

1994

# Collective and self-efficacy and their relationship to team and individual performance in male intercollegiate basketball players

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COLLECTIVE AND SELF-EFFICACY AND THEIR RELATIONSHIP  
TO TEAM AND INDIVIDUAL PERFORMANCE IN MALE  
INTERCOLLEGIATE BASKETBALL PLAYERS

by Robin C. Hester

An Abstract

of a thesis submitted in partial fulfillment  
of the requirements for the degree of  
Master of Science in the Division  
of Health, Physical Education,  
and Recreation  
Ithaca College

September 1994

Thesis Advisor: Dr. A. Craig Fisher

#### ABSTRACT

This study examined the predictive relationship between self-efficacy (SE) and individual basketball performance, and collective efficacy (CE) and team basketball performance in a competitive setting. Male intercollegiate varsity basketball players ( $N = 43$ ) from four teams, two from Division II, one from Division III, and one from a junior college, agreed to participate in the study. The Hester Basketball Efficacy Scale (HBES) was given to the players prior to six selected games throughout the season. Following the designated games, coaches returned game statistics for evaluation using the Basketball Evaluation System (BES) computer program. Of the 24 possible games, usable data were returned for 22 of them. The SE and CE items of the HBES were scored separately, treated as different tests, and subjected to factor analyses. For the SE data, three factors, labeled Competence/Control, Performance Accomplishments, and Focus, were found to explain approximately 61% of the variability. For the CE data, three factors, labeled Competence, Control, and Goals, were found to account for approximately 58% of the variability. These relatively low levels of explained variability were due, in part,

to the untested nature of the HBES, low sample size, and positive illusions. Stevens (1986) suggested, that for a test to be a valid measure, its factors should explain at least 70% of the variance. The level of variance explained in this study was below the minimum, therefore, any conclusions based on these data have to be guarded. Pearson product-moment correlation coefficients were calculated between each SE factor, the total SE measure, and the corresponding individual graded performance score (GPS). Pearson product-moment correlation coefficients also were calculated between the mean response of the team members on each CE factor, the average total CE score, and the teams' corresponding GPS. These coefficients were relatively low and ranged from  $r = .03$  for the SE Competence/Control factor to  $r = .27$  for the CE control factor. Multiple regression analyses revealed limited basketball performance predictability for both the SE and CE factors,  $R = .17$  and  $.30$ , respectively. Neither SE nor CE bore any significant predictive relationship to basketball performance.

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INTERCOLLEGIATE BASKETBALL PLAYERS

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A Thesis Presented to the Faculty of  
the Division of Health, Physical  
Education, and Recreation  
Ithaca College

---

In Partial Fulfillment of the  
Requirements for the Degree  
Master of Science

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by  
Robin C. Hester  
September 1994

Ithaca College  
Division of Health, Physical Education, and Recreation  
Ithaca, New York

CERTIFICATE OF APPROVAL

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Master of Science Thesis

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This is to certify that the Thesis of

Robin C. Hester

submitted in partial fulfillment of the requirements  
for the degree of Master of Science in the Division of  
Health, Physical Education, and Recreation at Ithaca  
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Date:

August 15, 1994

## ACKNOWLEDGMENTS

The investigator would like to take this opportunity to express appreciation to the following people for their contribution to this effort:

Dr. A. Craig Fisher, thesis advisor, for his sound advice, insightful comments and questions, and willingness to do what needed to be done, even when it meant doing it right now.

Dr. Beth G. McManis, reader and measurement expert, for her open and candid suggestions and computer expertise, especially for doing work at home and on weekends so that the analysis could get done.

Coaches Tom Baker and Jim Mullins for their encouragement and support.

The coaches who agreed to allow their teams to be tested for this project.

My family, for their unending support to this endeavor.

My Uncle Jens and Nancy for providing me with my "Walden," a quiet and peaceful setting in which to write this thesis.

The "Moose Lodge," for making the Ithaca winter bearable.

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## Chapter 1

### INTRODUCTION

Albert Bandura (1977b), in his social learning theory, developed the concept of self-efficacy (SE). Highly efficacious individuals feel that they are capable of producing desired behaviors which, in turn, will lead to expected outcomes (Mullins, 1981). Efficacy expectations determine the effort people will expend on a task and how long they will persist in the face of adverse conditions. Bandura (1977b) warns, however, that efficacy expectations are not to be confused with outcome expectations. Outcome expectations are defined as estimates that a given behavior will lead to a certain outcome (Bandura, 1977b). According to the social learning theory, one can feel that a certain set of behaviors will accomplish a given outcome (outcome expectations), but that individual might not feel that he/she will be able to successfully perform the respective behaviors (efficacy expectations).

Bandura (1977b) also described a key limitation to his theory of SE. In order for efficacy expectations to be a major determinant of a person's behavior,

effort, and persistence, the individual must possess an appropriate level of skill for the task and adequate incentives to perform. Therefore, efficacy expectations may not be appropriate predictors of behavioral outcomes in all situations.

However, Bandura (1990) acknowledged that SE is a crucial determinant in athletic performance. Athletes who experience repeated success possess the efficacy to ignore distractions and control disruptive thinking. They are able to put mistakes behind them and continue in an activity without any decrease in performance as a result of those mistakes. Additionally, athletes generally fall within the limitations put upon SE by Bandura (1977b) that were discussed earlier in this chapter. As athletes progress through levels of athletic competition (e.g., middle school to high school to college, etc.), they become more highly skilled and incentives to perform become stronger.

SE in all people, including athletes, is not a general personality trait, equally applicable to all situations. It is, rather, a situationally specific characteristic (Bandura, 1977a). Efficacy expectations may change depending upon the situation, task, and

experience of the individual. Brody, Hatfield, and Spalding (1988) supported this contention. They found that efficacy developed through a repelling exercise did not transfer to dissimilar situations.

Additionally, Duncan and McAuley (1987) found that efficacy expectations failed to mediate post-activity causal attributions of success or failure. Efficacy expectations affect the task, but their influence stops before attributions are made concerning the outcome of that task.

In an extension of his theory of SE, Bandura (1982, 1986) developed collective efficacy (CE). It influences a group's collective effort in participation in a given task and their persistence at that task. It applies to a large number of sports where mutual interaction is required and contributes directly to the primary objective of team sports--team success (Spink, 1990a).

When mentioning team success in sport, John Wooden, a member of the Basketball Hall of Fame and the legendary coach of the UCLA Bruins from 1948 to 1975, is frequently mentioned. He coached 10 national championship teams in a 12-year span and is regarded as

one of the best coaches in the history of the sport. One of the bases of Wooden's coaching philosophy was a character building concept called the pyramid of success (Tharp & Gallimore, 1976). Developed between the mid 1930s and 1940s, the pyramid contains a block labelled confidence in the fourth tier, one level below the apex. Confidence, as defined by Coach Wooden (1988), is, "Respect without fear. Confident, not cocky. May come from faith in yourself in knowing you are prepared" (p. 183). All blocks below confidence in the pyramid, including skill and initiative, are essential to confidence. This concept leads to the highest block, competitive greatness, through effort, hustle, and patience.

