#### AN ABSTRACT OF THE THESIS OF

Susan M. Reinders for the <u>Master of Science</u> in <u>Physical</u> Education presented on <u>March 7, 1991</u>.

Title: The Relationship of Group Efficacy to Four

Indicators of Team Performance in Women's Volleyball,

Basketball and Softball.

Abstract Approved:	 <u>a ! (:</u>	<u> </u>	<u> </u>		
	 \ \ \ :	-		_	

The purpose of this study was to examine the relationship among group efficacy scores and four indicators of team performance in women's volleyball, basketball and softball. The four indicators of team performance were; win/loss, importance of the game, difficulty of opponent and the quality of play. The varsity players and coaches of the Emporia State University women's volleyball, basketball and softball teams served as subjects (N = 53). Each team was subdivided into four categories; team (starters, substitutes and coaches), starters, substitutes and coaches. Subjects were asked on the first day of practice to answer a General Self-Efficacy Scale and a Physical Self-Efficacy Scale. Subjects were asked to answer a questionnaire which assessed an individual's belief and strength of belief in the team's ability to win the next contest. The questionnaires were distributed to the subjects after the last practice prior to the next athletic contest. Additionally, coaches were asked to assess the difficulty of opponent, the importance of the game and the quality of play following each contest. were analyzed through the use of multiple regression to determine if a significant relationship existed among group efficacy and the four indicators of team performance (win/loss, quality of play, difficulty of opponent and importance of the game). All data were analyzed at the p<.05 level of significance. A significant relationship among team group efficacy scores and the four indicators of team performance was found with the basketball team (p = .022) and softball team (p = .016), but no relationship was found with the volleyball team (p = .203). subjects on the basketball team were subdivided for analysis (team, starters, substitutes and coaches), a few significant relationships (team, p = .0225 and coaches, p = .010) were found among group efficacy scores and the four indicators of team performance. When subjects on the softball team were subdivided for analysis (team, starters, substitutes and coaches) a few significant relationships (team, p = .0162, starters, p = .0026 and coaches, p = .0047) were found among group efficacy scores and the four indicators of team performance. Multiple regression analysis showed no significant relationship among group efficacy scores and the two measures of self-efficacy (general and physical).

# THE RELATIONSHIP OF GROUP EFFICACY TO FOUR INDICATORS OF TEAM PERFORMANCE IN WOMEN'S VOLLEYBALL, BASKETBALL AND SOFTBALL

A THESIS

PRESENTED TO

THE DIVISION OF HEALTH,

PHYSICAL EDUCATION, RECREATION

EMPORIA STATE UNIVERSITY

In Partial Fulfillment

of the Requirements for the Degree of

Master of Science

by
Susan M. Reinders
March, 1991

Approved for the Major Department

Approved for the Graduate Council

#### **ACKNOWLEDGEMENTS**

I would like to extend my sincere appreciation and gratitude to my committee members: Dr. Kathy Ermler, Dr. Susan Kovar and Dr. James Parks, for their expertise, support and guidance throughout the course of this study. I would like to express special thanks to Dr. Kathy Ermler for chairing my committee and most of all her encouragement, patience and belief in my abilities. For the countless hours of reading, rereading and suggestions you gave.

I would also like to express special thanks to Dr. Susan Kovar, for her expertise and statistical design advise. For always having an open door and making time to answer questions.

Words of appreciation are also extended to the coaches and athletes who so willinging participated in this study. Without these individuals the study would not have been possible.

Finally, I would like to thank Bob and Jean Reinders for being supportive, loving parents and helping in any way possible throughout the years.

# TABLE OF CONTENTS

	Page	9
LIST (	OF TABLES viii	i
Chapte	er	
I.	INTRODUCTION	
	Statement of the Problem	
	Hypotheses	
	Definitions	
	Significance of Study 6	
	Delimitations 6	
	Limitations	
	Assumptions	
	Summary	
II.	REVIEW OF LITERATURE	
	Introduction	
	Self-Efficacy	
	Self-Efficacy and Sport	
	Group Cohesion/Team Cohesion 24	
	Group Efficacy	
	Summary	
III.	METHODOLOGY	
	Subjects	
	Procedures	
	Instrumentation	
	Analysis of Data	
	Summary	
IV.	RESULTS	

		Pā	ige
v.	DISCUSSION AND RECOMMENDATIONS	•	48
REFERI	ENCES	•	5 <b>7</b>
APPENI	DICES	•	60
Α.	Human Subject Approval	•	609
В.	Informed Consent Form	•	61
C.	Group Efficacy Questionnaire		62
D.	Coaches Report	•	63
Ε.	General Self-Efficacy Scale	•	64
F.	Physical Self-Efficacy Scale	•	66
G.	Permission To Use Physical Self-Efficacy Scale .	•	67
н.	Permission To Use General Self-Efficacy Scale .	•	68

# LIST OF TABLES

Table					Pā	age
1.	Team Multiple Regression Comparison	•	•	•	•	39
2.	Starters Multiple Regression Comparison		•	•	•	41
3.	Substitutes Multiple Regression Comparison	•	•	•	•	43
4.	Coaches Multiple Regression Comparison		•	•	•	45
5.	Group Efficacy and Self-Efficacy Comparison					47

vi i i

#### CHAPTER I

#### Introduction

Athletes, coaches and spectators have long recognized and regarded self-confidence as a trait necessary for achieving maximum athletic performance. Bandura (1977) formulated a theory of self-confidence known as self-efficacy. Self-efficacy is defined as the strength of conviction in one's ability to successfully execute a particular behavior needed to achieve a desired outcome. In sports and athletics it has been found that an athlete's belief in his/her ability directly effects the athlete's ability to perform those tasks (Feltz, 1982; Feltz, Landers, and Raeder, 1979; Feltz and Mungo, 1983; Gould and Weiss, 1981; Weinberg, Gould, and Jackson, 1979; Weinberg, Gould, Yukelson, and Jackson 1981).

While a person may feel quite confident in his/her personal abilities, she/he may not feel as confident in the team's abilities. Teams are more than merely a collection of individuals and there are more factors which an individual must take into consideration when assessing a group's ability than just personal confidence. Carron (1982) defined group cohesion "as a dynamic process which is reflected in the tendency for a group to stick together and remain united in the pursuit of goals and objectives" (p.124). Individuals may believe in their own abilities but may be skeptical about the group's/team's abilities.

Certain factors must be present within a group/team in order for the unit to be successful and to remain together. These factors include: environmental, personal, leadership and team (Carron, 1982). All factors must be integrated in order for the team members to work effectively with each other.

Bandura (1982) expanded the concept of self-efficacy to group performance and labeled this new concept group or collective efficacy. Group efficacy is defined as the collective conviction or group belief that a particular group can perform a specific group task. To date no research has been conducted examining team performance and its relationship to group efficacy.

## Statement of the Problem

The purpose of this study was to determine the relationship among group efficacy and four indicators of team performance (win/loss, quality of play, difficulty of opponent and importance of the game) in women's volleyball, basketball and softball. Group efficacy scores were obtained by averaging individual team member's scores on a group efficacy questionnaire. This questionnaire consisted of two questions which assessed an individual's belief and strength of belief in the team's ability to win the next contest. The group efficacy scores were correlated with the four indicators of team performance: win/loss, quality of play, difficulty of opponent and importance of the game, to

determine if a relationship existed among these factors and group efficacy scores.

A subproblem of this investigation examined the relationship among group efficacy, general self-efficacy and physical self-efficacy. Subjects were asked to complete the physical self-efficacy scale developed by Ryckman, Robbins, Thornton and Cantrell (1982) and the general self-efficacy scale developed by Tipton and Worthington (1984). The self-efficacy scores and group efficacy scores were then correlated to determine if a relationship existed between group efficacy and these two parameters of self-efficacy.

#### Hypotheses

Specifically, the following hypotheses served as a basis for this investigation:

- 1. A significant relationship exists among the group efficacy scores of the team (starters, substitutes and coaches) and the four indicators of team performance in women's volleyball, basketball and softball.
- 2. A significant relationship exists among the group efficacy scores of the starters and the four indicators of team performance in women's volleyball, basketball and softball.
- 3. A significant relationship exists among the group efficacy scores of the substitutes and the four indicators of team performance in women's volleyball, basketball and softball.

- 4. A significant relationship exists among the group efficacy scores of the coaches and the four indicators of team performance in women's volleyball, basketball and softball.
- 5. A significant relationship exists among an individual's self-efficacy score (as measured by the General Self-Efficacy scale and the Physical Self-Efficacy scale) and an individual's assessment of group efficacy.

## Definitions

The following terms are defined in order to clarify frequently used terms and to establish a common basis for discussion of these terms throughout the study.

- 1. Assistant Coach a graduate assistant with Emporia State University working with a particular women's varsity athletic team and under the direction of the head coach for that team.
- 2. Contest/Game an organized competition engaged in by one of the Emporia State University women's varsity teams with a women's varsity team of another college or university.
- 3. Difficulty of Opponent head coach's assessment of the skill level of an opponent when compared to the Emporia State University team. The difficulty of opponent was rated on a three point scale.

