ANXIETY, SELF-AWARENESS, AND SOCIAL FACILITATION

EFFECTS ON PERFORMANCE

By

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TABLE OF CONTENTS

LIST OF TABLES

CHAPTER I

INTRODUCTION

> In other words, consciousness is not passive and epiphenomenal, but one of the most complex, and, in its consequences, the most unpredictable, of those self-organizing processes which characterize all living things (Fair, 1970, p. 49).

The interrelations of self-awareness, social facilitation effects, and anxiety have recently been examined by Innes and Young (1975), Liebling and Shaver (1973), and Henchy and Glass (1968), among others. These three factors each affect performance as a function of their magnitude and direction. In general, task performance is facilitated by a low anxiety state, presence of others, and subjective self-awareness. High anxiety levels, objective self-awareness, and absence of others tend to debilitate performance.

The impact of different levels of self-awareness, anxiety, and presence of others on performance depends on the perception and utilization of information about the self. The "self" has been variously conceptualized as the union of elements (as body, emotions, thought, sensations) that constitute the individuality and identity of a person (Webster's Seventh New Collegiate Dictionary), and as the sum total of the individual's capacities (Goldstein, 1939). A more limited meaning refers to the capacity of the individual to have conscious awareness of his/her activities and through this awareness to exercise a measure of freedom in directing these activities (Sullivan, 1947). The type of information which may be perceived by the experiencing individual

differ for different levels of anxiety, self-awareness, and social facilitation.

Objective Self-Awareness

Self-awareness theory (Duval & Wicklund, 1972) distinguishes between subjective self-awareness, in which attention is directed to events external to the self, and objective self-awareness, where the individual is the object of his/her own attentional focus. With objective self-awareness, attention is directed toward self-perception and current performance is evaluated according to an internalized standard of excellence, i.e., the individual is occupied in a process of self-judgment. The effect of objective self-awareness conditions is to redefine attentional focus. Attention previously utilized in world perception must now, to some degree, be used for self-monitoring processes.

Social Facilitation

Social facilitation effects (cf. Zajonc, 1965) refer to the increment in performance often observed when individuals work in the presence of relevant others. Within this framework, the individual directs some portion of his attention to perception of others and possibly engages in comparison of current performance with social standards of acceptability; i.e., the individual is again occupied in a process of self-judgment. Performance increments are observed as long as the task requires emission of dominant responses. With unfamiliar tasks, the attentional split between world perception and self-monitoring processes results in performance decrements.

Anxiety

Anxiety is a subjectively experienced painful or apprehensive uneasiness of mind, often occurring with a concurrent autonomic nervous system arousal. Although personality theorists deal with the origin, focus, and process of anxiety responses in different manners, the consensus seems to suggest that anxiety is the result of an organismic response to a perceived discrepancy between the self's current performance and some standard of reference, with probable effects on behavior, self-perception, self and social judgments. Anxiety affects self-awareness as a function of the amount of experienced anxiety, the salience of the threat, and the capacity of the individual to tolerate anxiety.

Attentional Focus

Anxiety, objective self-awareness, and social facilitation each affect the attentional focus of the experiencing individual. The self is engaged in monitoring both internal processes and external events and continuously evaluating the adequacy of performance within the current situation. If the self-monitoring process monopolizes available attention and competes with perception of external task-relevant cues, decrements in performance are to be expected. As long as anxiety, objective self-awareness, and social facilitation are low, the self is engaged primarily in monitoring external events to the exclusion of self-monitoring processes. Performance of unlearned or novel tasks is expected to be facilitated by these conditions.

Specifically, low objective self-awareness results in a stable external attentional focus. The self is able to respond to task-relevant

cues without allocating attention to self-monitoring processes. Low social facilitation conditions should have a similar performance pattern, for slightly different reasons. With presence of others some attention is required to perceive and evaluate the others to the detriment of task-related cue perception. Inasmuch as mere presence of others is a stimulus provoking some objective self-awareness, the results of social facilitation conditions may be confounded with objective self-awareness conditions. A similar interaction between anxiety and objective self-awareness is possible in that anxiety is a response to an ego-threat, a threat to the focus of self-awareness. The purpose of the present research is to investigate the direct effects of anxiety, objective self-awareness, and social facilitation on task performance. The interrelationship of anxiety and objective self-awareness is considered, as is the interrelationship of anxiety and social facilitation.

CHAPTER II

REVIEW OF THE LITERATURE

The concepts of anxiety, self-awareness, and social facilitation have had extensive investigations within the field of psychology. The present review will focus upon: (1) anxiety effects on performance, (2) objective self-awareness, and (3) social facilitation effects on performance.

Anxiety

According to May (1950, p. 191), "anxiety is the apprehension cued off by a threat to some value which the individual holds essential to his existence as a personality." The individual experiences subjective feelings of uncertainty and helplessness. The focus of normal anxiety is a perceived threat to the individual's security pattern; i.e., the stratagems which have developed through successful coping with stressful situations suddenly seem inadequate. The centrality of the anxiety focus differentiates it from a fear response, which is directed toward some objectifiable danger or stressor stimuli.

