

SOCIAL FACILITATION AND GOAL SETTING AS MOTIVATIONAL  
FACTORS AFFECTING RUNNING PERFORMANCE

by

ANN L. HEIDER

B. S. E., Emporia Kansas State College, 1973

---

A MASTER'S THESIS

submitted in partial fulfillment of the

requirements for the degree

MASTER OF SCIENCE

Department of Health, Physical Education, and Recreation

KANSAS STATE UNIVERSITY  
Manhattan, Kansas

1976

Approved by:

  
Major Professor

LD  
2668  
T4  
1976  
H45  
C.2

Document

ACKNOWLEDGEMENTS

Sincere appreciation is expressed to all the fine, young women athletes at Kansas State University who dedicated their time and effort to make this study possible.

Appreciation is also expressed to Dr. Charles Corbin for all his help and guidance through my graduate program at Kansas State University.

A very special appreciation goes to all my family and friends for their support and help; and especially to my devoted mother, Hope Heider, for whom this paper is sincerely dedicated.

## TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS.....	ii
LIST OF TABLES.....	iv
Chapter	
1. INTRODUCTION.....	1
Statement of Problem.....	6
Definition of Terms.....	7
Limitations and Delimitations of the Study.....	8
2. REVIEW OF RELATED LITERATURE.....	9
3. PROCEDURE.....	30
Rights and Welfare of Subjects.....	30
Subjects.....	30
Tests.....	31
Data Collection.....	33
Statistical Analysis.....	33
4. ANALYSIS OF DATA.....	34
5. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS.....	45
BIBLIOGRAPHY.....	47
APPENDICES	
A. INFORMED CONSENT FORM.....	51
B. ASCETIC ASSESSMENT QUESTIONNAIRE FROM KENYON'S SIX SUBDOMAIN PHYSICAL ACTIVITY ASSESSMENT SCALE.....	54
C. SUBJECTS' TIMES FOR ALL TRIALS AND FOR ALL DAYS.....	57

**THIS BOOK  
CONTAINS  
NUMEROUS PAGES  
THAT WERE  
BOUND WITHOUT  
PAGE NUMBERS.**

**THIS IS AS  
RECEIVED FROM  
CUSTOMER.**



# LIST OF TABLES

Table		Page
1.	Running Times Means and Adjusted Means and F-Ratio (Co-variance) for Kenyon Groups.....	34
2.	Running Times Means and Adjusted Means and F-Ratio (Co-variance) for Subjects.....	35
3.	Running Times Means and Adjusted Means and F-Ratio (Co-variance) for Competition Groups.....	36
4.	Running Times Means and Adjusted Means and F-Ratio (Co-variance) for Trials.....	37
5.	Comparison of 60-yard Run Performance by Trial.....	38
6.	F-Ratio (Co-variance) for Interactions.....	39

## Chapter 1

### INTRODUCTION

Throughout man's recorded history, sport and physical activity have been a characteristic part of his daily existence. Only recently has the psychological basis for man's participation in sport activity become an area of study.

Sport psychology is the field of study which applies psychological factors and principles to performance of human behavior in the sports area (30). In the area of sport psychology, there is a definite need to know and understand why individuals react to certain situations with certain behavior. The psychological aspect in athletics has always been fascinating, but often unpredictable. Many coaches would be interested to know which factors would positively influence the performance of athletes in competition. Coaches realize the importance of the players' psychological state and what affects each athlete during a contest. Coaches, as well as participants, have wondered what precipitates a player's reaction during a contest and what motivates him to improve performance.

Behavior is the total concept of human responses which an individual makes to both internal and external forces. Everything a participant does, thinks, and feels affects the participant's performance. Therefore, individual performance is only one part of this encompassing behavior (2). An analysis of behavior of sport psychology, is concerned

with the psychological, social, and emotional aspect of the individual along with his physical activity. The psychological make-up and behavioral tendencies of each individual are immensely complex. The inner forces (psychological, physical) of an individual and the external forces (social) combine to influence and guide him to act and react to the environment. The psychological, social, and physical factors of an individual cannot be separated, but must be treated as interrelated factors which influence each other. This type of behavioral analysis deals with the needs, attitudes, dispositions, and motivations of the participant, instead of only looking at the actual performance. The main purpose for such an approach is to understand why an individual behaves or reacts the way he does in certain situations under certain conditions.

Among many factors relating to the need to know, understand, and study behavior in sport activity (primarily the effect of motivation) are two areas worthy of study. More information in either area would benefit the performer. First, by knowing and understanding his attitude toward his participation in sport and his need for it, an individual is better aware of what he is capable of doing and has an "insight" into his behavior. He can come to know himself better as an athlete and a person and can set reasonable goals for himself. By learning about himself, he can better judge what motivates him and to what extent motivation affects his performance. Secondly, by obtaining knowledge of an individual's psychological behavior, a coach has a better understanding and insight into his players' total behavior.

This could allow the coach to help the athlete, by motivational means, to obtain his goals and objectives.

For the purposes of this study, four factors which influence behavior will be investigated. The four elements and their effect on behavior are: motivation, social facilitation, personality, and competition. Although there are many other aspects involved in behavior, these factors will be the source of consideration.

Motivation can influence behavior and the psychological state of an individual. Motive, drive, need, or similar aspects have been associated with determining individual performance and/or perceptual differences (17). Gutteridge (25) concluded that motives are constructs which attempt to show the reason individuals select certain behavior and which activities to perform. This selection of behavior is the reason certain activities are performed for a longer duration of time and with differing degrees of intensity. According to Cratty (18) the reasons each athlete participates in an activity are often different. The motives which compel an athlete to perform during one performance or an entire season also may vary. He stated that different values impel an individual to action or reduce to inaction. Cratty further mentioned that behavior is activated by the momentary mood, feelings, or verbalizations of the participant.

In order to understand competitive behavior and performance, a concept such as social facilitation must be studied. Social facilitation, which is the influencing of behavior by the presence of others participating in the same action, has several variables which determine

its positive or negative effect on behavior (2). These variables are: the nature of the task (simple, complex), familiarity of the task (new, learned), personality of the individual, audience evaluation, and success probability of the situation (as viewed by the participant). The extent and intensity in which these variables occur between performer and audience or coactors will determine whether social facilitation will influence behavior. Since motivation can play such an essential role in sport situations, the knowledge and understanding of why and how it influences a reaction would be beneficial to the participant and coach. Social facilitation is a phenomenon which can direct positive or negative responses from an athlete. If an individual is enhanced by the presence of a competing coactor, he can be motivated to try harder. The individual, on the other hand, might become more motivated to try more by presenting him with another goal or incentive (external, such as time) to strive for. Either one of these two goal setting, motivational forms could create a remarkable influence on performance. By learning which method works most effectively with each individual, the coach and participant himself can provide situations which allow that technique to be used.

The personality of an individual will determine if, and to what degree, motivation will change behavior. Personality is the organization of the psychophysical systems which determine and influence the characteristic behavior and thought (4). Cattell (11) felt a person's personality indicates what behavior will be taken in a given mood and in a given situation. The temperament and attitude of a

single performer differs when varying stimuli are present. What motivates a person to action in one instance, may not have the same effect in a different setting or time. This changeable behavior may be contributed to the personality or mood of that individual at that time. Another possible reason for the extent to which motivation affects a person to action could be contributed to the amount of "competitiveness" or competitive attitude of each personality.

Another factor which has an effect on behavioral tendencies of athletes is competition. Lawther (30) viewed competition as a contest with oneself or with others. This contest very often includes one's evaluations of the performance of others. An athlete can also compete with his own record, or with a record already established by others in the same event. Sporting events allow different ways to express competitive urges and desire to compete. Lawther further stated that the individual wants to test himself and to evaluate himself and to evaluate himself against others. The extent to which competition can affect behavior is in the attitude of the individual toward competition. Ryan (39) commented on this attitude by stating, "Differences in competitive ability represent relative differences in freedom to achieve or to express aggression." Not only does competition provide an "outlet" for aggression, but can also provide an incentive to action.

