INFORMATION TO USERS

The most advanced technology has been used to photograph and reproduce this manuscript from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book. These are also available as one exposure on a standard 35mm slide or as a 17" x 23" black and white photographic print for an additional charge.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

U·M·I

University Microfilms International
A Bell & Howell Information Company
300 North Zeeb Road, Ann Arbor, MI 48106-1346 USA
313/761-4700 800/521-0600

Order Number 8907835

Impact averaging and social facilitation: The effects of a heterogeneous audience on anxiety and task performance

Crisson, James Edward, Ph.D.

The University of North Carolina at Greensboro, 1988

U·M·I

300 N. Zeeb Rd.
Ann Arbor, MI 48106

IMPACT AVERAGING AND SOCIAL FACILITATION: THE EFFECTS OF A HETEROGENEOUS AUDIENCE ON ANXIETY AND TASK PERFORMANCE

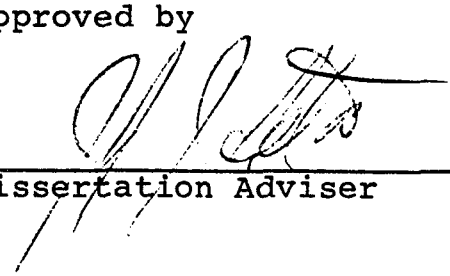
by

James Edward Crisson

A Dissertation Submitted to
the Faculty of the Graduate School at
The University of North Carolina at Greensboro
in Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy

Greensboro
1988

Approved by



Dissertation Adviser

APPROVAL PAGE

This dissertation has been approved by the following committee of the Faculty of the Graduate School at The University of North Carolina at Greensboro.

Dissertation Adviser _____

Committee Members _____

_____

_____

_____

May 9, 1988
Date of Acceptance by Committee

April 29 1988
Date of Final Oral Examination

CRISSON, JAMES EDWARD, Ph.D. Impact Averaging and Social Facilitation: The Effects of a Heterogeneous Audience on Anxiety and Task Performance. (1988). Directed by Dr. John J. Seta. 58 pp.

Evaluation apprehension approaches to social facilitation have long contended that increasing audience size should either increase or have no effect on evaluation apprehension or anxiety. Changes in evaluation apprehension are generally inferred from altered task performance within this paradigm. This research has relied predominantly on audiences of homogeneous composition. The effects of heterogeneous audiences on evaluation apprehension or anxiety have received only scant attention.

The averaging/summation model of evaluation addresses this issue. According to one aspect of this model, increasing audience size could result in decreased anxiety or evaluation apprehension. This would be the case if a performer concentrates on the average of the individuals in the audience. In this situation, the inclusion of low evaluative members in a highly evaluative audience could result in an average audience impact that is less than that of a high status audience of fewer members. The predictions of the averaging/summation model are, however, based on role play situations utilizing verbal reports of anxiety. The inconsistent predictions of the evaluation apprehension approaches to social facilitation and the averaging/summation model could, therefore, be due to differences in these two experimental paradigms.

The purposes of the present study were: 1) to determine whether the averaging predictions of the averaging/summation model could be replicated in a laboratory experimental setting and 2) to determine if the averaging predictions could be obtained using a task performance measure and a self-report measure of anxiety (i.e., Spielberger State Anxiety Inventory) in a typical social facilitation setting. Thirty-six female undergraduates participated in this research project. The results indicated that averaging can be obtained for a heterogeneous audience in a situation typical of social facilitation research. Participants working in front of one high status audience member made more errors on a paired-associates task than participants working alone ($p<.025$), the social facilitation effect. Participants working on the task in front of an audience of one high status and one low status member made fewer errors on this task than participants working in front of one high status member ($p<.05$). The error scores on the learning task did not significantly differ between the heterogeneous audience condition and the alone condition. The pattern of data for the verbal measure of anxiety, although in the right direction, did not reach conventional levels of significance. The results of this research were discussed from the perspective of the averaging/summation model of evaluation.

ACKNOWLEDGEMENT

I would like to express my gratitude to Dr. John Seta for his guidance on this dissertation and throughout my graduate career. I would also like to extend my thanks to Drs. DeCasper, Eason, Humphrey, and Lumsden for serving on my dissertation committee and providing valued input. Finally I would like to thank Dr. Catherine Seta, Ms. Sandra Donaldson and Ms. Della Jenkins for their assistance and input in preparing materials used in this experiment.

TABLE OF CONTENTS

Page

APPROVAL PAGE..... ii

ACKNOWLEDGEMENTS..... iii

LIST OF TABLES..... vi

CHAPTER

I. INTRODUCTION..... 1

Social Facilitation..... 2
Evaluation Apprehension Approaches..... 4
Other Approaches to Social Facilitation..... 7
Social Impact Theory..... 13
Impact Averaging/Summation..... 15

II. METHOD..... 28

Participants..... 28
Design..... 28
Stimulus Materials..... 29
Procedure..... 29
Audience Manipulation Videotape..... 33
Dependent Measures..... 34

III. RESULTS AND DISCUSSION..... 36

FOOTNOTES..... 42

BIBLIOGRAPHY..... 43

APPENDIX A. STIMULUS-RESPONSE PAIRS FOR PAIRED ASSOCIATES LEARNING TASKS..... 49

APPENDIX B. INSTRUCTIONS AND ITEMS FOR THE STATE VERSION OF THE SPIELBERGER STATE-TRAIT ANXIETY INVENTORY..... 50

APPENDIX C. INSTRUCTIONS FOR ALONE CONDITION..... 52

APPENDIX D. INSTRUCTIONS FOR AUDIENCE CONDITIONS..... 54

APPENDIX E. RAW DATA..... 57

LIST OF TABLES

		Page
TABLE 1.	Mean Number of Errors on the Paired Associates Learning Task.....	37
TABLE 2.	Mean Spielberger State Anxiety Ratings.....	38

CHAPTER I

INTRODUCTION

In social psychology, a vast amount of research and theorizing has been directed toward the issue of the effects that being observed by others has on the individual (i.e., social facilitation). Another area of social psychology which holds an interest for many researchers deals with how one forms impressions of others based on perceived or implied information (i.e., impression formation). There appears to be an implicit linkage between these two areas of social psychology, but this link has received only scant attention. In order for a group of observers to exert an influence on an individual they must be perceived. The information imbedded in this perception must then be organized and integrated into an overall impression. Therefore, the effects that being observed by others will have on the individual is very much dependent on the impression the individual forms of the audience. The present study was designed to examine how the overall impression of a group can be altered by certain contextual factors and how these alterations, in turn, influence the individual.

Social Facilitation

Research on social facilitation has been conducted since the late nineteenth century. At that time, Triplett (1897) reported that bicyclists in coactive pairs pedalled faster than bicyclists alone. To substantiate this observation, he had children turn a fishing reel in a laboratory situation. Again, he found increments in the speed of reel turning as a function of being in a coaction situation relative to working alone. Such findings were not limited to simple motor tasks. Dashiell (1930) reported a similar facilitation effect for word associations and multiplication problems. The presence of others could, however, also act to debilitate task performance. Pessin (1933) had subjects learn lists of nonsense syllables. The learning trials took place with subjects either working alone or in front of an audience. Subjects in the audience condition required more trials to learn the lists of syllables and made more errors than their cohorts working alone.

This early research provided intriguing data to indicate that the presence of others could result in either improved or debilitated performance. Unfortunately, no theory at that time could adequately account for these discrepant results. Indeed, a theory was not forthcoming until Zajonc (1965) proposed the drive theory of social facilitation. According to Zajonc, the mere presence of conspecifics act to

increase one's general level of drive or arousal. Mere presence effects refer to those arousing effects associated with the presence of conspecifics apart from directive social influences others may have on behavior (e.g., imitation, observational learning, inhibition, etc.). Building on the notions put forth by drive theorists (e.g., Hull, 1943; Spence, 1956), Zajonc contended that increases in generalized drive enhance or facilitate the emission of the dominant response. If the dominant response in a particular situation is simple or well learned, and therefore correct, the presence of others will produce increments in performance. If, on the other hand, the dominant response is difficult or not well learned, the presence of conspecifics will result in decrements in performance. Such reasoning provides a plausible explanation of the contradictory results presented earlier. Those studies reporting increments in front of an audience (e.g., Dashiell, 1930) are thought to involve simple tasks in which correct responding is expected to be dominant. Conversely, those studies reporting decrements in performance in front of an audience (e.g., Pessin, 1933) are seen to employ complex tasks where the dominant response is likely to be incorrect.