- 4. Group Efficacy the collective conviction or belief that a particular group can perform a specific group task.
- 5. Head Coach individual hired by Emporia State
  University for the purpose of instructing a particular
  women's varsity athletic team in techniques and
  strategies involved in a particular sport.
- 6. Importance of the Game head coach's assessment of the overall meaning or value of a particular game or tournament to the team and the team's future.

  Importance of the game was rated on a three point scale.
- 7. Quality of Play head coach's assessment of the overall distinction of performance of the team's play in a particular or designated contest. Quality of play was rated on a three point scale.
- 8. Self-Efficacy the strength of conviction in one's ability to successfully execute a particular behavior needed to achieve a desired outcome.
- 9. Starters players who play more than 50 percent of each game.
- 10. Substitutes players who play less than 50 percent of each game.
- 11. Team a particular group of individuals chosen to represent Emporia State University for an athletic competition.

# Significance of Study

Bandura (1982) was the first to suggest that selfefficacy theory could be applied to group performance.

However, suggestions by Bandura and Gist (1987) on group
efficacy have remained on a theoretical level. No attempt
has been made to apply this concept to actual group
settings.

Group and teamwork is an essential aspect of work and social environments. Sport, in particular, is a medium in which there is a tacit understanding that confidence and belief in the team's ability is integrally connected with the team's overall performance. Since teamwork is a crucial element in most sports, it appears that sport would be a logical and practical medium in which to begin application testing of group efficacy.

## <u>Delimitations</u>

This study was delimited to college women playing varsity volleyball, basketball and softball and the coaches of these sports at Emporia State University during the 1989-90 season. The players ages ranged from 17-23 years of age and the coaches ages ranged from 22-40 years of age.

Based on the design of this study the ability to generalize to other populations was limited by the lack of random sampling and lack of replication of results. The findings of this study were confined to players and coaches at Emporia State University during the 1989-90 competitive

seasons. Replication of this study will need to be completed at other NAIA Division I institutions.

## Limitations

In any study involving people and perceptions certain limitations exist. The findings of this study were limited by the following factors:

- 1. No standard instrumentation was available to collect group efficacy scores. The group efficacy questionnaire was developed using Bandura's (1977) self-efficacy questionnaire as a model. The questionnaire consists of two questions which assess an individual's belief and strength of belief in the team's ability.
- 2. The investigator made no attempt to determine the scheduling patterns of the coach; i.e. whether easy competition was scheduled early in the season and more difficult competition scheduled later in the season.
- 3. The investigator did not consider the effect repeated opponents within the same season may have had on the team's group efficacy scores.
- 4. The instrument was administered by more than one individual.

## Assumptions

This study was based on the assumption that subjects were honest and candid in their response to statements on the group efficacy questionnaire and self-efficacy scales.

#### Summary

The purpose of this study was to determine if a relationship exists among group efficacy and four indicators of team performance. This chapter included a brief definition of group efficacy and the significance this study could provide in the application of this concept to the sport situation.

In order to better understand the concept of group efficacy, Chapter II, the Review of Literature, will examine self-efficacy, self-efficacy and sport, group cohesion/dynamics and group efficacy. Chapter III, Methodology, will discuss how subjects were chosen for the study and what subdivisions were made within the team units. Additionally, this section will discuss instrumentation, subject confidentiality and questionnaire distribution. Chapter IV, Results, will discuss the statistical procedures used in determining if a relationship exists among group efficacy scores and the four indicators of team performance. Chapter V, Discussion and Recommendations will include the author's personal interpretation of results and recommendations for future studies. The appendices will

include a copy of the self-efficacy scales, group efficacy questionnaire, the coach's report, an informed consent form, and permission to use scales.

#### CHAPTER II

## Review of Literature

The focus of this study was to examine Bandura's (1982) group efficacy theory and make application of this theory to the sport situation. However, the notion of group efficacy is a relatively new and untested concept. Group efficacy is defined as the collective conviction or belief that a particular group can perform a specific group task. Since sport is a medium in which confidence and belief in the team's ability is integrally connected with the team's overall performance, it would appear that sport would be a logical and practical medium in which to begin application testing of the concept of group efficacy. In order to better understand the concept of collective efficacy this review of literature will examine self-efficacy, self-efficacy and sport, group cohesion/dynamics and group efficacy.

## Self-Efficacy

Bandura (1977) proposed a theory of self confidence which attempted to determine the relationship between cognitive processes and task performance. This theory of self confidence is known as self-efficacy. Self-efficacy (Bandura, 1977) is defined as the strength of conviction in one's ability to successfully execute a particular behavior

needed to achieve a desired outcome. Within this definition, two types of efficacy expectations can be distinguished; self-efficacy expectations and outcome efficacy expectations. Self-efficacy expectations refer to the belief or perception an individual has in her/his ability to execute a behavior, while outcome expectations are an individual's belief that a given behavior will produce a specific outcome (Bandura, 1977). Outcome and self-efficacy expectations differ from each other in that an individual may believe that a particular behavior may lead to a particular outcome, but may seriously doubt her/his ability to perform the behavior that produces the desired outcome. An example of these expectations is an individual who believes that the American Lung Association's 'Stop Smoking' program is an effective means to help people to stop smoking (outcome expectations), but doubts his/her ability to follow the behavior recommended by the program (self-efficacy expectations).

Self-efficacy expectations can be analyzed in terms of three dimensions: magnitude, generality and strength (Bandura, 1977). Magnitude refers to an ordering of tasks based on a hierarchy of perceived difficulty. An individual may believe he/she has no physical skill and coordination, in which case, this individual may perceive very simple tasks as being very difficult. On the other hand another individual may feel more confident about his/her physical abilities and may perceive difficult tasks as being fairly

easy. Generality refers to the extent to which self-efficacy expectations can be transferred from one situation to another. An individual who is highly skilled in softball may think that she/he could perform well in a sport she/he has never tried, due to the skill level attained in softball. The third dimension of self-efficacy is strength and is associated with an individual's persistence and belief in her/his own ability to overcome obstacles. An individual with strong efficacy expectations may feel that nothing can stand in his/her way in accomplishing a task. For example, an individual with a strong belief in his/her athletic ability will continue practicing a new sport even when experiencing initial failure. An individual with a weak belief in his/her athletic ability may stop practicing after only a few unsuccessful attempts.

Perceived self-efficacy influences an individual's choice of activity or setting, the effort exerted by an individual, and the individual's persistence with the activity; even in the face of obstacles (Bandura and Adams, 1977). Bandura (1982) purposed that individuals with low/weak efficacy expectations may decide not to try an activity because they perceive the activity too difficult for them to achieve. Individuals with high/strong efficacy expectations will attempt certain activities they perceive they can master. For example, individuals with weak belief in their physical abilities may not attempt to catch a thrown ball because they perceive this activity is too

difficult for them to accomplish. Whereas, individuals with a strong belief in their physical abilities will select activities which challenge their physical abilities. Bandura (1982) suggested that early in the learning process individuals with weak efficacy expectations will stop trying to perform certain activities when the task becomes difficult or when they experience repeated failures. Individuals with strong efficacy expectations will continue to try these activities even in the face of early failure. This persistence is based on their belief in their ability to eventually overcome the obstacles. For example an individual who doubts his/her ability to hit a softball which is thrown at a high rate of speed will stop trying to hit the pitch after a few misses. However, an individual with a strong belief in his/her ability to hit this same pitch will continue even after numerous failures. persistence is based on an individual's strong belief in his/her ability to eventually overcome obstacles.

Self-efficacy expectations are developed from four information sources: performance accomplishments, vicarious experience, verbal persuasion and physiological states.

Performance accomplishments refer to a process of learning based on personal experience, particularly experiences which have lead to mastery of a task. According to Bandura (1977) success tends to raise efficacy expectations while repeated failures tend to lower efficacy expectations, particularly failures which occur early in the learning process. An

individual learning to shoot a basketball will develop a stronger belief in his/her ability to shoot if that person actually is able to make a basket, than if he/she is unable to make a basket. Individuals trying a new skill for the first time need to experience success to encourage and enhance performance accomplishments. Performance accomplishments developed through personal experience are the most resilient self-efficacy expectations and the most dependable sources of efficacy information.

Another medium by which self-efficacy expectations are developed is vicarious experience or the observation of people or events. These observed people or events are referred to as models because they display particular behaviors which achieve desired outcome. If an individual can view another person (model) performing a task she/he is about to perform, and the model is perceived as being similar in age, sex and ability to herself/himself, then self-efficacy expectations tend to be elevated (Bandura, Individuals learning to do a back dive for the first time would benefit more from watching a live or videotaped model, who is learning to do a back dive for the first time and exhibits the same fears and skills, rather than viewing a highly skilled performer (Feltz, 1982). It appears that the person observing the model begins to think "well if she/he can do it, then so can I." Although vicarious experience (modeling) may influence self-efficacy in a positive manner, vicarious experience necessitates an

individual comparing her/his abilities to that of the model. In so doing, the comparison tends to be a less dependable source of self-efficacy than that of personal performance accomplishments, because the individual must evaluate her/his individual skill capabilities by comparing them with the model's capabilities (Bandura, 1977). The individual may tend to underestimate her/his actual capabilities and overestimate the model's capabilities.