The four concepts of motivation, social facilitation, personality, and competition are the basis and essence of this investigation. Each of these concepts, either alone or in combination with each other, may influence behavior and performance. This particular study was

# **ILLEGIBLE DOCUMENT**

**THE FOLLOWING  
DOCUMENT(S) IS OF  
POOR LEGIBILITY IN  
THE ORIGINAL**

**THIS IS THE BEST  
COPY AVAILABLE**

developed to study the effects motivation may have on the performance of athletes in certain situations. The competitive attitude of each athlete and the effects of different forms of motivation were tested, analyzed, and evaluated. Because of the lack of research in the general area of motivation and the influence of social facilitation on women athletes, there exists a necessity for a study of this type.

#### STATEMENT OF PROBLEM

The purpose of this study was to determine the effects of social facilitation (presence of a competitor) and time clock (presence of an external goal) as motivational techniques on 60-yard running times of college women. Specifically this study was designed to determine if:

- (1) performance times of groups of subjects tested in the presence of a competitor differed from performance times when a competitor was not present.

- (2) performance times of groups of subjects tested when competing to a time goal differed from performance times when competing in the presence of a competitor.

- (3) performance of running differed for subjects having different attitudes toward competition.

- (4) interactions existed between performance of subjects under different motivational conditions and with different subject attitudes.



## DEFINITION OF TERMS

In order to prevent being misunderstood or misinterpreted by the reader, it is essential to define the following terms.

1. Personality in this paper refers to the organization within an individual of the psychophysical systems which determine his characteristic behavior and thought (4).
2. Competition in this paper refers to a contest with another person and an external goal (a time set before running to serve as a goal for achievement).
3. Motivation in this paper refers to an arousal to action; an inner state which energizes, activates, or directs behavior toward goals.
4. Coactors in this paper refers to individuals who participate together in an event at the same time.
5. Social facilitation in this paper refers to an influencing of an individual's actions or behavior by the presence of others doing the same thing.
6. Competitive athlete in this paper refers to an individual who rated high on attitude toward competition (from Kenyon's Six Subdomain Physical Activity Assessment Scale).
7. Non-competitive athlete in this paper refers to an individual who rated low on attitude toward competition (from Kenyon's Six Subdomain Physical Activity Assessment Scale).

## LIMITATIONS AND DELIMITATIONS OF THE STUDY

### Limitations

Because of the difficulty in measuring the actual individuals' thinking processes or what they actually felt during their performance, the data gathered from this investigation can only be recorded in terms of the subjects' physical performance (overt behavior). There was no method to measure what the subjects' thoughts or feelings were during competition to find why they reacted as they did.

The written questionnaire given at the beginning of the investigation attempted to determine the attitudes toward competition each subject possessed. This was only true to the extent that Kenyon's test actually measured this trait completely or accurately.

### Delimitations

Because of the lack of availability of subjects and the time factor involved, not as large a sampling was utilized as would have been preferred.

Again, because of time, availability of subjects, and the writer's interest in women's athletics, only female athletes were used in this study. Time and facilities did not permit the testing of male athletes.

## Chapter 2

### REVIEW OF RELATED LITERATURE

#### General Motivation Research

Motivation plays an enormous part in sport psychology, because it can influence the individual participant's behavior. Hilgard and Russell (26) indicated that motivation in the field of physical education is a young area. Nelson (37) observed that most of the motivational studies dealing with physical education have been completed only since 1955. Cratty (17) also acknowledged the dawning of awareness of motivational research by commenting that contemporary research is now beginning to become interested in motivation. Berelson and Steiner (7) define motivation as an "inner state that energizes, activates, or moves and which directs or channels behavior toward goals".

Several factors influence motivation, some of which will be dealt with later in this chapter. Chevrette (12) maintained that in studies researching motivation, factors which influence motivation (anxiety, competition, reward, punishment, level of aspiration) have been dealt with rather thoroughly. Even though many of the findings from this research are controversial, they all conclude there is no one real way in which to motivate all subjects all of the time. Singer (42) observed that predictions can be made on certain behavioral reactions when certain motives are present. However, it must be kept in mind that the human organism's reactions are also influenced by previous experiences, present expectations, and other individual differences.

The area of concern in this study is the effect motivation has on behavior. Authorities in the field of analyzing the effects of motivation on performance have some interesting observations, interpretations, and conclusions. Melton (35) indicated that motivation has a three-fold effect: it energizes the individual, directs his actions, and clarifies the results of his actions by emphasizing and selecting the desired performance. The famous miler Roger Bannister (6) described the importance of motivation in his experience in competing as, "racing has always been more of a mental than physical problem to me." Singer (42) wrote that, "competitive situations, many of which are 'natural,' others contrived, raise motivational levels." Gagne and Fleishman (23) stated that much evidence indicates that motivation does not only add to skill in producing performance, but rather multiplies it. They also observed that many instances have occurred in which a person of mediocre skill has occasionally beat an "expert" when he was inspired with high motivation. Furthermore, they concluded that motivation can make a tremendous difference in performance, not because it adds to skill, but that motivation multiplies to skill. Gagne and Fleishman devised a formula which indicates the effect motivation has on performance:

$$\text{PERFORMANCE} = \text{SKILL LEVEL} \times \text{MOTIVATION}$$

A factor mentioned earlier which is of importance to motivation is the level of aspiration a person possesses. One's level of aspiration is the level of performance he attempts to reach (31). Jones and

Gerard (28) maintain that a person's level of aspiration will generally cause a participant to have a desire to do better than his previous, preceding performance. The individual's feelings of success or failure will be determined by how his new performance extends or fails short of his previous performance. Therefore, the participant uses previous performance to evaluate present performance. Jones and Gerard further commented that research has shown that a person's level of aspiration will be changed (modified) if he is told what someone else's performance was. In conclusion, the direction in which his level of aspiration shifts (increase or decrease) will depend primarily on the ability he attributes to the person whose performance he evaluated. Festinger (22) continued this line of thought by stating if the individual finds that his performance is below someone to whom he attributes little ability, his level of aspiration will rise; he will become motivated to increase his performance level. If, however, his ability is above someone to whom he attributes a great deal of ability, he will tend to decrease his level of aspiration; he will not try as hard. Generally, these comparison effects occur for abilities with a clear cut evaluational criterion, such as that of running ability.

Singer (42) felt the role of the coach is extremely important in providing the best motivational techniques possible. He stated that in order to determine what certain motivational techniques will work best, each athlete's needs must be considered on an individual basis. Many athletes have developed outstanding physical abilities and skills, but yet have not obtained the motivation to drive themselves to high

levels of performance. Cratty (18) summed up the entire point of the importance of motivation in athletics by stating, "if a coach can learn just what turns on a given athlete at a given time, he can elicit better performance."

### Social Facilitation

In order to understand motivation, behavior, and performance, a factor such as social facilitation must be studied. Social facilitation is also a relatively new term and one receiving considerable recent emphasis. Although it first became a subject of interest in the late nineteenth century, not many studies were conducted to investigate this area until the recent surge in the 1960's.

In their study of social facilitation, Spence, Spence and Zajonc (44) referred to a coaction group as individuals actively participating in the same activity simultaneously. Coaction activity involves the effect others have on an individual's performance when all are actively and simultaneously involved in the same task. Zajonc (51) further included the audience effect as a subdivision of social facilitation. He stated there was a distinct difference between the effects of the presence of spectators and that of the coaction group. Generally speaking, many authorities feel some form of behavioral change is brought about by the influence of either the presence of an audience or a coacting group. Social presence can be either distracting or motivating, but inevitably produces some effect on behavior (51). Singer (41) suggested that in order to compare "alone" perform-

ances with those dealing with the presence of others (either as spectators or as coactors), two questions need to be asked and investigated: "To what degree do other individuals affect one's performances?" and "Do they facilitate or impede performance?" This paper will attempt to study and answer these questions.

There are a variety of specific variables which may determine how the presence of others affects or influences an individual's behavior. These variables are: the personality of the individual, familiarity of the task (new, learned), the nature of the task (simple, complex), arousal level, the success probability of the situation (as viewed by the participant), and audience evaluation. The extent and intensity in which these variables occur between performer and audience or coactors will determine whether social facilitation will influence behavior.

