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SITUATIONAL AND INTERACTION FACTORS IN
A PROCESS MODEL OF CONFORMITY

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ABSTRACT

This investigation examined conforming behavior as a function of three stimulus information sources, i.e., task ambiguity, task sense modality, and group feedback. Two hundred and forty undergraduate women were presented with a judgmental task in an influence situation. For 20 trials each subject saw the responses of the group only after making a response. For 20 subsequent trials, the responses of the group were presented before the subject was required to make a response. The feedback of group responses was controlled by the experimenter. Responses on the last 20 trials which matched the responses of the group constituted the measure of conformity.

Subjects participated in one of 24 conditions, in a 3 x 2 x 4 design, 10 subjects or two groups per condition. The conditions of task ambiguity included: 1) a completely ambiguous task stimulus, i.e. ambiguous for both sets of 20 trials; 2) an ambiguous-unambiguous condition where the stimuli were ambiguous for 20 trials and unambiguous for 20 trials; 3) a completely unambiguous task condition. Responses to a light stimulus throughout for one group of subjects and changing from tones to lights for the other group of subjects constituted the factors of task sense modality. Conditions of support included complete agreement on either 100%, 70%, or 50% of the first 20 trials or no information concerning the group judgment (0% control).

The following results were obtained: 1) The more ambiguous stimulus conditions yielded higher conforming; 2) the change in modality from tones to lights yielded higher conforming than did repetition of the light task; 3) support conditions did not differentially affect conforming across all conditions. In the completely unambiguous task conditions, however, greater support conditions generally yielded higher conforming; 4) a questionnaire measure of felt dependence on the group correlated significantly with conforming behavior, while standard personality measures did not.

Situational and Interaction Factors in
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INTRODUCTION

This report covers one part of a program of research on social influence process. The particular emphasis of this line of investigation has been on factors which produce and sustain conformity in groups. Going beyond the more usual study of conformity as "convergence" toward a group response, this work has introduced prior experience with others in the group who may be supportive or non-supportive of a person's judgement. Subsequent conformity is then ascertained in terms of a matching response to the group's erroneous judgement over time.

In the first study reported in this series, by Hollander, Julian, and Haaland (1965), subjects reported first among five group members in a Crutchfield arrangement. Judging a non-ambiguous visual stimulus, subjects in one experimental condition found everyone agreeing with them on all twenty trials, in another condition on fourteen randomized trials, and in the third condition on ten randomized trials. Subjects in all conditions were then placed in the last response position for the twenty "conformity trials" in which all other group members gave totally erroneous responses in advance of them. The initial level of conformity and its persistence were found to differ significantly as a function of these conditions and a control condition in which there was no prior knowledge of the group's responses.

Further confirmation of this finding was provided in a study by Julian, Ryckman, and Hollander (1966) using the same essential procedure, except that now the proportion of group members who appeared to agree with the subject was varied in the prior support conditions, i.e., four, three, two, or one other member out of the four. In terms of process, the pattern of subsequent conformity was once again found to be a significant function of these different conditions. In the study to be reported here the same paradigm of conformity is employed with certain elaborations. In particular, this study seeks to clarify the function of differential stimulus factors in interaction with the experience of group support. These factors are ambiguity or non-ambiguity of the stimulus, and the nature of the sense modality, i.e., visual or aural, involved in making judgements.

* Based on research submitted as a dissertation in 1966 to the Faculty of the Graduate School of the State University of New York at Buffalo in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

Problem and Framework

Conformity has long been a central concern in the study of social behavior. Popular concern has been focused by mass media on uniformity of behavior resulting from a multiplicity of influence sources. It is the task of the behavioral scientist, however, to investigate not only the sources of influence and resultant behavior but to understand the entire process of conformity as part of the phenomenon of social influence.

To define properly the concept of conformity, aspects of the stimulus environment such as task and social setting must be closely considered as well as the more traditional orientation involving identification of behavior as a product of social influence. A broad social learning framework enables the scientist to examine aspects of the stimulus and organism as related to the conforming response. The purpose of this study is to investigate some stimulus, experiential, and individual factors as they contribute to the conforming process.

Research on conforming behavior has tended to under-represent features of the total situation in which conforming occurs. Especially noteworthy as factors given scant attention are the experiences the individual has with other group members in the conforming situation and the properties of the task. The traditional approaches have usually ignored the process by which an individual may learn to alter his response in the conforming situation. The manner in which situational aspects such as task stimulus and intra-group communication interact with personal factors and produce a response labeled conforming remains, to a certain extent, unknown. Within the framework provided by social learning theory, these variables constitute the major concern of this study.

An analysis of conformity research places previous investigations into three categories: those which emphasize stimulus aspects, individual aspects, and process. The earliest experimental efforts are primarily concerned with the stimulus situation and its corollary, the effects of social influence. The situational emphasis deals with features of the stimulus array presented by task and group properties. Concern for effect is generally limited to behavior produced under the influence of certain specific situational or stimulus factors. Traditional conformity research reflects these biases, drawn from the close alliance with Gestalt principles. The study of individual factors is principally an effort to understand conforming as a personality variable. Attempts are made to relate consistent response patterns or personality schedules to consistent conforming responses. An emphasis on process, however, is an effort to deal with those factors which give rise to conforming as they interact with personal experience over time. Process includes the more traditional concerns of personal and situational variables as well as encompassing an effort to understand how the individual learns to handle stimulus and group factors when confronted with social influence pressure.

The function of this classification scheme is to clarify past approaches to conformity research. While the traditional concern has been situational, with much of the more recent work focused on personal factors, neither of these approaches has been sufficient. A major thrust of the present work is to show the importance of dealing with conforming as a process. This process involves a situation where stimulus factors can interact with social learning mediated by group communication while clarifying the function of personal factors.

Definition of Conformity and Process

Conformity has often been defined simply as behavior change resulting from successful social influence. Successful influence is defined as behavior in line with prescriptions of an influence source. Uniformity of behavior consistent with group expectations, however, does not necessarily imply conformity. The province of conforming behavior as a construct in social psychology is clarified only by including aspects of the stimulus problem in a definitional statement. Conformity must be defined as behavior resulting from social influence where a behavioral alternative exists other than that prescribed by the influence source and where the stimulus complex in a conforming situation involves at least two sources of information. One stimulus informational source, the perceptual norm, constitutes the task or judgmental aspect of the social influence paradigm. The other informational source is the group which supplies an alternative norm.

Advantages of this definitional position, which emphasizes the stimulus complex in comparison to a response oriented definition, can be seen by contrast with the definition offered by Bass (1961). He defines conformity as behavior reflecting successful influence by others. Bass does not delineate the stimulus dimensions which would discriminate differing responses to influence, although he realizes that conformity is not the only product of successful influence. Such a response oriented concept does not discriminate between conformity and imitation, for example, since only one influence or informational source need be present or relevant. Diverse behaviors such as the use of the cardinal number system or wearing clothes are consistent with this definition of conformity, nullifying its usefulness. Where the stimulus complex contains at least two normative informational sources, however, the behavior can be described in terms of these stimulus alternatives as well as simple response modes. Conformity is not coincidental with social influence, then, but a specific instance of an influence process.

Process as a social psychological concept has often merely summarized a more detailed description of the stimulus - organism - response relationship. However, a comprehensive view of conformity is not provided by the mere labeling of certain behaviors as conforming or the identification of personal elements that correlate with the behavior. Nor does the systematic variation of task stimulus elements examined in isolation develop a complete construct. The essence of conformity process is to consider behavior over time, accounting for situation and person and the possible interaction of these variables. Properly construed, process provides the most adequate description of conforming behavior.

Historical Background

Early Experiments

There have been three specific historical developments of note in the study of conforming behavior. Variations on these constitute much of the experimental work done today on this phenomenon. Although earlier studies involved experimental approaches to social influence, for example, Moore (1921) working under the influence of Moede and Münsterberg, it was the work of Sherif (1935) which focused attention on the potential for laboratory study of social influence. Sherif used the ambiguous stimulus situation produced by the autokinetic phenomenon in conjunction with influence attempts by a group of confederates. Asch (1951) emphasized the use of unambiguous stimuli under conditions of influence pressures by a group of confederates. These early studies were primarily in the situational mode, drawing from a Gestalt stimulus complex emphasis. The study of the interaction of individuals and the subsequent groupness relationship or stability brought social influence from a casually observed phenomenon to a problem of central concern in social psychology. The consequence of these studies has been primarily one of noting the relatively complex cognitive-stimulus concomitants of conforming behavior. They have not attended to the problems of personal concomitants of conforming behavior, however, providing an incomplete construct of conformity.

The work of Crutchfield (1957) exemplifies the personal emphasis in conforming. He proceeded by correlating various personality schedules with his measure of conforming. Experimentally, Crutchfield modified and mechanized aspects of both the approaches of Sherif and Asch with the introduction of simultaneously controlled feedback to all subjects by means of signal lights. He also promoted the use of differing types of task materials to serve as the perceptual stimulus.

Early Theoretical Developments

The general framework from which the early experiments developed was one which emphasized conformity as a complex cognitive-emotional unit of social behavior. Asch (1961), for example, considered conforming a complex social event rationally produced by an individual faced with a complex stimulus array. He developed a unitary model of conformity, with conforming and independence being factors of the same dimension where both are involved in each response labeled conforming. Sherif (1935) attempted to understand the crucial relationship between social influence and the production of norms as a structural property of groups. The particular innovation of these authors was the primary consideration of conformity as a central phenomenon of social behavior.

The efforts of Crutchfield principally dealt with conforming as an habitual mode of behavior for individuals across situations. By correlating conforming behavior with measures derived from personality schedules, he attempted to demonstrate conformity as a meaningful personality construct.

While these conceptions have emphasized personality or complex stimulus relations, they have ignored the situational stimuli as mediated by the group and the individual's experience with the group. They have considered the group mainly as an influence source which prescribes normative behavior, but previous works have not emphasized the differential reliance on the group due to varying feedback or other situational constraints. The traditional experimental paradigm involved placing subjects immediately in an influence situation where they responded after seeing the behavior of others in response to the same perceptual task. This limited the type of feedback an individual received from the group. The present concern for process, as noted earlier, involves consideration of the interaction of all these factors.

In a provocative essay, Asch (1961) pointed out the problem of an oversimplified conception of the stimulus in the conformity experiment. He noted that most tasks used in the social influence situation led to the measurement of decreased sensitivity to certain perceptual phenomena. This, at least, was the extent to which the effects were examined. The primary effort was aimed at affecting judgment arbitrarily, independent of the properties surrounding the stimulus task. Coincidental with the simple situational emphasis, according to Asch, was a lack of sufficient theory accounting for conforming as complex behavior. This, however, resulted from an insufficient concern for conformity process.

The more recent work on personality factors derives from a similarly simple outlook in which conforming is or is not an habitual behavior pattern for a particular individual. Neither outlook successfully deals with the interaction of these elements, nor has either attempted to relate the conforming response to certain experiences the individual has with the rest of the group, i.e., what the individual learns from the group.

Neither a simple S-R approach nor the stimulus complex orientation of the Gestaltists provides an adequate framework for the process approach to conforming research. Although conforming process is not specifically a problem viewed in terms of traditional learning theory approaches, there are aspects of the recent work of social learning theorists that provide a useful perspective. Social learning as a systematic theoretical view has developed in response to the need for a behaviorally-oriented approach which handles problems of cognitive and emotional factors as well as the interpersonal orientation of individuals. Thus the emphasis of social learning theory encompasses a conception of stimulus organization in conjunction with the cognitive factors developed by the Gestalt outlook without denying the relevance of learned factors or lawful S-O-R relations which form the concern of behaviorists.

Social Learning Theory as a Framework for Conformity

Social learning theory as a general system of behavior is an attempt to include cognitive, personal, or organismic factors in a learning framework as well as complex stimulus and response dimensions. It offers a framework for viewing conforming process with adequate concern for the

relative function of all factors in the process, i.e. the individual, situation, group, and normative interaction. Thus, for example, the recent work of Bandura and Walters (1963) is relevant to the conception of personality as a factor in conformity, especially in terms of the concept of dependence developed below.