In comparing Bandura's definition of efficacy expectations, both self and collective, and Wooden's definition of confidence, one cannot help but see the similarities in the two concepts. Both relate a faith that a person can accomplish a given task. Both spawn effort and persistence to successfully carry out that activity. Both indicate that not just anyone can possess the respective concepts; they convey limitations, either overtly or covertly. And, both can

be applied to groups or teams, as well as to individuals. Therefore, it was reasoned that efficacy expectations, or confidence, should be an accurate predictor of performance in collegiate basketball players. The purpose of this investigation was to assess the relationships between SE and individual basketball performance and CE and team basketball performance in competitive game settings.

#### Scope of Problem

This study was designed to investigate the relationships between SE and individual performance and CE and team performance for male collegiate basketball players and teams. Subjects included 64 varsity basketball players from five colleges and universities of varying levels (junior college and NCAA Division II and Division III) of collegiate competition. All subjects participated in testing sessions prior to six selected games throughout the season.

Testing sessions were held following the final practice, excluding game-day walk-throughs and shoot-arounds, before six games. Subjects were asked to complete the Hester Basketball Efficacy Scale (HBES) (Appendix A) for each session. Official game

statistics for each game were obtained, and a graded performance score (GPS) was calculated for each player through the Basketball Evaluation System (BES) developed by Dr. Ken Swalgin, head coach at Penn State University-York Campus. A general information sheet (Appendix B) was given to the subjects at the first session, and informed consent was implied when the subjects returned a completed questionnaire.

HBES data (SE and CE) were subjected to factor analysis to assess the construct validity of the inventory. Multiple regression revealed the degree of predictability both SE and CE possessed in relation to basketball performance.

#### Statement of Problem

This study assessed the degree to which SE predicted individual basketball performance, and CE predicted team basketball performance in competitive settings.

#### Hypotheses

1. SE will predict significant variance of individual GPS.
2. CE will predict significant variance of team GPS.

### Assumptions of Study

For the purpose of this study the following assumptions were made:

1. The subjects completed the HBES questionnaire truthfully.
2. The HBES was an valid measure of SE and CE.
3. The subjects performed maximally in all games evaluated.
4. The games tested were representative of the types of games generally encountered during a basketball season.

### Definition of Terms

1. Collective efficacy (CE) is the degree to which a group of people feel they are able to perform certain behavior(s) in order to produce a desired outcome (Bandura, 1982, 1986).
2. Efficacy expectations reflect the degree to which a person or group of people perceive that they will be able to perform certain behavior(s) in order to produce a desired outcome (Bandura, 1977b).
3. Outcome expectations reflect the degree to which a person or group of people perceive that certain behavior(s) will produce a desired outcome (Bandura,

1977b).

4. Self-efficacy (SE) is the degree to which a person feels he/she will be able to perform certain behavior(s) in order to produce a desired outcome (Bandura, 1977b).

#### Delimitations of Study

The following served as delimitations for this study:

1. Only male college varsity basketball players were tested.
2. SE and CE were assessed only by the HBES.

#### Limitations of Study

The following decisions served as limitations for this study:

1. The results may only be generalized to populations who are similar to the subjects in this study.
2. SE and CE were assessed only within the confines of the test used.

## Chapter 2

### REVIEW OF LITERATURE

Bandura (1977a, 1977b, 1982) stated that SE plays an integral role in the effort people will exert and the persistence they will exhibit in the face of adverse conditions. Physical activity and athletic competition provide many adverse situations, and Bandura (1990) asserted that SE plays an integral role in performance in athletic competition. Indeed, in a survey of elite coaches (Gould, Hodge, Peterson, & Giannini, 1989), it was found that they used strategies that enhance SE and that the predictive effectiveness of the strategies followed Bandura's (1977b) causal elements of SE that are discussed in this review of literature.

Specific research dealing with SE in basketball teams is lacking. However, research has been conducted in women's field hockey (Lee, 1988). Lee found a weak positive relationship between SE and team performance. This, according to the author, may have been due to the nature of team sports where it may be difficult for athletes to judge their SE because their performance depends so much on others. She postulated that coaches

should help players increase their collective sense of efficacy in addition to SE.

Therein lies the essence of this chapter. Basketball is a sport where individual performance relies heavily on the performances of other team members. Therefore, when one examines the role of efficacy expectations in basketball, both SE and CE must be included. In this chapter the causal elements of SE, the relationship of SE to performance, and CE will be examined. Additionally, Fisher's (1994) three Cs of self-confidence will be explored.

#### Causal Elements of Self-Efficacy

Bandura (1977a, 1977b, 1982) listed four distinct causal elements of efficacy expectations: performance accomplishments, vicarious experiences, verbal persuasion, and emotional arousal. In recognizing these elements, a conceptual framework was established through which behavioral changes could be studied (Bandura, 1977a). Furthermore, any behavioral modification method could draw upon one or more of these elements to influence efficacy expectations.

#### Performance Accomplishments

Performance accomplishments are the most

dependable (Bandura, 1977b) and influential (Bandura, 1977a, 1982) causal elements of efficacy expectations because they are based on mastery experiences.

Successes raise efficacy expectations whereas early or repeated failures can lower them, especially if the failures cannot be attributed to adverse external circumstances or lack of effort. Usually occasional failures can be overcome by determined effort and persistence (Bandura, 1977a, 1977b, 1982).

Research has overwhelmingly supported the effects of performance accomplishments on SE. Investigations have been conducted in a laboratory setting using a leg-extension endurance task (Weinberg, Gould, Yukelson, & Jackson, 1981), a basketball free throw shooting task (Shaw, Dzewaltowski, & McElroy, 1992), and a novel diving task (Feltz & Mugno, 1983). In actual competition research has been conducted using weight lifters (Fitzsimmons, Landers, Thomas, & van der Mars, 1991) and gymnasts (McAuley, 1985). All these investigations dealt with individual performances over repeated trials where subjects' efficacy expectations were manipulated or divided into high and low groupings.

Weinberg et al. (1981) gave subjects bogus knowledge of results to manipulate their SE. Subjects who experienced a "positive" performance in Trial 1 tended to increase their performance in Trial 2, whereas subjects who "failed" in Trial 1 tended to experience a decrease in performance. This indicated that the manipulation influenced the second trial. Shaw et al. (1992) also found that SE increased following success on Trial 1.

Feltz and Mugno (1983) found a two-way relationship between performance and SE through repeated trials using a novel diving task. SE was a strong predictor of performance on Trial 1, but its influence decreased in subsequent trials. However, after repeated trials, SE reflected the results of the previous trial. SE affected performance in early trials and performance affected SE in later trials. Fitzsimmons et al. (1991) and McAuley (1985) found similar results. Additionally, the latter found that subjects who experienced performance accomplishments through participant modeling also achieved higher efficacy and performance scores than a control group who did not experience modeling.

### Vicarious Experiences

Many efficacy expectations are derived from vicarious experiences. According to Bandura (1977b), "Seeing others perform threatening activities without adverse consequences can create expectations in observers that they too will eventually succeed if they intensify and persist in their efforts" (p. 81). However, it has been suggested that SE derived in this way is less dependable, weaker, and more apt to change than SE derived from performance accomplishments (Bandura, 1977a). Because SE can be enhanced by observing others succeed, it also can be decreased in observing others attempt and fail at a task despite high effort if the observers feel they are of similar competence to the models (Bandura, 1982).

According to one study (Gould & Weiss, 1981), the most effective models are similar to the participants. One group of subjects observed a model of the same gender and similar athletic ability while a second group observed a model of opposite gender and superior in ability. The group who observed a similar model performed significantly better on a muscular leg endurance task than did the dissimilar model group or

the no-model control group. This demonstrates the importance of controlling for model characteristics when studying vicarious experience and SE.