The personality of each individual plays an extremely large, essential role in the influence others have on performance. Personality is so important, because each individual's personality governs how he will react to stimuli and dictates all behavioral instances. Each person is unique, in that what a person thinks, feels, or does is a product of that person's total personality. May and Doob (34) suggested that performers react to situations according to their respective personalities. Singer (41) stated, "one's characteristic way of behaving, often referred to as personality, is related to his ability to influence or be influenced by group action." He also mentioned that social facilitation does not operate independently of the participant's

personality, because the ability to cope with stress, or to be motivated is an individual matter. May and Doob (34) continued this line of thought by stating, "...it becomes the more evident that so-called 'social facilitation' is not a product of the social situation, but of the situation as interpreted by a living personality who possesses psychological peculiarities of his own." Cattell (11) who is a leading authority on personality, maintained that a man's personality indicated what he will do when he is in a given mood and in a given situation. Allport (3) stated the social stimulations which the coacting group obtains, causes an increase in the speed and quantity of work an individual produces. He continued his analysis by saying this social influence is subject to individual differences of personality traits, age, and ability. Cratty (19) and Jones and Gerard (28) also felt social facilitation seemed to be related to personality traits of the individuals. Abel (1) also found in her study that social facilitation seemed to be related to the personality traits of each individual. She found that intelligence was positively related to the extent to which social facilitation stimulates performance. The first pioneer study on the effect of spectators was done by Triplett (48) in 1898. He used competitive bicycle riding as the skill tested. He concluded that onlookers affected performance as a general increase in performance was observed. He pointed out that both positive and negative effects were noted, and seemed to be dependent upon the performer's personality. Triplett stated, "...that bodily presence of another contestant participating simultaneously in the race serves to liberate latent energy not ordinarily available."



Ganzer (24) observed the presence of others watching is detrimental for high and moderately anxious female subjects, but is not for the low anxious. A second study which dealt with anxiety levels is that of Abel (1). She found that, "more high-strung individuals are overstimulated with consequent decrease in group performance." Cox (16) studied the effect of others on children and found highly anxious children decrease performance, while low anxious children increase their rate of performance while in the presence of an audience. He suggested the audience produced an evaluative situation for highly anxious subjects, causing anxiety to block performance. However, for the low anxious subjects, the audience served as a motivator for increasing performance.

A second variable, which must be discussed in dealing with how others can influence behavior, is that of the familiarity of the task involved. Whether the skill is familiar (learned) or unfamiliar (new) is a definite determinant in affecting the performance of the individual. A learned skill used in this context is a rather permanent change in behavior brought about through practice (33). Singer (41) theorized that social facilitation is more likely to occur when the task is familiar and reasonably well learned. Between the time of Triplett's research and the middle of the 1960's, studies on social facilitation were mostly inconsistent. Some studies would support the theory that performance was facilitated by an audience and coactor effects, while others did not. Zajonc began to revive this area of

research, as he became one of the most noted and widely publicized authorities in this area (33). In his study in 1965, Zajonc (51) found the presence of others, whether in a coercion setting or in one which the individual performs in front of an audience, impaired the learning of new responses, but facilitated the performance of those which had already been learned. The presence of others was a source of arousal and which increased the probability of the emission of dominant responses. If correct responses are dominant, spectators will benefit the performer, while social presence will hinder performance of an individual when incorrect responses are dominant. He further stated that a complex or non-familiar task was apt to produce many more wrong responses than right ones in the early stages of training as compared to a simple or familiar one. With increased practice and learning, the correct responses in the repertoire of possible responses become the dominant ones.

A study by Martens (32) involved performing a coincident timing motor task. The results showed when learning a complex motor skill, spectators affect the subjects detrimentally on initial performances, as compared to individuals working alone. However, when the subjects learned the skill fairly well, they performed better in front of an audience than when performing alone. Other studies which support Zajonc's findings and theories were done by Ganzer (24), Travis (47), Allport (3), and Dashiell (20). Allport's (3) study in 1924 revealed that the subjects who had been working alone, then began to work in the presence of others increased their performance for tasks involving

past skills, but decreased performance for tasks involving learning. The social stimulations from the coacting group brought about an increase in speed and quality of work by the subjects. The increase was more definite in working overt, physical movements than in intellectual tasks. The performances were facilitated greatest by the least skilled subjects and lowest for the most skilled subjects. He concluded, when performance is facilitated, the coactors serve as stimuli and increase or quicken the responses of the participants. Another study by Martens (33) in 1969 determined the effect of one, two, and four coactors on an individual's performance of a muscular endurance task (horizontal extension of one leg, while sitting) for eight, thirteen, and eighteen year old males. Results showed the subjects in groups of four, for all age groups, performed significantly better than individuals in pairs and alone. This showed evidence that coactors facilitate performance on work requiring little learning.

A third variable which influences the effects of social facilitation on behavior is the nature of the task. Whether or not the task is simple or complex can definitely alter the way in which performance can be affected by others. The complexity of a skill is dependent upon the difficulty in giving a correct response. The more difficult it is to give a correct response, the more complex is the skill (33). In a study by Sorce and Fouts (45), the subjects were divided into motivational groups in which they performed a simple motor task in the presence and absence of an audience. When speed of

performance was a factor, those performing with an audience did significantly better than those performing alone. They concluded the evidence suggested social facilitation depended on the simplicity of the task and the level of motivation. Carment and Latchford (10) conducted a study which showed the effect of coactors as it increased the rate of responding on a simple motor task as compared to a complex motor task.

An extension of the personality aspect on performance is that of arousal level or motivational state. Zajonc's (52) study in 1968 produced a theory dealing with an individual's behavior as it is influenced by others. He felt other people can influence a performer's behavior by modifying the general drive state, as in an audience or coaction effect. He stated the responses of a given individual are modified by a change in the motivational state, which in turn is modified by the responses of another individual or individuals. Motivational or arousal state of two individuals change over time as a function of their responses to each other. The responses of one individual are the cues for the responses of the other, which in turn becomes cues for the response of the first individual. Another study by Spence and Spence (43), revealed that stress, motivation, or drive (caused by the presence of others) tended to encourage general arousal and the releasing of dominant responses, therefore facilitating performances for skilled individuals. They concluded that when individuals are in a coaction setting, the presence of others facilitated performance, probably because of increasing the general arousal level.

Another determining factor to social facilitation is that of how the participant views the chances for success against the opponent. Church (13) concluded that social facilitation from competition was at its maximum when the success probability of an athlete is slightly below 50 percent. Therefore, success was more probable when the opponent's ability was slightly higher. This theory can imply that it is the situation which must be analyzed in order to show the possible effects which may occur. So, it would be of importance to determine which social conditions, in a competitive situation, would bring about an individual's maximum effort and performance.

A last variable in socially facilitating performance of individuals is the evaluative influence the audience or coactors have and the way the performer perceives the reaction by the audience. Zajonc's (51) theory suggested the mere "presence" of an audience was arousing and that arousal would therefore enhance dominant responses. However, later research indicates his theory may be an oversimplification. Work done by Cottrell (14), Henchy, Glass, and Klinger (15) revealed that only when the audience could evaluate the subject's performance, did positive or negative effects occur. Their studies had the audience blindfolded (so as to be unaware of the happenings) while the tasks were being performed. The results showed that social facilitation did not affect the performance of the subjects. Therefore, they felt a form of evaluation had to have considerable influence on whether performance was facilitated or not. That is, the audience had to be aware of what was happening in order for social facilitation to occur.

Social facilitation occurred as a result of a learned response to situations which could be evaluated. Direct evaluation of the actual performance produced greater effects than did indirect evaluation. Or, in other words, the knowledge of the outcome (win or lose).

