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An exploratory study of perceptions and attributions of environmental and psychological underpinnings of the home advantage in team sport athletes

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AN EXPLORATORY STUDY OF PERCEPTIONS AND ATTRIBUTIONS OF ENVIRONMENTAL AND PSYCHOLOGICAL UNDERPINNINGS OF THE HOME ADVANTAGE IN TEAM SPORT ATHLETES

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CHAPTER 1

INTRODUCTION

An individual, who is unfamiliar with the often unpredictable world of athletics, might presume that a team with highly skilled athletes should defeat or outperform opposing teams with lesser skilled athletes on a consistent basis, independent of where the competition takes place. Stated differently, if the competitive outcome were dependent only upon the skill-level of those involved, one would anticipate the same result (i.e., win or loss) to be observed across time and environmental conditions (i.e., home games or away games). Often, this not the case. Many fans, coaches and athletes can attest that the outcome of an athletic contest is not solely determined by athletic ability, but that environmental and psychological variables also play an important part in the outcome.

Psychological and environmental variables may contribute to what is known in the world of sports as the "Home Advantage" (hereafter referred to as HA). The "Home Advantage" is a term used to describe a situation where a home team wins more than 50% of their home games, excluding ties (Courneya & Carron, 1992). Conversely, a team would end up losing more than 50% of their away games as a result of the HA operating in favor of its opponents. Intuitively, one may attribute this alleged "advantage" to such variables as crowd support, or athletes' familiarity with their playing field/court (e.g., Edwards, 1979). Whatever "advantage" a team may have at home, one thing is certain: a significant part of the reward system (for team

sports, especially) in athletics is often based upon the notion of an HA. At the end of the regular competitive season, in several professional sports, teams with the best win/loss records are "rewarded" for their achievements by obtaining the right to play a majority of their playoff games at home. Obtaining this privilege is often a crucial team objective for coaches and athletes alike.

Although there is an abundance of evidence that documents the existence of an HA (e.g., Edwards, 1979; Edwards and Archambault, 1989; McCutcheon, 1984; Schwartz and Barsky, 1977), little is known about how perceptions of athletes may contribute to the HA. As a result, there is very little theoretical explanation that describes the psychological and environmental influences upon the HA. Researchers have investigated this phenomenon primarily by examining game statistics, such as the number of wins and losses a team accrues at home versus away contests. As an example, Edwards and Archambault (1989) found that the HA is more pronounced in professional hockey and basketball (as well as collegiate basketball) than other major team sports such as football and baseball. This evidence is based upon seasonal game statistics which indicate the supposed "advantage" is generally attributed to better offensive production by the home team, rather than to their defensive efforts. However, the HA appears to be more pronounced for teams of higher quality (e.g. better win/loss record) than teams of lower quality. Thus, home teams in football with winning records do better on critical performance variables (e.g. more first downs, more pass completions) than do visiting teams with winning records. These findings concur with what Schwartz and Barsky (1977) found in their archival analyses.

Together, these findings suggest that teams with winning records win more home games than teams with losing or equal records. But what of teams with lesser ability? Often these teams will still win a higher proportion of home games than away games even with a balanced playing schedule. If team ability were the only variable influencing the performance outcome of a contest, then one would expect both high and low quality teams to win about the same proportion of home games as away games, yet it has been shown that teams, generally, do win a higher proportion of home games than away games (Edwards & Archambault, 1989; Schwartz & Barsky, 1977). Analyzing game statistics from several team sports provides us with an incomplete picture as to what truly are the variables that contribute to and form the basis of this phenomenon. Analyzing game statistics cannot reveal underlying psychological variables that may be operating to produce this "advantage." Courneya and Carron (1992) suggest in their literature review of the HA that the descriptive phase of inquiry has been completed and well documented, and that it is time to move on to explanations that address the underlying mechanisms responsible for producing the HA.

If one begins to look for the psychological and environmental variables that constitute or account for the HA, some critical questions one may begin to ask are: does support from the home crowd motivate the athletes to perform better than if the crowd were not present; is it the vociferousness of the crowd rather than the mere presence of the crowd, which motivates the home team athletes to perform better at home games than away games; further, could it be that athletes can somehow respond to their opponents' offensive and defensive plays more effectively at home, where they

are very familiar with their home court or field, than when competing on unfamiliar territory?