> Rather anxiety is objectless because it strikes at that basis of the psychological structure on which the perception of one's self as distinct from the world of objects occurs. Sullivan has remarked that the self-dynamism is developed in order to protect the individual from anxiety. The converse is as true, that mounting anxiety reduces self-awareness. In proportion to the increase in anxiety, the awareness of one's self as subject related to objects in the external world is confused. Awareness of one's self is simply a correlate of awareness of objects in the external world.

> It is precisely this differentiation between subjectivity and objectivity which breaks down in proportion to the severity of the anxiety experiences (May, 1950, p. 192).

Perception of an anxiety state requires a new attentional focus. Attention which was previously occupied in world perception and objective self-awareness is now drawn to an anxiety-monitoring process. As long as the amount of experienced anxiety is within acceptable bounds, the individual can respond to a generalized environmental threat with increased vigilance and renewed efforts. As anxiety increases, it occupies a larger portion of the available attention to the detriment of objective self-awareness and world perception. When the amount of anxiety exceeds the individual's capacity for anxiety tolerance, the differentiation between the self and the world is confused. The individual's attentional focus vacillates between world perception and self-monitoring processes with a practical exclusion of objective self-awareness. This results in unreliable environmental perceptions due to the instability of the attentional focus as well as the lack of objective self-awareness. As long as the amount of experienced anxiety exceeds acceptable bounds, it is unlikely that the individual can respond to environmental or task-relevant cues with either accuracy or clarity. The confusion in perception and utilization of information would be reflected in performance decrements.

In summary, the distinction between objective and subjective self-awareness requires an attentional focus differentiation. In subjective self-awareness, attention is directed to external events. The individual does not engage in self-evaluation. In objective self-awareness, the individual is the object of his/her own consciousness and will compare the self with an internalized standard of excellence. Objective

self-awareness conditions appear to motivate the individual to attempt to improve task performance in order to avoid negative self-evaluation. The relationship between objective self-awareness and self-esteem depends upon the amount of discrepancy experienced during self-evaluation. A negative re-evaluation of self-esteem energizes an anxiety response, which results in a redistribution of attention.

Anxiety's Effect on Performance

Isolation of the origin of anxiety responses has reflected the practical concerns of the personality theorists. Freud (1936) felt that anxiety was the result of libido repression. Anxiety is also the apprehension involved in separation (Rank, 1929). Adler indirectly indicates that anxiety is a response to the perception of one's own weaknesses and inferiority feelings (Wolfe, 1930). Anxiety has also been defined as an apprehension of disapproval from significant others in interpersonal relationships (Sullivan, 1949). A two-faceted approach emphasizing both repression of guilt and a fear of social punishment was advanced by Mowrer (1949). The common factor in the origin of anxiety reactions appears to be an ego-threat arising either through intrapsychic or psycho-social conflict. For the purposes of this research, I have chosen Spielberger's (1972) definition of anxiety as a transitory emotional state consisting of feelings of apprehension, tension, and autonomic nervous system arousal (A-state) or as a relatively consistent elevated individual level of anxiety proneness (A-trait).

According to Epstein (1967), anxiety states (A-state anxiety, in Spielberger's terms) are evoked by three basic conditions: primary overstimulation, cognitive incongruity, and response unavailability.

Anxiety states are therefore situation-specific. The anxiety experience terminates with either resolution of the conflict or removal from the provoking situation. In contrast, anxiety trait (Spielberger's A-trait) may be manifested across a large proportion of situations or strongly manifested in a few key situations. Endler and Hunt (1969) postulate that trait anxiety may be evoked by remembered conflicts or ego-threatening situations. The energization of the anxiety trait depends on the amount and salience of personal ego-involvement. Ego-involved conditions, such as those that pose a threat to personal adequacy and self-esteem, produce differential responding on A-state for high and low A-trait individuals (Hodges, 1968; Rappaport & Katkin, 1972). When ego-threat is intense, A-state arousal is positively related to the level of A-trait, but is not consistently so related when ego-threat is less intense (McAdoo, 1969). Conditions that do not pose a psychological threat to self-esteem produce no consistent differences for high and low A-trait individuals (Hodges, 1968; Katkin, 1965).

Test anxiety has two major components: worry, described as cognitive concern over performance; and emotionality, or autonomic arousal (Liebert & Morris, 1967). These components have a differential impact on performance. Berlyne (1967) states that intermediate arousal facilitates maximum efficiency on performance tasks, whereas super-normal arousal levels produce interference effects and decrease performance. Sub-normal arousal potentiates mainly an orienting reflex (Sokolov, 1958).

While emotionality, or arousal, does not consistently affect task performance, worry scores have been significantly associated with both

task difficulty and time required to complete intellectual-cognitive tasks on five WAIS subtests (Liebert & Morris, 1967). This supports an attentional interpretation of test-anxiety results; performance decrements are observed when the subject divides attention between cognitive self-perception and task variables. Wine (1971), in an extensive review of the anxiety literature, suggests that the test-anxious person usually divides his/her attention between task-relevant cues and perception of the internal anxiety state. As self-perception detracts both time and attention from task-relevant cues, highly test-anxious individuals perform more poorly, on the average, than individuals with low test anxiety. Wine's (1971) review article also provides a summary source for the following research conclusions concerning the effects of anxiety on performance.