After discussion of the variables of social facilitation, it becomes necessary to look at the specific effects coaction activity and audience influence have on behavior. As was previously stated in this chapter, Allport (3) maintained that social stimulations which are present in coaction activity brings about an increase in speed and quantity of work achieved by the performer. He cited two explanations for these increased effects. One was the stimulating influence of rivalry, while the other was social facilitation. He stated, "Movements made by others performing the same tasks as ourselves serve as contributing stimuli and increase or hasten our own responses." Singer (41) believed it was apparently easier to constitute beneficial effects from rivalry than from cooperation or by working alone. In Hollingworth's (27) study he observed, in a coaction setting, that the fellow competitor served that purpose of a pacemaker, providing rivalry and greater effort. A new incentive was offered, which increased the sense of pride and provided a mild excitement which was favorable to increased activity. Thibaut and Kelley (46) produced research which concluded that there are two effects which occur when individuals work in a social context (working with or against others) as compared with working alone. They found that a greater quantity of work was achieved when physical performance was involved, suggesting an increased

motivation in performing the task. While there was less quantity of work achieved when intellectual processes or concentration was involved. Other earlier studies by Dashiell (20) and Allport (3) concluded the presence of others had an energizing effect on their subjects, causing them to work with greater intensity and higher motivation. However, at the same time, the presence of others often decreased accuracy, either by interfering or distracting stimulation because of an overconcern with speed.

In summation of the social facilitation research available today, it is evident that there are a variety of variables which may determine how the presence of others affects an individual's performance. Much research indicated performance may be facilitated if the skill involved is learned and not an unfamiliar one. Generally, performance may be increased if the skill is a relatively simple task, as compared to a more complex task. One of the most significant factors dealing with facilitating performance is the personality of the individual. The degree to which a person will become motivated or aroused by others is strictly an individual matter and pertains to the personality make-up. The presence of others may also encourage the general arousal level of the participant, eliciting dominant responses, therefore facilitating performance. The feedback or audience evaluation of the participant has also shown to have a positive influence on performance. In conclusion, Jones and Gerard (28) suggested in order to best deal with the social facilitation phenomenon, consideration should be given to the nature

of the performer, (that is, personality), the type of task, the skill level of the performer, and the characteristics of the group, coactors, or audience. Available evidence suggested the presence of others would facilitate performance on a simple, learned task and impair performance on a complex, unlearned task.

### Competition and Performance

The last broad subject which will be discussed is the effect which competition has on performance. The major points which will be investigated are: the factors which induce competition, the attitudes of competition maintained by the participant, and the influences and effects of competition.

In today's world, society is placed in a competitive-cooperative situation. People learn to adjust to the environment, to behave in certain ways, and to obtain skills according to the competitive and cooperative demands put on them by the values they possess (41). Competition is an everyday occurrence with most segments of society. Athletics is one segment of society in which some form of competition is likely to occur. In athletics, competition is displayed between rivals within a framework of rules and regulations, either agreed upon, stated, or implied (41). Singer (41) stated that competition can be personal or impersonal. In personal competition, the participant's goal is to defeat his opponent. An impersonal goal would be either to gain prestige or to perform to an acceptable self-determined standard (improve a previous performance standard). Festinger (21) viewed competitive



behavior as "a response to the interaction of two basic drives within an individual: the drive to constantly improve one's abilities and the drive that exists within people to constantly evaluate their abilities, opinions, and emotions." He continued that individuals became involved in social situations (competition) for the purpose of comparing themselves with others, because of a lack of objective criteria to evaluate their own abilities. Festinger concluded that competition was a result of an interaction between these two drives. Cratty (19) felt a participant often performs with an unseen audience in mind. He contrasted his performance to those of his peers and to those whom he felt comparable to himself. Katz and Schanck (29) suggested that in competition, each participant was seeking to satisfy his own desires. The competitive situation was structured so that one attains success in accomplishing his outcomes, while the other individual suffers a reduction in his.

The competitive attitude ("competitiveness") of the participant and how it relates to inducing competition is of major concern. Cratty (19) felt the influence of competition on performance depends on such factors as the personality traits of the competitor, factors unique to the situation, and the nature of the task. Singer (42) made the verified observation that there is a distinct difference in personality traits from athlete to athlete. The inconsistency in patterns makes it difficult to generalize about the behavioral expectancies of all athletes. The athlete, like everyone else, obtains tendencies to behave in certain ways in certain circumstances and situations. The individual's emotional state before competition may very well determine

his performance level. Singer contended that the attitudes of the athlete toward competition shape and develop his individual behavior and may make the difference in obtaining skill and status. Allport, Murphy, and May (5) cite two main factors which must be present in order to induce competitive behavior. The two factors are: 1) a mutual desire for the object and 2) an attitude (competitive) toward those who are seeking it (object) at the same time. They further suggested that there are definite individual differences relating to competitive behavior and that these differences are dependent upon differences in needs, skills, types of competition, and in attitudes toward a potential competitor. Vanderzwaag (49) continued this thought of individual differences by commenting, "the competitive dimension of sport may vary a great deal (from individual to individual) and usually does. Not all individuals have the same desire to compete."

Several authorities believe that past experiences help develop this attitude of competition. Beisser (8) suggested that occurrence of competition is greatly dependent upon the psychological events of a person's past. Early childhood family experiences are often relived in athletic competition. Katz and Schanck (29) stated, "that because of early learning experiences, competitive situations usually arouse attitudes of rivalry." In a study by Allport, Murphy and May (5) it is concluded that an individual's past experiences in competitive situations are probably transferable (from activity to activity).

In order for competition to occur, Moede (36) felt that the competing individuals must perceive competition to be worthwhile, that

is, that their abilities are nearly alike. If one participant perceives himself the loser before competition begins, a true contest is most likely not to occur. Cratty (19) contended that competition occurs only when two individuals perceive themselves as reasonably well matched and both think they are capable of winning. The ratio is set at from 65:100 to 75:100 before competition occurs.

In this investigation, competitive attitudes are studied to determine and distinguish between "good" and "poor" competitors and their relationship to their performance. Several studies deal with characteristics of good and poor competitors. Ryan (39) attempted to identify the psychological factors which differentiate good and poor competitors. He described differences that he saw between types of competitors:

- 1) Good and poor competitors possess different emotional abilities to accept high-level athletic achievement.

- 2) When a normal or good competitor competes badly, he may be suffering from temporary over-anxiety. But the poor competitor shows "feebleness of effort, almost a kind of paralysis."

Ryan concluded that "differences in competitive ability represent relative differences in freedom to achieve or to express aggression."

Beisser (8) stated that generally the poor competitor fears aggression, while the good competitor generally is less fearful of aggression.

Cratty (18) postulated that a lack of competitiveness is not a sign of the lack of character, immorality, or similar deficiencies. It may be because of different past experiences or upbringings, but is not an

inferior set of values which the person possesses. Festinger (21) believed an individual will be highly competitive if he develops a strong motivational drive to discover how good he is by comparing himself with other individuals.

Much research on the effects of competition, as an influence on performance, indicates it serves as a stimulus for improved performance. Cratty (18) stated that competition may activate behavior. Thus under competitive circumstances, an individual will perform as he would under higher levels of activation. Gagne and Fleishman (23) stated that competition between groups led to lesser performance than did individual competition. They theorized that this occurs because when responsibility is divided (team participation), the status needs of individuals are not as directly affected. Raven and Eachus (38) indicated competition tends to motivate individuals more highly than cooperation. If the task is such that there is no need for interaction or sharing of information or skill, independent motivation will probably be higher in the competitive situation. Bruning, Sommer, and Jones (9) suggested that if competitive subjects evaluate themselves in relation to their opponents, then it is reasonable to expect motivational changes resulting from this comparison to be related to the proximity of the opponent. That is to say, motivation should be higher in a competitive situation when the opponent is present and visible than in a situation not involving the physical presence of an opponent.

In a study by Whittemore (50), he used a physical fitness test to test the subjects who were divided into two groups. The first group

contained each subject competing against his own self. In the second group, each subject competed against a subject of equal or similar ability. Whittemore's test results showed that the group in which one subject competed against another individual did better (exceeded) than those in which the subject performed alone. Sims (40) conducted a study in a classroom situation which was to show the relative effect of each subject on the competitive urge. Three groups were sub-divided into groups which: 1) the subject competed with himself and others of similar ability, 2) each subject was a member of a group which competed against another group, and 3) control group. Two non-motor tasks (intellectual tasks) were performed. The results of both tasks showed the group one, which competed against oneself and another subject of similar ability, improved significantly better than the other two groups. Singer (42) concluded that if these results from Sims' study were applicable to athletic situations, the implication would be that competing with oneself and one of similar ability was more effective than competing in a group. Singer stated that as a general rule, when the competitive urge decreases, performance also decreases. Competition with one's previous record or with another athlete helps to maintain or increase the competitive urge (motivation).