Another means by which self-efficacy information is obtained is through verbal persuasion. Positive comments may increase an individual's belief in her/his ability to cope successfully with a task (Bandura, 1977). individual providing verbal comments must be seen by the individual receiving the comments as a reliable and credible source. To illustrate, an athlete is much more likely to believe and internalize instructions and feedback coming from his/her coach versus those comments coming from a spectator. The athlete will tend to believe the coach rather than the spectator since he/she perceives, in all probability, the coach's opinion to be more reliable. However, the suggestions made by the coach must be perceived by the athlete as realistic and attainable (Bandura, 1977). If the persuasive person is not viewed as credible or the goal is not perceived to be attainable, then the verbal persuasion will be ineffective in altering efficacy expectations. Similar to vicarious experience, verbal persuasion relies on an external source of information and,

therefore, it tends to be a less dependable source of efficacy expectation than past experience (Bandura, 1977).

Physiological state (emotional arousal) is the final process which affects efficacy expectations. High arousal generally affects performance in a negative manner. When an individual is not overly aroused or tense about a task, then performance tends to be more effective. The Yerkes-Dodson law and the inverted-U hypothesis state that performance requires a certain level of arousal and that increases or decreases in arousal effect performance (Sage, 1984).

Increases in arousal are related to improved performance to a certain point, after which increased arousal actually has detrimental effects on the performance. Conversely, if arousal levels are too low, then performance tends to decrease.

Bandura (1977) suggested that as arousal levels increase, anxiety intensifies and tends to lower one's self-efficacy about the task at hand. For example if a person is anxious about her/his performance in a game, then this feeling of anxiety could effect that person's belief in her/his ability to perform well in that game. Once an individual perceives she/he is anxious, the individual begins to question not only the source of that anxiety, but her/his own ability to overcome that anxiety. This questioning directly effects an individual's belief in her/his ability.

While outcome and efficacy expectations affect task performance, they are not the only factors in predicting successful or unsuccessful task performance. Sufficient incentives to practice and perform the task and a sufficient level of skill must be developed in order for an individual to have a chance to be successful or unsuccessful. Efficacy expectations will influence an individual's choice of activities, the amount of energy expended during the activity and the length of time an individual continues to persist at a given task in the face of obstacles.

## Self-Efficacy and Sport

In physical education and sport, the educator, coach, athlete, student and spectator have tacitly recognized the importance of self-efficacy or belief in one's ability as a major factor in skill or sport performance. The initial research in sport and self-efficacy was conducted by Feltz et al. (1979). The study investigated the use of participant, live and videotaped modeling (vicarious experience) as the self-efficacy information source for a beginning back dive task. The participant modeling condition in this study consisted of verbal explanation, demonstration and physical guidance. The live and videotaped conditions consisted of the same treatment with the exceptions that no physical assistance was given to the subjects. Subjects in this study were college aged women. Feltz et al. (1979) hypothesized that live models would

produce subjects that performed better than participant or videotaped models. However, participant models, using guidance techniques, produced subjects with more successful dives and stronger expectations than live or videotaped Results indicated no significant differences occurred between the live and videotaped groups. Feltz et al. (1979) suggested that the enhanced self-efficacy expectations and increased performance was due to the physical guidance given during the training. One possible explanation for this finding is based on Bandura's (1977) informational sources; i.e., participant modeling not only included vicarious experience but also, may have led to a decrease in physiological arousal. The subjects were physically touched and guided through the dive by the teachers and this touch may have been responsible for the reduced level of anxiety.

Weinberg et al. (1979) conducted a study of selfefficacy modeling (vicarious experience) and model talk

(verbal persuasion). Subjects (college aged men and women)

were tested for muscular endurance. Subjects were asked to

extended a leg straight out in front of them and hold it for

as long as possible while seated at a isokinetic leg
strength machine. Subjects were told that their opponent

(confederate) was either an individual with a knee injury

who exhibited poor performance (high efficacy condition) or

a varsity track athlete (confederate) who exhibited high

performance (low efficacy condition). The study

demonstrated that subjects in the high self-efficacy condition extended their legs significantly longer than subjects from the low self-efficacy condition. Also, results indicated that after losing to the confederate on the first trial, subjects in the high self-efficacy condition extended their legs longer than the subjects in the low self-efficacy condition on the second trial.

Weinberg et al. (1980) conducted a similar muscular endurance study using college aged men and women as The muscular endurance test consisted of subjects extending their legs out in front of them for as long as possible while seated at an isokinetic leg-strength machine. The subjects were assigned to either a high or low selfefficacy condition and competed against a confederate. confederates either stated they were previously injured (high self-efficacy) or members of the track team and in good physical condition (low self-efficacy). During the testing the subjects were asked to state their success expectancy. The subjects were tested against the confederate in face-to-face and back-to-back competitive situations. In the back-to-back condition subjects were physically seated back-to-back while competing against one another and were unable to see what their opponent was accomplishing. The back-to-back situation was used to more easily deceive the subjects. Subjects were unable to see the progress of their opponent and were told that their opponent was either extending their legs longer or not as

long as the subject. Results indicated that high efficacy subjects out performed low efficacy subjects in both conditions.

A similar study of muscular endurance on college age men and women was conducted by Weinberg et al. (1981). study examined the influence of preexisting and manipulated self-efficacy expectation on performance. This study used two conditions for testing subjects. The preexisting condition consisted of subjects who were successful or unsuccessful in performing against a confederate subject in the muscular endurance task. The muscular endurance task was a leg lift task with subjects extending their legs in a horizontal position over a rope cord for as long as possible. Subjects were asked to assess their preexisting self-efficacy: i.e., whether they believed or did not believe they could extend their legs horizontally out over a Additionally, subjects were asked to rate their cord. abilities against what they believed other college students would score on the same leg strength task. Subjects were then tested using this procedure. In the manipulation condition subjects were assigned to either high or low selfefficacy expectations conditions. The high self-efficacy expectation condition provided for success for subjects performing an endurance leg lift task against a confederate who stated that he/she was an injured athlete. In the low self-efficacy expectation condition subjects were unsuccessful while performing against a confederate who

stated the he/she was a trained athlete who frequently lifted weights. It was hypothesized that after one successful or unsuccessful trial subjects developed a perception of efficacy expectation for the next trial. Results indicated that subjects with high self-efficacy believed more strongly than subjects with low self-efficacy that they would score higher than typical college students on a muscular endurance test. Additionally, results of this study indicated the subjects with high self-efficacy responded to failure on the first trial with greater effort on the second trial.

Gould et al. (1981) used an endurance task to study model similarity and model talk. It was hypothesized that a significant relationship would exist among performance on an endurance task and the type of modeling (vicarious experience) and quality of feedback (verbal persuasion). The endurance task required the subject to sit on a wooden bench and perform a horizontal leg lift over a rope cord for as long as possible. Subjects were nonathletic college aged women and men. Model similarity manipulation was conducted by subjects who viewed a female nonathlete (similar) or a male track athlete (dissimilar). The levels of model talk (verbal persuasion) included: positive self-efficacy statements, negative self-efficacy statements, irrelevanttalk statements, and no-talk. All forms of model talk were used to influence subjects. Results indicated that similar model subjects significantly outperformed dissimilar model

subjects in a muscular endurance task. Additionally, the similar-positive-talk and similar no-talk groups performed significantly better that the dissimilar-positive-talk, dissimilar-no-talk, dissimilar-negative-talk and the no-model control groups in the endurance task.

In studies by Feltz (1982) and Feltz et al. (1983) results supported the hypothesis that past performance accomplishments in diving were the best predictor of future performance and were a stronger source of self-efficacy than physiological arousal. Subjects in these studies were college aged women who were experienced in deep-water swimming but had no previous back diving experience. Electrodes were used to monitor each subject's physiological state on each dive. Each subject chose the height from which she wished to perform the dive. Prior to the dive each subject watched a videotape of the dive to be performed and listened to verbal instructions. Prior to each dive a diving efficacy scale was completed from a designated spot on the board out over the water. In the Feltz (1982) and the Feltz et al. (1983) studies, both self-efficacy and physiological arousal were a contributing factors to the performance level on the initial dive, but success or failure on the early dives was the major predictor of performance for later dives.

Wittig, Duncan and Schurr (1987) examined whether perceived physical self-efficacy, as measured by the Physical Self-Efficacy scale (PSE) (Ryckman et al., 1982),

could account for sport competition anxiety (SCA) among college age men and women. Among males, high perceived self-efficacy was strongly related to significantly lower levels of sports competition anxiety. In this study females who had low levels of perceived self-efficacy experienced higher levels of sport competition anxiety. The results of this study lend support to Bandura's (1977) theory that, in general, lower self-efficacy is accompanied with poorer performances and higher levels of anxiety. High self-efficacy is generally associated with better performance and lower levels of anxiety. Wittig et al. (1987). also suggested that successful or unsuccessful performance (sport) experiences accumulate to reduce sport competition anxiety which gives credence to Bandura's (1977) theory that past accomplishments effect future performances.