### Verbal Persuasion

Verbal persuasion is widely used in efficacy modification due to its ease and availability (Bandura, 1977a, 1977b). People are led, through suggestion, into believing they are capable of achieving their objective, despite obstacles that might arise (Bandura, 1982). Similar to vicarious experiences, efficacy expectations molded through this element are somewhat less strong than those generated through performance accomplishments (Bandura, 1977a). They may, however, induce enough effort to promote skill development and, thus, a stronger SE through performance accomplishments.

For example, a coach working with a low skilled athlete may be able to increase efficacy through verbal persuasion to convince him/her to attempt a skill in a certain way or form. As the athlete attempts the skill, she/he may realize some failure, but through the coach's continued verbal persuasion, he/she will maintain her/his effort and persistence. Eventually

the athlete may realize some success, and thus, his/her level of SE will then be increased through this performance accomplishment.

In a study surveying the strategies employed by coaches to enhance efficacy expectations in athletes (Gould et al., 1989), it was found that verbal persuasion was used often. Nearly half of the sample of collegiate wrestling coaches used verbal persuasion frequently. Additionally, 7 of the 13 strategies used by the coaches required some verbal persuasion, even though the respective strategy may have ultimately enhanced efficacy through other causal elements. The same study, in surveying Olympic coaches in 30 sports, found that over one-third of these coaches thought verbal persuasion was "very effective."

#### Emotional Arousal

Stressful and taxing situations such as athletic competition often spawn emotional and physiological responses. Individuals rely partly on their emotional state to judge their preparedness in a situation, therefore, emotional arousal, or lack thereof, also is a causal element of SE. High arousal and fear reactions tend to increase stress when a competitive

situation approaches, inversely affecting SE, therefore debilitating performance (Bandura, 1977a, 1977b, 1982). Avoidance behavior also may find its roots in high anxiety responses (Bandura, 1977a).

Research has substantiated Bandura's claims that emotional arousal is a causal element of efficacy expectations. An investigation of back diving performance (Feltz & Mugno, 1983) indicated that heart rate, as well as SE, was an accurate predictor of performance in the initial trial. Also, throughout the diving trials, the subjects' perceptions of physiological arousal were even more accurate in predicting SE than heart rate. However, like other studies, previous performance became a better predictor of performance than SE as trials progressed. In another study designed to test the anxiety-SE relationship (Yan Lan & Gill, 1984), it was found that individuals performing a task that elicited high SE reported lower cognitive worry and somatic anxiety as opposed to when they were engaged in a task eliciting a low level of SE.

#### The Relationship of Self-Efficacy to Performance

Research is abundant in relating SE to individual

performance in the sport setting. Work has been done in gymnastics (Lee, 1982; McAuley, 1985; McAuley & Gill, 1983; Weiss, Wiese, & Klint, 1989), strength training (Ewart, Stewart, Gillilan, & Keleman, 1986; Fitzsimmons et al., 1991), and running (Martin & Gill, 1991). Nearly all of this research illustrates a positive relationship between SE and performance.

A study of novice female gymnasts (Lee, 1982) suggested that SE predicted skilled performance "well," whereas another study (McAuley, 1985) concluded SE is an influential determinant of skill acquisition. Using male gymnasts as subjects, Weiss et al. (1989) found that those subjects who had higher efficacy expectations performed better than those with lower expectations. Significant correlations between efficacy expectations and performance were found in six of seven events. McAuley and Gill (1983), using collegiate female gymnasts, found task-specific efficacy measures accounted for a large part, but not all, of the variance in performance and suggested that other information may be used with efficacy expectations to predict performance.

In testing a 1-repetition maximum bench press,

Fitzsimmons et al. (1991) found SE to be an accurate predictor of performance for early trials (i.e., Trials 3 and 4), but its predictive value lost significance in subsequent trials. Past performance, however, accounted for nearly all the variance throughout the trials, and its predictive value was much greater than that of SE. In studying men with coronary heart disease, it was found that SE accounted for over half the variance in an arm strength task (Ewart et al., 1986).

The SE-performance relationship has also been supported through the study of competitive running. It was found that high school runners with high SE ran faster than did individuals who were less self-efficacious (Martin & Gill, 1991). Overall, literature tends to support the positive relationship between SE and individual performance.

#### Collective Efficacy

The discussion to this point has focused on SE and the causal elements that influence it, and the relationship between SE and performance in individual motor activities. However, some activities involve many individuals working as a team toward a collective

outcome that can be claimed and shared equally by all team members. The strength of a group lies partly in the members' sense of CE that they can solve their problems through a collective effort (Bandura, 1982, 1986). Therefore, it is important to examine CE when probing efficacy expectations and performance as they relate to team sports, specifically basketball.

Perceived CE influences activities in which a group of people may choose to participate, the effort that group will exert during the activities, and the staying power of the group when efforts produce less than favorable outcomes (Bandura, 1982, 1986). Initially Bandura wrote of CE in terms of populations of nations and wide reaching social change, but Larson and LaFasto (1989) contended that a team can be comprised of as few as two individuals. It can be reasoned that CE can apply to the masses as a whole, and to two people working together toward a common objective. In the case of basketball, a team is comprised of five individuals on the floor at one time with up to 10 additional players on the bench. Hence, Bandura (1990) extended CE to relatively smaller groups, namely, athletic teams.

When examining the causal elements of CE, one finds them to be similar to those for SE. Bandura (1982, 1986) claimed that CE is rooted in SE. In addition to performance accomplishments, vicarious experiences, verbal persuasion, and emotional arousal of the individual team members, Spink (1990a) suggested that cohesion, team performance, focus, past history, and goals may also affect CE measures. However, research into the specific causal elements of CE is lacking.

After finding a weak relationship between SE and team performance, Lee (1988) suggested that coaches should strive to increase team efficacy in addition to the SE of individual athletes. When examining research, though, little work has been done in relating CE to team performance. A study of ice hockey teams (Feltz, Bandura, Albrecht, & Corcoran, 1988, cited in Hodges & Carron, 1992) found that CE only correlated significantly with power play scoring percentage. In examining the free flowing sport of hockey, this finding makes sense because the power play contains the most pre-planned agenda and plays.

An investigation dealing with a team muscular

endurance task found manipulated CE to be a valid predictor of performance (Hodges & Carron, 1992), thus supporting the transfer of Bandura's (1977a, 1977b, 1982) SE theory to a collective situation. Spink (1990b) examined CE in elite volleyball teams and found that teams high in group efficacy placed significantly higher in a tournament than teams low in group efficacy. There is a need for more research relating CE to performance, but the few studies that have been published indicate a positive relationship (Spink, 1990a).

#### The Three Cs of Confidence

Adding to Bandura's (1977b) theory of self-efficacy, Harter (1978) did work on effectance and competence motivation. Individuals possess a high level of effectance motivation when they perceive that they are competent (i.e., have the ability to meet the demands of a situation to achieve their goals) and in control (i.e., capable of dealing with various situations). Harter wrote of three domains of effectance motivation: (a) cognitive, (b) social, and (c) physical. The latter of these deals with physical activity and sport. These three domains are relatively

discrete, meaning that feelings of competence and control are not necessarily generalizable among the three, just as SE is not necessarily generalizable (see chapter 1) between situations.