Personality as conceived in a social learning framework is not a static configuration as it is characterized by trait or personality theorists. For the trait or stage theorists, personality is a relatively immutable manner of behavior either as a function of certain inherited dispositions that are organized as personality or as the result of experiences during early stages of development which become the principal factors of later behavior. Alternatively, personality may be viewed as an habitual mode of behavior learned under certain situational and organismic constraints and elicited under certain stimulus conditions. This conception would include possible effects due to physical features or physiological functioning. The emphasis on learning is an effort to understand the acquisition of aggression (or other habitual responses) as useful behavior for the individual, rather than simply attributing it to a stage of development.

Certain related studies, for example, Baer (1962) and Cairns (1961), demonstrated that the social learning of an individual may affect susceptibility to social influence by varying certain types of social reinforcers in a dependency situation. Thus, given a novel situation of social influence under certain reinforcement conditions, previously learned personal dispositions may be suppressed (extinguished, counter-conditioned) and new personal modes may be learned. The corroboration of this point forms one of the major variables of this study.

Bandura and Walters have developed a dependence concept related to that of Campbell's (1961) and relevant to the concept of dependence elaborated in a later section. In any social influence situation, the individuals involved may be either task or person-oriented. The amount or type of conforming is directly related to these orientations as sources of information. In the conforming experiment conceived by Bandura and Walters, conformity is a function of the importance of person orientation which yields dependence. Consistent with the conception of the present work, dependence is not an overt response in a situation, for that response is labeled conformity. Dependence functions as an intervening variable handling the relation of the stimulus complex to the response of conforming.

The expectancy construct of Rotter (1954) is relevant to the dependence construct and variables of the present study in two ways: 1. expectancy, like dependence, is a function of information received through a past history of reinforcement; 2. expectancy can generalize to various situational modes. The generalization may or may not be appropriate for the individual but is a response based on available information.

The present study is not designed to test directly deductions from social learning theory but utilizes these conceptions as a broad framework for the particular variables in question. The following sections on related research and the construct of dependence provide the immediate background for the specific hypotheses of this study.

Related Research

Introduction

Later developments in conforming research based on these early experiments provide some background for the present study. The primary problem of interest is the experience a subject has with the group prior to encountering influence attempts. This experience is characterized by group communications to the individual which may affect later conforming. In conjunction with this experience, how does the task stimulus and mode of stimulus presentation affect conforming? In what way do personal factors interact with the experimentally induced situational factors? These questions form the particular problems of this study. The relevant literature is presented along situational and personal dimensions to clarify the relationship of previous work to the present study.

Of central importance to a view of conformity in terms of influence process is the particular composition and relevance of the group to the individual and his interaction with the group. Consistent with the elaboration of the process elements of conformity noted earlier, the nature of the perceptual norm represents a more specialized situational factor specifically mediated by the stimulus features of the task and the implicit or explicit information from the group. It is important to note that in the conforming process the salience of a particular factor, whether personal or situational, is relative. The relevance of a variable can be manipulated by the experimenter. Cognizance of this is necessary for a clear understanding of the findings concerning situational factors in conformity.

Situation

There is evidence that certain situational constraints can become more salient in the conforming experiment to the relative exclusion of personal factors. Argyle (1957) found that individuals exhibited more conforming when they delivered their decision in public rather than writing it privately. Goldberg (1954) found very low intercorrelations for individuals over various types of conforming experiments, leading to the conclusion that conformity might be quite specific to the situation. He was unable to delineate any generalized factor of conformity that could be considered a personality characteristic.

Interaction of an individual with the group prior to or during a conformity experiment in terms of support or non-support can affect the amount of conformity in various ways. Pennington, Hararey, and Bass (1958) found that interaction in discussion groups prior to the conformity

situation generated more coalescence than a group not allowed to discuss the problems. In an experiment involving level of activity in a group, Pepinsky, Hemphill, and Shevitz (1958) found that those low in the initiation of activity within the group could be successfully encouraged by positive group support to increase this activity and those high in initiating activity could be discouraged by negative group support. Similarly, Bachrach, Candland, and Gibson (1961) demonstrated the effect of support through the use of a verbal conditioning experiment. The frequency of a desired verbal response was raised as a function of group or aggregate reinforcement. These studies show the effect that induced support can have on the behavior of interacting or interdependent individuals.

The manner of interaction also yields an effect on the conforming behavior of individuals. For example, Mausner (1954) and Mausner and Bloch (1957) showed first of all that a history of failure in a particular task would cause convergence to more successful partners and secondly that individuals who were reinforced for holding a particular position would converge less when they had experienced success or reward for holding that position. In related work, Thibaut and Strickland (1956) studied the interaction orientation of individuals where conformity could be increased by encouraging a group set or group orientation rather than a task set. Raven (1959) found that individuals who are oriented toward possible rejection by the group would conform more than those who are not so oriented.

The general importance of these studies to the present problem is that the experience of the individuals in the group and their subsequent performance on conforming tasks is greatly related to the situational constraints surrounding the interaction of the group members and their perceptions of each other.

In further work on support, Kelman (1950) studied the effects of success or failure on conforming using the autokinetic task, relating his predictions to the principles of reinforcement. He found, however, that subjects who were told they were successful were less suggestible than were the failure or ambiguously reinforced groups. The reinforcement constituted statements concerning relative performance and were not very precise. This is consistent with the data on confidence and conformity. On the other hand, a recent study by Hollander, Julian, and Haaland (1965) reported higher conformity for the more highly rewarded. Reward may be considered to make behavior more dependent on the group rather than independent, as in Kelman's study. The function of support conditions along dimensions of stimulus ambiguity (dimensions on which the Kelman and Hollander, *et al.* studies differed) is part of the concern of the present study. These findings support the conjectures of both Asch (1961) and Kelman (1961) that conformity represents more complex behavior than simple S-R formulations might purport. However, a neo-behavioral model that incorporates the complex stimulus and certain cognitive functions can handle the Gestalt-like nature of the stimulus complex, as well as the factors that are immediately learned in the conforming situation or are present in the form of personality factors.

The work of Hollander, Julian, and Haaland (1965) provided a direct basis for the present study. In that study the focus was upon group support as a factor in social influence. Schedules of reinforcement (support feedback) were varied, including a 0% (control), 50%, 70%, and 100% group. This reinforcement was initial group support characterized by amount of agreement. Feedback was given via signal lights in the form of percentage of trials of agreement on an unambiguous light-judging task. In the initial trials subjects responded first and received feedback from the group. For the second phase of the trials, the group response was flashed first and then the subject responded. A significant relationship between conforming and feedback conditions was found with conforming varying directly with the initially higher incidence of positive support. This would seem to indicate that feedback of support created differential dependence on the group. The variable conditions of support also affected behavior over blocks of trials, with those subjects who had been continuously reinforced conforming markedly less as the trials progressed. Those partially reinforced maintained or even increased their level of conforming.

Only a very low and non-significant correlation was found between a social desirability measure and conforming for both males and females, supporting the potency of the situationally induced support. Furthermore, a post-experimental questionnaire revealed that the amount of felt dependence on the group was positively related to perceived task difficulty and to total conformity.

In addition to factors mediated by the group, the problems of stimulus ambiguity and generalization as factors of situational conditions of conformity are relevant concerns. The most consistent findings on the relation of conformity to stimulus ambiguity showed that the more ambiguous the stimulus condition, the greater the yielding to influence (Walker and Heyns, 1962). Further refinements of this relationship were reported in other studies. Suppes and Schlag-Rey (1962) found that the differences between ambiguous and unambiguous task elements related closely to what have been identified as the stimulus elements most important in producing conforming behavior. This tentatively points to a possible difference in the kind of conforming as a function of stimulus ambiguity rather than merely the amount of conforming. Blake, Helson, and Mouton (1957), however, found consistent increases in conformity related to consistent increases in task difficulty. Similarly, Chapman and Volkmann (1939) found a reduction in conforming when subjects were allowed to reduce the ambiguity of the situation by setting their own standards of judgment. Thus, the relation of stimulus ambiguity to conformity remains somewhat unclear.

Generalization of experimentally induced conformity represents the last major situational variable of concern to the present study. The problem of generalization concerns the extent to which different situations will be interpreted similarly by individuals. Asch (1952) and Rosner (1957) found a relatively stable mode of behavior over successive replications of a line judging experiment. As noted earlier, however, Goldberg (1954) found conforming to be relatively specific to the situation when subjects were tested over different experimental situations.

In a different vein, Allen and Crutchfield (1963) showed that experimentally reinforced conformity generalized from objective to subjective stimuli, where feedback was given initially on objective stimuli but not given on the subjective stimuli. They were unsuccessful in extending this generalization concept to attempts at creating a high psychological similarity among stimuli, however.

To summarize briefly, there are many potential aspects of the situation which can affect conforming behavior. The manner in which these variables combine or interact in the conforming process is not clear. Nor is it clear how certain features of the stimulus environment become relatively more powerful factors in conformity. For a process orientation, knowledge of situational variables must be examined in conjunction with individual variables.

Personality

To define the relation of conformity to personality is to determine the function of an habitual behavior pattern in producing a conforming response. The habitual behavior pattern is essentially the construct used in discussing personality as a learned phenomenon. The function of situational factors in changing the behavioral response of conforming must necessarily be ascertained in conceptualizing conforming as a personality construct. If conforming is primarily situation specific, conformity may not be a useful personality construct.

Crutchfield (1955) found significant relations between his measure of conforming and such factors as intellectual competence, mental functioning, and authoritarianism defined by scores on the F scale. Di Vesta and Cox (1960) found a significant negative correlation with need achievement (EPPS) and significant differences between independent and conforming respondents on an adjective check list. Strickland and Crowne (1961) and Crowne and Liverant (1963) have noted a significant relation between conformity and need for approval as measured by the M-C scale.

On the other hand, the Goldberg study reported above indicates the effects of situational variability and a lack of consistent conforming. Following a slightly different approach, Endler (1961) found little relation to individual differences as measured by the EPPS or F scale. The study by Hollander, et al. (1965) reported no significant correlation between conforming and need for approval as measured by the FSDS. It would appear incorrect, therefore, to label individuals conformers or non-conformers without asking under what conditions they conform.

The integration of the theory and research presented above relates to the present study in terms of a concept of learned dependence. This dependence functions as an intervening variable to mediate aspects of the stimulus situation and personal variables as they relate to the conforming response. The appropriate stimulus factors are learned and integrated by the individual in his interaction with the group and are represented by his behavior in the conforming process.

Dependence

The stimulus and group elements of this process must be co-ordinated by a construct that describes the nature of the relations between these elements. Such a construct is that of learned dependence.

What is being learned in an influence situation is relative dependence on the cues of feedback from the situation in reference to self-perception or personal factors. The salience of the elements of the process can be manipulated experimentally by reinforcement from the group, types of tasks, and the particulars of the task situation. Experience with these variables creates a differential dependence on them. Therefore, in an influence situation an individual is dependent on two major sources for information about task relevant behavior--his own perceptions, and the perception of information from relevant others. A generalized concept of dependence, accordingly, serves as a valuable bridge in relating these factors of influence as they may differentially affect behavior in the task situation. The emphasis of this study is on dependence to situational factors characterized by group feedback and stimulus change. Situational factors immediately preceding influence form more salient influence pressures than other past history variables such as personality. With some variables controlled, conforming behavior may be studied as a function of the immediate situational variables in a social learning framework.

The theoretical framework adopted here is basically an extension of concepts found in behavioral small group theory with emphasis on deductions related to conformity. There is a class of social psychological theories consistent with this pattern, among them those of Thibaut and Kelley (1959), Homans (1961), Campbell (1961), and Allport (1962).

For example, Thibaut and Kelley (1959) view the concept of dependence from the vantage point of power. The dependence of the individual on the group is an inverse function of his power to ignore the group norm. This is consistent with the construct of Hollander (1958) wherein the perceived status of an individual is related to the credits built up through compliance to normative group sanctions, as well as from competence in a central group task. For Thibaut and Kelley, the group does serve the function of giving reward to individuals in the group. The manner in which this function is utilized results in the subsequent dependence of the individual on the group.