Since the initial presentation of the drive theory of social facilitation, a large body of literature has accumulated on the social facilitation effect (see Cottrell, 1972; Geen & Gange, 1977; Zajonc, 1980 for reviews).

Overall, the evidence for a drive approach to social facilitation is supportive (e.g., Chapman, 1974; Martens, 1969; Singerman, Borkovec, & Baron, 1976). Likewise, Zajonc's contention that performance is facilitated with simple tasks and debilitated by novel or difficult tasks has received considerable support (e.g., Geen, 1977; Hunt & Hillery, 1973; Martens, 1969; Zajonc & Sales, 1966).

Evaluation Apprehension Approaches

Drive theory has received criticisms which have led some researchers to propose extensions or modifications to the original theory. The major criticisms of the drive theoretical perspective are concerned with Zajonc's concept of mere presence and the proposal that social facilitation results from a state of generalized drive.

Cottrell (1968, 1972) has argued that others acquire drive properties by their prior association with positive and/or negative consequences. Cottrell, Wack, Sekerak, and Rittle (1968) tested this assumption. They had three experimental conditions: alone, passive audience, and blind-folded audience. Based on the mere presence hypothesis, one would predict that there should be no difference in performance in front of the two audiences and, with a simple task, both of the audiences should exceed performing alone. Their results indicated that the passive audience enhanced performance on a well learned pseudo-recognition task

relative to the alone condition. The alone and blindfolded audience conditions did not differ. A similar pattern of results has been obtained with expert, non-expert, and alone conditions (Henchy & Glass, 1968). Indeed, Paulus and Murdoch (1971) reported that an anticipated evaluation resulted in the social facilitation effect even if the evaluators were not present during task performance. Based on results such as these, Cottrell (1968, 1972) concluded that mere presence is not sufficient to produce the social facilitation effect. Rather, social facilitation results only when one can reasonably anticipate either a positive or negative evaluation from the spectators. From this view, the inclusion of additional audience members should generate increased arousal or anxiety as long as these additional members can serve as a cue for either positive or negative outcomes. If they do not serve such a cue function (i.e., they are perceived as neutral), their inclusion should not alter the amount of anxiety or arousal experienced prior to their inclusion.

Social facilitation theory was further modified by Weiss and Miller (1971). These authors proposed that social facilitation effects should result from the anticipation of an aversive outcome (i.e., negative evaluation apprehension) but not from an anticipated positive outcome. In support of this reasoning, Clark and Fouts (1973) found that additional audience members could act to increase anxiety

if they were perceived as a cue of impending negative outcomes. Anxiety should not be increased if the additional audience member was perceivied as a cue for positive outcomes or was seen as neutral.

Other researchers have argued for the importance of anticipated positive outcomes in the manifestation of the social facilitation effect. Good (1973) presented data which showed shorter response latencies on a free-association task by subjects anticipating a positive outcome in the presence of others. This effect was not obtained when subjects anticipated negative outcomes. Good concluded that facilitation should occur in persons who feel they have the ability to produce the required response which will gain social approval and who expect that others have the potential to provide such approval. This viewpoint would predict increased anxiety with the addition of audience members who are cues for positive outcomes but no increase would be expected when additional members serve as cues for negative outcomes or are perceived as neutral. Geen (1977) has also found support for the positive anticipation approach

Research (e.g., Paulus, 1983; Seta & Hussan, 1980) comparing the three evaluation apprehension approaches discussed above tended to support the perspective put forth by Weiss and Miller (1971). For example, Seta and Hussan (1980) manipulated expectations of success and failure in an

audience paradigm. They found that a low expectation of success (i.e., an anticipated negative evaluation) resulted in decrements in recall in the audience condition relative to working alone. Although a definitive resolution regarding the nature and effects of evaluation apprehension has not been obtained, one conclusion which has been reached (e.g., Paulus, 1983; Seta & Hussan, 1980; Seta & Seta, 1983) is that both positive and negative evaluations result in some degree of anxiety and the strength of the social facilitation effect should be a function of the level of anxiety produced by the evaluative audience.

Other Approaches To Social Facilitation

Although the inclusion of some notion of evaluation apprehension to explain the social facilitation effect is probably the most widely accepted revision of the drive theory of social facilitation, it is by no means the only extension and/or modification of this theory. Other researchers have proposed that distraction, self-focused attention, and willingness/capability might all influence behavior in a social facilitation situation. Even though these other approaches do not utilize the concepts of evaluation apprehension or anxiety and are not, therefore, germaine to the present study, each of these views will be described briefly below.

Soon after the appearance of the drive theory of social facilitation, an alternative approach was presented which did not rely on the concept of drive. Jones and Gerard (1967) proposed the presence of others acts as a distractor and results in impaired performance relative to performing alone. This conclusion was based, in part, on results reported by Pessin (1933) which showed that both an audience and a non-social distractor (i.e., noise or light) impaired performance on a serial learning task. The notion that audiences may distract attention and, thereby, impair performance is made less tenable because of research showing improvements in performance in the presence of an audience (e.g., Martens, 1969; Matlin & Zajonc, 1968).

In an attempt to resolve this inconsistency between distraction and social facilitation effects, Baron and associates (e.g., Baron, Moore, & Sanders, 1978; Sanders & Baron, 1975; Sanders, Baron, & Moore, 1978) have proposed the distraction-conflict theory. This theory states that the presence of others creates attentional conflict which results in heightened drive or arousal. The attentional conflict follows from the person being faced with the need to attend to the demands of the task at hand while attention is also being drawn toward the distractor (e.g., a noise or an audience). This drive, created by attentional conflict, could then affect performance in a manner identical to that proposed by Zajonc (1965). Sanders and Baron (1975)

presented data which indicated that as the amount of auditory distraction increased, performance on a simple copying task likewise increased. With a complex task, the opposite pattern of results was obtained. Moore (cited in Baron et al., 1978) reported almost identical data for both an audience and a non-social distractor. In addition, both conditions resulted in increased heart rate and decreased skin conductance relative to an alone/no distractor condition. These findings seem to support the notion that distraction may result in increased drive.

Sanders (1981) has stated a more elaborate version of the distraction-conflict theory which emphasizes two potential effects of distractors. First, distractors act to increase drive which facilitates the emission of the dominant response in a task performance situation. Second, it acts to debilitate performance on both simple and complex tasks by reducing task related activity. Sanders concludes that, for a simple task, one could find improved or impaired performance depending on which of these two effects of distraction is predominant at the time. On a complex task, both effects work in the same direction and impaired performance is always expected.

Other researchers have proposed that the social facilitation effects may be the result of an inward focus of attention. One view, along these lines, is that of objective self-awareness (e.g., Duval & Wicklund, 1972; Wicklund,

1975). According to this theory, objective self-awareness is a state in which attention is focused entirely on the self. This self-awareness can result from any stimulus which focuses attention on the person (e.g., a mirror, an audio recording of the person's voice or an audience). Experiencing self-awareness often results in a comparison between one's actual and ideal self. If this comparison obviates a discrepancy between these two aspects of self, a negative affect such as tension or discomfort will be experienced. The greater the discrepancy, the stronger the negative affect. If the comparison between actual and ideal self reveals that the person should "ideally" perform better, the resultant negative affect could lead to improved performance. Research comparing alone to mirror presence conditions on task performance have shown increments in performance as a result of observing oneself in a mirror (e.g., Innes & Young, 1975; Wicklund & Duval, 1971).