Kriegel and Kriegel (1984) spoke of the "type C" performer, one who is confident, committed, and in control. They emphasized the internal state of confidence, the external state of control, and the bridge between the two, commitment. They contended that the state of being maximally confident, committed, and in control is a natural state, the "C zone." This zone consists of a balance between challenge and mastery.

In a synthesis of SE theory (Bandura, 1977b), effectance and competence motivation (Harter, 1978), and the C zone (Kriegel & Kriegel, 1984), Fisher (1994) has developed his three Cs of self-confidence. In the three Cs of confidence, Fisher argues that confidence, by virtue of its presence or absence, is the key to any activity a person may undertake. One's confidence in any activity is based on his/her sense of competence, sense of control, and the degree to which she/he is committed to the task.

Competence is defined as the "gut feeling" one gets when he/she thinks that she/he can accomplish a task, whereas commitment is the quantitative and qualitative effort and persistence one gives to that task. Control is the degree to which one maintains the upper hand on his/her thoughts, feelings, and actions. Although many factors can be described as contributing to the level of confidence that a person holds about a task, Fisher (1994) maintained that all factors can be categorized into one of the three Cs.

#### Summary

SE was developed by Bandura (1977b) in his social learning theory. In it Bandura claimed that people hold certain efficacy expectations about tasks and situations that are defined as their beliefs that they can successfully carry out the behaviors required for completion of the task. This SE is not a personality characteristic, but rather it changes depending upon the situation.

SE is derived from four main causal elements: performance accomplishments, vicarious experiences, verbal persuasion, and emotional arousal. Of these, performance accomplishments seem to be the most

influential element, However, research has shown all to be factors in influencing efficacy expectations in physical activity.

Research has overwhelmingly shown a positive relationship between SE and performance. Studies have been carried out in gymnastics, strength training, running, and diving. However, in repeated trial events such as diving or weight training, the effect of SE decreases after the first trial and previous performance becomes a better predictor of future performance.

Perceived CE can influence performance in an activity in which a group of people may choose to participate and where individual performance is highly dependent on the actions of others. CE originates from SE, but is also an extension of it. Factors that may influence CE, other than those influencing SE, include cohesion, team performance, focus, past history, and goals. Research is limited and inconclusive on the effects of CE to performance.

Harter (1978) extended Bandura's (1977b) SE theory into the theory of effectance and competence motivation. In this theory confidence and control

allow one to become maximally confident. Kriegel and Kriegel (1984) added commitment to this model of confidence, and Fisher (1994) expanded this evolution into his the three Cs of self-confidence. Confidence is the key to success (or failure) in any given activity, and is influenced by one's sense of competence, commitment, and control. Other factors may be described as influencing confidence, but they can be categorized under one of the three Cs.

## Chapter 3

### METHODS AND PROCEDURES

The methods incorporated within this study are presented in the following chapter. The sections that follow are listed under the following headings:

- (a) selection of subjects, (b) testing instruments,
- (c) testing procedures, (d) treatment of data, and
- (e) summary.

#### Selection of Subjects

Data collection for this study was conducted from December, 1993 to February, 1994. All subjects were members of intercollegiate varsity men's basketball teams at National Collegiate Athletic Association (NCAA) Division II and III, and National Junior Collegiate Athletic Association (NJCAA) member institutions. Five teams including 64 players agreed to participate in this study. The data from one team were unusable because it did not include all game statistics necessary for analysis. Additionally, nine players chose not to participate in the study by not returning completed questionnaires. Therefore, data were collected and analyzed from 43 subjects on the four remaining teams. Two of the teams, 20 players,

were from NCAA Division II schools; one team, 13 players, was from an NCAA Division III school; and one team, 13 players, was from an NJCAA school. Consent was implied by the remaining subjects through the fact that they returned completed questionnaires.

#### Testing Instruments

Previous literature indicated that SE and CE are task specific concepts, not global personality traits (Bandura, 1977a; Brody et al., 1988; Duncan & McAuley, 1987). Therefore, SE and CE were measured by the sport-specific HBES (see Appendix A). It was developed by the investigator based on Bandura's (1977b) theory of self-efficacy, Spink's (1990a) expansion of Bandura's (1986) concept of CE, Larson and LaFasto's (1989) characteristics of a successful team, and Fisher's (1994) three Cs of self-confidence.

Many items directly evolved from the information sources of SE and CE, described by Bandura (1977b, 1982). Items 3, 5, 14, and 22 were based on performance accomplishments. Items 1, 11, 24, and 27 comprised of verbal persuasion. Items 8, 12, and 20 were based on emotional arousal. Spink's (1990b) expansion on SE also served as a springboard for some

items on the HBES. Item 16 was based on cohesion, whereas Items 21 and 26 dealt with focus. Larson and LaFasto's (1989) emphasis on goal setting was the basis for Items 9 and 29. Fisher's (1994) three Cs of self-confidence accounted for many items. Items 6, 7, 10, 13, and 14 dealt with competence, Items 17 and 23 reflected commitment, and Items 2, 4, 15, 18, and 28 were based on control. Item 25 was added to the HBES after interviews with some college basketball players indicated that an injury could influence the team's sense of CE.

Basketball performance, by the individuals and teams, was graded by the BES developed by Dr. Kenneth Swalgin. The BES uses eight game statistics and produces a GPS for each player based on his position and minutes played. Each subject's coach determined the position for which he would be graded. The BES also produces a GPS for the team for each game.

The BES was designed to evaluate player performance by providing objective analysis, thus aiding coaches in making player personnel decisions (Swalgin, 1992). A study (Swalgin, 1993) compared the ratings of a panel of 16 Division I coaches and the BES

evaluation for the seasonal statistics of nine Division I players. It found that the BES achieved a high level of correlation with the coaches' ratings on six of the eight performance factors, and moderate correlations on the other two. These correlations show that the BES achieved a fairly high level of construct validity. For the overall rating, the average correlation between the coaches and the BES ( $\underline{r} = .70$ ) was higher than the average correlation among the coaches ( $\underline{r} = .59$ ). This indicated that the BES created a performance score that was more reliable than the coaches' ratings.

#### Testing Procedures

Subjects completed the HBES and were evaluated for game performance for six selected games throughout the 1993-94 season. Prior to testing, schedules, rosters, and position information were obtained from the coaches of the participating schools. The six games used for testing were determined by the experimenter based on the following criteria: (a) one conference and one non-conference game against a favored opponent, (b) one conference and one non-conference game against an "underdog" opponent, (c) one game against a "main rival," and (d) one other game chosen by the

investigator. Both home and away games also were chosen. These selections were based on preseason conference and national rankings and on coaches' recommendations. The games were chosen in such a manner to achieve a cross-section of the typical situations players and teams would face during a season.

A manager or coach administered the HBES after the final practice, excluding game day walk-throughs and shoot-arounds, prior to each of six selected games. The players identified their questionnaire with their names and completed the HBES. Then, they placed the completed questionnaire into an unmarked envelope and sealed it. Next, they placed the sealed envelope into a large envelope that was sent to the investigator. The coach or manager also forwarded a copy of the official box score to the investigator following the game. Upon receipt, the investigator tallied the questionnaires and entered the game statistics into the BES. The test instructions given to the test administrator appears in Appendix C.

#### Treatment of Data

Game statistics were collected for each contest

tested. A GPS was calculated for each subject via the BES computer program (Swalgin, 1992), and a collective GPS for each team was also calculated for each game.