Perhaps the most relevant feature of the Thibaut and Kelley model to the concept of dependence is the importance placed on communication in the group. The potential of the group for norm-sending and rewarding is dependent on the amount of effective communication that is available. Similarly, the dependence of the individual on the group is a function of the information he receives from the group. If communication is ineffective or confused, it is easier for the individual to behave independently. The concept of motivation is also relevant here. The amount of dependence, for Thibaut and Kelley, is viewed as a function of the degree to which the individual can be rewarded by the group or the group can give him what he wants.

While recognizing the problem that Asch raises about the oversimplicity of an S-R approach, Campbell (1961) does not feel that a rational approach to conformity is necessary. The general system he develops is an attempt to categorize behavior as a function of complex stimulus factors and personal factors. The categories he calls composites are used to describe a differential weighting of the components of a conflict between social and personal factors in the influence situation. For example, in any conforming situation the social and personal stimulus factors have a relative weighting. The conforming response is a function of a composite of these factors. This conception is not unlike the necessity for two stimulus factors in conformity noted earlier. Any factor which affects the strengthening or weakening of the components (the weighting procedure) of a social-individual conflict is a variable of conformity. Campbell defines composites in terms of weighted results, i.e. behavior resulting from a type of resolution of the conflict by taking account of all the variables extant.

Three types of composites are identified: resolved composite, where the information from the social-personal factors is equivocal and can be resolved; dominated composite, where one source of information dominates to the exclusion of influence from the other; and compromised composite, where an average is made of the influence from both sources of information. The dependence concept receives support here from the necessity built into Campbell's system for information. The sources he utilizes are social and personal. The feedback from these sources which yields information and affects subsequent behavior is the precursor to dependence. The weighting procedure, which is essentially a function of the environment, determines the information on which the subjects will be most dependent. This is consistent with the position stated earlier concerning the importance of defining conformity based on the situation, which, in effect, makes the situation the most salient variable.

In developing his quasi-economic model of social exchange, Homans (1961) notes that interpersonal behavior is valued according to a representation of profit considered as reward minus cost. Homans is not principally concerned with why conforming behavior is valuable beyond the consideration that it follows a pattern of behavior which is socially approved or uniquely rewarding to the recipient. He does, however, imply the importance of dependence when he contends that interaction is dependent upon approval or reciprocal reward. For interpersonal behavior to recur, profit must exist for both members, i.e. the cost cannot be greater than the reward. This dependence of one individual on feedback from another for the maintenance of social communication is the type of dependence that is postulated here as existing in a conforming situation. In the proposed experimental situation, feedback from others is controlled, as well as possible alternative responses. Differential feedback presumably varies the cost of interpersonal behavior and accordingly the dependence upon, or involvement with, the group. In this situation dependence varies according to a model involving reward - cost = profit.

Possibly the most relevant development in recent years concerning the dependence concept in conforming is presented in a recent paper by F. Allport (1962) on the collective structuring model of the development of groups and their influence. In his development of an individual approach to group behavior, Allport states that the only structure which exists in a group is that of a common normative base. The norm is the behavioral stipulation by which the individuals have some degree of involvement (dependence) in maintaining the continued existence and operation of the structure, i.e. the group. Interaction yields reciprocal dependence which is extremely important insofar as the give and take of two individuals is a cycle in which the behavior of each is dependent on the other for feedback and rewards. Generalizing to collective structuring, Allport considers this phenomenon as the product of heightened probability of satisfaction through communicative and thus dependent behavior. The greater probability is only realized and extended by continued interaction with others. Conformity, then, is not a personal factor but only an attempt to maintain a structure or communication over a common norm. Stability of conforming or conforming as an habitual response is dependent on the interaction of the individuals in the group and is not an intrapersonal phenomenon. What has been conceived traditionally as a stable intrapsychic behavior pattern is really a stability of interpersonal relations. Conforming is a facilitating or perhaps essential condition for the continued existence of a group, i.e. "groupness" is dependent on conforming.

The recently developed two-dimensional concept of Willis and Hollander (1964b) concerning responses to social influence also involves a dependence concept. The two dimensional model labels conformers and anti-conformers as opposite ends of one dimension and independent and variable behavior as opposite ends of the other dimension. The behavior of conformers and anti-conformers is dependent on the feedback or information from the group while the behavior of independents is not. The particular mode of behavior exhibited by individuals is a function of the weight given the various situational factors. The nature of the task, the mode through which the task is presented, and communication from the group all form situational variables which may differentially affect the response. Thus these factors, as they interact with personal variables and situationally-learned factors in conformity process, constitute the specific basis for investigation in this study.

STATEMENT OF THE PROBLEM

Conforming responses reflect a dependence on the group, based upon the experience the individual has with the group. These responses can be considered a function of the type of support given the individual, the sense modality of the task, and the ambiguity of the task.

Support is presented to the subjects for 20 trials where they are required to respond first to the perceptual task and then note the judgments of the other subjects. Conforming responses are measured during a subsequent sequence of 20 trials where the subject was led to believe that the rest of the group was responding first and the subject

last. Group support is considered a reinforcer which creates differential dependence on the group. Sense modality of the task, conditions of support, and ambiguity of the perceptual stimulus are manipulated to create a differential dependence on the normative prescriptions of the group. Conforming responses and speed of response are measured as the effects of these manipulations.

Main Effects

Four patterns of group support are used for the present study. Support consists of the number of trials in 20 in which all members of the group agree with the subject. Thus in a 100% support condition, subjects receive unanimous agreement on all trials; subjects in a 70% condition receive unanimous support on 14 of 20 trials; those in a 50% condition receive support on only 10 of 20 trials; and subjects in a control condition (0%) receive no feedback during the first 20 trials.

The 100% condition is predicted to have the most dramatic effect in producing dependence and therefore will yield the highest number of conforming responses. This is based on several considerations, primarily the earlier work of Hollander, et al. (1965). The 70% and 50% support conditions are predicted to yield lower conformity levels, with the 0% condition yielding the lowest.

The change in task sense modality for the trials under which the conditions of support are administered functions in two ways: to test for a generalization of support from one modality to the other and to control for the effect that support might have in raising the self-confidence of the subject on the task in opposition to dependence on the group. Fisher, Williams, and Lubin (1957), for example, found that conformity is greater on material about which the subjects are less confident. Thus, the subjects in the present study who are reinforced under one modality and tested under another are predicted to generalize from one modality to the other. Greater conformity over-all is also predicted for the sense modality change because of an increased dependence on the group feedback and decrease in self-confidence.

In research summarized by Walker and Heyns (1962), more ambiguous tasks yielded greater conformity. For this study, subjects who are supported and tested under conditions of complete ambiguity are expected to yield more conformity than those supported under conditions of ambiguity but tested under unambiguous conditions. Both of these groups are predicted to show greater conformity than those supported and tested under conditions of complete unambiguity. The outline of these major variables is seen in Table 1.

For simplicity, the following abbreviations will be used in denoting experimental conditions:

- A - A Complete experiment under totally ambiguous task stimuli
- A - U First half of experiment under ambiguous task stimuli and last half under unambiguous task stimuli
- U - U Complete experiment under totally unambiguous task stimuli
- L - L Complete experiment performed under light modality
- T - L Tone modality used for first half of trials and light modality used for last half

The possible combinations of these conditions are shown in Table I.

Latency

Latency is predicted to decrease over the last 20 trials because of an interactive effect of practice and lessening of anxiety as the subject becomes more familiar with the task. Anxiety as related to latency should interact with schedules of reinforcement. Speed of response (1/latency) has been found to relate to anxiety (Weiss, Rawson, and Pasemanick, 1963); thus, the support conditions are predicted to interact with speed of response insofar as they create differing dependence levels.

Personality Schedules and Questionnaire Results

Personality viewed in a process orientation might be relatively less important as factors of behavior than certain situational variables. As Goldberg (1954) has noted, conforming appeared relatively situation specific rather than a generalized personality variable. Other experimenters have related personality to a specific experimental situation (Crutchfield, 1955), finding certain consistent relationships between personality and conformity. However, none of the early experimenters were oriented toward the learning experiences in the conformity situation that might affect the subjects' behavior. The relation between conforming and certain personality measures will be examined in the present study.

A questionnaire measure following the first 20 trials and following the last 20 trials is administered to gain information about the success of the induction as well as the subjects' perceptions about the task situation and feedback.

In keeping with the findings of Hollander, et al. (1965), a measure of perceived dependence on the group is predicted to correlate with the measure of conforming.

Table I
Experimental Design

		X ₁	X ₂	X ₃	X ₄
E ₁	D ₁				C
	D ₂				C
E ₂	D ₁				C
	D ₂				C
E ₃	D ₁				C
	D ₂				C

X - Four Blocks of Five Trials Each in the Last Sequence
 C - Conditions of Support
 D - Sense Modality of Task
 E - Conditions of Stimulus Ambiguity

METHOD

Equipment

The Stimulus System. The stimuli consisted of taped tones and blue lights mounted on the wall. The series of tones were recorded by connecting Hunter timers to a tape recorder and audio oscillator. The timers controlled the length of time the tone was sounded and the interval between the tones. The tape had two parts, each section consisting of 20 sets (trials) of three tones. One part was made up of completely ambiguous stimuli and the other of completely unambiguous stimuli. For all sets, an interval of one second was maintained between tones.

These tones were played in groups of three, the task being to judge which was the longer tone. For the ambiguous stimulus conditions, the three tones comprising a set were the same length, although tone length varied between sets. For the unambiguous stimulus conditions, the longer tone was 1.8 seconds in duration as compared to 1.0 seconds.¹ A 45 second interval was programmed into the tape between trials, allowing the tape to run continuously. The frequency of the tones was the same for each set but varied between sets from 300 to 800 cycles per second (c.p.s.). The position in which the longer tone appeared for the unambiguous stimulus condition was randomly varied over the 20 trials. The interval between all stimuli was 1.0 seconds.

The light stimuli consisted of three blue candelabra screw-mount lights mounted on the wall in full view of the subjects. These lights were connected to two Hunter timers which controlled the sequence and interval of extinguishing between the lights. The sequence was randomly determined and was the same for all experimental groups. A highly unambiguous stimulus was ascertained by pilot work and used throughout the study for the appropriate conditions. For the ambiguous stimulus conditions, the lights extinguished simultaneously.

The Response System. The panels of signaling lights and switches, together with the control panel of the experimenter and the reaction time clocks, constituted the response system. Each subject's panel presented 15 lights, arrayed in three columns of five lights each. A mercury switch was mounted beneath each of these columns. The switches corresponded to the judgment of tone or light the subject wished to signal. This judgment was flashed on the experimenter's panel only. The bottom row of signal lights represented the response of the subject; the other rows of lights were controlled by the experimenter through a series of mercury switches connected to the signal lights, with one switch controlling one light. This enabled the experimenter to manipulate the apparent sequence of responding.

¹Psychophysical pilot work was used to determine the relative ambiguity of the stimulus configuration.

As the stimulus lights or tones were presented and the subject made a response, a measure of latency was obtained. This was accomplished through a group of five standard clock timers, one for each subject, which started as the stimulus was presented and stopped when the subject responded. A system of relays was connected to the experimenter's feedback panel and controlled the impulse from the panel to the clocks.

Subjects and Procedure

Subjects were 240 females drawn from the introductory psychology course at the State University of New York at Buffalo. Several months prior to the experiment the students had taken a battery of personality schedules.

The experiment was conducted with groups of five women in a specially designed laboratory. A diagram of the laboratory layout is shown in Appendix A. Subjects were escorted to the laboratory where each was seated in front of a signaling panel. These panels were arranged in cubicles which shielded subjects from one another's view. Subjects were then handed the following sheet of instructions which were read aloud:

"This is an experiment on (perceptual ability; visual and auditory perception).² The task is relatively simple, requiring only that you judge which of the three (blue lights on the wall goes off first; tones presented over the tape is the longer). This experiment is supported in part by a Navy grant and is thus interested in (the ability to coordinate various colors of lights with relatively complex readings of panel lights; visual-auditory coordination). This is the reason for the extensive equipment. For the first twenty trials, you will judge which tone was longer and for the last twenty trials you will judge which light goes off first.³ In front of you there is a panel of red lights. These show which (blue stimulus light; tone) people judged to (go off first; be longer). This permits you to see how your judgment matches the judgment made by others as the experiment proceeds."