A major limitation of objective self-awareness theory, with regard to social facilitation effects, is associated with decrements in performance often found in social facilitation research. Carver and associates (e.g., Carver, 1979; Carver & Scheier, 1981a; Carver & Scheier, 1981b) have taken the concept of self-focused attention and proposed their cybernetic theory of human behavior. According to the cybernetic theory, certain features of a person's environment (e.g., a mirror or an audience) result in increased self-

focused attention in a manner previously described by Duval and Wicklund (1972). In addition, some aspects of the environment, such as experimental instructions, might lead to the establishment of a salient behavioral standard. These two features are assumed to interact so as to enhance matching-to-standard in the presence of an audience. Increased effort to conform to an existing standard is expected to result in improved performance in front of an audience when a salient behavioral standard exists and/or the individual has a reasonable expectation of successfully meeting that standard. In those situations where a salient standard is not available, or the individual holds a negative expectation of being able to match the standard, decrements in performance are predicted.

A final approach to social facilitation which will be briefly discussed is personal equity theory (Seta & Seta, 1982, 1983; Seta, Seta & Martin, 1987). According to this theory, individuals utilize an intrapersonal comparitor process in determining the value of rewards or goal objects. This intrapersonal comparitor process determines a reward criterion based on what should be received, as opposed to what will be received, given some level of investment or cost. As the level of cost expenditure increases, individuals tend to expect a higher valued outcome. When the cost level exceeds the value of the potential reward object, the reward value is expected to increase. This increase in

value to match cost expenditure allows for the maintenance of personal equity. It is further proposed that this matching of cost and value will continue with increasing costs until the ceiling value of the reward object is reached. Since the reward object cannot be raised further, decrements in the value of the goal object are expected as a result of a perceptual contrast phenomenon similar to that discussed by Helson (1964). Several experiments (e.g., Seta & Seta, 1982) have found support for this personal equity analysis.

Seta and Seta (1983) have extended personal equity theory into the realm of task performance. It is assumed in this analysis that experimental tasks have instrumental value because they allow for the procuring of positive outcomes and/or avoiding of negative outcomes. Increases in the magnitude of these positive or negative outcomes are assumed to increase the instrumental value of the task. As the instrumental value of the task increases, the individual should be more willing to allocate the necessary resources for a favorable performance. This personal equity analysis of task performance also utilizes two capacity components: 1) the amount of capacity demanded by the task and 2) the amount of capacity available for allocation to the task at hand. The ratio of these components produce the cost factor in a task performance situation. As the ratio approaches one, cost increases in this setting. This is the case

because of increasing task demanded resources or decreasing available resources or both. Once the ratio exceeds one, the individual becomes unable to perform because of a lack of available resources to meet task demands. As long as the task demands do not exceed the available resources, the individual should be willing to incur the cost and perform well. If the task demands exceeds the available resources, the individual should be unwilling to incur further costs and should allocate little or no resources to the task, resulting in task debilitation.

Social Impact Theory

Social impact theory (e.g., Latane, 1981; Latane & Harkins, 1976; Latane & Nida, 1980), although not developed specifically to address the social facilitation effect, is another approach which postulates the importance of anxiety in audience situations. This theory describes the effects of the presence of others by incorporating three characteristics of the audience: strength, immediacy, and number. Social impact refers to any effect on an individual as a result of the presence or actions of others. The amount of impact experienced in a given situation is assumed to be a multiplicative function of the strength, immediacy, and number of others present such that an increase in one or more of these factors results in greater impact. Furthermore, this function is best described by a psychosocial law similar

to the psychophysical law presented by Stevens (1957). Specifically, social impact should equal strength X immediacy X number raised to a power (t), where t is less than one. Since t is assumed to be less than one, social impact should be described by a negatively accelerating curve.

The first empirical test of the multiplicative nature of social impact theory was conducted by Latane and Harkins (1976). These researchers had subjects imagine that they were to recite a poem in front of an audience. The audience members were presented on photographic slides with each audience containing from 1 to 16 members. In addition, half the audiences consisted of only high status (i.e., middle-aged) members and the other half contained only low status (i.e., teenaged) members. A cross-modality matching task was used in which subjects were instructed to match the loudness of a tone and the brightness of a light to how anxious or tense they would be while reciting the poem in front of various audiences. The results of this study indicated a significant main effect for status and a significant main effect for number. Immediacy was held constant in this design by controlling the image size on the photographic slides. Increases in both audience size and status resulted in greater anxiety or social impact. In addition, this relationship could best be described by a multiplicative power function with an exponent less than one. This finding

was later conceptually duplicated by Jackson and Latane (1981, Study 1). Additional research utilizing field experimental designs and naturalistic dependent variables (e.g. Jackson & Latane, 1981; Williams & Williams, 1983) has found further support for the tenets of social impact theory. This approach would assume that the inclusion of additional audience members should result in a negatively accelerating increase in performance or anxiety.

Impact Averaging/Summation

Prior research examining the effects of an audience on the experience of evaluation apprehension or anxiety has generally employed audiences of homogeneous composition. While the status of audience members has been varied in prior research (e.g., Henchy & Glass, 1968; Latane & Harkins, 1976), it has not been varied within a given audience. That is, research has compared high status audiences with low status audiences but a given audience was always homogenous with respect to status. Very little research has utilized an audience containing both high and low status members. Therefore, the effects of such audiences on anxiety was, until recently, virtually unknown. Assuming that most audiences encountered in every day life are heterogeneous, research on this issue seems warranted and necessary for a more complete understanding of the social facilitation effect.

Seta and associates (e.g., Seta, Seta & Wang, unpublished manuscript; Seta, Wang, Crisson & Seta, in press) have recently proposed an averaging/summation model of audience evaluation. This approach, borrowing from the impression formation literature, has proved useful in explaining both homogeneous and heterogeneous audience effects on impact or felt anxiety. Given that the effects of a heterogeneous audience should depend on how one processes diverse pieces of information about the audience members (i.e, the impression one forms about the group), an examination of the impression formation literature may be useful in understanding social facilitation effects with heterogeneous audiences. By far the most successful of the impression formation models is the information integration theory proposed by Anderson (1965, 1974). According to information integration theory, the relation between input stimuli and impression formation can best be described by a simple algebraic formulation. This theory contends that each input stimulus may be distinquished by a specific scale value and a weight. The scale value for a given stimulus represents it's position along some judgmental response dimension (e.g., favorable-unfavorable). A stimulus' weight reflects it's importance to the overall impression. Scale values are assumed to be constant for a given stimulus across varying contexts. Weight can vary with changing contexts and result in evaluative changes across context. In order for

individuals to form impressions, they must first determine the various scale values and weights of the input information. The scale values and weights are then combined, following algebraic formulae, into overall impressions. Research on how these scale values and weights combine in various social contexts has consistently pointed to a weighted averaging model of information integration (e.g., Anderson, 1965, 1973). The overall impression, according to the weighted averaging hypothesis, is the weighted average of the scale values making up the overall impression. In addition, it is assumed that the weighting coefficients must sum to unity. Finally, the average of the weighted scale values may also contain a scale value for the initial impression held prior to the averaging of additional stimulus inputs.

If the weighted averaging hypothesis is applied to the audience situation, several very interesting predictions regarding heterogenous audiences can be generated. Several assumptions must be met for these predictions to be made. First, one must assume that the information about the audience members varies along some evaluative dimension and that this variable scale value information is available, either implicitly or explicitly, to the person being observed. Second, it must be assumed that the nature of the information is such that it can be combined, psychologically, by some sort of algebraic formula. Finally, it must be

assumed that the person being observed has some norm or reference with regard to the evaluative dimension such that each member of the audience can be judged relative to this norm. This latter assumption is of paramount importance since this approach makes predictions about impressions formed from trait information having discrepant scale values. For example, two very positive traits and two moderately positive traits can produce a more positive impression than two very positive traits. This should be the case as long as the additional moderately positive trait information has scale values above the weighted average of the initial impression plus the very positive trait information. Likewise, additional low scale values (i.e., trait information scale valued below the weighted average of the initial impression plus the very positive trait information) should reduce the overall impression. Therefore, two very positive traits and two moderately positive traits could result in a less favorable impression than two very positive traits if the moderately favorable traits are below the weighted average of one's initial impression and the norm for very positive traits.

