Pre	1	5	3	2	4	Sr.	M	1 5/16	1.0	2	2	4	5	Yes	No
	Post	1	9	2	2	5										
17.	Pre	6	1	2	4	3	Jr.	F	1 6/16	1 6/16	1	4	5	5	No	No
	Post	6	1	2	3	4										
18.	Pre	1	9	2	2	5	Uncl.	F	1 7/16	1 7/16	2	2	4	5	No	Yes
	Post	1	9	2	2	5										
19.	Pre	4	1	1	7	1	Sr.	M	1 8/16	1 8/16	3	2	2	5	Yes	No
	Post	4	1	2	7	0										
20.	Pre	9	1	2	4	3	Jr.	M	0	0	3	4	4	7	Yes	No
	Post	9	1	4	4	1										
21.	Pre	1	9	1	8	0	Und.	M	1 12/16	1 4/16					Yes	No
	Post	1	9	2	7	9										
22.	Pre	2	1	2	2	5	Jr.	F	1 7/16	1 7/16	3	2	4	2	Yes	No
	Post	2	1	2	2	5										

23.	Pre	3	9	2	2	5	Frad	F	1 6/16	0	5	1	3	5	Yes	No
	Post	5	9	2	2	5										
24.	Pre	5	1	1	5	3	Sr.	M	0	1/16	3	3	4	5	Yes	No
	Post	5	1	2	4	3										
25.	Pre	7	1	2	2	5	Sr.	M	1 8/16	1 8/16	2	3	5	5	Yes	No
	Post	7	1	2	2	5										
26.	Pre	5	1	3	5	1	Fr.	M	2 14/16	2 13/16	4	1	3	5	Yes	No
	Post	5	1	3	7	0										
27.	Pre	4	1	3	4	2	So.	F	1 8/16	1 8/16	1	3	5	5	Yes	Yes
	Post	4	1	3	3	3										
28.	Pre	4	3	1	2	6	So.	M	1 8/16	1 9/16	3	2	3	5	Yes	No
	Post	4	5	1	1	7										
29.	Pre	7	1	5	4	0	Sr.	M	1 7/16	1 8/16	3	3	3	4	Yes	No
	Post	6	1	5	4	0										
30.	Pre	1	9	3	3	3	Und.	M	3.0	3.0	3	2	3	9	Yes	No
	Post	1	9	3	3	3										
31.	Pre	3	9	2	2	5	Sr.	M	1 8/16	1 8/16	3	3	3	5	Yes	Yes
	Post	3	9	2	2	5										
32.	Pre	2	9	5	4	0	Sr.	F	1 7/16	1 7/16	3	2	4	1	Yes	No
	Post	2	9	5	4	0										
33.	Pre	4	9	2	4	3	Fr.	M	1 8/16	1 8/16	3	3	3	5	Yes	No
	Post	4	9	2	4	3										
34.	Pre	9	1	3	5	1	Fr.	F	1 8/16	1 8/16	3	2	5	5	Yes	No
	Post	9	1	3	5	1										

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1.	Pre	7	1	3	5	1	Sr,	M	1 11/16	11/16	4	2	2	2	Yes	No
	Post	7	1	4	6	0										
2.	Pre	6	1	3	3	3	Grad	M	1 8/16	1 6/16	3	1	4	5	Yes	Yes
	Post	6	1	3	3	3										
3.	Pre	1	6	2	1	6	So.	M	2 15/16	2 7/16	2	3	5	1	No	No
	Post	1	9	2	2	5										
4.	Pre	5	9	3	4	2	So.	M	3.0	3.0	2	3	3	4	Yes	No
	Post	5	3	1	6	2										
5.	Pre	4	1	3	2	4	So.	M	1 12/16	1 2/16	3	3	3	2	Yes	No
	Post	4	1	3	3	3										
6.	Pre	9	1	1	1	7	Fr.	M	4/16	1 15/16	3	3	3	9	Yes	No
	Post	9	1	1	1	7										
7.	Pre	5	1	4	4	1	Jr.	M	1 6/16	1 7/16	2	2	4	5	Yes	Yes
	Post	4	1	3	4	2										
8.	Pre	5	1	1	4	4	Oth-	F	1 10/16	1 10/16	3	2	2	5	Yes	No
	Post	5	1	3	4	2	er									
9.	Pre	7	1	1	4	4	Sr.	M			1	1	4	5	Yes	No
	Post	5	1	1	4	4										
10.	Pre	5	9	3	4	2	Jr.	F	2/16	1 5/16	3	2	4	5	Yes	Yes
	Post	5	9	4	4	1										
11.	Pre	1	9	1	5	3	Jr.	M	1 8/16	1 6/16	2	4	5		Yes	No
	Post	1	9	1	5	3										
12.	Pre	9	1	2	4	3	Uncl.	M	1 8/16	1 8/16	3	4	4	5	Yes	No
	Post	9	1	3	4	2										
13.	Pre	1	9	2	5	2	Fr.	F	3.0	2 15/16	2	4	4	1	Yes	Yes
	Post	1	9	2	5	2										