The subjects were then instructed in the proper operation of the panel and switches for indicating their responses.

For the first 20 trials, all subjects responded in what they believed to be the first position, i.e. each thought he was responding before any other subject made a judgment. For the last 20 trials, all subjects were shifted to the last position where they could presumably see the judgments of all subjects before responding. The group judgments which each subject

²The first part of the instructions in parentheses was presented only to those Ss in the L-L conditions. The remainder was presented to Ss in the T-L conditions.

³This sentence was presented only to those Ss participating in the T-L conditions.

saw were controlled by the experimenter. This latter case corresponds to the traditional type of conformity experiment. To maintain proper sequence, all subjects were instructed to respond in the proper order, i.e. first position answers first, second next, and so forth.

Measures

Conformity. The measure of conformity for the unambiguous task was defined as a response consistent with the manifestly incorrect group response. On the ambiguous task the measure was a response consistent with the uniform group response. Amount of conforming consisted of the number of trials that the subject's response was consistent with the group response during the last sequence of 20 trials.

Latency. The measure of latency was the time interval between onset of the stimulus and response of the subject. This was recorded in hundredths of a second and rounded off to tenths for purposes of analysis. A reciprocal transformation on the latency data yielded a measure of speed of response.

Questionnaire. Questionnaires were administered to the subjects following the first 20 trials and again after the completion of the experiment. These questionnaires will be found as an appendix to this report. Questionnaire I was concerned with the difficulty the subjects felt in responding during the first 20 trials, the manner in which they compared their judgments to those of the group on an accuracy dimension, and a measure of perceived dependence on the group based on feelings of confusion or aid from the responses of the group. Questionnaire II concerned a comparison of the response positions. This part of the questionnaire also repeated, with particular attention on the last 20 trials, the perceptions of judgment difficulty, perceived accuracy, and dependence on the group. Subjects also wrote a statement concerning the purposes of the study.

Personality. Six personality measures were obtained some months prior to the experiment. These were correlated with the measure of dependence and total conformity following completion of the study:

1. The Internal - External Control Test is a forced choice scale measuring differential reward expectancies among individuals. Rewards are either a function of external forces such as fate, luck, or chance (external control) or under the individual's own control (internal control). A more complete description is found in Gore and Rotter (1963).
2. The Ford Social Desirability Scale is a forced choice, acquiescence-free, social desirability scale developed to avoid response set problems of earlier scales. This scale correlates between .70 and .78 with the Marlowe-Crowne Social Desirability Scale (cf. Ford, 1964).
3. The Taylor Manifest Anxiety Scale was developed as a test for neurotic anxiety as a persistent mode of behavior (Taylor, 1953).

4. The Marlowe-Crowne Social Desirability Scale is a scale developed in response to the consideration of social desirability as a need for social approval with motivational properties (Crowne and Marlowe, 1960).
5. Social Introversion Scale of the MMPI: Scale 0 of the Minnesota Multiphasic Personality Inventory attempts to categorize social introversion as an habitual behavioral response (Drake, 1956).
6. The Pittsburgh Extroversion Scale (SEI) is an attempt to measure the broad second-order personality factor of social introversion-extroversion. Developed from items of the MMPI, Guilford-Zimmerman Temperament Survey, Maudsley Personality Inventory, and the Manifest Anxiety Scale, the SEI has been found more reliable than these scales for large group administration (Bendig, 1962).

RESULTS

Conforming behavior was predicted to vary as a function of stimulus ambiguity, group support, and change in the sense modality of the perceptual task. Analyzed as main factors, differences were found for stimulus ambiguity and task modality but not for group support. Measurements of speed of response were predicted to relate to stimulus ambiguity and support conditions as well as changing over the sequence of trials. Results indicated confirmation of these predictions in the ambiguity and sequence of trial conditions. Personality schedules did not correlate significantly with conformity. Questionnaire data was found to relate to experimental conditions and total conformity in most of the expected directions.

Measure of Conforming

A 3 X 2 X 4 factorial analysis of variance including trial blocks as a factor was performed on the measure of conforming, with the results summarized in Table 2. Results of the conforming measure focus on main effect and interaction differences between conditions of support, stimulus ambiguity, and task sense modality.

The different levels of stimulus ambiguity produced highly significant differences on the measure of conforming ($p < .01$). The condition where both the first 20 and the last 20 trials were under a completely ambiguous stimulus situation (A - A) produced the greatest conforming ($\bar{X} = 3.4$) per block of five trials. The ambiguous-unambiguous (A - U) condition produced less conforming ($\bar{X} = 2.3$) and the completely unambiguous (U - U) condition produced the least conforming ($\bar{X} = 1.7$). These relationships between stimulus ambiguity and conformity were consistent with the predictions in an approximately linear fashion. This corroborated results of other investigators (Walker and Heyns, 1962). The information in the completely ambiguous task stimulus situation was clear only in terms of group feedback. With an ambiguous perceptual task, more conforming would be expected than in the conditions where information was presented by both task and group (A - U, U - U). The distribution of these scores over the blocks of trials can be seen in Figure 1.

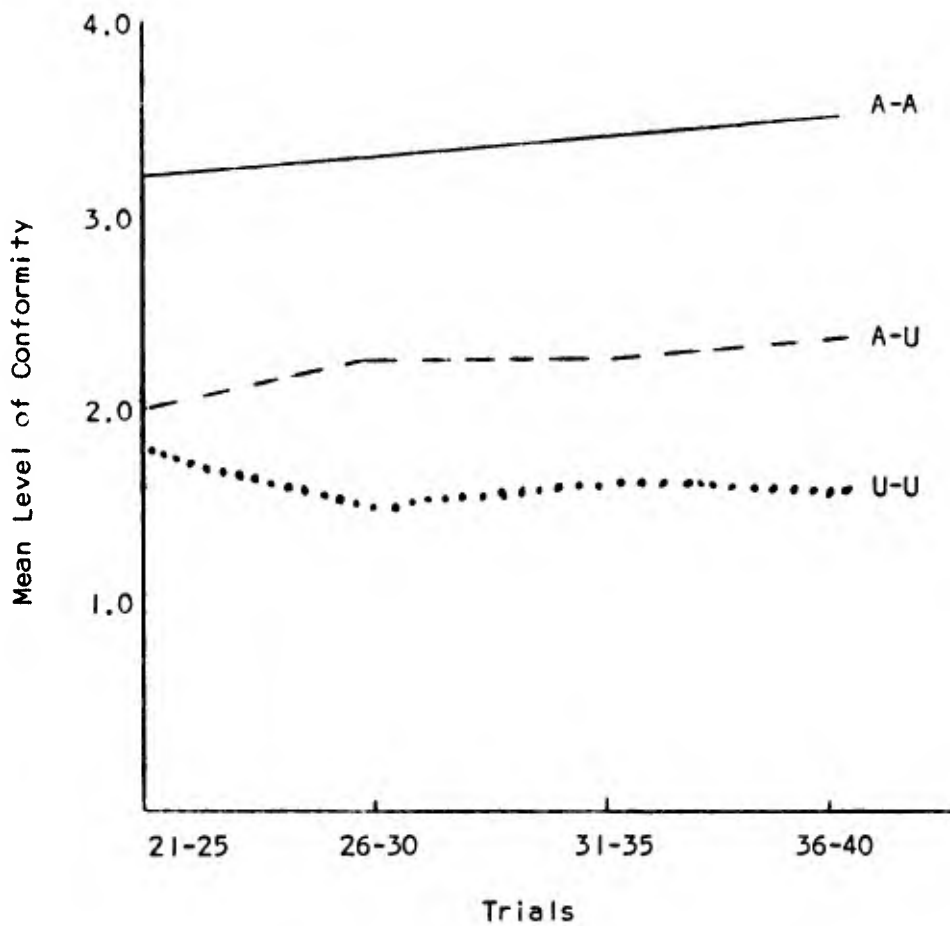


Figure 1

Mean Level of Conformity Across Blocks as a Function of Stimulus Ambiguity Showing the Interaction of Ambiguity of Stimulus and Blocks of Trials.

Table 2
 Analysis of Variance of Conforming Measure between Conditions
 of Support, Task Modality Change, and Ambiguity of Stimulus
 over Four Blocks of Five Trials Each

Source	SS	DF	MS	F
C	26.74	3	8.91	1.598
D	225.24	1	225.24	40.406**
E	502.44	2	251.22	45.066**
CD	23.48	3	7.82	1.404
CE	60.15	6	10.02	1.798
DE	98.81	2	49.40	8.862**
CDE	34.19	6	5.69	1.022
EI	1204.07	216	5.57	
X	.27	3	.09	.111
XC	4.44	9	.49	.613
XD	2.20	3	.73	.912
XE	12.30	6	2.05	2.550*
XCD	11.47	9	1.27	1.585
XCE	19.98	18	1.11	1.381
XDE	1.39	6	.23	.288
XCDE	8.87	18	.49	.613
E2	520.83	648	.80	

** $p < .01$

* $p < .05$

C - Conditions of Support
 D - Task Modality Change
 E - Stimulus Ambiguity
 X - Four Blocks of Five Trials

The other significant main effect difference for conforming behavior was produced by the switch from one task sense modality for the first 20 trials to another modality for the last 20 trials. The subjects who received feedback on the tones for the first 20 trials conformed markedly higher when tested under the light conditions than those who received feedback on the lights and were also tested under the lights ($\bar{X} = 3.0$ for group trained under tones; $\bar{X} = 2.0$ for group trained under lights). This represented a generalization phenomenon across different task sense modalities. Also, those subjects supported under one modality and tested under a different modality reflected less confidence in their own judgments

by relying more on the group response. Figure 2 shows the mean level of conformity for the task modality condition plotted over the blocks of trials. It should be noted that the differences between the tone and light conditions persisted across the four blocks of trials, producing essentially straight lines parallel to the abscissa.

Essentially, the sense modality change results were not differentially affected as a function of time over test trials. Differences between conditions of support across all other experimental conditions were not statistically significant.