In general, highly anxious subjects tend to engage in self-deprecation and self-preoccupation while in the anxiety provoking situation. They blame themselves for their failures, even when the failure was determined arbitrarily, significantly more than do low anxious subjects (Doris & Sarason, 1955). This process of negative self-evaluation for anxious subjects seems to operate independently of judgments of actual performance. High-anxiety subjects in an evaluative situation report overly negative self-evaluations and underestimate positive aspects of their own performance (Clark & Arkowitz, 1975). Identical feedback is perceived as being more negative by high-anxiety than by low-anxiety individuals, and operates in conjunction with an expectancy of negative evaluations from others (Smith & Sarason, 1975). Audience presence during task performance often constitutes a source of potential or implied evaluation. Presence of others tends to debilitate

task performance for subjects high in test anxiety and to facilitate performance for low-anxiety subjects (Cox, 1966; Ganzer, 1968; Henchy & Glass, 1968). The general conclusion from these experiments supports an attentional focus interpretation of anxiety's relationship to performance.

The similarities between the pattern of results for highly-anxious and objectively self-aware individuals suggest that people engage in self-evaluation and respond to an ego-threatening discrepancy with anxiety only while objectively self-aware. The effects on attentional focus of anxiety are confounded with a state of objective self-awareness as long as a negative discrepancy is realized during self-evaluation. However, a state of objective self-awareness may exist independently of anxiety states given that a positive discrepancy is experienced.

In summary, anxiety may refer to a transitory emotional state consisting of feelings of apprehension, tension, and autonomic arousal (A-state) or to a relatively consistent elevated individual level of anxiety proneness (A-trait). A-state is situation-specific, while A-trait is manifested in a variety of situations. Anxiety occurs in response to an ego-threat. Low anxiety states tend to facilitate performance while high anxiety states tend to debilitate performance, possibly due to attentional interference.

Objective Self-Awareness

Wicklund and Duval's theory of objective self-awareness (1972) draws a distinction between objective and subjective self-awareness. In subjective self-awareness (SSA), attention is directed to events external to the experiencing self. The self is merely the source of

perception and action. Since the self is not conceptualized as an object in the world, it is exempt from evaluation with a standard of excellence. The individual is "self-aware" only in the sense of an origin point for forces directed outward.

In objective self-awareness (OSA), attention is directed inward; that is, the individual is the object of his/her own consciousness and will compare the self with an internalized standard of excellence derived through social influence and individual world experience. A variety of stimuli aid in provoking a state of objective self-awareness, such as presence of an evaluative audience (Cottrell, 1972), presence of a mirror, and monitoring of a tape-recording of one's own voice (Liebling & Shaver, 1973). As long as actual performance appears to be something less than the standard of excellence, the individual will experience negative self-evaluation accompanied by negative affect. Objective self-awareness appears to motivate the individual to attempt to improve task performance in order to avoid negative affect. The motivational consequences of negative self-evaluation lead individuals to attempt reduction of the discrepancies.

This end may be obtained in a variety of ways. One way is through reorganization of the perceptions of the object and situation evoking the discrepancy so that the new perception is in agreement with the standard of correctness as well as with the prevailing social position. A second possibility for discrepancy reduction is to avoid the conditions which tend to produce self-focused attention. This often includes physical as well as psychological distance assumed between the self and the objective self-awareness focusing stimuli. A third alternative may be used when discrepancy is experienced in relation to a

social standard of correctness. Discrepancy reduction may occur through adoption of a conception, i.e., adoption of an opinion or position held by the dominant group. This has the effect of reducing discrepancies and contradictions between standards of correctness through conformity to the group standard.

The relationship between objective self-awareness and self-esteem depends on the amount of discrepancy experienced during self-evaluation. Close correspondence between perceived performance and the standard of correctness serves to maintain or increase self-esteem, while large negative discrepancies are a threat to self-esteem judgments. The individual experiencing a negative re-evaluation of self-esteem would logically be expected to respond with anxiety. The magnitude of the discrepancy may directly influence the amount of experienced anxiety, assuming a constancy in task relevance, amount of ego-involvement, and other situational and personal variables.

Social Facilitation Effects on Performance

Allport (1924) compared individual performance across a variety of tasks when each person worked alone and with others present. In general, there was an increase in speed and quantity of performance on the simpler tasks when others were present. Social facilitation was therefore narrowly defined as the increase in behavior that results from the sight or sound of others making the same movements.

Subsequent investigators documented differential effects on performance in relation to presence versus absence of social others. The magnitude and direction of these social facilitation effects depend on the specific task, the setting, and interpersonal relations among

group members (Kelley & Thibaut), 1969). In general, the task characteristics which influence performance include task complexity, amount of prior exposure to similar tasks, and the relative dominance of response patterns. Performance on simple tasks which require emission of previously acquired skills or dominant responses tends to be positively affected by presence of others. A gain in speed and quality of response emission is observed in both togetherness and group situations for simple tasks. These tasks involve simple motoric responses and overlearned cognitive skills such as pursuit-rotor (Travis, 1925), signal detection (Bergum & Lehr, 1963), and syllable recall (Pessin, 1925).