The HBES was split, separating SE and CE items. These subtests were subsequently treated as two tests, and all data analyses were completed separately. Frequencies of the responses were calculated for each test item. Additionally, a factor analysis using varimax rotation was carried out to derive the principal components of each test and provide a measure of construct validity.

For the SE data, Pearson-product-moment correlation coefficients were calculated between each SE factor, the total SE score, and the GPS for each subject. Multiple regression was used to determine if the SE factors could significantly predict the GPS score.

For the CE data, Pearson product-moment correlation coefficients were calculated between the mean responses of the team on each of the three factors, the average total CE measure, and the team GPS. Multiple regression was carried out to determine if the mean responses of the CE factors could

significantly predict the GPS for each team.

#### Summary

Male intercollegiate varsity basketball players from NCAA Division II and III and NJCAA teams were used as subjects for this study. The SE of the individuals and the CE of the teams were determined from the HBES and performance GPS were determined using the BES. The data from the HBES were split into SE and CE items and these groups were subsequently treated as separate data sets. Frequencies of responses were calculated for each test item. Pearson product-moment correlation coefficients were calculated between each SE factor, the total SE measure, and the corresponding individual GPS and between the mean response of the team members on each CE factor, the average total CE score, and the teams' corresponding GPS. Factor analyses for SE and CE data identified their respective factor structures. Multiple regression analyses revealed the power of SE and CE to predict individual player's basketball performance and team performance, respectively.

## Chapter 4

### ANALYSIS OF DATA

The overall purpose of this investigation was to determine if SE and CE, as measured by the HBES, were significant predictors of basketball performance in a competitive setting by individuals and teams, respectively. This chapter is divided into the following sections: (a) description of subjects, (b) SE analysis, (c) CE analysis, and (d) summary. The SE and CE sections include the following sub-sections: (a) frequencies of responses, (b) factor analysis, and (c) correlation and multiple regression.

#### Description of Subjects

Five teams, consisting of 64 players, agreed to participate in this study. These teams included two NCAA Division II teams, one NCAA Division III team, and two NJCAA teams. The data from one NJCAA team were unusable because not all game statistics necessary for the BES analysis were included. Furthermore, nine players from the remaining teams declined to participate in the study by not returning completed questionnaires. Therefore, data were collected from 43 subjects and from four teams. The 43 subjects for SE

included 20 NCAA Division II players, 13 NCAA Division III players, and 10 NJCAA players. Of the 22 games analyzed, 12 were of NCAA Division II teams, six were of an NCAA Division III team, and four were from an NJCAA team.

### Self-Efficacy Analysis

A total of 219 games were analyzed for the 43 participating subjects. Twenty-four subjects completed the HBES for six games; 6 subjects completed it for five games; 10 subjects completed it for four games; 1 subject completed it for three games; and 2 subjects completed it for one game. In the correlation and multiple regression analyses, only players who participated at least 10 minutes in the game were used. This is because the BES tends to distort individual GPS ratings for those players who played under 10 minutes.

### Frequencies of Responses

The frequencies of responses for all the SE items in the HBES are listed in Table 1. For each item, except for the negative items, Items 5, 17, 20, and 21, the responses were inverted before being scored (i.e., if the subject answered "5, strongly agree" to an item, it was given a score of 1, an answer of "4, agree" was

given a score of 2, etc.). For the negative items,

Table 1

Frequencies of Responses to SE items in the HBES

| Item | Responses (Percent of Total) |          |          |          |           |
|------|------------------------------|----------|----------|----------|-----------|
|      | 1                            | 2        | 3        | 4        | 5         |
| 1    | 5(2.3)                       | 10( 4.6) | 45(20.5) | 71(32.4) | 88(40.2)  |
| 4    | 1(0.5)                       | 2( 0.9)  | 30(13.7) | 74(33.8) | 112(51.1) |
| 5    | 8(3.7)                       | 28(12.8) | 54(24.7) | 65(29.7) | 64(29.2)  |
| 6    | 2(0.9)                       | 1( 0.5)  | 19( 8.7) | 58(26.5) | 139(63.5) |
| 9    | 1(0.5)                       | 2( 0.9)  | 29(13.2) | 65(29.7) | 122(55.7) |
| 10   | 2(0.9)                       | 4( 1.8)  | 19( 8.7) | 64(29.2) | 130(59.4) |
| 12   | 2(0.9)                       | 8( 3.7)  | 20( 9.1) | 78(35.6) | 111(50.7) |
| 13   | 3(1.4)                       | 10( 4.6) | 28(12.8) | 88(40.2) | 90(41.1)  |
| 15   | 3(1.4)                       | 3( 1.4)  | 18( 8.2) | 62(28.3) | 133(60.7) |
| 17   | 4(1.8)                       | 14( 6.4) | 34(15.5) | 56(25.6) | 111(50.7) |
| 19   | 1(0.5)                       | 3( 1.4)  | 12( 5.5) | 50(22.8) | 153(69.9) |
| 20   | 12(5.5)                      | 7( 3.2)  | 15( 6.8) | 31(14.2) | 154(70.3) |
| 21   | 11(5.0)                      | 21( 9.6) | 39(17.8) | 42(19.2) | 106(48.4) |
| 22   | 15(6.8)                      | 19( 8.7) | 43(19.6) | 75(34.2) | 67(30.6)  |
| 27   | 3(1.4)                       | 8( 3.7)  | 36(16.4) | 77(35.2) | 95(43.4)  |

the responses were given a score corresponding to the answer (i.e., if the subject answered a question by marking "5, strongly agree" to an item, a score of 5 was given).

For almost every item (except Items 5, 6, 20, and 22) the frequency of responses increases from a score of 1 through a score of 5. In many cases the frequency of responses receiving a score of 5 accounted for over 50% of all responses for those items (Items 4, 6, 9, 10, 12, 15, 17, 19, and 20). For all but four items (Items 1, 5, 21, and 22) scores of 4 and 5 accounted for over three-fourths of the responses. For Items 1, 5, 21, and 22 the responses scoring 4 or 5 accounted for at least 56% of the responses.

#### Factor Analysis

Using the SPSS-X computer program, a factor analysis with varimax rotation (Kaiser, 1960; cited in Stevens, 1986) was used to determine the principal components of the SE portion of the HBES. The critical value of loading was set at .364, based on a study by Cliff and Hamberger (1967; cited in Stevens, 1986). Three factors were identified, which explained 60.6% of the SE variance. Factor 1 was labeled Competence/

Control and included Items 1, 4, 6, 9, 10, 13, 15, 19, and 27. Factor 2 was labeled Performance Accomplishments and included Items 5, 12, and 22. Factor 3 was labeled Focus and included Items 17, 20, and 21. Stevens (1986) suggested, that for a test to be a valid measure, its factors should explain at least 70% of the variance. Therefore, the SE test used in this study had relatively low construct validity and conclusions made from these data should be guarded.

#### Correlation and Multiple Regression

Pearson product-moment correlation coefficients were calculated between each of the three factors, the whole SE portion of the HBES, and the GPS for each individual. All the correlations between SE and individual basketball performance were very low ( $\underline{r} = .04$  for total SE,  $\underline{r} = .03$  for Competence/Control,  $\underline{r} = .14$  for Personal Accomplishments, and  $\underline{r} = -.04$  for Focus).