If the above discussed assumptions are met, one can predict the effects of both homogeneous and heterogeneous audiences within the same model. In terms of a homogeneous audience, one would predict that increasing the number of audience members would lead to greater evaluation

apprehension or impact, where these constructs are operationalized as felt anxiety in an audience situation. In addition, perceived status of the audience members may be operationalized along a judgmental dimension on which audience members may have varying scale values. If this were the case, it would be expected that high scale valued (high status) audiences would produce greater evaluation apprehension or impact than low scale valued (low status) audiences.

With regard to a heterogeneous audience situation, it would be predicted that evaluation apprehension or impact would be less with an audience consisting of both high and low status members with respect to one's norm for audiences than for an audience of only high status members. The averaging of low scale valued and high scale valued information should result in an overall impression which is less than that for high scale valued information alone. Such a prediction would not be made from either an evaluation apprehension approach to social facilitation or from social impact theory. Unfortunately, until very recently, this application of information integration theory to audience situations had not received an empirical test.

A recent series of experiments by Seta and associates (e.g., Seta et al., in press) has used a weighted averaging

analysis to test predictions about heterogeneous audience effects. In Study 1 of the series, a conceptual replication of the Latane and Harkins (1976) experiment reported earlier was conducted with the inclusion of a heterogenous audience condition. Using a within-subjects design, this study had subjects match the loudness of a tone with their imagined anxiety at reciting a poem in front of various audiences. Audience size (2, 4, or 8 members) and strength (all high status, all low status, or half high and half low status) constituted the audience composition manipulation. It was predicted that the homogeneous audience conditions would replicate the Latane and Harkins result. It was also predicted, based on the weighted averaging hypothesis, that subjects would experience less felt anxiety in front of an audience consisting of two high and two low status members than in front of only two high status members. The results of Study 1 duplicated those reported by Latane and Harkins for the homogeneous audience conditions. The results for the heterogenous audience conditions did not, however, support the weighted averaging model as expected. No significant differences were reported between the two high status plus two low status audience conditions and the two high status audience condition.

One possible reason for this lack of predicted statistical significance between the heterogeneous and homogeneous audience conditions could have been the way the

audience members were depicted. High status was manipulated by showing photographic slides of faculty members and low status was manipulated by showing slides of undergraduates. It is conceivable that both of these audience types were at or above the subjects' initial impression of what an audience should be given that the subjects themselves were college students. Therefore, although averaging of scale valued information may have been taking place, it did not produce the predicted decrease in anxiety because no low valued information (i.e., below the initial impression) was being averaged into the overall impression. Seta et al. (Study 2, in press) tested this possibility by having subjects rate their felt anxiety for reading a paper in front of an audience of either two faculty, two faculty plus two graduate students, or two faculty plus two high school students. The results of this experiment indicated that felt anxiety was higher in the two faculty plus two graduate student audience condition than in the two faculty audience condition. In addition, felt anxiety was significantly lower in the two faculty plus two high school student condition than the two faculty audience condition. These data are exactly those predicted from a weighted averaging model of audience influence.

Although each audience member contributes to the overall impression of the group, they also serve as individual sources of potential evaluation or consequences. As the

number of evaluative audience members increases, the total consequences in that audience situation might also be expected to increase. The weighted averaging formulation described above assumes that the individual audience members' impact is averaged. However, the impact of the group may not only be a function of the average influence of each audience member but may also be a function of the summative influence of all the audience members.

In an audience situation, each audience member contributes to the overall impact of the group (impact averaging) and acts as an additional source of evaluation (impact summation). For example, adding a low status member to a high status audience may lower the overall impact imparted by this audience. However, the additional low status member also adds a potential source of evaluation.

This two process notion was empirically tested in a series of studies by Seta et al. (unpublished manuscript). These studies presented participants with a list of the names and the status (e.g., faculty or high school student) in a role playing design. They then rated how anxious they would be at performing in front of these various audiences. Study 1 in this series of experiments supplied additional support for the impact averaging effect. When low status audience members were included in a high status audience, anxiety decreased. Study 2 in this series was designed as a more stringent test of both impact averaging and summation.

The procedure for this study was a within-subjects design with audiences consisting of: 1) 2, 4, 8, 16, or 32 faculty members (high status condition); 2) 2 faculty plus 2, 4, 8, 16, or 32 high school students (mixed status condition); 3) 2, 4, 8, 16 or 32 high school students (low status condition). This study found that the anxiety of performing in front of two faculty plus either two or four high school students was less than that reported for only two faculty members. The felt anxiety in the two faculty plus 32 high school student condition was significantly higher than that for two faculty. These data support the notion that, within an evaluative context, individuals are sensitive to the average impact of the individuals making up an audience as indicated by the fact that an audience of two high status members plus two low status members produce lower anxiety ratings than an audience of only two high status members. These data also show the summative consequences of a group since two high status members plus 32 low status members generate a greater anxiety than only two high status audience members.

Although the averaging/summation model of evaluation (e.g., Seta et al., unpublished manuscript; Seta et al., in press) and the weighted averaging hypothesis of impression formation (e.g., Anderson, 1965, 1973) share a number of similarities, there are also some distinct differences between these two approaches. Both the audience and

impression formation situations rely on a combination rule for transforming stimulus information (i.e., people and traits, respectively) into a more global unit of analysis (e.g., impressions of the group or target person, respectively). Both approaches agree that the most plausible combination rule for making this transformation is an averaging formulation. In the audience situation, however, each input stimulus (i.e., audience member) has the potential of administering consequences. Therefore, individuals in an audience situation should be sensitive to the average influence of the individuals of the group and also to the total consequences associated with a given audience. Based on these two dimensions of an audience, the averaging/ summation model makes predictions which differ from those of the weighted averaging hypothesis. The research by Seta et al. (Study 2, unpublished manuscript) clearly indicates that adding a few low valued members to a highly evaluative audience decreased the audience's impact. This represents the averaging dimension and similar results would be expected from the weighted averaging hypothesis. This research also found, however, that the adding of many low valued members to a highly evaluative audience increased the anxiety generated by this audience above that generated by the highly evaluative audience. This result would not be predicted from the weighted averaging hypothesis. If a few low valued traits decreased the overall impression by averaging, many low

valued traits should not increase the overall impression to a level above that for high valued traits. The weighted averaging hypothesis would not predict that the inclusion of low valued traits with high valued traits would produce an overall impression greater than that produced by just the high valued traits. The averaging/summation model does predict that the addition of many low status members to a high status audience would increase the impact of that audience above that of an audience consisting of only the high status members.

The results supporting the averaging/summation model of evaluation are also very different from those generally predicted and obtained by the evaluation apprehension approaches to social facilitation. These researchers have generally assumed that increasing audience size will either increase or have no effect on evaluation apprehension or anxiety (e.g., Cottrell, 1968; Paulus & Murdoch, 1971). There are, however, several important differences between the experimental paradigms which might account for this inconsistency in prediction and data. First, social facilitation research has generally utilized audiences of homogeneous composition. Several studies have compared audiences of differing composition (e.g., Henchy & Glass, 1968; Latane & Harkins, 1976), but a given audience was always homogeneous on the evaluative dimension. This homogeneity of audience composition may have resulted in

social facilitation researchers concentrating on the summative effects of an audience to the exclusion of potential averaging effects. The second major difference between the research designs of the two approaches lies in the types of tasks they have routinely employed. Evaluation apprehension approaches to social facilitation customarily rely on task performance measures to infer audience effects. The averaging/summation model is based on role playing situations and verbal reports of anxiety. It is entirely possible that the averaging effect reflects only what people think they would do in an audience situation. It may not accurately represent what subjects actually would do in such situations. The averaging/summation model has not, as yet, been empirically tested in an actual audience situation employing task performance as an outcome measure.