Performance of more complex tasks requiring the acquisition of new responses such as learning nonsense syllables (Cottrell, Wack, Sekerak, & Rittle, 1968; Zajonc & Sales, 1966) tends to be impaired by the presence of others. These tasks involve an emission of new and subordinate responses which is negatively affected by the presence of others. That is, speed and quality of response emission is reduced when others are present during complex task performance. Zajonc (1965) attempted to encompass the diverse results of experiments on social facilitation with the concept of arousal of a nonspecific drive state. Within his theoretical framework, "mere" presence of others during task performance aids in the creation of a drive state which energizes available habits. These habits may be either dominant or subordinate responses within the situation. Presence of others energizes emission of dominant, well-learned performance responses, while impairing emission of subordinate, acquisitive learning responses (Fitts & Posner, 1966; Walker, 1966; Zajonc & Sales, 1966).

The mere presence hypothesis was revised by Cottrell (1968) in order to interpret the results of an experiment involving three conditions: subject alone, audience present but blindfolded (mere presence), and audience present (Cottrell, Wack, Sekerak, & Rittle, 1968). A social facilitation effect was obtained only for the audience present condition. This led Cottrell to hypothesize that presence of others increased drive level only when it fostered an anticipation by the subject of positive or negative outcomes.

A subsequent revision suggested that audience presence implied personal evaluation, and that the apprehension created by anticipated evaluation enhanced emission of dominant responses (Henchy & Glass, 1968). The degree of evaluation apprehension is determined by the nature of the interpersonal relations between the subjects and the audience members. Subjects may respond to certain characteristics of the audience, such as perceived status and expertise, with correspondent amounts of experienced apprehension. In order to test the mediation value of evaluator status, Henchy and Glass (1968) utilized four conditions: subject alone, expert audience, nonexpert audience, and taped performance for later expert evaluation. The largest social facilitation effect obtained was for the expert audience condition, followed by anticipated evaluation, nonexpert audience, and alone conditions. Even with an audience absent, anticipation of evaluation produces energizing effects on performance. These results suggest that the mediating mechanism for social facilitation effects is evaluation apprehension rather than unqualified presence of others.

When an audience is present, the individual may show increased efforts to attain high standards in order to reduce the discrepancy

between aspirations and current performance, particularly if the audience is perceived as possessing expertise in the task area or implies evaluation. Even the experimenter, whether physically or electronically present, functions as an audience with a resultant impact on performance (Gadlin & Ingle, 1975).

Summary

Four general conclusions can be drawn from the literature reviews:

1. Anxiety, self-awareness, and the facilitating presence of others each affect the individual's attentional focus.

2. Social facilitation improves performance on simple or well-learned tasks positively while impairing performance on more complex or novel tasks.

3. Objective self-awareness conditions appear to motivate the individual to attempt to improve task performance while concurrently occupying a portion of the available attentional time in self-monitoring procedures.

4. Low anxiety tends to facilitate task performance while high anxiety debilitates performance.

CHAPTER III

STATEMENT OF THE PROBLEM

The literature reviewed suggests that performance on a given task may fluctuate as a function of attentional variables. In situations involving the presence of others, some amount of attention is required to perceive and evaluate the others' characteristics and to infer their evaluations of one's own self. With objective self-awareness some attention is engaged in self-evaluation rather than in task consideration. When sufficient anxiety is experienced, some attention is utilized in self-monitoring procedures to the exclusion of immediate task perception. Anxiety also has an interactional effect with both social facilitation and self-awareness conditions; anxiety establishes an attentional demand which competes with both self-perception and perception of others.

This study was designed to investigate three separate phenomena:

1. The differential effects of high and low state anxiety on task performance, specifically through manipulation of evaluation apprehension.

2. The effect on task performance of high and low objective self-awareness conditions as manipulated with presence or absence of a mirror, a stimulus provoking self-focused objective attention.

3. The social facilitation effect of presence versus absence of social others on amount of task performance.

The following hypotheses were generated for the study:

1. Overall performance will be affected by the amount of energized state anxiety.

   (a) Performance will be impaired by high state anxiety.

   (b) Performance will be improved by low state anxiety.

2. Objective self-awareness will interact with anxiety to impair performance.

   (a) High objective self-awareness will improve performance.

   (b) Low objective self-awareness will impair performance.

   (c) High state anxiety and low objective self-awareness will interact to give the poorest performance.

   (d) Low state anxiety and high objective self-awareness will interact to foster superior performance.

3. Presence of an audience will have a differential impact on performance as a function of state anxiety.

   (a) Audience presence and low state anxiety will improve performance.

   (b) Audience presence and high state anxiety will impair performance.