A multiple regression analysis was performed to assess the predictive value of the three factors of the SE portion of the HBES. Calculations yielded an  $R = .17$ . This was found to be nonsignificant,  $F(3, 144) = 1.51, p > .05$ .

Therefore, analysis revealed that SE was not a significant predictor of the variance of individual GPS. The SE hypothesis (see page 6) was rejected.

#### Collective Efficacy Analysis

Each team was asked to complete the HBES prior to six selected games throughout the season. However, the one NJCAA team returned four games of usable data (one game was cancelled and one game did not include game statistics). The three remaining teams returned all six games of data. Therefore, 22 games of CE and team basketball performance data were analyzed.

#### Frequencies of Responses

The frequencies of responses to the CE items of the HBES can be found in Table 2. For each item, except for the negative items, Items 3, 11, 25 and 29, the responses were inverted before a score was given (i.e., if a subject answered a question by marking "5, strongly disagree" to an item, a score of 1 was given; an answer of "4, disagree" received a score of 2, etc.). For the negative items an answer received its corresponding score (i.e., if a subject answered "1, strongly agree" to an item, then a score of 1 was given).

Table 2

Frequencies of Responses of CE Items on the HBES

| Item | Responses (Percent of Total) |          |          |          |           |
|------|------------------------------|----------|----------|----------|-----------|
|      | 1                            | 2        | 3        | 4        | 5         |
| 2    | 1( 0.5)                      | 5( 2.3)  | 31(14.2) | 90(41.1) | 92(42.0)  |
| 3    | 24(11.0)                     | 45(20.5) | 26(11.9) | 55(25.1) | 69(31.5)  |
| 7    | 1( 0.5)                      | 5( 2.3)  | 25(11.4) | 91(41.6) | 97(44.3)  |
| 8    | 5( 2.3)                      | 1( 0.5)  | 7( 3.2)  | 33(15.1) | 173(79.0) |
| 11   | 14( 6.4)                     | 20( 9.1) | 36(16.4) | 64(29.2) | 85(38.8)  |
| 14   | 2( 0.9)                      | 13( 5.9) | 51(23.3) | 88(40.2) | 65(29.7)  |
| 16   | 3( 1.4)                      | 19( 8.7) | 32(14.6) | 80(36.5) | 85(38.8)  |
| 18   | 1( 0.5)                      | 9( 4.1)  | 50(22.8) | 74(33.8) | 85(38.8)  |
| 23   | 0( 0.0)                      | 13( 5.9) | 39(17.8) | 61(27.9) | 106(48.4) |
| 24   | 2( 0.9)                      | 1( 0.5)  | 23(10.5) | 63(28.8) | 130(59.4) |
| 25   | 21( 9.6)                     | 28(12.8) | 22(10.0) | 32(14.6) | 116(53.0) |
| 26   | 0( 0.0)                      | 10( 4.6) | 33(15.1) | 83(37.9) | 93(42.5)  |
| 28   | 5( 2.3)                      | 8( 3.7)  | 22(10.0) | 56(25.6) | 128(58.4) |
| 29   | 36(16.4)                     | 20( 9.1) | 39(17.8) | 41(18.7) | 83(37.9)  |

For a majority of the items (except Items 3, 8, 14, 24, 25, and 29) the frequency of responses increased from a score of 1 through a score of 5. In many cases the frequency of responses receiving a score of 5 accounted for over 50% of all responses for those items (Items 8, 24, 25, and 28). In all but two items (Items 3 and 29) scores of 4 and 5 accounted for over two-thirds of the responses. For Items 3 and 29, the responses scoring 4 or 5 accounted for at least 56% of the responses.

#### Factor Analysis

Using the SPSS-X computer program, a factor analysis with varimax rotation (Kaiser, 1960; cited in Stevens, 1986) was used to determine the principal components of the CE portion of the HBES. The critical value of loading was set at .364 based on a study by Cliff and Hamberger (1967; cited in Stevens, 1986). Three factors were identified, accounting for approximately 58% of the CE variance. Factor 1 was labeled Competence and included Items 2, 14, 16, 18, 23, 25, and 26. Factor 2 was labeled Control and included Items 7, 8, 24, and 28. Factor 3 was labeled Goals and included Items 3, 11, and 29. Stevens (1986) suggested that, for a test to be a valid measure, its

factors should explain at least 70% of the variance. Therefore, the CE test used in this study has relatively low construct validity and conclusions made from these data should be guarded.

#### Correlation and Multiple Regression

Pearson product-moment correlation coefficients were calculated between each of the three factors and the whole CE portion of the HBES, using the average response for each item from the team members, and the team GPS for each game. As was found with SE, the relationships between CE and team basketball performance were low ( $r = .19$  for total CE,  $r = .03$  for Competence,  $r = .27$  for Control, and  $r = .15$  for Goals).

A multiple regression analysis was performed to assess the predictive value of the factors from the CE portion of the HBES. Calculations yielded an  $R = .30$ . This was found to be nonsignificant,  $F(3, 18) = 0.59$ ,  $p > .05$ .

Therefore, analysis revealed that CE did not significantly predict team basketball performance. The CE hypothesis (see page 6) was rejected.

### Summary

Forty-three subjects and four teams provided data for this study. The SE and CE items of the HBES were separated and analyzed separately. Frequencies in both the SE and CE portions of the questionnaire showed a distinctive trend toward responses scoring either 4 or 5 for every item. Factor analyses revealed three factors for each the SE and CE data. The SE factors included Competence/Control, Performance Accomplishments, and Focus, which explained approximately 61% percent of the SE variance. The CE factors included Competence, Control, and Goals, which explained approximately 58% of the variance.

Pearson product-moment correlation coefficients were calculated between each factor and the total score of both the SE and CE tests, and basketball performance, individual and team, respectively. These correlation values ranged from  $r = .03$  for the SE Competence/Control factor to  $r = .27$  for the CE Control factor. Multiple regression analyses were carried out for both the SE and CE with neither of them producing a significant prediction equation for basketball performance.

Therefore, the hypotheses that efficacy expectations as measured by the HBES would be a significant predictor of basketball performance for both individuals and teams were rejected.

## Chapter 5

### DISCUSSION OF RESULTS

Coaches have known the importance of confidence in basketball performance for many years. As an example, Wooden's pyramid of success, developed from the mid 1930s to 1940s, contained confidence as a key component (Tharp & Gallimore, 1976). Bandura (1977b), in his social learning theory, described the importance of SE in human activity. Research has since shown that SE, or confidence, plays an important role in mediating performance in physical activity.

The purpose of this investigation was to test Bandura's theories of SE (1977b) and CE (1982, 1986) as they relate to basketball performance. None of the SE or CE factors, as measured by the HBES, predicted a significant portion of the GPS variance. Therefore, this chapter will focus on the reasons why SE and CE did not predict performance. The contents will focus on the following topics: (a) effectiveness of the test instruments, (b) sample size, (c) positive illusions, and (d) summary.

#### Effectiveness of the Test Instruments

As stated in chapter 3, two tests were used to

measure the variables of this study. The BES was used to measure performance and the HBES was used to measure SE and CE. Being that the BES was tested and found to have a high level of construct validity and reliability (see chapter 3), it is unlikely that it contributed to the nonsignificant findings of this study. However, the HBES was designed by the experimenter and not previously validated. Only 61% and 58% of the variability was accounted for by the SE and CE factors, respectively. Although the constructs that the instrument was developed to measure may play an important role in athletic performance, the instrument was not able to measure them with an accepted level of validity. Therefore, the use of the HBES to measure efficacy expectations may have contributed to the nonsignificant results that were evident.