Two interactions of main effect variables are worth noting. The stimulus ambiguity dimension interacted to a statistically significant degree with the task modality dimension ($p < .01$). The means of this interaction for a block of five trials are shown in Table 3. This interaction can also be compared in Figure 3. The light-light task sense modality dropped off much more rapidly than the tone-light dimension as the conditions were compared from the completely ambiguous to the completely unambiguous stimulus dimension. This was consistent with the greater over-all conformity involved with the T-L modality and reflected a greater dependence on group feedback for this condition. An interaction was also obtained for the stimulus ambiguity dimension over the four blocks of trials. As can be seen in Figure 1, the completely unambiguous stimulus yielded a slight decrease in conforming responses over the blocks of trials. The ambiguous-unambiguous and the completely ambiguous stimulus yielded a slight increase in conforming responses over the blocks of trials. Again, this was consistent with predicted dependence on sources of information. Subjects in the A-A condition had virtually one meaningful source -- group feedback. Those in the A-U condition were tested under unambiguous stimuli but did not have the experience with the task that subjects in the U-U condition received. The decrement in conforming for subjects in the U-U condition reflected experience with two meaningful informational

Table 3
Mean Levels of Conforming for Stimulus-Ambiguity-Task
Sense Modality Interaction

	A-A	A-U	U-U
T-L	3.45	3.02	2.37
L-L	3.39	1.56	1.00

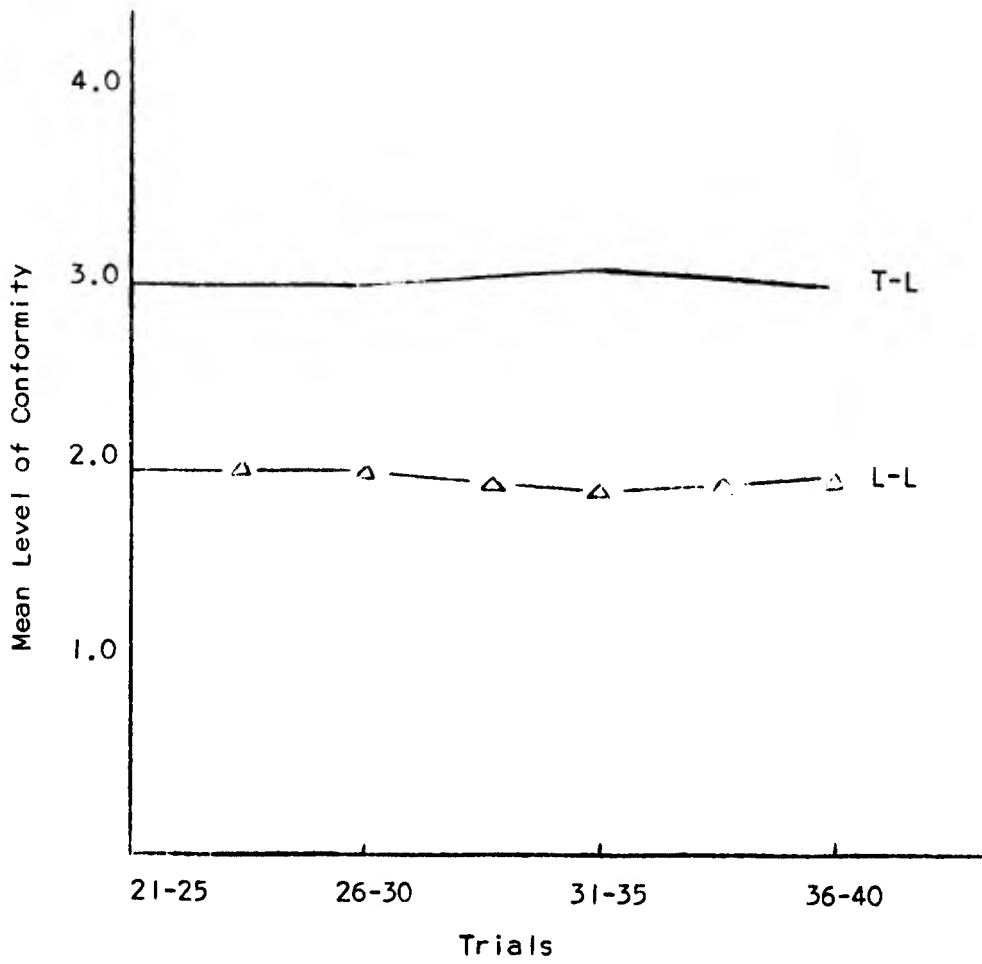


Figure 2

Mean Level of Conformity Across Blocks of Trials
as a Function of Task Modality Change.

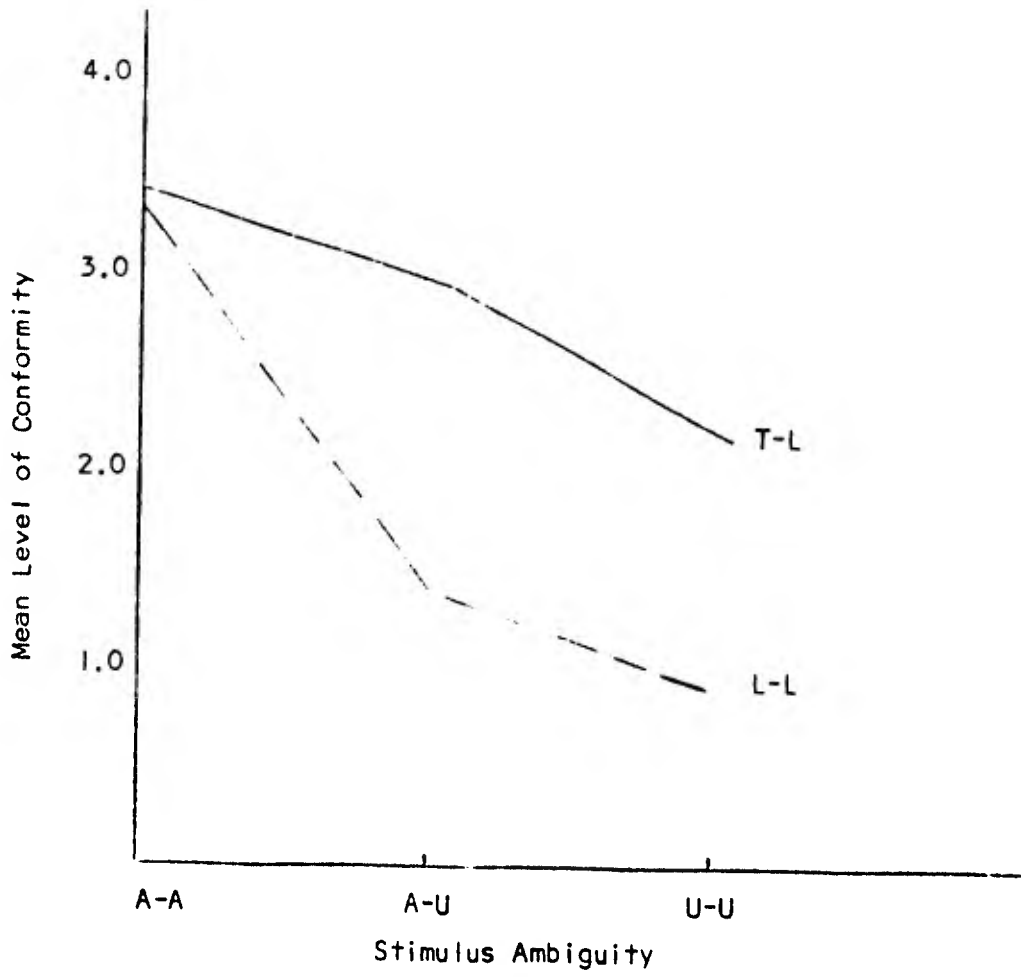


Figure 3

Interaction of Task Modality and Stimulus Ambiguity
On the Measure of Conforming.

sources as well as the factors of support conditions considered below. Only in the U-U condition did support conditions yield varying conformity.

A closer examination of the conditions of support is warranted since some of the focal points of the study involved this factor. The completely unambiguous stimulus dimension and light-light task modality represented a replication of the Hollander, *et al.* (1965) study. In performing a similar analysis of variance with the cell means as synthetic cases, conditions of support were found to yield significant differences in conforming responses ($p < .01$). As shown in Table 4, however, no linear or quadratic component was found, affording only an incomplete replication of the earlier results. This may well be due to an equipment change between the two studies. The present study yielded higher over-all conformity while allowing, however, only the same number of test trials. Figure 4 compares the support conditions across blocks of trials in terms of the mean number of conforming responses for the U-U : L-L condition. When the data from the completely unambiguous stimulus condition were pooled across the task modality dimension (Figure 5), a linear relationship is more nearly approximated.

The study of Hollander, *et al.* (1965) reported a result analogous to an extinction phenomenon where the continuously reinforced subjects showed more rapid decrement of performance than the partially reinforced. The equipment change for this study may have obscured this trend with higher over-all conformity. The difference in the effects of the support conditions was also corroborated when the completely unambiguous situation is considered, as shown in Table 5. The more highly supported subjects yielded more conforming in an order relationship, reflecting a greater dependence on the information presented by the group. Only in the completely unambiguous stimulus condition did the support dimension clearly yield differences in conforming behavior. This suggests that the efficacy of support as a discriminating informational source is dependent on the existence of a clear perceptual task. Where task stimulus factors were ambiguous, more ambiguous group feedback (partial support) did not affect total conforming. In general, ambiguous stimuli were superior in producing conformity. For almost all combinations of ambiguity and task modality over the trial blocks, the A-A conditions maintained higher conforming than A-U, which in turn tended to be higher than the U-U condition.

Measure of Latency

The measure of latency was obtained by timing the interval between the onset of the stimulus and the response of the subject. The speed of response measure included a reciprocal transformation, and an analysis of variance was performed on this transformed data. Of the main effects, only ambiguity of stimulus and trial block yielded a significant difference. For stimulus ambiguity, the completely unambiguous condition produced the most rapid responses, with the completely ambiguous condition yielding faster speed of agreement than did the ambiguous-unambiguous stimulus condition. Ambiguity of stimulus would be expected to interact with speed of agreement, but not necessarily with the unambiguous conditions

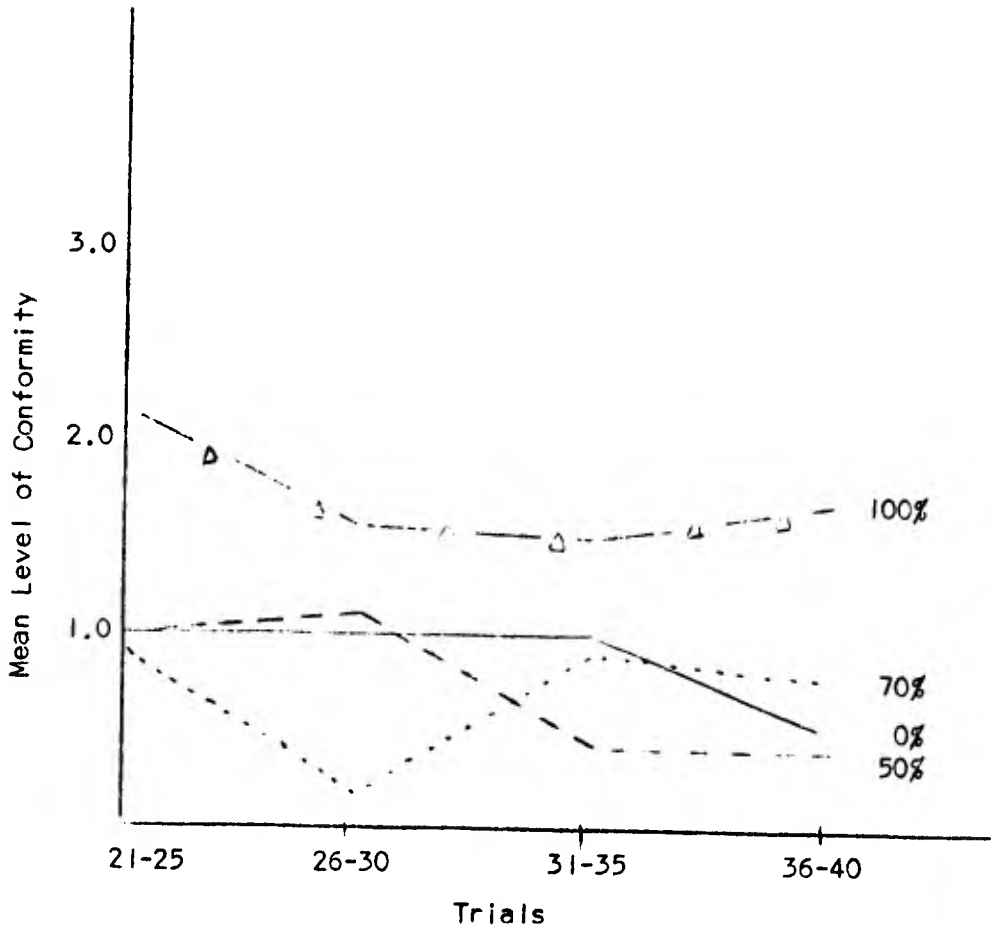


Figure 4

Comparison of Conditions of Support Across Blocks for the U-U : L-L Ambiguity-Modality Factor.