### Summary

Each of the three areas of concern (motivation, social facilitation, and competition) have been dealt with primarily in separate contexts (from each other). The following investigations attempted to combine and summarize the areas on how they relate to each other.

Many psychological factors can have an effect on attitudes and ultimate performance (8). Singer (42) wrote that much evidence shows there are motivational advantages in working with or against someone, rather than participating alone. Competing against another person, against established records, or against one's previous record can serve as incentives. In fact, it is usually found that competition leads to higher motivation and increased performance than cooperation (as a team member). Generally, social facilitation effects of competition are different in the reactions of individuals (41). Motivation or drive, caused by competition with others tends to encourage general arousal and the emission of dominant responses, thereby facilitating performance, in the case of skilled individuals (44). In a study by Dashiell (20) in 1930, the speed of performance was facilitated when work was done in the presence of a coacting group as compared with isolation. He theorized this increase is due to the presence of the competitive attitude or else an attitude of doing better because of being observed by others. Triplett (48) pointed out that individuals seem to better endure the pain of competition or endurance activities when onlookers are present.

Basically, the knowledge gained from the research gathered here is an attempt to better understand factors which can influence athletic performance. This is of importance to the athlete himself, since he can become better aware of what can influence and affect his performance and thus make adjustments to meet these influences. The implications of this research are far greater for the coach, because of his responsibility to guide the athlete, to help him develop his capabilities and

reach his maximum potential as a participant. Singer (42) commented that "how and to what extent an athlete's personality determines success is difficult to ascertain, but certainly such knowledge would provide valuable insights into the effectiveness of the coach and athlete." Singer believed it is the coach's responsibility to somehow assist the athlete in developing a favorable psychological attitude. Competitive coaches should understand the motivation and personality dynamics of an athlete whose competitive tendencies are not as definite as his own (18). The competitive urge in athletes (who do not develop them without help) sometimes needs to be encouraged. If the athlete's motivation is not already at a high level, techniques for encouragement may develop the desired additional efforts (18). Ryan (39) stated that, "the responsibility of the mature coach to the poor competitor is a complex matter, involving both value judgement and considerably more knowledge than is now available."

The research presently obtained has indicated that the athlete can and must be motivated in some form in order to obtain the best possible performance level. One question which has not been answered by the present research available is how may coaches best help the athletes find what best motivates each one in each particular situation; and if the athlete lacks that particular motivational drive, how can he develop it better? It was the purpose of this study to attempt to supply information to help answer this question.

## Chapter 3

### PROCEDURE

The general purpose of this study was to determine the effects of social facilitation and an external goal as motivational techniques on 60-yard running times of college women.

### RIGHTS AND WELFARE OF SUBJECTS

Approval of this study was obtained by the Department of Health, Physical Education, and Recreation by submitting a form to the Committee for Rights and Welfare of Human Subjects. An Informed Consent Form (see Appendix A) was given to the subjects of this study. This form informed the subjects of the nature of the study, risk involved, confidentially, and the time which would be involved.

### SUBJECTS

The subjects for this study were thirty female, volunteer athletes from Kansas State University, Manhattan, Kansas. The subjects' ages ranged from eighteen to twenty years of age. Women athletes from six different sports volunteered for the study (softball, volleyball, track, tennis, gymnastics, and basketball). The subjects were those who were participating in their respective seasons at the time of selection for the study. Six subjects were participants in two different sports.



From the thirty subjects, twenty subjects were selected for the actual study, based on the range of scores from a written test given at the beginning of the study. Subjects with the ten highest scores and the ten lowest scores were the ones selected.

## TESTS

For the purposes of this study, two tests were administered. The first test was a written test given to actually select the twenty subjects for the remainder of the experiment. The second test was the actual administration of the experiment.

### 1. Ascetic Assessment

At the beginning of the study, all subjects were given the written ascetic assessment scale from Kenyon's Six Subdomain Physical Activity Assessment Scale (see Appendix B). This test was primarily involved with asking questions about the subjects' feelings toward competition. It also compared subjects' attitudes toward competition. In order to prevent the subjects from becoming aware of the type of questions being asked, several non-related questions were randomly picked from the rest of Kenyon's Six Scale Attitude questionnaire and included in the test. These irrelevant questions were not scored. The scores were arranged from highly competitive to low competitive. From the twelve questions on the questionnaire, eight questions were scored. From Kenyon's scale of scoring, a perfect score of fifty-six was the highest score possible for highly competitive, while a score

of eight was the lowest score possible for low competitive. The results for this study showed the highest high competitive score was forty-eight, while the lowest low competitive score was twenty-three. All subjects and data were kept strictly confidential.

## 2. 60-yard Dash

The twenty selected subjects then followed the procedures of the experiment. Each subject was timed for four consecutive days for two 60-yard sprint trials each day of the study. The study began with each subject running a 60-yard sprint. This was to determine an established time for each subject in order to compare times and match a competitor of equal ability for each subject to compete against. The subjects were matched in pairs for the succeeding days of testing. One trial was run against the competitor of equal ability, while the other trial was run without a competitor, but against a previously established time record (self score established the previous day). There was an approximate ten minute break between trials. The succeeding days involved changing the order of trials so that on one day the sprint against the competitor would be first and trial against time would be second; while the next day the order would be reversed. This sequence attempted to eliminate any advantage one sequence might have had over the other. The times were collected and recorded for both trials each of the four days for each subject.

#### DATA COLLECTION

The times were recorded for both trials each of the four days for each subject. The research design used for the study was a 2X2X4 factorial. The data are presented in Appendix C.

#### STATISTICAL ANALYSIS

The data were treated using the analysis of covariance with repeated measures technique with the pre-test time on the 60-yard dash serving as the covariate. Means and adjusted means were calculated for a cells of the expectal design.

## Chapter 4

### ANALYSIS OF DATA

Presented in this section of the paper are the data obtained from comparisons and statistical analysis. Table 1 shows the running times for different attitude groups for all trials.

Table 1

Running Times  
Means and Adjusted Means and F-Ratio  
(Co-variance) for Kenyon Groups

Groups	Means	Adjusted Means	F-Ratio
High Kenyon	8.747	8.748	0.344
Low Kenyon	8.651	8.649	

\* Significance at .05 level

Combining all data without regard to days and times, there was no significant difference in the mean scores for groups divided on the basis of attitude scores.

The mean running scores for each subject for all trials and for all conditions are represented in Table 2. This contains eight scores for each subject (two trials for four days).

Table 2  
Running Times  
Means and Adjusted Means and F-Ratio  
(Co-variance) for Subjects

	Means	Adjusted Means	F-Ratio
Subject 1	8.574	8.564	
2	8.924	8.939	
3	9.337	9.369	
4	8.549	8.547	
5	8.662	8.668	
6	8.637	8.635	
7	8.287	8.259	
8	8.512	8.493	
9	8.962	8.960	
10	9.024	9.048	
			57.598
Subject 11	7.849	7.796	
12	8.637	8.635	
13	8.849	8.864	
14	8.799	8.814	
15	8.399	8.380	
16	9.024	9.039	
17	8.574	8.555	
18	8.562	8.551	
19	9.412	9.478	
20	8.399	8.380	

\* Significant at .05 level

The results indicate a significant difference between running times of the individual subjects. Generally, the running times differed because of differing abilities among the subjects. This was to be expected. However, there was a significant subjects and trial interaction which was not predicted which will be discussed later in the chapter. Because a difference between subjects on running time is

to be expected in any group of athletes, there was no need to run a post F-test on the data.

As can be seen, Table 3 represents the means of the running times for the two different competition groups.

Table 3  
Running Times  
Means and Adjusted Means and F-Ratio  
(Co-variance) for Competition Groups

Groups	Means	Adjusted Means	F-Ratio
Competition	8.657	8.657	13.534*
Non-Competition	8.741	8.741	

\* Significance at the .05 level

The results indicate that the running times differed for the competitive conditions, as the F-ratio indicates there was a significant difference between the two competition settings. This indicates the coactor scores (against an opponent) were better than the non-coactor scores (self).