To investigate these hypotheses, female subjects were matched on A-trait scores derived from the Taylor Manifest Scale (see Appendix). A-state as manifested in evaluation apprehension was manipulated by means of differentially focused instructions emphasizing either a lack of concern for individual performance (low A-state) or a concern for possible correlations between performance scores and intelligence (high A-state). Subjects were assigned to either a high or low evaluation apprehension condition and one of the following conditions: high versus

low objective self-awareness, or high versus low social facilitation. The dependent variables were obtained scores on a Bead Sorting task and the Block Design and Digit Symbol subtests of the Wechsler Adult Intelligence Scale, Form II.

CHAPTER IV

METHOD

Subjects

The subjects were 40 white female undergraduate Psychology I students who received bonus points for participating.

Apparatus

Subjects reported singly to a 15' x 18' laboratory room equipped with desks, chairs, and a 4' x 4' one-way observation window with drapes.

During the experiment the subjects were required to complete the Digit Symbol and Block Design subtests of the Wechsler Adult Intelligence Scale, Form II. Block Design is primarily a test of visual-motor coordination requiring pattern perception, analysis into component parts, and synthesis into an organized whole. Digit Symbol measures the speed and accuracy of new association formation. Of the Wechsler subtests, it is one of the more sensitive to the effects of anxiety (Robb, Bernandoni & Johnson, 1972). A standard stopwatch was used to time the subtests. The subjects were also administered a bead-sorting task. A bead pool consisting of 100 wooden beads .33" in diameter was formed with 20 red, 20 black, 20 green, 20 blue, 10 orange, and 10 tan beads. The subject was required to singly sort these beads into color groups with a one-minute time limit.

Procedure

Due to the research mentioned previously concerning differential responding on A-state for high and low A-trait individuals (Hodges, 1968; Katkin, 1965; Rappaport & Katkin, 1972), A-trait was considered a nuisance variable and controlled by the use of matched subjects. Subjects were matched on obtained scores on the Taylor Manifest Anxiety Scale (see Appendix) which was administered approximately one month prior to the experiment. Subjects scoring above the 50th percentile were assigned to the high A-trait block, while those scoring below the 50th percentile were assigned to the low A-trait block. Taylor (1953) computed a percentile rank of 50 for subjects whose raw score was approximately 13; the 50th percentile score for subjects serving in this research project fell at a mean raw score of 13.4. An equal number of subjects (n = 20) were obtained for the high and low A-trait blocks. In order to reduce the possibility that subjects would suspect a connection between the administration of the Taylor scale and the subsequent laboratory experiment, they were recruited by different individuals. One subject recognized the experimenter and expressly connected the two procedures; her data were not used in the analyses.

The subjects were recruited for a learning experiment. When a subject arrived at the laboratory she was greeted by a female experimenter and escorted to the laboratory room. After the subject was seated at a desk facing the observation window, the experimenter left. The subject was given five minutes for orientation to the setting. Then the experimenter returned and delivered the instructions which constituted the evaluation apprehension manipulation. The instructions were adapted

from Liebling and Shaver (1973) in order to allow comparison of results.

For the low evaluation conditions the instructions were as follows:

> We are interested in investigating how people learn. Actually, this is a pilot study for a project in which subjects will complete tasks of graded difficulty. Before we can perform any study on the effects of varying levels of difficulty, we must unambiguously establish a scale to measure the difficulty of the tasks. This is the purpose of the pilot study. By measuring how much of a given task a random sample of people can complete accurately within a standard time period, we can rank order the tasks by difficulty. Please work as accurately and quickly as possible. Do you have any questions before we begin?

For the high evaluation conditions the instructions were as follows:

> We are interested in investigating how people learn. The purpose of this study is to examine your ability to complete tasks of graded difficulty. The general hypothesis is that this ability may correlate with other skills such as reaction time, visual-motor coordination, concentration and memory. It has already been demonstrated that the ability to complete these tasks accurately is a good predictor of such things as IQ and grade point. In this experiment we will be correlating your performance with your overall grade point average which is available to this research project from the Registrar's office. Please work as accurately and quickly as possible. Do you have any questions before we begin?

The subjects were randomly assigned to one of the following conditions: high objective self-awareness (hi OSA), and low objective self-awareness (lo OSA); or they were assigned to one of the following conditions: high social facilitation (hi SF) and low social facilitation (lo SF). The objective self-awareness and social facilitation conditions were tested separately. The social facilitation conditions are described below. The hi OSA condition involved exposure of the mirrored side of the observation window directly in front of the

subject. For the lo OSA condition the drapes were closed concealing the mirror. The experimenter did not direct attention to the mirror in any way for either condition.

The social facilitation conditions involved the presence of one male and one female confederate who were introduced as either fellow subjects or performance evaluators. In the lc SF condition the confederates watched the real subject perform the task. In the hi SF condition they occupied the same positions in the room but were introduced as performance evaluators. No verbal communication was allowed between subjects and confederates.

The experimenter administered the Block Design, Digit Symbol, and Bead Sorting tasks in counterbalanced order. Upon completion of the tasks the subjects were debriefed. The debriefing procedure included an explanation of the deceptions and the purpose of the experimental manipulations. Specifically, subjects were informed that the hypotheses of interest concerned the effects of anxiety on performance and that the instructions were designed to manipulate anxiety level. Assurances were given that grade point averages would not be obtained from the Registrar's office nor would correlations be made between performance scores and intelligence test scores. Additional debriefing points were specific to the subjects' experimental condition. Each subject was given an overview of the experimental design and dismissed after pledging not to discuss the experiment with any other potential subject. After the data were collected and analyzed, the experimenter visited each class from which subjects were obtained and reported the findings and conclusions.