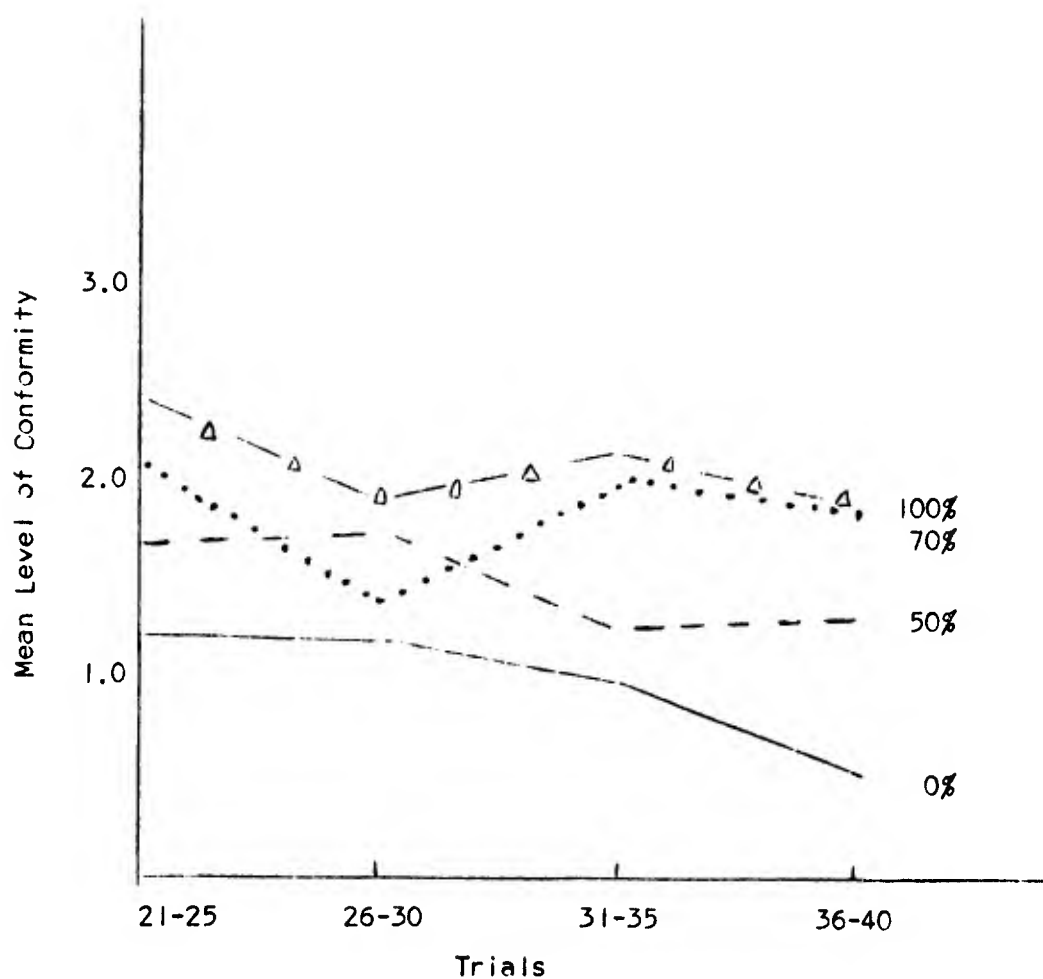


Figure 5

Comparison of Conditions of Support Across Blocks Pooling the Light-Tone Modality for the Unambiguous-Unambiguous Stimulus Dimension.

Table 4
 Analysis of Variance of Support Conditions for U-U : L-L
 Ambiguity-Modality Factor, Representing a Replication
 of the Hollander, et al. (1965) Study

Source		SS	DF	MS	F
	Support conditions	31050 ⁴	3	10350	10.47**
	Blocks of trials	4450	3	1483.3	1.50
	Residual (Error)	8900	9	988.8	
Trial	Linear	36.45	1	36.45	2.31
Blocks	Quadratic	10.56	1	10.56	0.67
	Residual	397.99	1		
Groups	Linear	19.05	3		
X	Quadratic	32.5	3		
Trial	Residual	47.33	3	15.78	

** p < .01

⁴ A transformation was performed for this analysis.

Table 5
Means of Support Conditions for the Completely Unambiguous
Stimulus Condition Pooled across Trial Blocks and
Task Modality Dimensions

Support condition	100%	70%	50%	0% (control)
\bar{X}	1.71	1.45	1.24	0.93

yielding faster agreement. However, speed of response must be related to confusion of stimulus sources. In this case, speed of agreement may be an empirical correlate of perceived confusion with the A-U condition appearing most confused. This is partially supported by questionnaire results below, where more ambiguity in task stimuli yielded greater perceived task difficulty. The reversal for the A-U condition can only be clarified by further research.

The blocks of trials produced significant differences of speed of response in essentially a monotonically increasing order. As shown in Table 6, the latency of response was shorter as the trials progressed. The subjects became more familiar with the task and feedback stimuli, increasing their speed of agreement in a manner similar to a practice effect.

A significant interaction was obtained between conditions of support and blocks of trials. In work reported by Carment (1961), a significant interaction between trials and schedules of reinforcement was obtained in a discrimination learning task for human subjects. He found that mean response time generally increased for partially reinforced subjects and generally decreased for continuously reinforced subjects. As can be seen in Figure 6, a similar effect was found in the present study. Speed of agreement for subjects in the continuously supported condition clearly increased over the blocks of trials. While the 70% support condition subjects did show a slight increase in speed of agreement, the 50% support condition and control subjects did not demonstrate this stability. These results lend support toward a conception of group support as reinforcing.

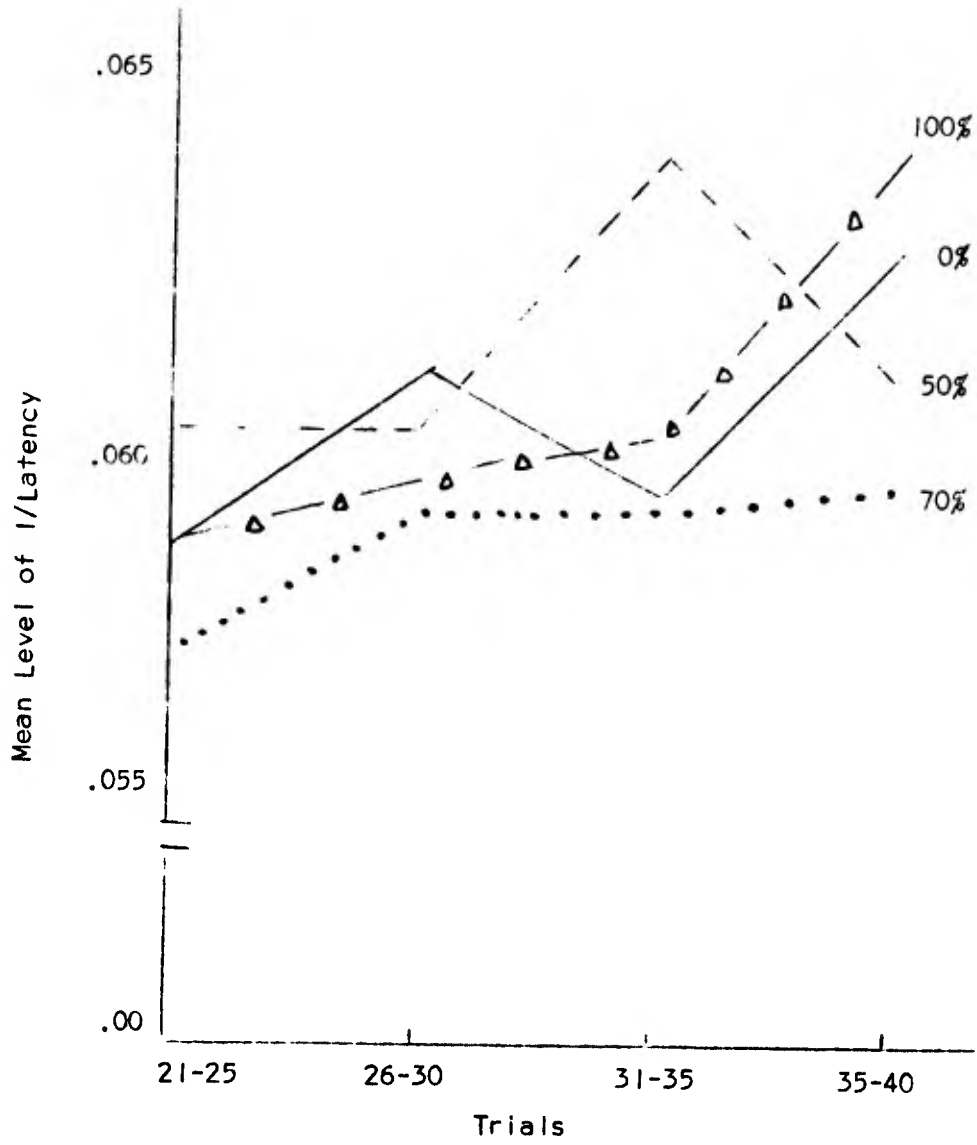


Figure 6

Interaction of Support Conditions and Trial Blocks
on Speed of Response Measure.

Table 6
Mean Scores of Speed of Agreement across Blocks of Trials
(Higher number represents greater speed of
agreement and shorter latency)

Trials	21-25	26-30	31-35	36-40
\bar{X}	.597	.612	.620	.628

Personality Measures

The correlation of measures of personality with the total conformity scores and questionnaire measure of dependence is shown in Table 7. The data for the correlations involving the I-E scale and FSDS Scale are based on a sample of 187 subjects and all the other intercorrelations are based on a sample of 87 subjects. This discrepancy is due to correlating the conformity and dependence scores with data gathered some time earlier. The lack of total sample replication is due to incomplete data from the original subject pool.

As noted in Table 7, only very low and non-significant correlations were obtained between the measures of conformity-dependence and the personality schedules. Of particular interest here is the lack of correlation found between social desirability and conforming. This is contrary to the previous findings of Crowne and Liverant (1963) and Strickland and Crowne (1962). The information presented by the group feedback enabled the subjects to learn a new response dependent on interpersonal factors. The correlation between perceived dependence on the group and total conformity, however, was fairly high. Again, this reflects conforming behavior as primarily an interpersonal affair. For the sample of 187 subjects, the correlation between perceived dependence and total conformity was .426 and for 87 subjects was .448. This corroborated the results obtained by Hollander, et al. (1965) as well as supporting a primary contention of this study.

Table 7
Correlation of Personality Schedules with Questionnaire
Dependence Measure and Total Conformity

	Questionnaire Dependence	Total Conformity
I - E	-.022	.030
FSDS	-.027	.051
M - C	-.012	.067
MAS	.081	.152
Soc. Introv.	.009	-.125
Pitts. Ext.	-.007	-.189

Questionnaire Dependence and Total Conformity correlate .448 where N = 87 and .426 where N = 187.⁵

Questionnaire Measures

The questionnaires administered following both the first 20 and last 20 trials are presented in Appendix B. The question concerning the position in which the subjects felt it easier to respond was analyzed by experimental condition using a chi square test. Subjects consistently reported a preference for position 1 ($X^2 = 6.88$; $p < .05$), and it was only in the control group where the relative frequency for position preference was approximately equal. Under all other conditions the frequency of preference for position 1 exceeded that of position 2.

The specific results from the first questionnaire as analyzed by a Kruskal-Wallis one-way analysis of variance for experimental conditions are reported in Table 8. It should be noted that subjects in the control condition, 0% support, did not receive this questionnaire since most of the questions would be relatively meaningless to them. The general

⁵The total subject pool did not yield complete personality data on all potential subjects. The available data for subjects participating in this experiment reflect these discrepant sample numbers.

conclusions from this questionnaire were: 1. The more ambiguous the task, the more difficult it appeared; 2. Subjects in the 100% support condition perceived themselves as more accurate when compared to those in the 70% and 50% conditions; 3. Subjects in the 50% support condition appeared more dependent than those in the 100% condition. The first question dealt with the perceived difficulty of the task. A significant difference on the stimulus

Table 8
Questionnaire Results Following First Twenty Trials Comparing
Differences Based on Support Condition, Stimulus Ambiguity,
and Task Sense Modality. Data Analyzed by
Kruskal-Wallis One-Way Analysis of Variance

Part I (following first 20 trials)	Support condition	Ambiguity	Modality
1. Perceived difficulty of task	1.32	11.94**	0.50
2. Perceived accuracy in relation to others	11.26**	0.18	1.30
3. Dependence on group	5.82 (p < .10)	1.04	.00

** p < .01

ambiguity dimension (H = 11; p < .01) showed that the more ambiguous the task appeared to the subjects, the more difficult the task. The second question related the accuracy with which the subjects felt they judged the task in comparison with the other group members. Support conditions were significantly different (H = .26; p < .01), where subjects in the 100% support condition perceived themselves as more accurate when compared to those in the 70% and 50% conditions. The final question of Questionnaire I dealt with the perceived dependence of the subjects on the responses of the other group members. Only a trend can be noted in the support dimension where the 50% condition subjects appeared more dependent than the subjects in the 70% condition, who in turn appeared more dependent than those in the 100% condition. Generally, the questionnaire data support the conformity results by reflecting the differences between support conditions, stimulus

ambiguity, and task sense modality.