#### Sample Size

The sample size for the study of SE was 64 subjects. However, because of incomplete data and subject attrition, the sample size was reduced to 43. These subjects were asked to complete the HBES for six games. Twenty four of the subjects produced six games worth of data while 6 subjects submitted five games of

data, 10 subjects submitted four games of data, 1 subject completed three games of data, and 2 subjects completed one game of data. All total, 219 games worth of data were produced by the 43 subjects in the SE portion of this study. However, these 219 games were not as useful as if it would have been had the data been collected from 219 subjects. The fact that the HBES was administered to the subjects repeatedly made the data more homogeneous. This homogeneity may have contributed to the low construct validity and to the nonsignificant findings of the multiple regression. The limited SE variance made it difficult to explain the variability in basketball performance. To add heterogeneity to the SE data set, more subjects would have been required.

For the CE portion of this study, four teams were used to collect data over 22 games. As with the SE test, the CE part of the HBES was administered repeatedly to each team, thus a greater homogeneity within the data collected was found than if it were administered to 22 different teams. Therefore, the homogeneity of the scores from the repeated measures may have contributed to the low construct validity of

the test and to the nonsignificant findings of the multiple regression. The limited CE variance made it difficult to explain the variability in team basketball performance. To add to the heterogeneity of the CE data, more teams would have been needed for testing.

#### Positive Illusions

A predominance of the responses on both the SE and CE portions of the HBES received scores of 4 or 5. In fact, for every item, the scores of 4 or 5 accounted for at least 56% of the responses recorded. On the SE portion, all but two of the items received a score of 4 or 5 on over three-fourths of the returned questionnaires. And, on the CE test, all but two items received a 4 or 5 on over two-thirds of the responses. This does not come as a complete surprise because Bandura (1977b) cautioned that empirical tests of the relationship between efficacy and performance generally produces weak results because the efficacy measures are mainly concerned with people's hopes rather than their sense of mastery. This, indeed, appears to be the case. The subjects seemed to have some illusions about how they would perform. More than likely, the subjects were "programmed" by the fans, the media, their

coaches, and/or others to hold an overly positive view of themselves, unrealistic optimism for the future, and/or an inflated sense of control over the upcoming game. The predominance of responses to the HBES receiving scores of 4 or 5 may be attributed to a concept called "positive illusions."

In her book, Positive Illusions: Creative Self-Deception and the Healthy Mind (1989), UCLA psychologist Shelley Taylor questioned the views of traditional psychologists that the healthy mind's perception of reality corresponds with what is actually present. Instead, Taylor argued that normal human thought is dominated by the three facets of positive illusions discussed in the previous paragraph. The responses to the HBES exhibited such a predominance of positive answers, and may reflect the athletes' positive illusions.

Johoda (cited in Snyder, 1989) wrote in 1958, "The perception of reality is called mentally healthy when what the individual sees corresponds with what is actually there" (p. 131). This "realist" view of mental health was also held by Maslow, Erickson, and Freud (Cain, 1990; Snyder, 1989; Taylor, 1989; Taylor &

Brown, 1988). However, Taylor (1989) built an "illusionist" view, which maintains a "prevalence of bias and illusion in normal human thought" (p. 6). Positive illusions find their way into three main realms of normal human thought: (a) self-enhancement, (b) personal control, and (c) unrealistic optimism. The following subsections will relate the responses to the HBES to the three realms of positive illusions.

#### Positive Illusions and Self-Enhancement

Greenwald (1980) characterized the ego as a personal historian. It serves the functions of observing (perceiving) and recording (remembering) experiences. He highlighted research that concludes the ego enhances, fabricates, and revises history. One could say the ego creates positive illusions enhancing the self. It creates history with the self playing a central, important, and positive figure (Taylor, 1989).

HBES items dealing with past performance (Items 3, 5, 14, and 22) may very well have received responses that were "rewritten" to enhance the self. For example, when recalling the last game or the practices since, a player may remember the good plays he made and accept credit while "writing off" the bad ones as

someone else's responsibility. Therefore, a response to an item addressing this would reflect this positive view of past performance.

Self-enhancement illusions also may have influenced the responses to items dealing with the subjects' perceptions of what the coaches and other team members were thinking (Items 1, 11, 16, 24, and 27). A player may interpret the coach saying, "Come on, get with it," as meaning, "I'm almost there. Keep going." However, perhaps the coach was actually displeased with the athlete's performance instead of encouraging it. In answering an item from the HBES, the athlete will base his response on what he perceived, not what the coach actually meant.

From examining the responses to the highlighted items, the positive illusion of self-enhancement may have been an influence. The athletes may have answered according to their "true" recollections and perceptions.

#### Positive Illusions and Personal Control

Since the discussions of ancient Greek philosophers, it has been argued that a sense of control is necessary for mental functioning. Many

modern psychologists, including Heider, White, Bandura, Adler, and Fenichel have contended that the self cannot grow without a sense of control. The desire to control the environment seems to be a basic drive (Taylor, 1989).

Athletics is a prime example where the controlling factors of the self and chance are often blurred. Athletes often engage in preperformance rituals that they feel enhance their control over events, when in fact the outcome is derived from many factors, such as environmental conditions, opponents, officials, and luck, in addition to personal control (Taylor, 1989; Taylor & Brown, 1988). Illusions of enhanced control may have affected the responses to some items (Items 9, 12, 15, 21, and 28).

#### Positive Illusions and Unrealistic Optimism

Most people seem to be saying, "The future will be great, especially for me" (Taylor & Brown, 1988, p. 197). When predicting the future, most people predict what they hope to occur or what is socially acceptable, not what is likely given the circumstances. Evidence of the illusory nature of optimism comes from comparing judgments of the self with judgements of others (Taylor

& Brown, 1988). People estimate their chances of experiencing a pleasant event, such as liking a job, being well paid, or having a gifted child much higher for themselves than for their peers. In basketball, it is almost universal that an athlete would respond positively to items concerning the upcoming game. It does not make sense that a player would say that he will not play well. In the same vein, people maintain they are less likely than others to experience a negative or tragic event, such as a serious illness or being victim of a violent crime. In basketball, players probably feel that their team is less likely than others to get blown out in a game, or a player may feel that he is less likely than other players to get into foul trouble early in a contest.

Unrealistic optimism seems to have affected many responses to the HBES (Items 2, 4, 6, 7, 8, 10, 13, 18, 19, 20, 25, and 29). All of these items asked the athletes' about their perceptions about what would happen in the next game. The players' unrealistic optimism for success could have influenced the responses in a positive manner.

### Summary

Multiple regression showed that the factors for both the SE and CE portions of the HBES failed to account for any significant variance in the performance measure, GPS. The reasons behind this are not clear, but many explanations are possible.

First, the HBES was designed specifically for this study and was not validated prior to its use. Factor analyses revealed low construct validity, making any possible significant findings from this study difficult to obtain. The lack of significant findings may indicate the test instrument for measuring efficacy expectations was not valid. Second, the validity of the instrument measuring performance, the BES, was questioned, but it was determined that it was not a major cause of the lack of significant findings in this study. Third, the small sample size may have created a more homogeneous data set for both the SE and CE portions of the test. This, in turn, also may have contributed to the lack of significant findings of the study.