14.	Pre	3	9	2	2	5	Sr.	M	3.0	3.0	2	2	3	3	Yes	No
	Post	3	9	2	2	5										
15.	Pre	4	9	4	4	1	Oth-	M	1 8/16	1 8/16	2	3	4	5	Yes	No
	Post	4	9	5	3	1	er									
16.	Pre	2	9	1	1	7	Grad	F	1 8/16	1 8/16	3	3	3		Yes	No
	Post	2	9	1	1	7										
17.	Pre	2	2	1	5	3	Grad	F	1 8/16	1 8/16	1	2	2	5	Yes	No
	Post	2	9	4	5	0										
18.	Pre	1	9	3	5	1	Sr.	M	3.0	0	3	1	3	5	Yes	No
	Post	1	9	3	5	1										
19.	Pre	4	1	1	4	4	Uncl.	F	7/16	7/16	2	3	4	3	No	No
	Post	4	9	1	5	3										
20.	Pre	4	1	3	4	2	Sr.	M	2 9/16	2 9/16	2	2	2	2	Yes	No
	Post	4	1	3	4	2										
21.	Pre	5	1	2	4	3	Sr.	M	1 8/16	1 8/16	2	1	4	5	Yes	Yes
	Post	5	1	2	4	3										
22.	Pre	3	9	3	3	3	Sr.	F	1 9/16	1 9/16	3	5	3	5	Yes	No
	Post	3	9	1	3	5										
23.	Pre	3	9	3	2	4	So.	M	1 8/16	2 7/16	3	4	4	3	Yes	No
	Post	3	9	3	2	4										
24.	Pre	1	9	3	3	3	Sr.	M	1 8/16	1 8/16	4	4	4	5	Yes	No
	Post	1	9	3	3	3										
25.	Pre	6	1	2	6	1	Oth-	F	1 9/16	1 10/16	1	5	5	5	Yes	No
	Post	6	1	2	4	3	er									
26.	Pre	1	9	1	2	6	Jr.	F	1 9/16	1 7/16	2	3	3	5	Yes	No
	Post	1	8	8	2	0										

27.	Pre	2	9	3	5	1	Sr.	M			3	4	4	5	Yes	Yes
	Post	2	9	3	4	2										
28.	Pre	6	1	2	3	4	Jr.	M	1 8/16	1 8/16	3	2	4	5	Yes	No
	Post	6	1	4	4	1										
29.	Pre	3	9	3	3	3	Uncl.	F	1 15/16	8/16	2	4	4	5	Yes	No
	Post	3	9	4	4	1										
30.	Pre	9	1	1	6	2	Fr.	M	0	0	2	2	4	9	Yes	No
	Post	9	1	3	5	1										
31.	Pre	6	1	2	5	2	Fr.	M	1 7/16	1 8/16	3	2	3	5	Yes	No
	Post	7	1	3	5	1										
32.	Pre	5	1	1	8	0	Jr.	M	1 8/16	1 9/16	3	2	4	3	Yes	No
	Post	5	1	2	7	0										
33.	Pre	6	1	2	6	1	Sr.	M	1 6/16	1 6/16	3	3	3	5		No
	Post	6	1	3	6	0										
34.	Pre	3	9	4	5	0	Oth-	M	1 7/16	1 7/16	3	2	4	5	Yes	No
	Post	2	9	4	4	1	er									
35.	Pre	4	9	3	3	3	Sr.	F	1 8/16	1 8/16	3	2	3	5	Yes	No
	Post	4	9	3	4	2										