At this time, it seems appropriate to recall what the research seems to show dealing with competitive situations. Much research shows that a co-acting situation influences some type of behavioral change to the performer (51). Authorities such as Triplett (48), Martens (33), Hollingworth (27), Whittemore (50), and Singer (42) found in their studies that there are definite motivational advantages

in performing better when working against someone, rather than working (performing) alone. Other evidence to support the findings of this paper is work done by Zajonc (51), Ganzer (24), Travis (47), Allport (3), Festinger (21), Dashiell (20), and Spence and Spence (43) which found that a co-action setting seemed to facilitate performance.

The means, adjusted means, and F-ratio for the trials (first through fourth trial by each subject) is shown in Table 4. This shows the average of twenty people for both trials.

Table 4  
Running Times  
Means and Adjusted Means and F-Ratio  
(Co-variance) for Trials

Groups	Means	Adjusted Means	F-Ratio
Trial 1	8.617	8.617	
Trial 2	8.667	8.667	
Trial 3	8.749	8.749	3.033*
Trial 4	8.762	8.762	

\* Significance at the .05 level

There was a significant difference of the running times between trials. There was a need to have a post F-test to determine between which trial means differences existed.

A statistical analysis was run to compare the 60-yard run performance by trials using the Duncan Multiple Range Test (see Table 5 below).

Table 5  
Comparison of 60-yard Run Performance by Trial

Trial 1	Trial 2	Trial 3	Trial 4
8.617	8.660	8.749	8.762

Underlined means are statistically the same at the .05 level of significance.

Although the test results show there was a significant difference between several of the trials, caution should be taken in making generalizations at this time because of the existence of a subjects versus trial interaction to be reported later in this paper. The extremes of the trials (1,4) show a significant difference in that the subjects generally seemed to run faster the first day, rather than later days of the study.

The analysis of co-variance for interactions appears in Table 6.



Table 6  
F-Ratio (Co-variance) for Interactions

Groups	F-Ratio
Attitude-Comp	2.535
Attitude-Trials	2.084
Comp-People	1.109
People-Trials	3.356*
Comp-Trials	1.323

\* Significance at .05 level

As can be seen in Table 6, there was no significant difference for any of the interactions, except for the people versus trials interaction which was significant. This shows that certain people tended to run faster in the first trial than they did in the later trials. These five or six subjects who ran faster in the beginning and slower in the later trials, influenced the results which accounted for the differences in Table 4 (page 37). In other words, although as a rule subjects performed best in early trials as compared to later trials, this tendency is not uniformly true. There was a certain type of subject (as the interaction indicates) who did better in later trials as compared to early trials.

In the early section of the analysis, it is interesting to note that the results show the low-competitive group as a group (means) had

a faster time than the high-competitive group. However, it is not of particular importance that their time was faster, because one's ability to perform was not a factor in selecting which people were placed in each of the groups. The running times of the individual subjects varied significantly between each subject. This can be attributed to the differing abilities which existed among the subjects. The scores of the two competitive groups show that the subjects performed better when in a co-action setting than they did when a coactor was not present. This idea was what the investigator had thought would prove true and one many other studies have supported as well. One result which did surprise the investigator was that of the decreasing times on the trials from day to day. It seems that the times were better for the first day and proceeded to become lower as the trials progressed. One factor which the investigator feels could have contributed to this result is that the subjects were involved in their respective sports' seasons at the time of the experiment. Their practice sessions involved a two to three hour practice directly before participating in the study. The intensity of the practice sessions varied from lighter at the beginning of the week, to a heavier work load later in the week. Also, several of the subjects experienced mild injuries, which could have affected their performance in running for this study. As was stated in the results under Tables 4 and 6 (interaction of people versus trials), several people tended to influence the results by running faster in the beginning trial and slower in the later trials. These two factors could have had an influence for the descending times. A last result which will be discussed is that of the interaction between

competitive attitude and competitive conditions. The fact that there was no significant difference between these two, did not meet with the investigator's expectations. Although the subjects were all athletes and possessed some degree of "competitiveness," the investigator expected there would be a significant difference in results with the co-actor group performing better than the non-coactor group in the two conditions present. The results might have occurred because of the method used to select the low and high competitive groups.

#### Discussion of Results

Listed below are observations, discussions, and implications based on the results of statistical analysis and observations by the investigator.

1. The subjects' performance times in the presence of a co-acting competitor was significantly different than those times which were performed without the presence of a co-acting competitor. The scores showed the subjects performed better when competing with an opponent, rather than when performing alone. The investigator feels there are several reasons why these results were made. One idea is that in the presence of a coactor, the participant can visibly see where he is in relation to his opponent, and thereby know how much more effort he needs to make. Another possibility in determining why performance was better against an opponent is that of rivalry. If a subject was matched against a particular person whom she wanted to beat, her motivational level could have been at its optimum. A last

suggestion to account for the results is that of the subjects' "competitiveness" (desire to win). This feeling may have influenced her motivational state in performing as she did.

The implications for the coach and teacher are important, since competition is of major concern in athletics. The implications and suggestions are:

a. Teachers and coaches must be aware of the varying abilities of their athletes. Not everyone has the same ability to perform. During practice sessions, the coach could match up athletes of similar abilities to work with or against.

b. Coaches must find how each individual can be motivated for practices and games. By adjusting workouts to meet the abilities and needs of each one could be a possibility. If a coach finds that the athletes perform better against a competitor, then by setting practices to meet these needs, the player can elicit the best results.

c. The coach must maintain motivation of his players. This might be done by varying methods of competition (co-action and against established record).

d. If the athlete tends to perform better with a coactor, a possibility for the coach is to provide a "challenge" whereby the athlete could challenge a fellow worker to a contest (competitive condition).

e. Certain athletes may have a tendency to do better at the first of a practice or contest. The coach needs to be aware of this and make adjustments accordingly.

2. There was no significant difference in performance times for subjects having different attitudes toward competition (high and low). Both high and low competitive groups tended to perform faster or slower in both motivational conditions regardless of what group they were in. The investigator expected the results to show the high competitive group would perform better. The method of selecting the high and low competitive groups was probably not a good indication of how competitive the subjects actually were. Several of the questions asked by Kenyon's questionnaire were ambiguous and were not good indicators of the "competitiveness" of the individuals. However, because of the lack of research in how to determine if an individual is competitive (observation, self-evaluation, or questionnaire), some form of established standard needed to be used. If individuals could truly be divided into competitive and non-competitive groups, the test results might be different.

The implications a coach might want to consider are:

a. If athletics is to be competitive, then the coach should find some method (observation, player evaluation, questionnaire) of determining which athletes are competitive and not very competitive. Much evidence and research suggest that if an athlete is not competitive, it is up to the coach to help develop this competitiveness. Also, the coach must be aware of the highly aggressive-competitive athlete and make adjustments to channel it positively.

b. The coach must provide motivation to help guide the athlete's drive and desire to excel.

c. If the coach can help the athlete develop more ability in the particular skill, the athlete may find the activity more enjoyable, which could help develop a sense of pride and competitiveness to do better.

3. From the interactions between performance of subjects under different motivational conditions and different subjects' attitude, only the people versus trials was significantly different. This shows that certain people ran faster in the first trial day than they did in the later trials. As was stated earlier, the scores were much lower than the investigator expected. The investigator thought certain subjects would do better, as the scores would be higher. Certain people tended to influence the results.

The implications a coach or teacher might want to consider are:

a. The coach must convey that every practice session is important for ultimate success.

b. The coach must be aware that athletes need to improve and when some form of improvement is not made continually, some approach or change should be made (either in technique or routine).

## Chapter 5

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

#### Summary

This study was conducted in an attempt to determine the effects of social facilitation (co-acting competitor) and the presence of an external goal (time clock) as motivational techniques on 60-yard running times of college women.

Thirty college women athletes were given a written questionnaire to determine attitudes toward competition. Twenty subjects were then selected on the basis of scoring high and low on the test (ten highest, ten lowest). The subjects then ran two trials a day for four consecutive days. One trial was performed by oneself to attempt to improve the time record set the previous day. The other trial was performed against a competitor of near equal ability. Statistical analyses were conducted to study the purposes listed in Chapter 1 (page 6).