Finally, an overabundance of the responses to the HBES were scores of 4 or 5. This may have been due to

the test measuring subjects' hopes rather than their sense of mastery, as described by Bandura (1977b), perhaps reflecting the subjects' self-enhancing illusions, their illusory sense of control, and their unrealistic optimism about the future. This construct appears to be a normal part of human thought and may explain the tendencies of the responses to most of the items of the HBES.

After examining the explanations detailed in this section, it seems most reasonable that a combination of these factors contributed to the lack of significant findings in this study. However, it seems that the construct of positive illusions may have played a major role compared to the other factors mentioned.

## Chapter 6

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

#### Summary

This study examined the relationships between SE and individual basketball performance, and between CE and team basketball performance in a competitive setting. Male varsity intercollegiate basketball players ( $n = 43$ ) from four teams, two NCAA Division II teams, one NCAA Division III team, and one NJCAA team, agreed to participate in this study. The HBES was administered prior to six selected games throughout the season. Following the tested games, coaches returned game statistics for evaluation using the BES computer program. Of the 24 possible games, usable data were returned for 22 of them.

The SE and CE items of the HBES were scored separately and treated as different tests. Factor analyses were carried out for both the SE and CE data. For the SE data, three factors, labeled Competence/Control, Performance Accomplishments, and Focus, were found to explain approximately 61% of the variance. For the CE data, three factors, labeled Competence, Control, and Goals, were found to explain

approximately 58% of the variance.

Pearson product-moment correlation coefficients were calculated between each of the SE factors, the total SE measure, and the corresponding individual GPS. Pearson product-moment correlation coefficients also were calculated between the CE factors, the total CE score, and the teams' corresponding GPS. Multiple regression analyses were carried out for both SE and CE data. No significant predictive relationships were found between any of the factors and the corresponding GPS scores for both the SE and CE tests.

#### Conclusions

The results of this study yielded the following conclusions:

1. There is no significant predictive relationship found between the SE of each individual and his corresponding GPS, using the HBES.
2. There is no significant predictive relationship found between the CE of the team and its corresponding GPS, using the HBES.

#### Recommendations

The following recommendations for further study were made after the completion of this investigation:

1. Although no significant relationships were found between SE and performance or CE and performance, further research should be directed toward this topic.

2. Researchers should attempt to acquire at least 30 teams with which to undertake an investigation of this type.

3. Further research into the concept of positive illusions and their effects on sport performance should be undertaken.

Appendix A

HESTER BASKETBALL EFFICACY SCALE

Name \_\_\_\_\_ Uniform No. \_\_\_\_\_

REMINDER: The answers on this questionnaire will remain confidential and will be known only to the experimenter.

Please circle the number on a scale of 1-5 (1 = strongly agree, 2 = somewhat agree, 3 = do not agree or disagree, 4 = somewhat disagree, 5 = do not agree) that best describes how you feel about each item for the NEXT game.

1. My coaches believe that I will play well. 1 2 3 4 5
2. The team will be able to play well in pressure situations. 1 2 3 4 5
3. The team did not play well in the last game. 1 2 3 4 5
4. I will be able to make necessary adjustments during the game (e.g., to the officials, to the crowd, to my opponent). 1 2 3 4 5
5. I have not played well in practice since the last game. 1 2 3 4 5

## Appendix A (continued)

6. I believe that I will play well in the next game. 1 2 3 4 5
7. The team will successfully carry out our game plan. 1 2 3 4 5
8. This is a big game for the team. 1 2 3 4 5
9. I have a clear set of challenging goals for the next game. 1 2 3 4 5
10. I will be confident during critical times of the game. 1 2 3 4 5
11. My teammates do not believe that the team will play well. 1 2 3 4 5
12. I feel relaxed approaching this game. 1 2 3 4 5
13. I will be able to cope and adjust if things do not go well. 1 2 3 4 5
14. The team has played well in practice since the last game. 1 2 3 4 5
15. I (not the crowd, officials, or my opponent) will be in control of my performance in this game. 1 2 3 4 5
16. The team is functioning well as a unit. 1 2 3 4 5
17. I do not believe in our game plan. 1 2 3 4 5

## Appendix A (continued)

18. We will be able to keep our composure, even when things are going badly. 1 2 3 4 5
19. I will be able to produce the effort necessary for me to play well in the next game. 1 2 3 4 5
20. This is not a big game for me. 1 2 3 4 5
21. I am not sure what I must focus on to play well in the next game. 1 2 3 4 5
22. I played well in the last game. 1 2 3 4 5
23. My teammates believe in our game plan. 1 2 3 4 5
24. My coaches believe that the team will play well. 1 2 3 4 5
25. There is an injury to one or more key players that may affect the performance of the team. 1 2 3 4 5
26. The team is focused on what we have to do to play well. 1 2 3 4 5
27. My teammates believe that I will play well. 1 2 3 4 5
28. The team (not the crowd, officials, or our opponent) will control our collective performance. 1 2 3 4 5

## Appendix A (continued)

29. The team does not have a clear set of 1 2 3 4 5  
challenging goals for the next game.

## Appendix B

### GENERAL INFORMATION FOR SUBJECTS

The Hester Basketball Efficacy Scale (HBES) you are about to complete is designed to measure your self-efficacy (confidence) and the team's collective efficacy. The self-efficacy score will be based on your responses to certain items on the questionnaire while the collective efficacy score will be calculated from the answers provided by every team member to other items. For this reason, it is very important that you answer each item honestly and truthfully pertaining to the upcoming game.

Your efficacy score will then be compared with a graded performance score (GPS) based on your performance in the game. Your GPS will be determined with a computer program using several game statistics and comparing your performance with established norms. The collective efficacy score of the team will be compared to a GPS based on the team statistics for the game. The researcher will then attempt to find a relationship between efficacy scores and performance.

Your answers to the items on the HBES will remain confidential, known only to you and to the researcher.

## Appendix B (continued)

For this reason you have been provided with an unmarked envelope in which you should place your completed questionnaire. After you seal the envelope, take it to the person administering the HBES and place it into the large envelope addressed to the researcher. That envelope will be sealed when all of the questionnaires are completed. These measures will ensure that the confidentiality of your answers will be maintained.

You are under no obligation to participate in this study. You may choose not to participate by simply placing a blank questionnaire into your envelope.

Thank you for your help with this research project.

## Appendix C

### TESTING PROCEDURES

#### Hester Basketball Efficacy Scale

This procedure will be completed for each of the six selected games during the season.

1. The administrator of the test will receive blank questionnaires in the mail prior to the game being tested.
2. The test should be administered following practice the day before a game.
3. The administrator will hand out the HBES test and an unmarked envelope to all of the players. BE SURE TO REMIND THE PLAYERS TO PUT THEIR NAME AND JERSEY NUMBER AT THE TOP OF THE HBES.
4. The players will complete the HBES and seal it in the unmarked envelope. Then they will place the sealed envelope directly into an envelope addressed to the investigator.
5. When the final HBES has been turned in the administrator will seal the envelope to ensure the confidentiality of the players' responses.
6. The administrator will mail the completed HBES forms to the investigator for analysis.

## Appendix C (continued)

7. The administrator will obtain a copy of the official NCAA box statistics and mail it to the investigator for analysis through the BES.

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