The studies previously cited tend to support Bandura's (1977) theory of self-efficacy. Past experience or performance accomplishments in sports appear to have the greatest influence on perceived self-efficacy. While it appears that vicarious experience and verbal persuasion do influence initial performance and thus efficacy expectations, the effects are not as robust as performance accomplishments.

## Group Cohesion/Team Cohesion

A person may have strong individual convictions about his/her personal abilities to perform in a particular sport but may have very different opinions about the team's abilities to perform. Rarely in a team sport is an athlete able to be successful without the help of his/her teammates. In a team sport it takes a collective team effort to be successful. However, an effective team or group consists of more than a collection of individuals. In order for a team to be effective and successful, a team needs to develop a certain ability to work together as a unit.

Festinger, Schachter and Back (1963) defined group cohesion "as the total field of forces that act on members to remain in a group". In sport, team cohesion refers to the total forces which cause the individuals to come together and remain a team. Specifically, Carron (1982) defined team cohesion "as a dynamic process which is reflected in the tendency for a group to stick together and remain united in the pursuit of goals and objectives" (p.124).

Certain factors are critical to the development of team cohesion. These factors include: environmental factors, personal factors, leadership factors and team factors (Carron, 1982). The influence of these factors on team cohesion appears to be additive; that is, the more of these factors which are present in a team the more cohesive the team unit.

Environmental factors refer to the normative standards which hold a team together. Carron (1982) suggested that athletic scholarships, geographic location, age, sex or eligibility requirements are normative forces which act to bind the athlete to the group. For example, an athlete who accepts a National Collegiate Athletic Association (NCAA) athletic scholarship to one university is bound by that scholarship to participate in a particular sport for that university. If that athlete leaves the team and goes to another NCAA university the athlete is penalized with ineligibility for a period of one year.

Personal factors relate to things which individual athletes bring to the team. These personal factors have been examined in terms of the three motives for athletic participation proposed by Bass (1962). These motivational factors are: task-motivation, affiliation-motivation and self-motivation. Task-motivation refers to an individual's desire to play the game and to establish and achieve goals. Affiliation-motivation is the degree to which individuals like or dislike other team members and the willingness to work together with other members of the team. Selfmotivation is the degree to which an athlete can achieve personal goals and the satisfaction derived from participation in athletics. Martens and Peterson (1971) suggested personal factors influence team cohesion in a circular manner; performance success results in a feeling of personal satisfaction which leads to increased team

cohesion. This increase in team cohesion results in increased performance. Other personal factors such as age, sex, race and actual athletic ability also influence team cohesion. It appears that the more similar or closely matched in personal characteristics group members are to others in the group, the more cohesive the group will become.

In addition to the environmental and personal factors, leadership factors are critical to the development of team cohesion. Behavior, style, the coach-athlete relationship and the coach-team relationship are all associated with leadership qualities. For example, most athletic teams depend upon coaches and/or particular players to emerge from the group to influence and provide the necessary leadership for the team to efficiently achieve its' goals. If leaders do not emerge then a team tends to falter and team goals may not be obtained.

The final dimension in the development of team cohesion is team atmosphere. Team atmosphere is dependent upon the nature of the group tasks (difficult or easy opponents), the desire for group success (to want to win the game), group productivity (everyone pulling together or carrying his/her own weight), team ability (skilled verses unskilled) and team stability (few injuries or many returning players).

These four factors are essential in determining the level of team cohesion. However, it should be noted that the development of a cohesive team unit does not quarantee

the success of that team (Carron, 1982). The relationship of team cohesion and team performance appears to be circular. A successful team tends to be more cohesive but, also, a cohesive team tends to be more successful. However, the greater influence appears to be the performance of the team (Carron, 1982). It appears that winning teams are more cohesive that losing teams.

If team performance is critical to the development of team cohesion, then winning and losing may be a factor which affects a group member's perception of the group's ability. Perhaps, when a team is winning or losing, the team members begin to believe or doubt the team members' abilities to achieve particular tasks. This belief or doubt may affect the level of cohesion a team develops, which may then alter the future performance of that team.

# Group Efficacy

Factors such as winning and losing, individual playing ability and group dynamics act to develop group cohesion, but, there is also an additional factor which binds the individuals of a group/team together and intensifies the individual's belief in the group abilities. A group's belief in itself will encourage members of the group to continue in the face of obstacles, influence the choice of activities/projects in which the group will participate or the effort a group will exert to achieve a goal. In order for a group to succeed at a chosen task, the group must

possess the necessary skills and incentives to achieve the goals the group has set out to achieve.

To date the research in the area of group efficacy has remained on a theoretical level. Group efficacy research is based on Bandura's (1982) collective efficacy concept. Bandura believed that people do not live their lives alone and, therefore, a collective effort is needed to overcome many of the problems and challenges people encounter in today's society. Group efficacy is defined as the collective conviction or belief that a particular group can perform a specific group task. While it appears that selfefficacy is related to group efficacy the two are not exactly the same construct. Bandura (1982) believed that collective efficacy is rooted in self-efficacy. "Inveterate self-doubters are not easily forged into a collectively efficacious force" (p.143). Individuals who believe that they can not make a difference or bring about change, may feel hopeless and will not easily join a group trying to make these changes. These individual's efforts will occur even though changes can be attainable through the joint effort of the group (Bandura, 1982). Studies have indicated that social and political activism have encouraged forceful incidents by groups or individual members which have achieved some degree of success in achieving social and economic improvement (Bandura, 1982).

To further support this relationship studies have demonstrated that an individual with high self-efficacy also

shows a greater propensity for social activism (Forward & Williams, 1970; Marsh, 1977; and Muller, 1972, 1979). study conducted by Forward et al. (1970) results indicated that the leaders of black militants were often not hopeless delinquents but, rather, were highly motivated and confident individuals. These leaders were confident in their abilities to change the future for young black ghetto These leaders were aware of the hardships and obstacles that would be encountered in order to achieve their goals of social and economic opportunities. these leaders believed, that the group could bring about The strength of any group lies in the group's change. perceptions of its' ability to accomplish the task and the ability to persist in the face of obstacles, particularly if the groups efforts fail to produce immediate results (Bandura, 1982).

However, Bandura (1982) acknowledged while there may be a relationship between group efficacy and self-efficacy, empirical tests need to be constructed to determine if this relationship exists. Research in the area of group efficacy must be pursued and a valid instrument of measurement must be developed. Bandura (1986) suggested that any instrument used to measure perceived group efficacy must be closely tied to group performance.

#### Summary

In summary, while group efficacy is not exactly the same construct as self-efficacy it appears to have a similar basis. Just as in perceived self-efficacy, groups must believe in their abilities and possess the necessary skills and incentives to produce desired outcomes. In essence the foundation of group efficacy is an individual's perception of the group's abilities and belief that those abilities are sufficient to produce a successful outcome.

The notion of group efficacy is a relatively new and untested concept. Since sport is a medium in which confidence and belief in the team's ability is integrally connected with the team's overall performance, it appears that sport would be a logical and practical medium in which to begin application testing of the concept of group efficacy.

#### CHAPTER III

#### Methodology

#### Subjects

All subjects were varsity players and coaches of the women's volleyball, basketball and softball teams at Emporia State University (N = 53); a National Association of Intercollegiate Athletics (NAIA) Division I institution.

#### Procedures

Permission to conduct this study was obtained from the Human Subjects Committee of Emporia State University (see Appendix A). Each team was subdivided into four categories; team (starters, substitutes and coaches), starters, substitutes and coaches. Subjects were asked to sign an informed consent form (see Appendix B) and were assured that their responses would be kept confidential. All subjects were assigned a code number to be used when filling out group efficacy and self-efficacy questionnaires. were required to fill out a group efficacy questionnaire during the last practice prior to the next athletic contest (see Appendix C). The questionnaire consisted of two questions which assessed an individual's belief and strength of belief in the team's ability to win the next contest. Subjects were asked to answer the questionnaire as realistically and honestly as possible. The group efficacy questionnaires were distributed by the assistant coaches in

volleyball, basketball and softball. After subjects completed these forms, the forms were folded and placed in a manila envelope. The manila envelope was then sealed and returned to the researcher. The day after each contest the head coach was given a form to evaluate the quality of play, the importance of the game, and difficulty of opponent (see Appendix D). In addition to the group efficacy questionnaires, each subject completed a General Self-Efficacy scale (GSE) (Tipton et al. 1984) (see Appendix E) and a Personal Self-Efficacy scale (PSE) (Ryckman et al. 1982) (see Appendix F). These scales were completed on the first day of each season. These scales provided a general measure of self-efficacy.

#### <u>Instrumentation</u>

#### Group Efficacy

The group efficacy questionnaire was developed using Bandura's (1977) self-efficacy questionnaire as a model. The questionnaire consists of two questions which assess an individual's belief and strength of belief in the team's ability. The first question asked the subject if she believed that her team was going to be successful at executing the task of winning the game against the opponent on the next day. The subject was to indicate her belief with a yes or no response. If the subject responded to this question with a yes, she answered question two. Question

two asked how confident the subject was in her belief on a scale from zero to one hundred percent.