The purposes of the present study were, therefore, twofold. First, this study tested whether or not the averaging results found by Seta and associates (e.g., Seta et al., unpublished manuscript; Seta et al., in press) could be replicated in an actual laboratory experimental setting using a task performance measure generally accepted as a behavioral indicant of anxiety (e.g., Geen, 1979; Geen & Gange, 1977; Spence, Farber, & McFann, 1956). Although the predictions and results of the averaging/summation model of evaluation are intriguing, they are based entirely on role play situations and verbal measures of felt anxiety. While role

playing is a viable method of empirical investigation, it may place subjects in situations which are unfamiliar or in roles to which they cannot adequately adapt (e.g., Aronson & Carlsmith, 1968; Carlsmith, Ellsworth, & Aronson, 1976). The results of such studies are therefore seen by some as suspect. The next logical test of this model would be to see if it works in "real life" experimental settings with task performance measures which might be more unobtrusive and less susceptible to bias. The second purpose of the present study is to test the averaging prediction of the averaging/summation model of evaluation in a typical social facilitation setting. Based on the averaging/summation model, it was hypothesized in the present study that an audience consisting of one high status member would produce greater anxiety and worse task performance relative to an alone condition (i.e., the typical social facilitation effect). It was also predicted that an audience consisting of one high status and one low status member would produce less anxiety and better task performance than an audience of only one high status member (i.e., the averaging effect). The relationship between the alone and the mixed audience condition cannot be accurately predicted a priori other than to expect the mixed audience condition to fall somewhere between the alone and the one high status audience conditions.

CHAPTER II

METHOD

Participants

Thirty-six female undergraduate students served as participants in the present study. Participants ranged in age from 18 to 22 years. The study sample consisted of 30 white females and 6 black females. The black participants were equalized in each of the three experimental conditions. Participants were drawn from Introductory Psychology classes at the University of North Carolina at Greensboro and participated in order to fulfill a course requirement for experimental credit. They were randomly assigned to one of the three experimental conditions. There were a total of 12 females in each of the experimental conditions.

Design

A univariate between-subjects design was used in the present study. Audience composition made up the three levels of the between-subjects factor. The three levels of this factor were: 1) alone, 2) one high status audience member, and 3) one high status and one low status audience member. High status was operationalized as a Ph.D. Psychology faculty member and low status was operationalized as a high school

freshman working on an honors project in Psychology being guided by the faculty member.

Stimulus Materials

The task performance measure, used as a behavior indicant of anxiety in the present study, was the paired-associates learning task developed by Spence, Farber and McFann (1956). The stimulus and stimulus-response terms were computer generated and presented sequentially on a TV screen placed directly in front of the participant. The items on the paired-associates learning task were designed to have relatively high interresponse competition (see Appendix A).

Participants also completed the state version of the Spielberger State-Trait Anxiety Inventory (e.g., Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983). The instructions for this instrument were slightly modified to directly assess state anxiety associated with performance on the paired-associate learning task (see Appendix B). This instrument has been found to be a reliable and valid measure of anxiety for a number of populations (e.g., Spielberger, et al., 1983).

Procedure

All participants were run individually in an experimental room containing a computer connected to a TV set. There was another TV set attached to a bogus closed-

circuit TV camera. This TV set was actually connected to a VCR in the accompanying room. This camera was placed behind and to the left of the partipant's chair. The camera remained covered at all times except during the audience manipulation. Finally, there was an audio cassette tape recorder for recording the participant's responses on the paired-associates task.

Upon entering the experimental room, participants were told they were going to participate in a research project designed to examine the effects that being observed has on learning (see Appendices C and D for precise instructions). The nature of the learning task was then described. It was explained that the first stimulus word would appear on the TV screen in front of the subject for five seconds. They would then hear a beep and the TV screen would go blank. When they heard the beep, they would have five seconds to respond with the response word which was paired with the stimulus word they had just seen. The correct stimulus-response pair was then presented for five seconds. Participants were informed that it was very important for them to respond in a clear loud voice immediately upon hearing the beep. It was explained that this was necessary since their responses were being recorded on audio cassettes to be scored after all participants had completed the experiment. They were also told that they would not be identified on the audio cassette. This part of the procedure was incorporated to minimize the

evaluation apprehension or impact which might be associated with having the experimenter present during the data collection phase of the experiment. This procedure allowed the experimenter to unobtrusively record the participants' responses from outside the experimental room. Having them respond immediately after the beep assured the experimenter that the response was given before the correct stimulus-response pairings were presented. In addition, by delaying the scoring of the audio cassette until all participants had completed the experiment, any evaluation apprehension or impact resulting from having responses recorded should be minimized.

The next phase of the instructions introduced the audience manipulation. Participants were informed they would either be working on the task alone or they would be observed over the closed-circuit TV camera connected to the lab on another floor of the building. Those randomly assigned to one of the audience conditions were told that they would be observed while they were working on the learning task by either: 1) Dr. Catherine Seta, a Ph.D. Psychologist and faculty member, or 2) Dr. Catherine Seta, a Ph.D. Psychologist and faculty member and Sarah, a high school freshman working on an honors project being guided by Dr. Seta. In the audience conditions, the "closed-circuit" TV set was turned on to reveal an empty laboratory with a

monitor and two chairs. The laboratory was actually recorded on video cassette tape.

The experimenter went over each of the stimulus and response words to be used in the experiment to insure that all participants knew the correct pronunciation of all the stimulus materials. This was deemed necessary since participants would be responding aloud and might be inhibited at responding to words whose pronunciation were unfamiliar. All participants were given one practice trial to familiarize themselves with the experimental procedure. This practice was monitored from outside the room by the experimenter to insure that all participants understood the experimental procedures. Prior to the practice trial, the audience members on video tape, entered the other laboratory and had a seat in front of the monitor. The camera in the experimental room was uncovered during the practice trial for participants in the audience conditions. This was done so that all learning took place in the appropriate audience condition. Following the practice task, the experimenter re-entered the experimental room and covered the camera (audience conditions). Participants were then asked to complete a brief survey regarding their feelings about the upcoming learning task. This survey was the state version of the Spielberger State-Trait Anxiety Inventory. Participants were asked not to identify themselves on the survey and attention was drawn to the fact that the camera was covered. This part

of the procedure was conducted to minimize participants' reactivity in responding to the survey since anonymity was maximized. After they had completed the survey, the experimenter entered the experimental room, uncovered the camera (audience conditions), started the audio tape recorder, and began the computer program containing the paired-associates learning task. He then left while the participants worked on the task. After five learning trials had been completed, the experimenter returned and debriefed each participant.

Audience Manipulation Videotape

Prior to the start of this experiment, two versions of the audience videotape were prepared. Both versions began with a two minute segment showing a laboratory room containing a monitor and two chairs. This lead-in segment allowed the experimenter time to administer the experimental instructions without an audience present. The next segment of the videotape introduced the audience member(s). Dr. Catherine Seta or Dr. Seta and a high school student entered the videotaped laboratory and took a seat in front of the monitor. Each audience member picked up a clipboard and Dr. Seta turned on the monitor. The experimenter introduced each audience member to the participants as they appeared on the videotape (i.e., "that is Dr. Seta" or "that is Sara and that is Dr. Seta"). After approximately 20 seconds, the participants' TV was turned off so as not to distract attention

during the task. Dr. Seta acted in a manner which maintained her evaluative countenance in the two versions of the videotape.

As a check on the similarity of Dr. Seta's evaluative demeanor, an additional 13 participants viewed both versions of the videotape and rated her actions on a 6 point scale where 1 equalled extremely similar, 3.5 equalled moderately similar, and 6 equalled not at all similar. The mean rating was 2.69 (std. dev. = .85) indicating that the evaluative behaviors displayed on the two tapes were very similar. Eleven participants also rated the evaluative behaviors of the high school student on a 11 point scale where 0 equalled not at all evaluative and 10 equalled extremely evaluative. Her mean evaluativeness rating was 5.45 (std. dev. = 2.66) indicating that the high school student's behaviors were perceived as being moderately evaluative.