Overview of Experimental Design

Twenty white female subjects, matched on A-trait, were randomly assigned to each cell of 2x2 design in which the variables were high versus low evaluation apprehension and high versus low objective self-awareness. Twenty similar subjects, also matched on A-trait, were assigned to a 2x2 design in which the variables were high versus low evaluation apprehension and high versus low social facilitation. In addition, separate a priori tests were performed for differences between the objective self-awareness and social facilitation conditions. The dependent variables were obtained scores on the digit symbol, block design, and bead sorting tasks.

CHAPTER V

RESULTS

A separate 2x2 factorial analysis of variance was performed for the block design, digit symbol, and bead sorting data for both the objective self-awareness and social facilitation conditions. The overall means and standard deviations for each task as well as the means for each condition are reported in Table I. In general, performance was superior for the low objective self-awareness and low social facilitation conditions as compared to the high objective self-awareness and high social facilitation conditions.

Effects of State Anxiety Manipulation

The hypothesized differential effects on performance as a function of energized state anxiety (as presumed from the evaluation instructions) was not supported (as per hypotheses 1(a), 1(b), 2(c), 2(d), 3(a), and 3(b)). No significant differences were obtained for any experimental task. Task performance scores for block design, as reported in Tables II and III, reflected no significant differences as a function of evaluation condition for either the objective self-awareness condition, $F(1,16) = 2.97$, or the social facilitation condition, $F(1,16) = 1.6$. A similar pattern of results was obtained for the digit symbol and bead sorting tasks. The objective self-awareness conditions had no significant evaluation component, $F(1,16) = 1.36$ and

TABLE I

PERFORMANCE MEANS BY TASK AND CONDITION

Evaluation	Attention	N	Block Design	Symbol	Bead Sorting
High					
1	1 hi OSA*	5	8.80	12.2	44.6
1	2 lo OSA	5	11.40	15.4	47.6
1	3 hi SF*	5	8.20	12.8	48.6
1	4 lo SF	5	12.20	14.2	42.0
Low					
2	1 hi OSA	5	9.60	11.2	41.0
2	2 lo OSA	5	12.00	15.0	50.8
2	3 hi SF	5	7.60	10.4	37.2
2	4 lo SF	5	11.60	13.8	45.6
Attention					
1 hi OSA		10	9.20	11.7	42.8
2 lo OSA		10	11.70	15.2	49.2
3 hi SF		10	7.90	11.6	42.9
4 lo SF		10	11.90	14.0	43.8
Evaluation					
1 hi		20	10.15	13.65	45.70
2 lo		20	10.20	12.60	43.65
Overall means		40	10.175	13.125	44.675
Standard deviation			1.960	2.320	9.000

*OSA stands for objective self-awareness; SF refers to social facilitation.

TABLE II

ANALYSES OF VARIANCE SUMMARY TABLE FOR
OBJECTIVE SELF-AWARENESS CONDITIONS

Source	df	SS	ms	F Value	p
Block Design					
OSA	1	31.25	31.25	37.88	.005
Evaluation	1	2.45	2.45	2.97	ns
Interaction	1	0.05	0.05	0.06	ns
Error	16	13.20	0.825		
Total	19	46.95			
Digit Symbol					
OSA	1	61.25	61.25	34.03	.005
Evaluation	1	2.45	2.45	1.36	ns
Interaction	1	0.45	0.45	0.25	ns
Error	16	28.80	1.80		
Total	19	92.95			
Bead Sorting					
OSA	1	204.80	204.80	2.23	ns
Evaluation	1	0.20	0.20	0.002	ns
Interaction	1	57.80	57.80	0.628	ns
Error	16	1471.20	91.95		
Total	19	1734.00			

TABLE III

ANALYSES OF VARIANCE SUMMARY TABLE FOR
SOCIAL FACILITATION CONDITIONS

Source	df	ss	ms	F Value	p
Block Design					
SF	1	80	80	71.11	.005
Evaluation	1	1.8	1.8	1.60	ns
Interaction	1	0	0	0	
Error	16	18	1.125		
Total	19	99.8			
Digit Symbol					
SF	1	28.8	28.8	6.62	.025
Evaluation	1	9.8	9.8	2.25	ns
Interaction	1	5.0	5.0	1.15	ns
Error	16	69.6	69.6		
Total	19	113.2	113.2		
Bead Sorting					
SF	1	4.05	4.05	.065	ns
Evaluation	1	76.05	76.05	1.22	ns
Interaction	1	281.25	281.25	4.52	.06
Error	16	995.20	62.20		
Total	19	1356.55			

$F(1,16) = .002$ for each task, respectively. The social facilitation conditions also showed no significant impact of the evaluational condition, as shown by an obtained $F(1,16) = 2.25$ for digit symbol and $F(1,16) = 1.22$ for the bead sorting task.