The reliability of the group efficacy questionnaire was determined by using a test-retest procedure. The men's basketball team (an outside objective group) was given the group efficacy questionnaire on the first day and the last day of practice prior to an athletic contest. A Pearson Product Moment Correlation was calculated to analyze the data. It was determined that the questionnaire had a reliability of .9976.

The validity of the group efficacy questionnaire was determined by independent experts in the area of group efficacy. Bandura, Feltz and Gist were sent a copy of the group efficacy questionnaire and asked to indicate if the questionnaire assessed group efficacy. These experts indicated that the questionnaire "was quite feasible in the context of athletics" (Gist, correspondence June 6, 1990).

Gist (1987) suggested three possible methods for assessing group efficacy and developing a valid testing instrument. One method is to have individuals rate their own perception of group efficacy and then average the responses. A second method might be to aggregate individual efficacy perceptions and compare to group performance measures. The third suggested method is a group consensus response to a single efficacy questionnaire. Bandura (1982) suggested that any instrument used to measure group efficacy would need to closely connect indices of group performance

to perceived group efficacy. Based on work by both Gist and Bandura the method which was selected for this study was the individual's rating of her own perceptions of group efficacy and then averaging the individual responses.

#### Self-Efficacy

The physical self-efficacy (PSE) scale which was administered to all subjects was developed by Ryckman et al. (1982). (He demonstrated that the 22 question PSE scale is a valid and reliable individual difference measure of physical self-efficacy). It contained two subscales; the perceived physical ability scale (PPA) and the physical self presentation confidence scale (PSPC). Test-retest reliability was reported by Ryckman et al. (1982) as follows: for the entire scale .85 (p<.001); for the PPA subscale; .69 (p<.001) for the PSPC subscale; and .80 (p<.001) for the composite PSE scale. Ryckman et al. (1982) conducted two studies to test the internal consistency of both subscales (physical ability scale and physical self presentation scale) and the composite Physical Self-Efficacy scale. Both tests resulted in coefficient alpha's between .75 and .85.

Ryckman et al. (1982) tried several methods to determine construct validity. The PSE scale correlated quite highly with the Tennessee Physical Self Concept subscale ( $\underline{r} = .58$ ,  $\underline{p} < .001$ ). The PSE scale and subscales also had concurrent validity when correlated with

personality measures of self-esteem, self-consciousness, internal-external locus of control, sensation seeking and anxiety (Ryckman et al., 1982). In a study by McAuley and Gill (1983) the physical self-efficacy scale was found to be a reliable and valid instrument for measuring an individual's general physical self-efficacy in sport. Permission to use the physical self-efficacy scale was granted by Dr. Richard Ryckman (see Appendix G).

The general self-efficacy (GSE) scale which was administered to all subjects was developed by Tipton et al. (1984). The GSE scale consisted of 27 questions assessing an individual's general self-efficacy. No measures of reliability or validity were reported. Permission to use the GSE scale was granted by Dr. Robert Tipton (see Appendix H).

## Analysis of Data

The relationship among group efficacy and the four indicators of team performance was analyzed through the use of multiple regression. "Multiple regression analysis is general statistical technique used to analyze the relationship between a single dependent variable and several independent variables" (Hair, Anderson, & Tatham, p. 17). The dependent variable in this study was group efficacy and the independent variables were the four indicators of team performance (win/loss, importance of game, difficulty of opponent and quality of play). Data were analyzed at the

p.<05 level of significance. A multiple regression was also used in the analysis of the relationship among an individual's assessment of group efficacy and an individual's assessment of perceived self-efficacy. Data were analyzed at the p<.05 level of significance.

#### Summary

In summary, the purpose of this study was to determine if a significant relationship exists among group efficacy scores and four indicators of team performance in women's volleyball, basketball and softball. In addition, this study examined the relationship among two measures of selfefficacy (general and physical) and group efficacy. All subjects were players and coaches of the women's volleyball, basketball and softball teams at Emporia State University. All data were analyzed at the p<.05 level of significance through the use of multiple regression.

#### CHAPTER IV

#### Results

The relationship of group efficacy and the four indicators was analyzed through the use of multiple regression. Additionally, multiple regression analysis was utilized to determine if there was a significant relationship between an individual's self-efficacy scores and an individual's assessment of group efficacy. All data were analyzed at the p<.05 level of significance.

Hypothesis 1 states that a significant relationship exists among the group efficacy scores and the four indicators of team performance. Table 1 presents the results of data for each team. The analysis of the basketball team (p = .022) and softball team (p = .016)indicated that a significant relationship existed among group efficacy scores and the four indicators of team performance. For the basketball team the indicators of win/loss, quality of play and importance of the game contributed to the overall significant relationship. the softball team the indicators of quality of play and difficulty of opponent contributed to the overall significant relationship. Hypothesis 1 is accepted for the basketball and softball teams. The analysis of data for the volleyball team (p = .202) indicated no significant relationship existed among group efficacy scores and the

four indicators of team performance. Hypothesis 1 is rejected for the volleyball team.

Additionally, for the volleyball and basketball teams, the amount of variance accounted for by the regression equation could be too high because of multicolinearity. In volleyball, the indicators of importance of the game and difficulty of opponent were significantly correlated. In basketball, the indicators of quality of play and win/loss were significantly correlated. Also, the indicators of importance of the game and difficulty of opponent were significantly correlated for the basketball team. There were no significant correlations among the indicators for the softball team.

Table 1 Team Multiple Regression Comparison

## t-Values for Multiple Regression for Volleyball

	coefficient	t	p
Team			
Win/Loss	-2.79	-1.74	0.11
Quality of Play	-0.39	-0.47	0.65
Difficulty of Oppone	ent -0.14	-0.14	0.89
Importance of Game	-2.84	-1.74	0.11

 $\underline{F}$ -Value = 1.73

 $\bar{d}f = 4,13$ 

 $\underline{p}_{R}^{2} = 0.2029$ = 0.3476

## t-Values for Multiple Regression for Basketball

	coefficient	t	p	
Team				
Win/Loss	9 <b>.5</b> 5	2.31	0.03	
Quality of Play	-6.05	-2.74	0.01	
Difficulty of Opponent	-1.54	-0.69	0.50	
Importance of Game	-10.32	-2.49	0.02	

 $\underline{F}$ -Value = 3.66

df = 4,19

 $\frac{p}{R}^2 = 0.0225$ = 0.4353

## t-Values for Multiple Regression for Softball

	coefficient		p
Team			
Win/Loss	2.79	1.56	0.15
Quality of Play	-3.17	-2.77	0.02
Difficulty of Opponent	3.21	3.14	0.009
Importance of Game	2.56	1.17	0.27

 $\underline{F}$ -Value = 4.91

Df = 4,11

p = 0.0162  $R^2 = 0.6410$ 

Hypothesis 2 states that a significant relationship exists among the group efficacy scores of the starters and the four indicators of team performance in volleyball, basketball and softball. Table 2 presents the analysis of data for the starters. The analysis of the softball starters (p = .002) data indicated a significant relationship existed among group efficacy scores and the four indicators of team performance. For the softball starters the indicators of win/loss, quality of play and difficulty of opponent contributed to the overall significant relationship. Hypothesis 2 was accepted for the softball starters. No significant relationship was indicated among group efficacy scores and the four indicators of team performance among starters of the volleyball team (p = .218) and the basketball team (p = .239). Hypothesis 2 was rejected for the volleyball and basketball starters.

Table 2 Starters Multiple Regression Comparison

## t-Values for Multiple Regression for Volleyball

	coefficient	t	p
Starters			
Win/Loss	-2.28	-1.84	0.09
Quality of Play	-1.17	<del>-</del> 1.83	0.09
Difficulty of Opponen	t 0.21	0.28	0.78
Importance of Game	-1.87	-1.48	0.16

F-Value = 1.66

df = 4,13

p = 0.2187 $R^2 = 0.3381$ 

## t-Values for Multiple Regression for Basketball

coefficient	t	p
5.43	1.91	0.07
-2.78	-1.83	0.83
-1.12	-0.73	0.47
-4.69	<del>-</del> 1.64	0.12
	5.43 -2.78 -1.12	5.43 1.91 -2.78 -1.83 -1.12 -0.73

F-Value = 1.51

df = 4,19

p = 0.2396  $R^2 = 0.2410$ 

## t-Values for Multiple Regression for Softball

		coefficient	t	p
Starters				
Win/Loss		1.43	2.23	0.05
Quality of	Play	<b>-1.</b> 53	-3.73	0.003
Difficulty	of Opponent	1.17	3.19	0.008
Importance		1.68	2.14	0.06

F-Value = 8.18

df = 4,11

p = 0.0026 $R^2 = 0.7484$ 

Hypothesis 3 states that a significant relationship exists among the group efficacy scores of the substitutes and the four indicators of team performance in volleyball, basketball and softball. Table 3 presents the results of the analysis of data for the substitutes. The analysis of data indicated no significant relationship existed among substitutes group efficacy scores and the four indicators of team performance in volleyball (p = .471), basketball (p = .096) and softball (p = .219). Hypothesis 3 was rejected for the volleyball, basketball and softball substitutes.