#### Conclusions

Listed below are the conclusions drawn on the basis of the results of this investigation.

1. When performing a simple, learned skill such as running, it appears that athletes tend to perform better in the presence of a co-acting competitor than when performing without a co-actor.
2. Different attitudes toward competition (high or low) do not seem to be a determining factor in performance times of athletes.

3. Although some athletes may tend to run faster at the beginning of their performance trials than they do in later performance trials, generally speaking, many athletes tend to run faster in later performance trials than they do during the beginning performances.

#### Recommendations for Future Research

It would be of significant benefit to increase the number of days for testing to get a better view of how the subjects would react. Another possible suggestion would be to increase the number of subjects tested.

As was previously stated, a better or improved method of selecting highly competitive and low competitive subjects would be an improvement.

For the purposes of convenience and availability, this investigation involved athletes from six different sports. It would be interesting and a good idea to run this test using subjects from only one specific sport area.

A last suggestion would be to try to make the test condition more controlled. By this, the investigator means to provide more resting time between the active athletes' participation (practice, workout) in the on-going sport and the time of the actual testing period.



## BIBLIOGRAPHY

1. Abel, Theodora. "The Influence of Social Facilitation on Motor Performance at Different Levels of Intelligence," American Journal of Psychology. 51:379-89, 1938.
2. Alderman, Richard B. Psychological Behavior in Sport. Philadelphia: W. B. Saunders Co., 1974.
3. Allport, Floyd. Social Psychology. New York: Houghton Mifflin, 1924.
4. Allport, Gordon W. Pattern and Growth in Personality. New York: Holt Co., 1961.
5. Allport, Gordon, Gardner Murphy, and Mary May. Memorandum on Research in Competition and Cooperation. New York: Social Science Research Council, 1937.
6. Bannister, Roger. The Four Minute Mile. New York: Dodd, Mead Co., 1955.
7. Berelson, B. and G. A. Steiner. Human Behavior: An Inventory of Scientific Findings. New York: Harcourt, 1964.
8. Beisser, Arnold R. The Madness in Sports. New York: Appleton, Century, Crofts, 1967.
9. Bruning, James L., David K. Sommer, and William Jones. "The Motivational Effects of Cooperation and Competition in the Means-Independent Situation," Journal of Social Psychology. 68:269-74, 1966.
10. Carment, D. W. and M. Latchford. "Rate of Simple Motor Responding as a Function of Coaction, Sex of Participant, and Presence or Absence of Experiment," Psychonomic Science. 20:253-54, 1970.
11. Cattell, R. B. The Scientific Analysis of Personality. Baltimore: Penguin Co., 1965.
12. Chevrette, John M. "The Effect of Peer Observation on Selected Tests of Physical Performance," Journal of Psychology. 70:113-117, 1968.
13. Church, Russell. "Applications of Behavior Theory to Social Psychology." In Samuels, R. A., et al. (eds.), Social Facilitation and Imitative Behavior.

14. Cottrell, Nicholas B. "Performance in Presence of Other Human Beings: Mere Presence, Audience, and Affiliation Effects," In E. C. Simmel, R. A. Hope, and G. A. Milton (eds.), Social Facilitation and Imitative Behavior. Boston: Allyn and Bacon, 1968.
15. Cottrell, Nicholas, Robert Little, Gary Sekerak, and Dennis Wack. "Social Facilitation of Dominant Response by the Presence of an Audience and the Mere Presence of Others," Journal of Personality and Social Psychology. 9:245-50, 1968.
16. Cox, F. N. "Some Relationships Between Test Anxiety Presence and Absence of Male Personals, and Boys' Performance on a Repetitive Motor Task," Journal of Experimental Child Psychology. 6:1-12, 1968.
17. Cratty, Bryant J. Movement Behavior and Motor Learning. Philadelphia: Lea, Febiger, 1967.
18. Cratty, Bryant J. Psychology in Contemporary Sport. Englewood Cliffs, N. J.: Prentice-Hall, 1973.
19. Cratty, Bryant J. Social Dimensions of Physical Activity. Englewood Cliffs, N. J.: Prentice-Hall, 1967.
20. Dashiell, J. F. "An Experimental Analysis of Some Group Effects," Journal of Abnormal Social Psychology. 25:190-99, 1930.
21. Festinger, L. "A Theory of Social Comparison Processes," Human Relations. 7:117-140, 1954.
22. Festinger, L. "Wish, Expectation, and Group Standards as Factors Influencing Level of Aspiration," Journal of Abnormal Social Psychology. 37:184-200, 1957.
23. Gagne, Robert M. and Edwin A. Fleishman. Psychology and Human Performance. New York: Holt, 1959.
24. Ganzer, V. J. In William P. Morgan (ed.). Erogenic Aids and Muscular Performance. New York: Academic, 1972.
25. Gutteridge, Mary V. "A Study of Motor Achievements of Young Children," Archives Psychology. 6:244, 1939.
26. Hilgard, E. R. and D. H. Russell. "Motivation in School Learning," In N. B. Henry (ed.), Learning and Instruction. Chicago, Ill.: University of Chicago Press, 1950.
27. Hollingworth, Harry L. The Psychology of the Audience. New York: American Co., 1935.

28. Jones, Edward and Harold Gerard. Foundations of Social Psychology. New York: Wiley Co., 1967.
29. Katz, D. and R. L. Schanck. Social Psychology. New York: John Wiley and Sons, 1959.
30. Lawther, John D. Sport Psychology. Englewood Cliffs, N. J.: Prentice-Hall, 1972.
31. Lawther, John D. The Learning of Physical Skills. Englewood Cliffs, N. J.: Prentice-Hall, 1968.
32. Martens, Rainer. "Effect on Performance of Learning a Complex Motor Task in the Presence of Spectators," Research Quarterly. 40:317-23, May, 1969.
33. Martens, Rainer. Social Psychology and Physical Activity. New York: Harper and Row, 1975.
34. May, M. A. and L. W. Doob. Competition and Cooperation. New York: Social Science Research Council, 1937.
35. Melton, Arthur W. "Motivation and Learning," In David C. McClelland's Studies in Motivation. New York: Appleton, Century, Crofts, 1955.
36. Moede, W. "Der Wetteifer, Weins Struktur und Sein Ausmass," Zeit. Psych. pas. Psych. 15:353-68, 1920.
37. Nelson, M. "Motivation in School Learning," In N. B. Henry (ed.). Learning and Instruction. Chicago, Ill.: University of Chicago Press, 1950.
38. Raven, B. H. and T. H. Eachus. "Cooperation and Competition in Means-Interdependent Trials," Journal of Abnormal and Social Psychology, 67:307-316, 1963.
39. Ryan, Francis J. "An Investigation of Personality Differences Associated with Competitive Ability." In Bryant M. Wedge, Psychosocial Problems of College Men. New Haven, Conn.: Yale University Press, 1958.
40. Sims, Verner M. "The Relative Influences of Two Types of Motivation on Improvement," Journal of Educational Psychology. 19:480-84, 1928.
41. Singer, Robert N. Social Facilitation. In William P. Morgan (ed.) Ergogenic Aids and Muscular Performance. New York: Academic, 1972.

42. Singer, Robert N. Coaching, Athletics, and Psychology. New York: McGraw-Hill, 1972.
43. Spence, J. A. and K. W. Spence. In William P. Morgan (ed.) Ergogenic Aids and Muscular Performance. New York: Academic, 1972.
44. Spence, J. A., K. W. Spence, and Robert Zajonc. In William P. Morgan (ed.) Ergogenic Aids and Muscular Performance. New York: Academic, 1972.
45. Sorce, James and Gregory Fouts. "Level of Motivation in Social Facilitation of a Simple Task," Perceptual and Motor Skills. 37: 157-65, October, 1973.
46. Thibaut, John W. and Harold H. Kelley. Social Psychology of Groups. New York: John Wiley and Sons, 1959.
47. Travis, J. In William P. Morgan (ed.). Ergogenic Aids and Muscular Performance. New York: Academic, 1972.
48. Triplett, Norman. "The Dynamogenic Factors in Pacemaking and Competition," American Journal of Psychology. 9:507-33, 1898.
49. Vanderzevaag, Harold J. Toward a Philosophy of Sport. Reading, Mass.: Addison and Wesley, 1972.
50. Whittemore, Irving C. "Influence of Competition on Performance: An Experimental Study," Journal of Abnormal Social Psychology. 19:236-54, 1924.
51. Zajonc, Robert B. "Social Facilitation," Science. 149:269-74, 1965.
52. Zajonc, Robert B. Social Psychology: An Experimental Approach. Belmont, Calif.: Brooks and Cole Co., 1968.