Dependent Measures

There were two dependent variables included in the present study. The first was the number of errors on the paired-associates learning task. Prior research with this learning task (e.g., Spence, Taylor, & Ketchel, 1956) has demonstrated that it provides a behavioral indicant of anxiety. Verbally reported level of anxiety, as measured by the state version of the Spielberger State-Trait Anxiety

Inventory, was the second dependent measure included in the present study.

CHAPTER III

RESULTS AND DISCUSSION

The raw data for number of errors on the paired-associates learning task and the Spielberger State Anxiety Ratings are presented in Appendix E.

The mean number of errors on the paired-associates learning task are shown in Table 1. A univariate analysis of variance on these data indicated a significant main effect for audience composition ($F=3.72$; $df=2,33$; $p<.05$). It was a priori predicted that there would be an increase in the number of errors made on this task when the task was completed in front of a high status audience relative to an alone condition. Planned-comparisons analysis of this data indicated that subjects in the high status audience condition made significantly more errors than subjects in the alone condition ($F=6.28$; $df=1,33$; $p<.025$). It was also predicted that subjects in the high/low mixed audience condition would produce fewer errors on the paired-associates learning task than subjects being observed by only one high status audience member. The planned-comparisons analysis of this data supported the prediction ($F=4.75$; $df=1,33$; $p<.05$).[1] No a priori prediction could be made regarding the relationship between error scores for subjects performing alone versus subjects in the high/low mixed audience condition other than

an expectation that the mixed audience condition error scores should fall somewhere between the error scores of alone condition subjects and subjects performing in front of one high status member. Post hoc analysis of the alone versus high/low mixed audience data revealed that the error scores in these two conditions did not significantly differ ($F<1$).

TABLE 1

Mean Number of Errors

On The Paired-Associates Learning Task

Alone	High Status	Mixed Status
8.33 (a)	14.08 (b)	9.08 (ac)

Note. Means having the same subscript are not significantly different at $p<.05$.

Mean anxiety ratings from the state version of the Spielberger State-Trait Anxiety Inventory are presented in Table 2. Although the directionality of these means is similar to the error score means discussed above, a univariate analysis of variance on these data did not reach conventional levels of statistical significance. A Pearson product-moment correlation revealed a strong positive correlation between number of errors and state anxiety ratings ($r=0.45$; $p<.01$). Therefore, as errors increased, anxiety level also tended to increase. The individual

within-group correlations are as follows: 1) alone (r=0.67; p <.025), 2) high status (r=0.42; p=0.18), and 3) mixed status (r=0.23; p=0.47).

TABLE 2

Mean Spielberger State Anxiety Ratings

Alone	High Status	Mixed Status
37.75 (a)	44.00 (a)	41.50 (a)

Note. Means having the same subscript are not significantly different at p<.05.

Although the verbal report data in the present study did not prove significant, the error scores on the paired-associates task indicate that subjects experienced greater anxiety when working in front of a high status audience than when working alone. The addition of a low status audience member to the high status audience significantly decreased the amount of experienced anxiety relative to an audience of only one high status member.[2]

The present study was designed with two goals in mind. The first was to test the averaging dimension of the averaging/summation model of evaluation (e.g., Seta et al., unpublished manuscript; Seta et al., in press) in a typical laboratory setting. Even though prior research on this model was supportive of the approach, the model was based on the

results of role playing situations and verbal reports of anxiety. These prior results could, conceivably, have represented only what subjects think they would do in an audience setting rather than what they actually would do. Also, the dependent measure (i.e., ratings of felt anxiety) was open to bias on the part of the subjects (e.g., social desirability effects). By incorporating a more controlled experimental procedure, the present study could ascertain if similar results could be obtained in a typical laboratory setting. The findings of this research supply additional strong support for the averaging dimension of the model. In addition, the present experiment utilized a performance measure, which social facilitation researchers have used as an indicant of anxiety (e.g., Geen, 1977; Geen & Gange, 1976), as opposed to the rating scale used in the initial research on the model. The paired-associates learning task used in this experiment supplies a measure of anxiety which is more unobtrusive than rating scales and should, therefore, be less prone to potential response biases. The results supporting the averaging perspective are given greater credence because of the unobtrusive nature of the dependent variable used.

The second purpose of the present study was to determine if the averaging prediction could be obtained in a typical social facilitation setting. Research on the social facilitation effect has been conducted for over a century without such an effect being either predicted or found in this

paradigm. Social facilitation has consistently found that increasing an audiences' size or evaluativeness results in what appears to be some sort of summative effect. That is, increasing the size of an audience either increases or has no effect on outcome measures. Audience researchers (e.g., Cottrell, 1968; Paulus & Murdoch, 1971; Weiss & Miller, 1971), by utilizing homogeneous audience compositions, may have been concentrating on the summative nature of evaluative others. Once the compositional constitution of the group is established, additional members with the same status (i.e., additional homogeneous audience members) will not significantly change the average impact. They will, however, change the summative impact by supplying additional sources of evaluation. Such approaches would, therefore, all predict that increasing audience size would either increase or have no effect on the overall evaluative nature of the group. These researchers may have overlooked the importance that each individual audience member contributes to the average impact of the individuals makin up the group. Averaging predictions are most likely to be found in those situations where the discrepant characteristics of individual group members are most salient (i.e., in heterogeneous audience situations) while summative effects are more likely to result from audiences where individual characteristics are less salient and the prospect of potential evaluative consequences is more salient (i.e, in homogeneous audience situations).

Another reason for the lack of an averaging effect in social facilitation research may relate to the types of dependent variables used in this paradigm. Evaluation apprehension approaches to social facilitation effects have generally inferred the existence of this effect from task performance data. Support for the averaging dimension of the averaging/summation model of evaluation, while convincing, was based entirely on verbal report data. The present study, however, used a typical social facilitation design and a task performance measure which has been used to infer a social facilitation effect in prior research in that area (e.g., Bond, 1982; Geen, 1979). The results presented here indicate that averaging does, indeed, occur in certain audience contexts and does affect how one actually performs on a behavioral task.

FOOTNOTES

1. Due to the constraints of the available participant population, only female undergraduates were recruited into the present study. Whether identical results would be obtained with males or for populations other than college students remains an empirical question to be addressed by future research. Likewise, the present study employed all female audience members and, again, more research is needed to determine if gender will affect the obtained results.

2. A small sample was used in this study. The fact that a significant social facilitation effect and averaging effect were obtained on the paired-associates learning task is indicative of the robustness of these effects. The Spielberger State Anxiety measure did not, however, reach conventional levels of signficance. This lack of signficance could be due, in part, to the size of the sample used. Another possible reason for this lack of statistical significance could be that the Spielberger State Anxiety Inventory, although a valid and reliable index of anxiety, may not be particularly sensitive to the social anxiety usually generated in social facilitation designs.

BIBLIOGRAPHY

Anderson, N. H. (1965). Primary effects in personality impression formation using a generalized order effect paradigm. Journal Personsonality and Social Psychology, 2, 1-9.

Anderson, N. H. (1973). Information integration theory applied to attitudes about U.S. Presidents. Journal of Educational Psychology, 64, 1-8.

Anderson, N. H. (1974). Cognitive algebra: Integration theory applied to social attribution. In L. Berkowitz (Ed.), Advances in Experimental Social Psychology: Vol. 7 (pp. 1-101). New York: Academic Press.

Aronson, E., & Carlsmith, J. M. (1968). Experimentation in social psychology. In G. Lindzey & E. Aronson (Eds.), Handbook of Social Psychology: Vol. 2 (pp. 1-79). Reading, MA: Addison-Wesley.