Table 3 Substitutes Multiple Regression Comparison

## t-Values for Multiple Regression for Volleyball

	coefficient	t	P
Subs			
Win/Loss	-1.30	-1.00	0.34
Quality of Play	0.58	0.86	0.41
Difficulty of Opponen	t -0.67	-0.86	0.40
Importance of Game	-1.16	-0.87	0.40

F-Value = 0.94

df = 4,13

 $p_{R^2} = 0.4718$ = 0.2242

## t-Values for Multiple Regression for Basketball

	coefficient	t	p	
Subs	_			
Win/Loss	17.85	2.43	0.03	
Quality of Play	-10.55	-2.69	0.01	
Difficulty of Opponent	-6.24	<b>-1.</b> 57	0.13	
Importance of Game	<b>-</b> 17.38	-2.35	0.03	

 $\underline{F}$ -Value = 2.30

df = 4,19

p = 0.0961 $R^2 = 0.3264$ 

## t-Values for Multiple Regression for Softball

	coefficient	t	p
Subs			
Win/Loss	0.77	0.49	0.63
Quality of Play	-1.44	-1.45	0.18
Difficulty of Opponent	1.24	1.39	0.19
Importance of Game	2.57	1.35	0.20

 $\underline{F}$ -Value = 1.70

df = 4,11

 $p_{R^2} = 0.2199$ = 0.3819

Hypothesis 4 states that a significant relationship exists among the group efficacy scores of the coaches and the four indicators of team performance in volleyball, basketball and softball. Table 4 presents the results of the analysis of data for the coaches. The analysis of data for the coaches of the basketball team (p = .010) and coaches of the softball team (p = .004) indicated a significant relationship existed among coaches group efficacy scores and the four indicators of team performance. For the basketball coaches the indicator of difficulty of opponent contributed to the overall significant relationship. For the softball coaches the indicators of quality of play and difficulty of opponent contributed to the overall significant relationship. Hypothesis 4 was accepted for the basketball and softball coaches. significant relationship existed among the coaches of the volleyball team (p = .092) and the four indicators of team performance. Hypothesis 4 was rejected for the volleyball coaches.

Table 4 Coaches Multiple Regression Comparison

## t-Values for Multiple Regression for Volleyball

	coefficient	t	p
Coaches	<u> </u>		
Win/Loss	-7.06	-1.72	0.11
Quality of Play	-1.18	-0.56	0.59
Difficulty of Opponen	t 0.49	0.20	0.84
Importance of Game	-8.36	-2.00	0.07

F-Value = 2.52

df = 4,13

 $\underline{p}_{R^2} = 0.0922$  $R^2 = 0.4365$ 

## t-Values for Multiple Regression for Basketball

	coefficient	t	p
Coaches			
Win/Loss	-11.70	-1.42	0.17
Quality of Play	1.82	0.42	0.68
Difficulty of Opponent	11.06	2.49	0.02
Importance of Game	-1.48	-0.18	0.86

F-Value = 4.45

df = 4,19

 $\underline{p}_{R^2} = 0.0105$ = 0.4838

## t-Values for Multiple Regression for Softball

coefficient	t	р
6.07	1.09	0.30
-9.03	-2.54	0.03
t 13.79	4.34	0.001
10.85	1.60	0.14
	6.07 -9.03 t 13.79	6.07 1.09 -9.03 -2.54 t 13.79 4.34

 $\underline{F}$ -Value = 6.98

df = 4,11

 $p_2 = 0.0047$  $R^2 = 0.7174$ 

A subproblem hypothesized that a significant relationship exists between an individual's self-efficacy score, (as measured by the General Self-Efficacy scale and the Physical Self-Efficacy scale) and an individual's assessment of group efficacy. Table 5 presents the results of the analysis of data for group efficacy and self-efficacy analysis. A multiple regression analysis at p.<05 significance level indicated no significant relationship existed among an individual's group efficacy scores and both measures of an individual's self-efficacy. Hypothesis 5 was rejected for the volleyball, basketball and softball teams.

Table 5 Group Efficacy and Self-Efficacy Comparison

## t-Values for Multiple Regression for Volleyball

Group Efficacy	coefficient	t	р	
General Self-Efficacy	03	<del>-</del> .55	0.59	_
Physical Self-Efficacy	0.08	1.43	0.17	

 $\underline{F}$ -Value = 1.03

df = 2,17

 $p_2 = 0.3783$   $R^2 = 0.1081$ 

## t-Values for Multiple Regression for Basketball

	coefficient	t	q
Group Efficacy			
General Self-Efficacy	45	-1.60	0.14
Physical Self-Efficacy	0.24	1.23	0.25

F-Value = 1.30

df = 2,11

 $\frac{p}{R^2} = 0.3119$ = 0.1909

## t-Values for Multiple Regression for Softball

	coefficient	t	р	
Group Efficacy				
General Self-Efficacy	08	74	0.47	
Physical Self-Efficacy	0.08	0.49	0.63	

F-Value = 0.29

df = 2,16

#### CHAPTER V

#### Discussion and Recommendations

The purpose of this study was to determine if a significant relationship existed among group efficacy scores and four indicators of team performance. In addition, a subproblem attempted to determine if there was a relationship among two measures of self-efficacy and group efficacy.

It appears that win/loss, quality of play, difficulty of opponent and importance of the game may effect a team's perception of their own ability. Of the four indicators, importance of the game appeared to be the least influential Importance of the game is a predictor most closely related to Bandura's (1977) informational source of physiological anxiety. Bandura (1977) suggested that anxiety has the least degree of influence on an individual's self-efficacy. The three remaining predictors (win/loss, quality of play and difficulty of opponent) appeared to have more influence on the teams in this study. These predictors seemed to effect the belief the members of the softball and basketball teams had in their ability, but did not alter the volleyball team's perception of their ability. Several reasons may explain the difference in the results among these three teams.

One possible reason why the results of the volleyball team were not similar to the results of the basketball and

softball teams may be related to the past accomplishments of these teams. Bandura (1977) suggested that past accomplishments effect an individual's belief in her/his perceived self-efficacy. As an individual becomes more successful at a particular task one's belief in her/his ability to master the task is elevated. The Emporia State University women's volleyball team had a successful 1988 volleyball season. During the 1988 season the volleyball team made an appearance in the NAIA National Volleyball tournament, won six tournaments, and posted the best overall season record of any Emporia State University volleyball In contrast the basketball and softball teams had losing (below .500) 1988 seasons. A person who has been on a successful team would, in all probability, be much more confident in the group's ability to perform in the future than someone who has been on an unsuccessful team.

Another reason for the different results which occurred among these teams may have been the teams' composition. It may be assumed that the more experience a person has with a group and its group members, the more comfortable or assured one is in the group's ability. For example, a person who had been on a successful team which had all members returning would, in all probability, be much more confident in the group's ability to perform in the future, than a person who had been on a successful or unsuccessful team which had few, if any returning members. The volleyball team, not only had a successful season, but four of the six

starters of the team were returning for the 1989 volleyball season. While the basketball team had most of their starters returning, they had an unsuccessful 1988 season. The softball team's record paralleled the basketball team, in that, they had just completed an unsuccessful season and, additionally, had only one returning player.

Another possible explanation for the results of this study may be related to the extent and timing of injuries and ineligibilities which occurred on the various teams. The volleyball team had a relatively injury free season. The basketball team was plagued with injuries and ineligible players. As a result, the basketball team was never certain about who would be healthy or able to compete in any given game. Additionally, these injuries and ineligibilities forced players to play positions with which they were unfamiliar. The softball team lost a player at a key position due to an injury. This loss necessitated the repositioning of all other players and many softball players were forced to play positions with which they were unfamiliar and uncomfortable.

No significant relationship was found among the group efficacy scores and the four indicators of team performance for the starters of the volleyball and basketball teams. The reasons for the lack of relationship for the volleyball team may be related to the past season performance and the large number of returning starters. The reason for the lack of relationship for the basketball team may be related to

the lack of group identification. Due to the high rate of injury and ineligibility among the players, a consistent set of starters was never identified, nor were any of the players able to form a coherent starting group. This inconsistency may have prevented the starters from realistically assessing the team's ability. A significant relationship among the four indicators of team performance was found with the softball starters. A possible reason for this relationship may be related to the lack of starters returning to the team and the injury of a starter in a key position.

No significant relationship was found among the substitutes of any of the teams. Substitutes experience the team's success or failure through vicarious experience. Substitutes do not have the same experiential base of past experience (successful or unsuccessful), within a particular team. Bandura (1982) suggested that individuals do not rely on inactive experience as the sole source of personal belief of their capabilities. Thus, substitutes who do not have the opportunity to receive actual game experience may not make the necessary assessment of the team's abilities. the volleyball and softball substitutes saw little, if any, actual playing time. The lack of significant relationship may be due, in part, to the lack of playing time by the substitutes on any of the teams. This lack of playing time may have led to an insufficient or inaccurate estimation of the team's abilities. While practice situations may allow

group members the opportunity to become familiar with each other's ability, it does not provide a player with information about a group's ability during a game. Playing time in actual game situations may provide a member with a more accurate assessment of a team's ability.