Table 9 shows the results of the questionnaire administered following the completed experiment. The questions involving task difficulty, perceived accuracy, and the dependence on the group were oriented toward the last 20 trials only. The question dealing with consideration of judgment was meant to involve feelings concerning the entire experiment. The only clear result for perceived task difficulty showed that support conditions influenced the perception of the task during the last 20 trials. As noted in Table 8, no differences were found in task perception for support conditions during the first 20 trials. However, an approximate linear relationship occurred involving the last 20 trials where the more support the subjects had received, the more difficulty they reported in making the task judgments ($H = 9.33$; $p < .01$). Trends were noted for the stimulus ambiguity dimension and the task sense modality condition. The less ambiguous the stimulus, the easier the task was reported to be; the lights appeared to be an easier task judgment than the tones.

No significant differences over experimental conditions were found in the way in which the subjects perceived their own accuracy on the task in relation to the other members of the group. The subjects who were confronted only with the light stimulus reported less felt dependence on the other group members than did those who judged tones and lights.

The general conclusions for Questionnaire II were:

1. a) The more support, the greater the perceived task difficulty (an order relation from 0% to 100%).
b) The less ambiguous the stimulus, the easier the task.
c) The lights appeared easier than the tones.
2. No differences in perceived accuracy in comparison with others.
3. Subjects in the light conditions felt less dependence on the group than subjects in the tone conditions.
4. No differences on felt necessity for considering others' judgments.

A substantial proportion of the subjects who participated in the experiment were asked to report their own conception of the experimental hypothesis as a check on the problem of experimental demand. There were no apparent differences between subjects as a function of conditions of support, ambiguity, or task sense modality. In general, about 60% reported the instructional hypothesis or some minor variation as representing the aim of the study. Some relation between their behavior and that of the other subjects was reported by approximately 35%, and less than 5% indicated knowledge which would directly tie the feedback to the experimenter.

DISCUSSION

Conforming was found to increase with greater stimulus ambiguity and with more group support under conditions of unambiguous task stimuli. The tone sense modality yielded more conforming than the light modality across all conditions, and data from personality schedules did not correlate significantly with conforming behavior.

Table 9
 Questionnaire Results Following Last Twenty Trials Comparing
 Differences Based on Support Condition, Stimulus
 Ambiguity, and Task Sense Modality. Data
 Analyzed by Kruskal-Wallis One-Way
 Analysis of Variance

Part II (following last 20 trials)	Support condition	Ambiguity	Modality
1. Perceived difficulty of task	9.33**	5.85 (p < .10)	3.00 (p < .10)
2. Perceived accuracy in relation to others	4.09	2.34	ca..00
3. Dependence on group	1.20	3.09	7.36**
4. Judgment consideration	1.90	2.72	3.23

** p < .01

Thus, a major part of the results supports two basic contentions:
 1. Factors of the conformity process can be enhanced experimentally or inhibited so that conforming behavior may be demonstrated as predominantly the product of situational constraints. 2. The experience the subject has with the group immediately prior to the social influence pressures has a significant effect on determining which factors predominate in conforming behavior.

Subsequent conforming is a function, therefore, of the relative amount of dependence the individual places on the available sources of information --namely, the stimulus factors on the one hand, and feedback from the group on the other.

The Concept of Dependence

As noted earlier, the definition of conforming behavior includes the presence of two sources of functional information which can potentially affect the behavior of an individual in a social influence situation. One of these sources is that presented by the stimulus itself, e.g. the mode and clarity of the perceptual task. The other source of information is that presented by the group in terms of its communications to the individual concerning the perceptual task. The subsequent behavior of the individual is a product of his relative dependence on the group communication concerning the task. This dependence can be modified by altering the stimuli along dimensions of clarity or by changing the sense modality in which the stimulus task is presented. Dependence interacts in predictable ways with those stimulus dimensions by varying the conditions of group communication.

Although other researchers have dealt with the effects of stimulus ambiguity in relation to subsequent conforming, notably Walker and Heyns (1962), it is only in relation to the source of information contributed by the group communication that the concept of stimulus ambiguity is clarified. Analyzed as a single factor, ambiguity did yield differences consistent with the earlier findings. The more ambiguous stimulus conditions yielded greater conformity than the unambiguous conditions.

Typically, ambiguity has been varied along a single stimulus dimension and subsequent conformity related to it as an approximate linear function. However, it should be noted that in the condition where support occurred under ambiguous stimuli but influence pressures were exerted under unambiguous stimuli, less conforming resulted than in the completely ambiguous situation. Similarly, the completely unambiguous condition yielded less conforming than did the ambiguous-unambiguous condition. In the present circumstances, the stimulus was either unambiguous or ambiguous for a certain portion of the trials and all conditions of ambiguity were the same, as were the conditions of unambiguity. This represents a different type of manipulation of ambiguity than normally used in conforming experiments. The differential results, therefore, were primarily a function of the type of stimulus under which the individual received support.

A response oriented conception of conformity does not discriminate the conditions under which this type of result might be expected. The involvement of two stimulus sources of information in the model of conformity clarifies this problem by relating the subsequent conforming to the functional sources of information in conjunction with the dependence of the individual on the group feedback. When the stimulus presented to the subject is completely ambiguous and the subject is required to make a judgment concerning that stimulus, the stimulus complex itself presents essentially only confused information. If during the same situation the group is presenting a relatively clear picture of feedback in a certain direction, the subject responds primarily in terms of the feedback from the group. There is in this instance only one useful source of information, and a concept of dependence on one of the sources to the exclusion of the other, i.e. information contained in the group feedback, would be expected to yield greater conformity.

The lower rate of conformity obtained under a purely unambiguous stimulus was expected since the subject had access to two sources of information concerning the stimulus, both with some credibility. The questionnaire results somewhat corroborated this contention in that the subjects under the more ambiguous task perceived the task as more difficult following the first 20 trials. Also, the measure of perceived dependence on the group correlated very highly with the measure of total conformity for each individual across the experimental conditions. During the last 20 trials, however, it was the support conditions which yielded a greater difference on perceived task difficulty. This finding immediately suggests the interaction of support conditions and stimulus ambiguity in determining the relative dependence on the sources of information available.

Across all experimental conditions and across the completely ambiguous and the ambiguous-unambiguous sequence, support conditions were not essentially different in the amount of conforming behavior produced. However, in the complete unambiguous stimulus condition, support conditions discriminated along the predicted lines. This difference must be attributed to the relative dependence of the subjects on the support from the group. Two useful sources of information exist in dealing with an essentially unambiguous stimulus in contrast to conditions of support presented in a completely ambiguous stimulus position. Support on a completely ambiguous task is difficult for a subject to utilize under the constrictions of the task situation. In an ambiguous situation, relative amount of support does not necessarily create differing dependence on the group feedback. Since the task stimulus situation is yielding very little information, the responses must be primarily in terms of information mediated by the group. Where the stimulus and the group are presenting essentially clear information, the responses may be a function of the relative support mediated by the group during the previous series of trials. This latter case is not unlike one of the learned modes suggested by Campbell (1961). He labels this mode a compromised composite where, in some sense, the response is a function of the situational alternatives. Resultant conforming behavior can be altered in the unambiguous stimulus situation by relative support which has meaning in supplying information about the group and stimulus. The introduction of differing conditions of support leads to differential dependence on the feedback from the group.

This condition of completely unambiguous stimuli represents a partial replication of the Hollander, *et al.* (1965) study. The earlier study used both male and female subjects while the present study utilized female subjects only. The major sex difference previously found was a higher incidence of over-all conforming for the females. There were some differences between sexes in conforming over trial blocks although the most consistent finding, that of higher conforming for the most highly supported subjects, held for both sexes.

The efficacy of support from the group depends not only on the relative support conditions, but also on the stimulus task where a particular type of behavior is supported. The interaction noted between conditions of ambiguity over blocks of trials is consistent with these suggestions since the completely unambiguous stimulus conditions showed a decrement in amount of conforming over the test trials, as might be expected where the concept of group support is considered a learned phenomenon which affects performance. Both of the conditions where support was given under completely ambiguous stimulus conditions, however, showed a slight increment in performance over the test trials. The clearest conclusion would be that the conditions of support administered during the first group of trials had no effect on the later trials when the early trials were completely ambiguous, i.e. the subjects learned little from the group feedback.

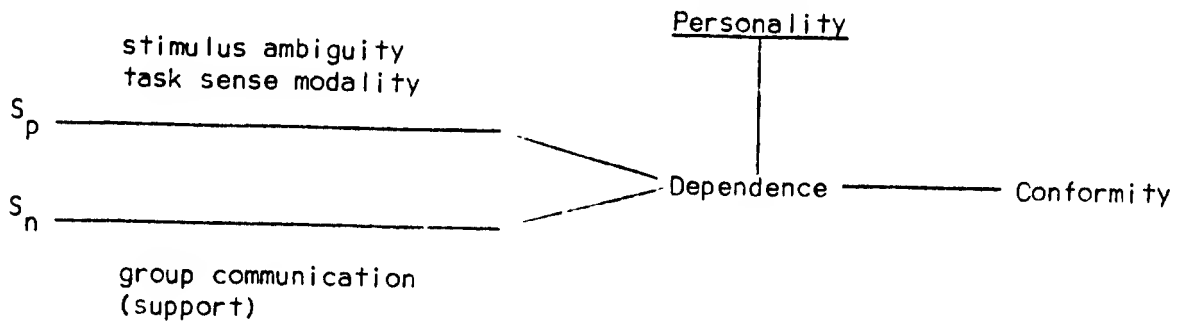
The change in modality from tones to lights, when compared with the maintenance of the same task sense modality, also clearly suggests that differential dependence on the informational sources of the stimulus and situational conditions yields differential conforming behavior. Subjects supported and tested under the same task sense modality might be expected to become self-confident about the ability supported. Those tested under conditions which differed from those of support, however, would not be expected to become confident about the second task since they would be required to generalize from one task sense modality to another completely unrelated. Thus, as was shown, the subjects supported under tones were more dependent (showed greater conformity) on feedback from the group than those supported under lights, since the latter were involved with the same modality throughout while the former were required to change. These differences tended to remain consistent over the entire test trial period, suggesting that relative dependence resulting from the task sense modality constrictions is not as dependent on time or trial sequences over the test period as might be expected in the case of support conditions. This was partially corroborated by the questionnaire data where subjects in the tone-light sense modality reported significantly greater perceived dependence on the group than did those in the light-light modality.

The ability of the modality change to maintain dependence in comparison to the consistent modality can be seen in the interaction obtained between the task sense modality dimension and the stimulus ambiguity conditions. In the completely ambiguous stimulus condition, both tones and lights produced the same relative amount of conforming. However, in both of the other stimulus conditions, where the test trials were under an unambiguous stimulus, the tones yielded a higher rate of conforming. In this latter instance, two meaningful sources of stimulus information were present during the test trials. Conforming, then, is a function of the relative dependence on the group, a factor enhanced by the task sense modality change.

The completely unambiguous light-light situation represented a replication of the Hollander, *et al.* (1965) study involving support conditions. The differences between support conditions in relation to over-all amount of conformity was essentially replicated, but the same pattern of conformity change over the blocks of trials was not found.