Baron, R. S., Moore, D., & Sanders, G. S. (1978). Distraction as a source of drive in social facilitation research. Journal of Personality and Social Psychology, 36, 816-824.

Bond, C. F. Jr. (1982). Social facilitation: A self-presentational view. Journal of Personality and Social Psychology, 42, 1042-1050.

Carlsmith, J. M., Ellsworth, P. C., & Aronson, E. (1976). Methods of Research in Social Psychology. Reading, MA: Addison-Wesley.

Carver, C. S. (1979). A cybernetic model of self-attention processes. Journal of Personality and Social Psychology, 37, 1251-1281.

Carver, C. S., & Scheier, M. F. (1981a). Attention and Self-regulation: A Control Theory Approach to Human Behavior. New York: Springer-Verlag.

Carver, C. S., & Scheier, M. F. (1981b). The self-attention induced feedback loop and social facilitation. Journal of Experimental Social Psychology, 17, 545-568.

Chapman, A. J. (1974). An electomyographic study of social facilitation: A test of the 'mere presence' hypothesis. British Journal of Psychology, 65, 123-128.

Clark, N., & Fouts, G. T. (1973). Effects of positive, neutral, and negative experiences with an audience on social facilitation in children. Perceptual and Motor Skills, 37, 1008-1010.

Cottrell, N. B. (1968). Performance in the presence of other human beings: Mere presence, audience and affiliation effects. In E. C. Simmel, R. A. Hope, & G. A. Milton (Eds.), Social Facilitation and Imitation Behavior (pp. 91-110). Boston: Allyn & Bacon.

Cottrell, N. B. (1972). Social facilitation. In C. G. McClintock (Ed.), Experimental Social Psychology (pp. 185-236). New York: Holt.

Cottrell, N. B., Wack, D. L., Sekerak, G. J., & Rittle, R. H. (1968). Social facilitation of dominant responses by the mere presence of an audience and the mere presence of others. Journal of Personality and Social Psychology, 9, 245-250.

Dashiell, J. F. (1930). An experimental analysis of some group effects. Journal of Abnormal and Social Psychology, 25, 190-199.

Duval, S., & Wicklund, R. A. (1972). A Theory of Objective Self-awareness. New York: Academic Press.

Geen, R. G. (1977). Effects of anticipation of positive and negative outcomes on audience anxiety. Journal of Consulting and Clinical Psychology, 45, 715-716.

Geen, R. G. (1979). Effects of being observed on learning following success and failure experiences. Motivation and Emotion, 3, 355-371.

Geen, R. G., & Gange, J. J. (1977). Drive theories of social facilitation: Twelve years of theory and research. Psychological Bulletin, 84, 1267-1288.

Good, K. J. (1973). Effects of performance anticipation, evaluation, and response competition on free association. Journal of Personality and Social Psychology, 28, 270-275.

Helson, H. (1964). Adaptation-level Theory: An Experimental and Systematic Approach to Behavior. New York: Harper & Row.

Henchy, T., & Glass, D. C. (1968). Evaluation apprehension and the social facilitation of dominant and subordinant responses. Journal of Personality and Social Psychology, 10, 446-454.

Hull, C. L. (1943). Principles of Behavior. New York: Appleton.

Hunt, P. J., & Hillery, J. M. (1973). Social facilitation in a coaction setting: An examination of the effects over learning trials. Journal of Experimental Social Psychology, 9, 563-571.

Innes, J. M., & Young, R. F. (1975). The effect of presence of an audience, evaluation apprehension, and objective self-awareness on learning. Journal of Experimental Social Psychology, 11, 35-42.

Jackson, J. M., & Latane, B. (1981). All alone in front of all those people: Stage fright as a function of number and type of co-performers and audience. Journal of Personality and Social Psychology, 40, 511-513.

Jones, E. & Gerard, H. (1967). Foundations of Social Psychology. New York: Wiley.

Latane, B. (1981). The psychology of social impact. American Psychologist, 36, 343-356.

Latane, B., & Harkins, S. (1976). Cross modality matches suggest anticipated stage fright, a multiplicative power function of audience size and status. Perception and Psychophysics, 20, 482-488.

Latane, B., & Nida, S. (1980). Social impact theory and group influence: A social engineering perspective. In P. B. Paulus (Ed.), Psychology of Group Influence (pp. 3-34). Hillsdale, NJ: Erlbaum.

Martens, R. (1969). Palmer sweating and the presence of an audience. Journal of Experimental Social Psychology, 5, 371-374.

Matlin, M. M., & Zajonc, R. B. (1968). Social facilitation of word associations. Journal of Personality and Social Psychology, 10, 435-460.

Paulus, P. B. (1983). Group influence on individual task performance. In P. B. Paulus (Ed.), Basic Group Processes (pp. 97-120). New York: Springer-Verlag.

Paulus, P. B., & Murdoch, P. (1971). Anticipated evaluation and audience presence in the enhancement of dominant responses. Journal of Experimental Social Psychology, 7, 280-291.

Pessin, J. (1933). The comparative effects of social and mechanical stimulation on memorizing. American Journal of Psychology, 45, 263-270.

Sanders, G. S. (1981). Driven by distraction: An integrative review of social facilitation theory and research. Journal of Experimental Social Psychology, 17, 227-251.

Sanders, G. S., & Baron, R. S. (1975). The motivating effects of distraction on task performance. Journal of Personality and Social Psychology, 32, 956-963.

Sanders, G. S., Baron, R. S., & Moore, D. L. (1978). Distraction and social comparisons as mediators of social facilitation effects. Journal of Experimental Social Psychology, 14, 291-303.

Seta, J. J., & Hussan, R. K. (1980). Awareness of prior success or failure: A critical factor in task performance. Journal of Personality and Social Psychology, 39, 70-76.

Seta, J. J., & Seta, C. E. (1982). Personal equity: An intrapersonal comparator system analysis of reward value. Journal of Personality and Social Psychology, 43, 222-235.

Seta, J. J., & Seta, C. E. (1983). The impact of personal equity processes on performances in a group setting. In P. B. Paulus (Ed.), Basic Group Processes (pp. 121-147). New York: Springer-Verlag.

Seta, J. J., Seta, C. E., & Martin, L. L. (1987). Payment and value: The generation of evaluation standard and its effect on value. Journal of Experimental Social Psychology, 23, 285-301.

Seta, J. J., Seta, C. E., & Wang, M. A. (1988). Evaluation averaging and summation. Unpublished manuscript.

Seta, J. J., Wang, M. A., Crisson, J. E., & Seta, C. E. (in press). Audience composition and felt anxiety: Impact averaging and summation. Basic and Applied Social Psychology.

Singerman, K. J., Borkovec, T. D., & Baron, R. S. (1976). Failure of "misattribution therapy" manipulation with a clinically relevant target behavior. Behavior Therapy, 7, 306-313.

Spence, K. W. (1956). Behavior Theory and Conditioning. New Haven, CT: Yale University Press.

Spence, K. W., Farber, I. E., & McFann, H. H. (1956). The relation of anxiety (drive) level to performance in competitional and noncompetitional paired-associates learning. Journal of Experimental Psychology, 52, 296-305.

Spence, K. W., Taylor, J., & Ketchel, R. (1956). Anxiety (drive) level and degree of competition in paired-associates learning. Journal of Experimental Psychology, 52, 306-310

Spielberger, C. D., Gorsuch, R. L., Lushene, R., Vagg, P. R., & Jacobs, G. A. (1983). Manual for the State-Trait Anxiety Inventory. Palo Alto, CA: Consulting Psychologists Press.

Stevens, S. S. (1957). On the psychophysical law. Psychological Review, 64, 153-181.

Triplett, N. (1897). The dynamogenic factors in pacemaking and competition. Journal of Psychology, 9, 507-533.

Weiss, R. F., & Miller, F. G. (1971). The drive theory of social facilitation. Psychological Review, 78, 44-57.