A significant relationship among group efficacy scores and the four indicators of team performance was found with the coaches of the basketball and softball teams but not with the coaches of the volleyball team. Possible reasons why the coaches' belief in the group may have been affected by the factors of team performance are similar to the reasons already suggested; a successful or unsuccessful past season, a core or no core of returning starters and an injury free or injury prone season. Coaches are continually assessing their team's capabilities through past accomplishments (both past season and current season successes and failures). Coaches assess their team's capabilities based on the number of returners and their playing experience. One other assessment used by coaches is the health status of the teams involved in competition. basketball team was limited by injuries and the coach was unsure from day to day which players would be healthy and capable of participating in a given athletic contest. basketball coaches also had a limited number of returners which may have affected the coach's belief in the team. The softball team lost a key player due to an injury which necessitated the rearrangement of players to different

positions. The new positions which players were required to play were not their strongest positions. Additionally, the softball team only had one returner and, as a result, the coaches could not draw upon past successes to influence their belief in the team. The volleyball coaches did not display this relationship because of several factors. These factors were the team's successful record, the large number of returning starters and the lack of injuries to the players.

Bandura suggested that persons with high self-efficacy expectations will exert a great amount of effort into any situation they encounter. Bandura also suggested that an individual with high individual self-efficacy will carry this belief to groups. Results of this study did not support these suggestions. The reason that this study did not find a relationship between group efficacy and selfefficacy may be due to the scales which were utilized in the study. The measures used to assess an individual's selfefficacy were general measures. The measures used to determine group efficacy were specific to a given task. If the self-efficacy measures were more specific in nature then, perhaps, results would have found a relationship between group efficacy and self-efficacy.

In summary the purpose of this study was to determine if a significant relationship existed among group efficacy scores and the four indicators of team performance. Reasons that may explain the difference in the results among these

three teams are: past accomplishments, team composition and injuries. Based on Bandura's work it appears that past accomplishment is a critical dimension of self-efficacy and, potentially, group efficacy. The Emporia State University volleyball team had a strong winning past season record, while the basketball and softball teams had poor season The second reason is related to the composition of records. The longer a team has played together the more the teams. comfortable and confident a player is in the team's ability. The volleyball team had the majority of its starters returning, while the softball team had one returning player from the previous year's team and the basketball team had few returning starters. The final reason for the results of this study is related to the health status of the players. Injuries to starters will change the complexion of the team. With an increase in the number of injuries on a team or injuries to key players the team's belief in their own ability will begin to change. The volleyball team was relatively injury free. The basketball team was plagued with injuries to starters and had an ineligible player. The softball team lost a player in a key position.

## <u>Applications</u>

The following applications arise from the results of this study:

1) A coach should have two or three substitutes who had extensive playing time in case of injuries or ineligibility.

In this way team members feel more comfortable when the substitutes enters a game.

- 2) Following a losing season a coach should employ various strategies which would enhance a team's mental attitude.

  Such strategies may included psychological skill techniques which change a negative mental set situation to a positive mental set.
- 3) If a coach is faced with the task of beginning a new season with a majority of new players, then a series of group activities designed to increase cohesion and bonding should be done during pre-season. Group activities could include ropes/challenge courses or group initiative problems (cooperative games).

#### Recommendations for Future Research

Recommendations for future research include:

- the testing of male teams to determine if there is a gender difference in group efficacy.
- 2. the testing of sports that are based on individual play and are included for a team total (i.e. cross country track, track and field, tennis and golf), to determine if group efficacy and self-efficacy are more closely linked to those sports.
- 3. the testing of athletes from various Divisions (I, II, III) to determine if the level of competition effects group efficacy.

4. the testing of a single team over a period of seasons to determine if certain indices of team performance are consistently related to group efficacy.

#### References

- Bandura, A. (1977). Self-Efficacy: Toward a unifying theory of behavioral change. <u>Psychological Review</u>, <u>84(2)</u>, <u>191-</u>215.
- Bandura, A. (1982). Self-Efficacy mechanism in human agency.

  American Psychologist, 37, 122-147.
- Bandura, A. (1986). <u>Social foundations of thought and</u>
  <u>action: A social cognitive theory</u>. Prentice-Hall, Inc.,
  Englewood Cliffs, New Jersey.
- Bandura, A., & Adams, N. (1977). Analysis of self-efficacy theory of behavioral change. <u>Cognitive Therapy and</u>
  <u>Research</u>, 1(4), 287-310.
- Bass, B. M. (1962). <u>The orientation inventory</u>. Palo Alto, Ca.: Consulting Psychologists Press.
- Carron, A. V. (1982). Cohesion in sport groups: Interpretations and considerations. <u>Journal of Sport Psychology</u>, 4, 123-138.
- Feltz, D. L. (1982). Path analysis of the casual elements in Bandura's theory of self-efficacy and an anxiety-based model of avoidance behavior. <u>Journal of Personality and Social Psychology</u>, <u>42</u>, 764-781.
- Feltz, D. L., Landers, D. M. & Raeder, U. (1979). Enhancing self-efficacy in high-avoidance motor tasks: A comparison of modeling techniques. <u>Journal of Sport and Psychology</u>, <u>1</u>, 112-122.
- Feltz, D. L. & Mungo, D. A. (1983). A replication of the path analysis of the casual elements in Bandura's theory of self-efficacy and the influence of autonomic perception. Journal of Sport Psychology, 5, 263-277.
- Festinger, L., Schachter, S. & Back, K. (1963). <u>Social</u> <u>pressure in informed groups</u>. Stanford, Ca.: Stanford University Press.
- Forward, J. R., & Williams, J. R. (1970). Internal-external control and black militancy. <u>Journal of Social Issue</u>, 26, 75-92.
- Gist, M. E. (1987). Self-Efficacy: Implications for organizational behavior and human resource management. Academy of Management Review, 12(3), 472-485.

- Gould, D., & Weiss, M. (1981). The effects of model similarity and model talk on self-efficacy and muscular endurance. <u>Journal of Sport Psychology</u>, 3, 17-29.
- Hair, J. F. Jr., Anderson, R. E., & Tatham, R. L. (1987).

  <u>Multivariate data analysis</u>, Macmillan Publishing Company:

  New York.
- Marsh, A. (1977). A protest and political consciousness. Beverly Hills, Ca.: Sage.
- Martens, R. & Peterson, J. (1971). Group cohesiveness as a determinant of success and member satisfaction in team performance. <u>International Review of Sport Sociology</u>, 6, 49-61.
- McAuley, E. & Gill, D. (1983). Reliability and validity of the physical self-efficacy scale in a competitive sport setting. <u>Journal of Sport Psychology</u>, <u>5</u>, 410-418.
- Muller, E. N. (1972). A test of a partial theory of potential for political violence. <u>The American Political Science Review</u>, <u>66</u>,928-959.
- Muller, E. N. (1979). <u>Aggressive political participation</u>. Princeton, N.J.: Princeton University Press.
- Ryckman, R. M., Robbins, M.A., Thornton, B. & Cantrell, P. (1982). Development and validation of a physical self-efficacy scale. <u>Journal of Personality and Social Psychology</u>, 42, 891-900.
- Sage, G. H. (1984). <u>Motor learning and control</u>. Dubuque: Brown.
- Tipton, R. M. & Worthington, E. L. (1984). The measurement of generalized self-efficacy: A study of construct validity. <u>Journal of Personality Assessment</u>, 48(5), 545-548.
- Weinberg, R. S., Gould, D. & Jackson, A. (1979). Expectations and performance: An empirical test of Bandura's self-efficacy theory. <u>Journal of Sport</u> <u>Psychology</u>, 1, 320-331.
- Weinberg, R. S., Gould, D., Yukelson, D. & Jackson, A. (1981). The effect of preexisting and manipulated self-efficacy on a competitive muscular endurance task.

  Journal of Sport Psychology, 4, 345-354.
- Weinberg, R., Yukelson, D., & Jackson, A. (1980). Effects of public and private efficacy expectations on competitive performance. <u>Journal of Sport Psychology</u>, 2, 340-349.

Wittig, A. F., Duncan, S. L., & Schurr, K. T. (1987). The relationship of gender, gender-role endorsement and perceived physical self-efficacy to sport competition anxiety. <u>Journal of Sports Behavior</u>, <u>10</u>(4), 192-199.

## APPENDIX A



## EMPORIA STATE UNIVERSITY

1200 COMMERCIAL EMPORIA KANSAS 66801-5087 316/343-1200 RESEARCHAND GRANTS CENTER EXT. 5351

November 22, 1989

Susan M. Reinders 1531 Luther Emporia, KS 66801

Dear Ms. Reinders:

The Institutional Review Board for Treatment of Human Subjects has evaluated your application for approval of human subject research entitled, "Group Efficacy and It's Affect on Team Performance." The review board agreed unanimously to approve your application which will allow you to begin your research with subjects as outlined in your application materials.

Best of luck in your proposed research project. If the review board can help you in any other way, don't hesitate to contact us.