Objective Self-Awareness

Significant effects of objective self-awareness conditions on task performance were obtained for the block design, $F(1,16) = 37.88$, $p < .005$, and digit symbol tasks, $F(1,16) = 34.03$, $p < .005$, as reported in Table II. A nonsignificant difference for the bead sorting task was obtained, $F(1,16) = 2.28$. These effects were contrary to the hypothesized direction (see hypotheses 2(a) and 2(b)). Performance was significantly superior for the low as compared to the high objective self-awareness conditions for both block design; $t(18) = 5.98$, $p < .0005$, and digit symbol, $t(18) = 5.995$, $p < .0005$.

Social Facilitation

Presence of a non-evaluative audience facilitated task performance while presence of an expressly evaluative audience resulted in performance decrements as hypothesized (hypotheses 3(a) and 3(b)). Significant social facilitation effects were obtained for block design, $F(1,16) = 71.11$, $p < .005$, and digit symbol tasks, $F(1,16) = 6.62$, $p < .025$, as reported in Table III. No significant differences were obtained for the bead sorting task, $F(1,16) = .065$.

Performance under the low social facilitation condition was significantly superior to high social facilitation condition performance for

both block design and digit symbol, $t(18) = 2.48$, $p < .05$ and $t(18) = 8.528$, $p < .0005$, respectively.

Evaluational Interaction

The analysis of variance summary for bead sorting is reported in Tables II and III. Performance on the simple motoric task reflected no significant differences between either evaluation, objective self-awareness, or social facilitation conditions; although a significant interaction was approached between evaluational and social facilitation conditions for this task alone, $F(1,16) = 4.52$, $p < .06$. Performance on the bead sorting task was positively correlated with both block design, $r = .43$, $p < .006$, and digit symbol, $r = .43$, $p < .0055$. Performance on block design and digit symbol was also positively correlated, $r = .61$, $p < .0001$.

CHAPTER VI

DISCUSSION

The interrelations of self-awareness, social facilitation, and anxiety are complex, and, to a degree, specific to the individual. Certain consistent patterns of the effects of these factors were isolated in the present experiment. Although these patterns of results did not fully support the previous findings in the areas of objective self-awareness and social facilitation, they are consistent with Wine's (1971) conclusions drawn from a review of the effects of anxiety on attention.

Anxiety

It was predicted from the available information of the effects of anxiety on performance that high state anxiety tends to impair performance. The hypothesis of differential effects on performance as a function of energized state anxiety, specifically evaluation apprehension, was not supported by the experimental results. This finding may be due to failure of the instructions to actually manipulate anxiety level. The subjects arrived at the laboratory with an unknown degree of expectation of personal evaluation. The instructions did not seem to be very effective in manipulating this expectation, particularly since even those subjects who should not have had the expectation for evaluation were individually administered the tasks and performance was scored

within her field of vision. Regardless of the instructional set, each subject must have perceived the situation as highly evaluative. As Gadlin and Ingle (1975) have noted, the experimenter functions as an audience, and has an impact on performance. In this case, the experimenter's effect may have been to produce an evaluation apprehension of sufficient strength to override the separate evaluation manipulation.

The digit symbol task results did approach significance for the evaluation conditions. Of all the experimental tasks, the digit symbol may be the most sensitive to the effects of anxiety. Digit symbol performance is influenced by both attention span and level of anxiety (Robb, Bernandoni, & Johnson, 1972). The superior performance of the low objective self-awareness and low social facilitation groups suggests that it was also sensitive to interference effects on attentional focus. These interference effects were created by competing stimuli in the high objective self-awareness and high social facilitation conditions. An attentional focus interpretation can encompass the pattern of results; i.e., to the extent that anxiety energizes a redistribution of attention, performance decrements are observed.

Objective Self-Awareness

According to the theoretical position of Duval and Wicklund (1972), a state of high objective self-awareness motivates the individual to attempt to reduce the perceived discrepancies between actual performance and a standard of excellence. The objective self-awareness conditions did reflect performance differences regardless of the subjects' evaluation condition, but these differences were contrary to the predictions of objective self-awareness theory. Performance was

superior in the low objective self-awareness conditions relative to the high objective self-awareness conditions. The individual's performance of tasks requiring the acquisition of new response patterns was debilitated by high objective self-awareness. Liebling and Shaver (1973) obtained a similar pattern of results under high evaluation conditions. Performance decrements were observed on a relatively simple though novel letter copying task for persons who were made self-aware with presence of a mirror. This suggests that presence of a mirror, a stimulus encouraging a state of objective self-awareness, was effective in manipulating attentional focus in the direction of self-perception to the detriment of task-related cue perception.