## APPENDIX A

## INFORMED CONSENT FORM

Please read the following very carefully!

1. A) This experiment is to test the subject's speed in running 60-yard sprints. In order to establish the reliability of the test, each subject will run two (2), 60-yard sprints each day for four consecutive days (Monday - Thursday).  
  
B) At the beginning of the experiment, each subject will be given the ATPA (Attitude toward Physical Activity) scale test to obtain a general attitude toward physical activity and to determine differences between these attitudes. From the results of this test, twenty subjects will be selected for the experiment.
2. The risk involved in this study is no more than that which would be encountered in a normal physical education class period.
3. After completion of the experiment, all subjects will be informed of the results and how each individual subject performed.
4. All data will be kept strictly confidential. A code number will be assigned to each subject to assure that the subject's identity will remain anonymous.
5. Injuries and/or emergencies will be handled using the same procedure in treating athletic injuries during a normal practice session.
6. Any subject is free to withdraw at any time. However, it is extremely important that you do not sign up if you know ahead of time there is a reasonably good chance you won't be able to come to each and every testing day.

I have read and understand the above statements and wish to participate as a subject for this experiment:

- |     |     |     |
|-----|-----|-----|
| 1.  | 11. | 21. |
| 2.  | 12. | 22. |
| 3.  | 13. | 23. |
| 4.  | 14. | 24. |
| 5.  | 15. | 25. |
| 6.  | 16. | 26. |
| 7.  | 17. | 27. |
| 8.  | 18. | 28. |
| 9.  | 19. | 29. |
| 10. | 20. | 30. |

## APPENDIX B



Ascetic Assessment Questionnaire from  
Kenyon's Six Subdomain Physical  
Activity Assessment Scale

This test is to ascertain your opinions about physical activity. We are asking you to express what you think or feel about each of the following questions. The best answer is your personal opinion. Many different and opposing views are presented; you may find yourself agreeing strongly with some of the statements and disagreeing just as strongly with others.

INSTRUCTIONS

1. Express your agreement or disagreement by filling in the appropriate number on the answer card. Use the following key:
    1. VERY STRONGLY AGREE
    2. STRONGLY AGREE
    3. AGREE
    4. UNDECIDED
    5. DISAGREE
    6. STRONGLY DISAGREE
    7. VERY STRONGLY DISAGREE
  2. You should rarely need to use the number 4 (undecided).
  3. Respond to ALL statements.
- 
1. I would gladly put up with the hard training necessary for the chance to try out for the U. S. Olympic team.
  2. The years of strenuous daily training necessary to prepare for today's international competition is asking alot of today's young women.
  3. I would get by far the most satisfaction from games requiring long and careful preparation and involving stiff competition against a strong opposition.
  4. The best way to become more socially desirable is to participate in group physical activities.

5. Almost the only satisfactory way to relieve severe emotional strain is through some form of physical activity.
6. If given a choice, I sometimes would choose strenuous rather than light physical activity.
7. A sport is sometimes spoiled if allowed to become too highly organized and keenly competitive.
8. The self-denial and sacrifice needed for success in today's international competition may soon become too much to ask of a 13 or 14 year old girl.
9. Since competition is a fundamental characteristic of American society, highly competitive athletics and games should be encouraged for all.
10. Sports are fun to watch and to engage in, only if they are not taken too seriously, nor demand too much time and energy.
11. In this country there is sometimes too much emphasis on striving to be successful in sports.
12. Strength and physical stamina are the most important prerequisites to a full life.

## APPENDIX C

## SUBJECTS' TIMES FOR ALL TRIALS AND FOR ALL DAYS

	Day				
	Pretest	1	2	3	4
COMP					
1	8.5	8.5	8.8	8.5	8.6
2	8.8	8.8	8.8	9.0	9.1
3	9.0	9.5	8.9	9.3	9.4
4	8.6	8.3	8.6	8.7	8.5
5	8.7	8.4	8.8	8.7	8.4
6	8.6	8.4	8.5	8.5	8.7
7	8.3	8.1	8.3	8.2	8.2
8	8.4	8.3	8.4	8.4	8.5
9	8.6	8.4	8.6	8.8	9.7
10	8.9	8.8	8.9	9.2	9.0
11	8.0	8.0	7.9	7.7	7.8
12	8.6	8.7	8.7	8.7	8.6
13	8.8	8.9	8.9	8.6	9.0
14	8.8	8.9	8.8	9.1	8.5
15	8.4	8.4	8.5	8.4	8.3
16	8.8	8.9	8.9	9.0	8.8
17	8.4	8.9	8.1	8.4	8.5
18	8.5	8.5	8.5	8.9	8.4
19	9.4	9.2	9.0	9.6	9.6
20	8.4	8.3	8.2	8.5	8.5
NON					
1		8.3	8.5	8.7	8.7
2		8.9	8.9	8.9	9.0
3		9.5	9.6	9.4	9.1
4		8.3	8.5	8.9	8.6
5		8.6	8.9	8.8	8.7
6		8.4	8.9	8.8	8.9
7		8.4	8.4	8.4	8.3
8		8.4	8.6	8.6	8.9
9		8.7	8.6	9.1	9.8
10		8.7	9.1	9.3	9.2
11		8.0	7.8	7.9	7.7
12		8.4	8.9	8.5	8.6
13		8.8	8.8	8.8	9.0
14		8.8	8.7	8.7	8.9
15		8.2	8.5	8.6	8.3
16		9.2	9.1	9.2	9.1
17		8.8	8.5	8.5	8.9
18		8.5	8.4	8.7	8.6
19		9.2	9.4	9.6	9.7
20		8.4	8.5	8.4	8.4

SOCIAL FACILITATION AND GOAL SETTING AS MOTIVATIONAL  
FACTORS AFFECTING RUNNING PERFORMANCE

by

ANN L. HEIDER

B. S. E., Emporia Kansas State College, 1973

---

AN ABSTRACT OF A MASTER'S THESIS

submitted in partial fulfillment of the

requirements for the degree

MASTER OF SCIENCE

Department of Health, Physical Education, and Recreation

KANSAS STATE UNIVERSITY  
Manhattan, Kansas

1976

The major purpose of this investigation was to study the effects of social facilitation (co-acting competitor) and the presence of an external goal (time clock) as motivational techniques of 60-yard running times of college women. Sub-studies included: to determine if running performance differed for subjects having different attitudes toward competition; and to determine if interactions existed between performance of subjects under motivational conditions and different subjects' attitudes.

The subjects were thirty female athletes. A questionnaire was given to the subjects. On the basis of the test scores, twenty subjects were selected to continue in the study.

Two tests were administered. The first test was a written questionnaire to determine attitudes toward competition. The ten highest and ten lowest scores were the basis for the selection of the twenty subjects. The second test was that of running two trials of 60-yard sprints for four consecutive days. One trial was performed against a competitor of near equal ability. The second trial was performed by oneself to attempt to improve the time record set the previous day (by that subject).

An analysis of covariance with repeated measures technique was used to treat the data. Means and adjusted means were calculated for the cells of the experimental design.

The following are the results and conclusions drawn by statistical analysis and observations by the investigator:

1. The subjects' performance times in the presence of a co-acting competitor were significantly different than those times which were performed without the co-acting competitor. The scores showed the subjects performed better when competing with an opponent, rather than when performing alone.
2. There was no significant difference in performance times for subjects having different attitudes toward competition. Both low and high competitive groups tended to run faster or slower in both conditions regardless of what group they were in.
3. From the interactions between performance of subjects under different motivational conditions and different attitudes, only the people versus trials was significantly different. This shows that certain people ran faster in the first trial day than they did in the later trials.