Sincerely,

James L. Wolfe

Dean of Graduate Studies

ames twolfe

and Research

JW:pf

cc: Kathy Ermler

#### APPENDIX B

#### INFORMED CONSENT DOCUMENT

The Department/Division of HPER & A supports the practice of protection for human subjects participating in research and related activities. The following information is provided so that you can decide whether you wish to participate in the present study. You should be aware that even if you agree to participate, you are free to withdraw at any time, and that if you do withdraw from the study, you will not be subjected to reprimand or any other form of reproach.

1. Procedures to be followed in the study, as well as identification of any procedures which are experiment.

After the last practice prior to a game each subject will be given a questionnaire to answer. The questionnaire will be kept confidential. Each subject will be given a code number to insure confidentiality.

2. Description of any attendant discomfort or other forms of risk involved for subjects taking part in the study.

N/A

3. Description of benefits to be expected from the study or research.

To gain knowledge of group efficacy and the potential affect upon team play.

4. Appropriate alternative procedures that would be advantageous for the subject.

N/A

"I have read the above statement and have been fully advised of the procedures to be used in this project. I have been given sufficient opportunity to ask any questions I had concerning the procedures and possible risks involved. I understand the potential risks involved and I assume them voluntarily. I likewise understand that I can withdraw from the study at any time without being subjected to reproach."

## APPENDIX C

## GROUP EFFICACY QUESTIONNAIRE

MBER _	· · · · · · · · · · · · · · · · · · ·								
1) Do you belief that the Emporia State University women's softball team can successfully complete the task of winning the game vs. Pittsburg State University?									
		YI	ES			NO			
answe	er #2.								
							On a	scale	9
10	15	20	25	30	35	40	45	50	55
60	65	70	75	80	85	90	95	100	
	softh winni ity?  answe  confi - 100	you belief softball t winning th ity?  answer #2.  confident - 100. (Ex	you belief that to softball team can winning the game ity?  Answer #2.  confident are you - 100. (Example)	you belief that the softball team can swinning the game vsity?  YES  answer #2.  confident are you i - 100. (Example 95%)	you belief that the Emporia softball team can successiving winning the game vs. Pitts ity?  YES  answer #2.  confident are you in this - 100. (Example 95% sure,	you belief that the Emporia St softball team can successfull winning the game vs. Pittsbur ity?  YES  answer #2.  confident are you in this bel - 100. (Example 95% sure, etc.)	you belief that the Emporia State Usesoftball team can successfully commining the game vs. Pittsburg State Uses and the game vs. Pittsburg State vs. No answer #2.  YES NO  answer #2.  confident are you in this belief? - 100. (Example 95% sure, etc).	you belief that the Emporia State Universe softball team can successfully complete winning the game vs. Pittsburg State ity?  YES  NO  answer #2.  confident are you in this belief? On a - 100. (Example 95% sure, etc).  10 15 20 25 30 35 40 45	you belief that the Emporia State University softball team can successfully complete the winning the game vs. Pittsburg State ity?  YES  NO  answer #2.  confident are you in this belief? On a scale - 100. (Example 95% sure, etc).

## APPENDIX D

#### COACH'S REPORT

- 1) What was the quality of play? On a scale of 10 100. CIRCLE
  - 1 = 90 100%
  - 2 = 70 89%
  - 3 = 69% or below
- 2) How important was the game? On a scale from 1 3.
  - 1 = not important
  - 2 = average importance
  - 3 = very important
- 3) How difficult was the opponent? On a scale from 1 3.
  - 1 = easy
  - 2 = average
  - 3 = very difficult

## APPENDIX E

# General Self-Efficacy Scale

I.D.	Numbe	r
might are a with 1-7 i	have sked each n the	ing statements concern attitudes and feelings you about yourself and a variety of situations. You to indicate how strongly you agree or disagree of these statements by placing one of the numbers blank to the left of each statement. The numbers to the following levels of agreement.
2 = A $3 = S$	gree light:	ly Agree 5 = Slightly Disagree 6 = Disagree ly Agree 7 = Strongly Disagree r Agree or Disagree
	1.	I find it extremely unpleasant to be afraid.
	2.	I sometimes avoid difficult tasks.
	3.	I am a very determined person.
	4.	Once I set my mind to a task almost nothing can stop me.
	5.	I have a lot of self-confidence.
	6.	I an at my best when I am really challenged.
	7.	I believe that it is shameful to give up
		something I start.
	8.	I have more than the average amount of self-
		determination.
	9.	Sometimes things just don't seem worth the
		effort.
	10.	I would rather not try something that I'm not
·		good at.
	11.	
	12.	
	13.	Society has a lot of problems but none it won't
		eventually be able to solve.
	14:	I can succeed in most any endeavor to which I set
		my mind.
	15.	Nothing is impossible if I really put my mind on
		it.
	16.	I feel I am better off to rely on myself for a
		solution when things are looking really bad.
	17.	When put to the test I would remain true to my
		ideals.
	18.	If a person believes in him/herself, he/she can
		make it in this world.
	19.	I feel that chances are very good that I can
		achieve my goals in life.
	20.	In general, I agree that "if at first I don't
		succeed, I'll try again."
	21.	When I have difficulty getting what I want, I
		just try harder.
	22.	I excel at few things.

 23.	I have often burned the midnight oil to finish a task before a deadline.
24.	I have more power than most people.
25.	I become frustrated when I experience physical
26.	discomfort. Nothing is worth subjecting myself to pain, if I can avoid it.
 27.	I would endure physical discomfort to complete a task because I just don't like to give up.

## APPENDIX F

# Physical Self-Efficacy Scale

I.D. Number	<u> </u>
might have about y are asked to indic with each of these 1-7 in the blank	tements concern attitudes and feelings you yourself and a variety of situations. You cate how strongly you agree or disagree a statements by placing one of the numbers to the left of each statement. The numbers following levels of agreement.
1 = Strongly Agree	5 = Slightly Disagree
2 = Agree	6 = Disagree
3 = Slightly Agree	e 7 = Strongly Disagree
4 = Neither Agree	or Disagree
1. I have	excellent reflexes.
2. I am no	ot agile and graceful.
3. I am ra	arely embarrassed by my voice.
4. My phys	sique is rather strong.
5. Someting	mes I don't hold up well under stress.
	t run fast.
7. I have	physical defects that sometimes bother me.
8. I don'	t feel in control when I take tests
	ing physical dexterity.
	ever intimidated by the thought of a sexual
encoun	
	think negative things about me because of
my post	
	ot hesitant about disagreeing with people
	than me.
	poor muscle tone.
	little pride in my ability in sports.
	ic people usually do not receive more than
me.	ometimes envious of these better leaking
	ometimes envious of those better looking
than my 16. Sometin	
	mes my laugh embarrasses me. ot concerned with the impression my
	ue makes on others.
	mes I feel uncomfortable shaking hands
	e my hands are clammy.
	ed has helped me out of some tight spots.
	that I am not accident prone.
	a strong grip.
	e of my agility, I have been able to do
	which many others could not do.

APPENDIC G



# UNIVERSITY OF MAINE

Department of Psychology

Clarence Cook Little Hall Orono, Maine 04469-0140 207/581-2032

#### Dear Colleague:

I have enclosed a copy of the PSE scale that you requested and some related materials. I am currently compiling normative data on the scale (and the PPA and PSPC subscales) for distribution to interested researchers. Once your study is complete, I would appreciate it if you would send me the reference, the kind of sample you used (e.g., undergraduates, workers, patients, athletes), along with the means and standard deviations for the PPA, PSPC, and PSE measures for your sample. Breakdowns of this information in terms of the age and sex of the subjects also would be helpful. Please see the normative data sheets I have enclosed for a clearer idea of the kind of information I am seeking. Once I receive the normative data on your sample, I will add it to the list and will in the future send you updated copies.

Thanks for your help.

Sincerely,

ichand m. Kyclu

Richard M. Ryckman, Ph.D.

Professor

RMR/km

Enc.

1/30/92 inders: research. Rydwar Richard M. Rydwar

#### APPENDIX H

# Virginia Commonwealth University

Dear Colleague:

Thank you for your interest in our article on the measurement of generalized self-efficacy and in the scale. I am enclosing two versions of our scale. The shorter one is comprised of the items we found to be the best discriminators. The total score for the scale is simply the sum of the item scores (1 to 7). Some items are obviously reverse scored. They are items 1, 2, 9, 10, 11, 12, 22, 25, and 26 on the longer version and items 4 and 5 on the shorter version. These scales are, of course, still experimental and there are no published data on them other than the JPA article.

If you are not already aware of it, you may be interested to know that Sherer and Maddux developed a generalized self-efficacy scale at the same time we developed ours. As it turns out, the essence of their items are similar to ours (although I have not correlated the two scales). One of their studies is cited in the list of references in our article, the other is: "The self-efficacy scale: Construction and validation," Psychological Reports, 1982, 51, 663-671.

I hope you find our scale helpful in your research. Whether or not you use our scale, I would very much appreciate summaries of the results of your related research.

Sincerely,

Robert M. Tipton, Ph.D. Professor of Psychology

BA Tipla