The superiority of performance in the low objective self-awareness conditions relative to the high objective self-awareness conditions, though contrary to the predictions of objective self-awareness theory, are consistent with generalized drive theory (Spence, 1960). With complex learning tasks a hierarchy of competing response tendencies exists; a variety of responses of varying strengths are available. If the habit strength or the initial probability of the correct response is greater than that of the incorrect response, under conditions of higher drive level the task should be learned quickly and with fewer errors. Therefore, a factor which may have affected performance under both objective self-awareness conditions was the subjects' inability to formulate a standard of correctness for the tasks under consideration. The nature of the experimental tasks made determination of a standard of correctness virtually impossible without prior exposure to similar tasks. Each subject was incapable of arriving at accurate evaluations of current performance, as well as unable to avoid the

condition of self-focused attention. When the correct response is initially weaker than competing incorrect responses, conditions of high drive such as anxiety-provoking siutations increase the probability of a wrong response resulting in performance decrements. The greater drive level of anxious or objectively self-aware persons increases the probability of incorrect responses due to the adverse difference in the competing excitatory potentials or response probabilities associated with the response hierarchy. Performance tended to reflect the effects of attentional shifts between the task and the self as well as task-interfering responses. With high objective self-awareness the self-focusing stimuli were sufficient to result in performance decrements.

Social Facilitation

Performance was also impaired by high social facilitation conditions. The individual tended to perform more poorly when others were present as evaluators rather than fellow subjects. These results are similar to those obtained for unfamiliar tasks by Cottrell et al. (1968) and Henchy and Glass (1968). Implied evaluation did not increase performance; rather performance was debilitated by presence of evaluative others. This suggests an attentional focus interpretation, i.e., to the extent that the individual engaged in perception and monitoring of the evaluative others, accurate perception of task cues was impaired.

A significant interaction was obtained between attention and evaluation conditions for the bead sorting task only. This result must be interpreted in light of the previously mentioned failure to effectively manipulate evaluation apprehension. Since each subject must be

presumed to have been responding to a highly evaluative situation, differences in task performance reflected the effects of the particular attentional condition.

Attentional Focus

It has been assumed that testing situations energize two kinds of drives (Mandler & Sarason, 1952). One is a learned task drive which is reduced by response sequences leading to task completion. The other is a learned anxiety drive, which may elicit anxiety-reducing task completion responses or anxiety-coping task interference responses. Within an experimental situation which maintains evaluation apprehension at a high level, any condition producing self-focused attention tends to evoke interference responses to anxiety states. Both high objective self-awareness and presence of evaluative others produce self-focused attention. Performance decrements were observed for these conditions.

Avoidance of self-focused attentional states while in an anxiety-provoking situation tends to improve task performance. Attention may be exclusively directed to accurate perception and effective utilization of task relevant cues. The anxiety drive state may be reduced by task completion responses which also serve to terminate the situational stress.

In conclusion, the relationship between anxiety, self-awareness, and social facilitation is consistent with an attentional focus interpretation. The greater the magnitude and intensity of these states, the less attention the individual has available for task perception. With objective self-awareness, high anxiety, and presence of evaluative others, attention is directed toward perception of internal self-

monitoring processes and external world events. This process deprives attention from task performance. Subjective self-awareness, low anxiety, and presence of nonevaluative peers allow attention to be focused on task-relevant cues with only minor interference from world perception.

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APPENDIX

TAYLOR MANIFEST ANXIETY SCALE

Answer based on your usual feelings.

1. I do not tire quickly.
2. I am often sick to my stomach.
3. I am about as nervous as other people.
4. I have very few headaches.
5. I work under a great deal of strain.
6. I cannot keep my mind on one thing.
7. I worry over money and business.
8. I frequently notice that my hand shakes when I try to do something.
9. I blush as often as others.
10. I have diarrhea (the runs) once a month or more.
11. I worry quite a bit over possible troubles.
12. I practically never blush.
13. I am often afraid that I am going to blush.
14. I have nightmares every few nights.
15. My hands and feet are usually warm enough.
16. I sweat very easily, even on cool days.
17. When embarrassed I usually break out in a sweat which is very annoying.
18. I do not often notice my heart pounding and I am seldom short of breath.
19. I feel hungry most of the time.
20. Often my bowels don't move for several days at a time.
21. I have a great deal of stomach trouble.
22. At times I lose sleep over worry.
23. My sleep is restless and disturbed.
24. I often dream about things I don't like to tell other people.
25. I am easily embarrassed.

26. My feelings are hurt easier than most people.
27. I often find myself worrying about something.
28. I wish I could be as happy as others.
29. I usually am calm and not easily upset.
30. I cry easily.
31. I feel anxious about something or someone most of the time.
32. I am happy most of the time.
33. It makes me nervous to have to wait.
34. At times I am so restless that I cannot sit in a chair for very long.
35. Sometimes I become so excited that I find it hard to get to sleep.
36. I have often felt that I faced so many difficulties that I could not overcome them.
37. At times I have been worried beyond reason about something that really did not matter.
38. I do not have as many fears as my friends.
39. I have been afraid of things or people that I know could not hurt me.
40. I certainly feel useless at times.
41. I find it hard to keep my mind on a task or job.
42. I am more self-conscious than other people.
43. I am the kind of person who takes things hard.
44. I am a very nervous person.
45. Life is often a strain for me.
46. At times I think I am no good at all.
47. I am not at all confident of myself.
48. At times I feel that I am going to crack up.
49. I don't like to face a difficulty or make an important decision.
50. I am very confident of myself.

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