Wicklund, R. A. (1975). Objective self-awareness. In L. Berkowitz (Ed.), Advances in Experimental Social Psychology: Vol. 8 (pp. 233-275). New York: Academic Press.

Wicklund, R. A., & Duval, S. (1971). Opinion change and performance facilitation as a result of objective self-awareness. Journal of Experimental Social Psychology, 7, 319-342.

Williams, K. B., & Williams, K. D. (1983). Social inhibition and asking for help: The effects of number, strength, and immediacy of potential help givers. Journal of Personality and Social Psychology, 44, 67-77.

Zajonc, R. B. (1965). Social facilitation. Science, 149, 269-274.

Zajonc, R. B. (1980). Compresence. In P. B. Paulus (Ed.), The Psychology of Group Influence (pp. 35-60). Hillsdale, NJ: Erlbaum.

Zajonc, R. B., & Sales, S. M. (1966). Social facilitation of dominant and subordinant responses. Journal of Experimental Social Psychology, 2, 160-168.

Appendix A

STIMULUS-RESPONSE PAIRS FOR PAIRED-ASSOCIATES LEARNING TASK

Serene	-	Headstrong
Arid	-	Grouchy
Tranquil	-	Placid
Petite	-	Yonder
Desert	-	Leading
Migrant	-	Agile
Barren	-	Fruitless
Quiet	-	Double
Little	-	Minute
Roving	-	Nomad

Appendix B

INSTRUCTIONS AND ITEMS FOR THE STATE VERSION OF THE SPIELBERGER STATE-TRAIT ANXIETY INVENTORY

INSTRUCTION: A number of statements which people have used to describe their feelings are given below. Think about the upcoming learning task for a moment and then read each statement and circle the appropriate number to the right of each statement to indicate how performing on the upcoming learning task makes you feel right now, that is, at this moment. There are no right or wrong answers. Do not spend too much time on any one statement, but give the answer which seems to describe your present feelings best.

		NOT AT ALL	SOMEWHAT	MODERATELY SO	VERY MUCH SO
1.	I feel calm.....	1	2	3	4
2.	I feel secure.....	1	2	3	4
3.	I feel tense.....	1	2	3	4
4.	I feel strained.....	1	2	3	4
5.	I feel at ease.....	1	2	3	4
6.	I feel upset.....	1	2	3	4
7.	I am presently worrying over possible misfortune.....	1	2	3	4
8.	I feel satisfied.....	1	2	3	4

9.	I feel frightened.....	1	2	3	4
10.	I feel comfortable.....	1	2	3	4
11.	I feel self-confident.....	1	2	3	4
12.	I feel nervous.....	1	2	3	4
13.	I am jittery.....	1	2	3	4
14.	I feel indecisive.....	1	2	3	4
15.	I am relaxed.....	1	2	3	4
16.	I feel content.....	1	2	3	4
17.	I am worried.....	1	2	3	4
18.	I feel confused.....	1	2	3	4
19.	I feel steady.....	1	2	3	4
20.	I feel pleasant.....	1	2	3	4

Appendix C

INSTRUCTIONS FOR ALONE CONDITION

This experiment is designed to examine the effect that being observed by others has on learning. In this experiment, you will be asked to learn pairs of words. The first word in each pair will appear on the TV screen for five seconds. It will then go off, the screen will go blank, and you will hear a beep. Once you hear the beep, you will have five seconds to respond by saying the word that goes with the word you have just seen. The correct pair is then presented on the TV screen for five seconds. It is very important that you respond immediately after hearing the beep. It is also important for you to respond in a clear loud voice since I will be recording your responses on audio tape to score later, after all subjects have been in the experiment. You will not be identified in any way on the audio tape.

While you are working on the learning task, you will either be alone or you will be observed over the closed-circuit TV camera connected to our lab down on the third floor. In your case, you will be working alone on this task, with no one observing you.

Do you have any questions? I'd like you to take a few

minutes to read this consent form and then sign the bottom of the form if you still want to participate in the experiment.

Now we are ready to begin the learning task. I am going to go through the entire list of word pairs with you one time to make sure that you are familiar with how all the words are pronounced.

[E goes through list]

I am going to let you go through the list again so that you may familiarize yourself with the procedure and to let me be certain that you understand the procedure. Please respond out loud, just as you will when I am recording your responses, even though I won't have the tape recorder on during this practice trial. Ready? Begin.

[E leaves room]

[E returns after one trial]

Before I start recording your responses, I'd like you to take a minute to complete this brief survey. Do not identify yourself on the survey form.

[E gives P state anxiety measure and leaves room]

[E returns and collects anxiety measure]

Now we are ready to begin the actual learning task. Any questions? Let's begin.

[E starts tape recorder and learning task]

[E leaves and records data from outside]

[After 5 trials, E returns and debriefs P]

Appendix D

INSTRUCTIONS FOR AUDIENCE CONDITIONS

This experiment is designed to examine the effects that being observed by others has on learning. In this experiment, you will be asked to learn pairs of words. The first word in each pair will appear on the TV screen for five seconds. It will then go off, the screen will go blank, and you will hear a beep. Once you hear the beep, you will have five seconds to respond by saying the word which goes with the word you have just seen. The correct pair is then presented on the TV screen for five seconds. It is very important that you respond immediately after hearing the beep. It is also important for you to respond in a clear loud voice since I will be recording your responses on audio tape to score later, after all subjects have been in the experiment. You will not be identified in any way on the audio tape.

While you are working on the learning task, you will either be alone or you will be observed over the closed-circuit TV camera connected to our lab down on the third floor. In your case, you will be observed while you are working on the task by: (Dr. Catherine Seta, a Ph.D. Psychologist and faculty member) (Dr. Catherine Seta, a Ph.D. Psychologist and faculty member, and Sarah who is a freshman

in high school, working on an honors project in Psychology which is being guided by Dr. Seta).

Do you have any questions? I'd like you to take a few minutes to read this consent form and then sign the bottom of the form if you still want to participate in the experiment.

Now we are ready to begin the learning task. I am going to go through the entire list with you one time to make sure that you are familiar with how all of the words are pronounced.

[E goes through list]

[E draws attention to video taped audience]

I see that (Dr. Seta) (Dr. Seta and Sarah) are now in the lab and are ready to observe your performance.

[E introduces each audience member as they appear]

I am going to turn the closed-circuit monitor off so that it will not distract you.

[E turns off monitor]

Let me uncover the camera for them.

[E uncovers camera]

I am going to let you go through the list again on your own so that you may familiarize yourself with the procedure, and to let me be sure that you understand the procedure. Please respond out loud, just as you will when I am recording your responses, even though I won't have the recorder on during the practice trial. Ready? Begin.

[E leaves room]

[E returns after one trial]

Let me cover the camera for a minute.

[E covers camera]

Before I start recording your responses, I'd like you to take a minute to complete this brief survey. Do not identify yourself on the survey form.

[E gives P state anxiety measure and leaves]

[E returns and collects anxiety measure]

Now we are ready to begin the actual learning task. Let me uncover the camera again.

[E uncovers camera]

Any questions? Let's begin.

[E starts tape recorder and learning task]

[E leaves and records data outside]

[After 5 trials, E returns, covers camera and debriefs P]

APPENDIX E

RAW DATA

Alone

Participant Number	Paired-Associates Errors	Spielberger State Anxiety
1	2	28
2	13	47
3	9	27
4	14	51
5	8	43
6	5	27
7	9	52
8	10	44
9	7	34
10	4	29
11	7	38
12	12	33

High Status Audience

Participant Number	Paired-Associates Errors	Spielberger State Anxiety
1	9	49
2	14	69
3	12	41
4	7	38
5	11	50
6	30	54
7	15	36
8	12	40
9	2	26
10	17	47
11	16	33
12	24	45

Mixed Status Audience

Participant Number	Paired-Associates Errors	Spielberger State Anxiety
1	8	38
2	14	51
3	9	21
4	7	42
5	6	50
6	2	45
7	9	31
8	16	45
9	19	44
10	2	32
11	7	44
12	10	55