In the earlier study, the continuously supported subjects decreased their conforming rate over the blocks of trials while the partially supported subjects maintained about the same conforming level. Between the running of these two experiments, certain changes were made in the experimental apparatus which raised the level of conformity for this study in comparison to the earlier one. If this sequential conformity is likened to an extinction effect, since the dependence factor is learned, it may well be that the twenty test trials are insufficient to examine extinction. A comparison of the completely unambiguous stimulus condition without regard to task sense modality more nearly represented the expected findings. The support conditions maintained their differences for the conforming measure in the predicted direction as well as showing a slight general decrement over the four blocks of trials. In addition, while the 100% and control group showed this sequential effect of decrement in conformity, the 70% group showed a decrement for the second block of trials and then an increment for the last two blocks--more nearly approximating what was expected under partial reinforcement conditions. Although the 50% condition dropped slightly from the second to the third block of trials, over-all it approximated a straight line.

In summary, the model of conformity process consists of a factor of learned dependence affected differentially by the information presented by the situational constraints. The primary functional stimuli involved are task stimulus factors and group communication. Other variables such as habitual modes of behavior (personality), experimenter demand, or composition of the group may become relevant when the primary functional stimuli are controlled or confused. As diagrammed below, these factors may interact under certain conditions to produce conformity while under other conditions they may be relatively independent.



S_p refers to the perceptual stimulus characterized by the task properties. S_n is the normative social stimulus representing the influence source in a social influence setting. The situation for conformity can be construed so that either of these stimulus factors could be made so ambiguous that dependence is primarily a function of the other stimulus factor or of other situational variables. In this instance the stimulus factors would be essentially independent. However, when both stimuli present meaningful information, they may interact as in the case of support conditions and task sense modality. Resultant conformity may be considered a function of the dependence produced by this interaction.

Latency

The increase in speed of agreement over the trial blocks can probably be attributed to a simple practice or familiarity effect. As the subjects became more familiar with the task and feedback situation, they responded more rapidly. Where anxiety decreases, speed of agreement should increase. The relation between the experimental factors of the situation and speed of agreement, however, is somewhat unclear. Ambiguity of stimulus did differentially affect speed of agreement. The completely unambiguous stimulus conditions yielded the greatest speed, with subjects in the completely ambiguous conditions showing less speed and subjects in the ambiguous-unambiguous conditions being the slowest. If increased ambiguity is related inversely to speed of agreement, this latter reversal would not occur. However, the measure of speed of ambiguous-unambiguous was obtained during presentation of unambiguous stimuli. The experimental situation itself may have been somewhat more ambiguous for the A-U group, yielding less speed of agreement. Response time may be most closely tied to anxiety generated by the experimental situation (Weiss, et al., 1963) and not be related to conformity. Some support is given to this contention by the lack of correlation found between the MAS and total conformity.

Personality and Conformity

In contrast to Crutchfield's (1955) conception of conformity in which conformity is conceived as an habitual mode of behavior within a particular individual which can be characterized as a personality factor, the model of conformity presented here is oriented toward stimulus dimensions as factors producing conformity. Where conformity has been viewed as a personality construct and related to other factors, there probably existed some factor of the situation which maintained the underlying stability of behavior. Conceived in a social learning framework, however, the conditions of the stimulus factors in a social influence setting may result in the individual learning new modes of behavior.

If personality is considered to represent a series of habitual behavioral modes, the stability of these modes must depend on the stability of the stimulus situation or the extent to which stimulus generalization occurs. Sears (1951) and Secord and Backman (1959) have developed models where the key to personality is interpersonal behavior rather than in any intrapersonal phenomenon. The stability of personality in terms of habitual behavior is a function of stability in interpersonal relations. Stability as related to stimulus generalization simply means that the situations (interpersonal) which are perceived as similar will yield similar behavioral responses. In the traditional type of conforming experiment, the subjects are immediately placed in an influence situation with resultant conformity measured in relation to the imposed group pressures. Stable modes of behavior may be elicited under these conditions since the individual's perception of the group must generalize from his past experience under similar circumstances, and may thus be related to experimentally contrived information such as competence. Experimenters proceeding in this fashion might well be expected to find conformity a consistent mode of behavior for an individual

since each individual could be expected to have been differently reinforced for conforming or independent behavior under these circumstances. However, when the subjects are given the opportunity to learn more precisely the nature of the influencing agent in relation to some task, a new mode of behaving can result. The lack of correlation between total conformity and personality measures found in this study is consistent with this conception.

In summary, dependence functions as a meaningful construct in relating a stimulus oriented conception of conformity to conforming behavior. Stimulus factors such as task ambiguity and modality interact with experience with group information in predictable fashion based on relative stimulus dependence. Conforming is conceptualized as primarily an interpersonal event where stimulus events affect conforming to the relative exclusion of traditionally oriented personal factors.

Implications for Further Research

Four areas stand out as suggesting further research.

1. The nature of the group as a reinforcing agent is an assumption of most studies dealing with social reinforcement. Empirical results support this as a reasonable contention since differential support yielded different effects under unambiguous task conditions. Variations of the group concept oriented toward strength of reinforcement in directions other than all or none support on a particular trial might lead to a more precise and effective use of the concept. Related to this would be a systematic variation of disagreement feedback and its distance from the subject's response. For example, do the pattern and scale distance of the agreement-disagreement feedback responses differentially affect subsequent conforming behavior in a way not found in the present study?
2. A replication of the apparent differential extinction phenomenon as a function of support that was found in the Hollander, et al. (1965) study might simply demand an increased number of trials. Corroboration of the apparent extinction phenomenon would clarify the concept of group support operating as a reinforcer in this social situation.
3. Completion of the factorial design with the inclusion of tone-tone, tone-light conditions in task sense modality would lend greater weight to the generalization and dependence concepts based on task change. This would also clarify the possibility that differences in sense modalities of tasks may produce differing amounts of conforming, independent of any other factor. The inclusion of an unambiguous-ambiguous task stimulus dimension may delineate more clearly the relation of ambiguity to dependence on stimulus information.
4. The relation of latency to conformity would first demand clarification by a meaningful theoretical construct. Research could profitably be oriented toward distinguishing the role of latency, i.e. whether it is a reflection of anxiety or social influence attempts or primarily related to task ambiguity regardless of influence.

APPENDIX A

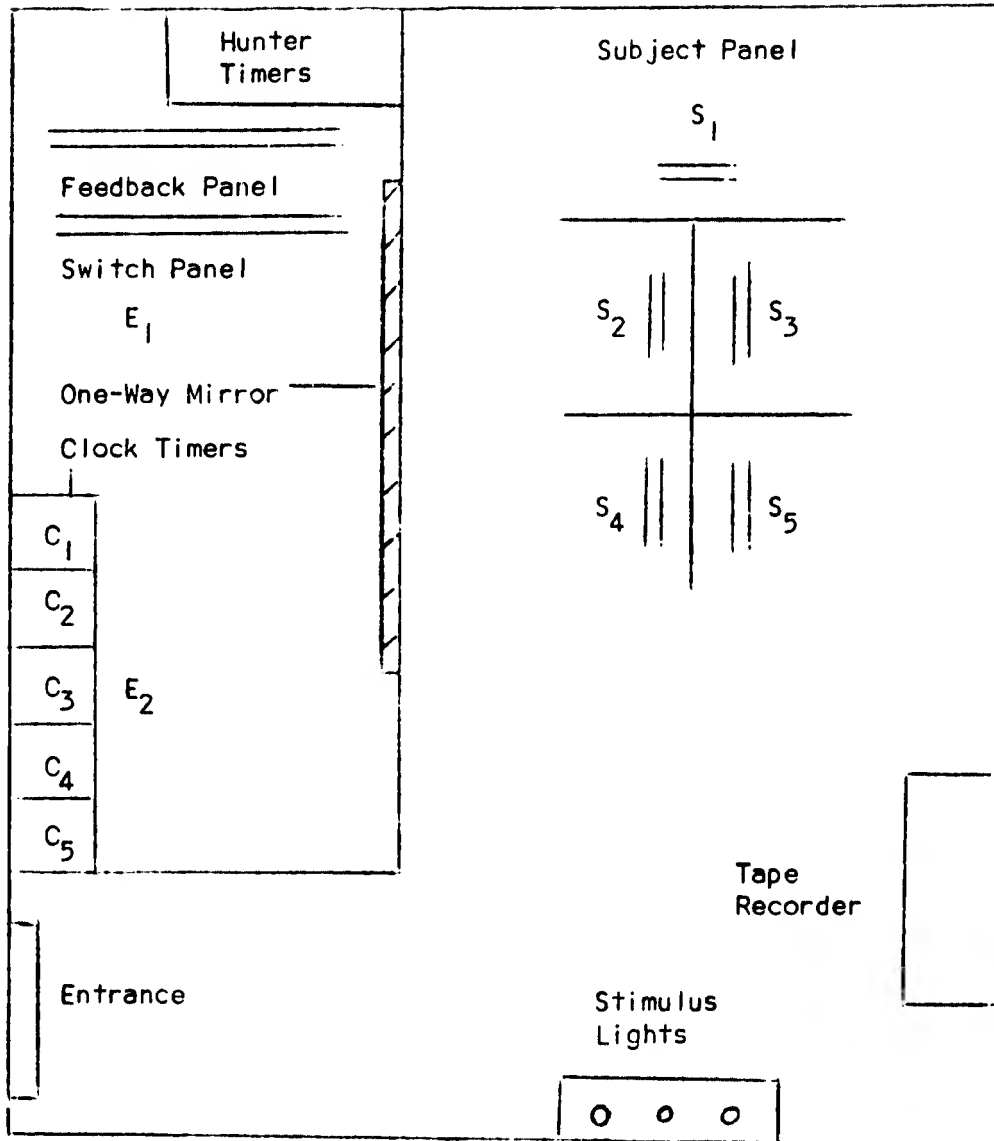


Diagram of Experimental Laboratory

APPENDIX B

Questionnaire Following First Twenty Trials

Please answer the following by placing a circle on the scale below each item. Consider each question carefully before making your mark.

Answer all items.

1. How difficult was it for you to make your judgments during these 20 trials?

1	2	3	4	5
very difficult	difficult	moderate	easy	very easy

2. For these 20 trials, how well did your judgments compare with the others in your group? Were you:

1	2	3	4	5
much more accurate	more accurate	no different	less accurate	much less accurate

3. In what way did you use the judgments made by the other members of your group?

Aided me -

1	2	3	4	5
a great deal	quite a bit	somewhat	a little	not at all

Confused or hindered me -

1	2	3	4	5
a great deal	quite a bit	somewhat	a little	not at all

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13 ABSTRACT This investigation examined conforming behavior as a function of three stimulus information sources, i.e., task ambiguity, task sense modality, and group feedback. Two hundred and forty undergraduate women were subjects. For 20 trials each subject saw the responses of other group members only after making a response. For 20 subsequent trials, group responses were presented before the subject was required to make a response. All group responses were controlled by the experimenter. Responses on the last 20 trials matching those of the group constituted the measure of conformity. Subjects participated in one of 24 conditions, in a 3 x 2 x 4 design. The conditions of task ambiguity included: 1) task stimulus ambiguous for both sets of 20 trials; 2) ambiguous for 20 trials and unambiguous for 20 trials; 3) unambiguous for both sets of 20 trials. Responses to a light stimulus throughout for one group of subjects and changing from tones to lights for the other group of subjects constituted the factors of task sense modality. Conditions of support included complete agreement by the group on either 100%, 70%, or 50% of the first 20 trials, or no information (control) from the group. Major results were: 1. More ambiguous stimulus conditions yielded higher conforming; 2. Change in modality from tones to lights yielded higher conforming than did repetition of the light task; 3. Support conditions did not differentially affect conforming across all conditions, except the completely unambiguous task conditions, where greater support yielded higher conforming. 4. A questionnaire measure of felt dependence on the group correlated significantly with conforming behavior, while standard personality measures did not.		

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