The specific aim of this exploratory study is to investigate which psychological, physical and/or environmental variables may or may not constitute the basis of the HA, and whether or not they tend to operate differentially amongst various team sports and levels of competition (i.e., high school and college). More generally, this study aims at further understanding the impact of a person's belief upon their actual behavior. In other words, is the alleged "advantage" that most teams supposedly have at home games tied to only physical or environmental variables, or are there psychological variables which operate on the athletes' belief structure? Is it the athletes' belief that they will do better at home games which leads them to actually perform better at home games than away games?

In order to generalize these findings to most major team sports, self-report data from football, soccer, basketball, volleyball, baseball and softball teams were collected from athletes at both the high school and collegiate levels. These athletes self-reported their attributions of why they win or lose (at home and away), and their perceptions of the degree to which certain psychological and environmental variables affect their performance.

This type of approach is unique in studying this phenomenon and may provide some insight as to what psychological and environmental variables truly constitute the basis of the HA. To date, only a study done by Jurkovac (1985) surveyed athlete's perceptions of playing at home and away. However, only college basketball players

were examined. The present study, with its broad base of athletes surveyed, combined with past research - which focused on providing descriptive information on the HA phenomenon - will provide a more comprehensive understanding of the impact of certain psychological and environmental variables upon the HA than any other approach to date. Once researchers understand the variables that form the basis of this construct and under which conditions they are most likely to occur, athletes and coaches can maximize their HA or enhance their chance of victory at away games by reducing their opponents' HA.

This chapter addresses general research questions and hypotheses that are developed from the following set of variables thought to underlie the construct of the HA: audience effects, officiating bias, attributions, self-fulfilling prophecy, anxiety and self-confidence, emotional intensity, visualization and familiarity with the playing field. In the latter chapters, the specific methods and procedures implemented for this study will be presented (chapter 2), followed by results (chapter 3) and discussion (chapter 4).

Audience Effects

In the athletic domain, the HA is associated exclusively with team sports since, as discussed previously, it is commonly thought that the support of the home crowd and athlete familiarity with the playing field/court accounts for enhanced athlete performance at home versus away competitions. Team sports are played in front of audiences that are typically larger than for many individual sports such as tennis or golf

(especially at the high school and collegiate levels). Research on audience effects provides conflicting evidence regarding the influence that the audience has on the home and visiting team athletes. Some evidence indicates that an audience enhances the performance of the home team athletes, while negatively impacting upon the performance of the visiting team athletes (Greer, 1983). Conflicting research indicates that the home crowd provides a disadvantage for home team players in that they have been known to "choke" under pressure during critical championship games (Baumeister and Showers, 1986; Baumeister and Steinhilber, 1984). This "choking" is a performance decrement often attributed to the home team athletes self-focusing their attention to such a degree that it interferes with their response patterns thus producing a negative result (e.g., a missed catch). However, this "choking" phenomenon was analyzed only for professional baseball and was found to be evident only in critical championship games as opposed to just regular season home games.

Essentially, no direct evidence of athletes self-focusing their attention has been reported in the literature. Thus the presence of the crowd and their actions may serve as more of a "distraction" for the athletes rather than a stimulus for self-focusing their attention. Baron (1986) discusses distraction and conflict as they relate to social facilitation theory. This theory would describe the crowd as a distractor which produces conflict with the main task and yields arousal that facilitates performance for familiar tasks and hampers performance for unfamiliar tasks. In the case of the home team, the athletes would presumably be more familiar with the task because of their familiarity with the field/court and, conversely, the visiting athletes would be less

familiar with the task. Thus, the combination of arousal and familiarity yields the HA. Using this as a framework would lead one to assume that visiting athletes would be more distracted by the home crowd than the home players causing them to be more aroused, which would be to their disadvantage if they were less familiar with the task. This kind of potentially "distracting" behavior can be best exemplified by the home town fans trying to distract the opposing team's free-throw shooter during a basketball game by waving their arms or banners, and shouting or booing very loudly. Another example would be the home crowd making loud enough noise during a football game so as to prevent the opposing team's offensive players from being able to hear their quarterback give the necessary signals to call the play. Based upon the rationale that the home crowd will often try to disrupt the concentration of the opposing team's players, it was hypothesized that athletes would indicate that they are distracted by the crowd reactions more so at away games than home games.

According to social facilitation theory laid down by Zajonc (1965), the mere presence of others often leads to increased motivation or arousal which may affect performance positively or negatively, depending on what response tendency is more dominant at that time. In a review of social facilitation theory and effects of mere presence of an audience on performance, Schmitt, Gilovich, Goore and Joseph (1986) state that for simple or well-learned tasks the dominant response is likely to be the correct response and performance is, therefore, facilitated by audience presence; for difficult or novel tasks, the dominant response is not likely to be correct and performance is, consequently, hampered. Correctness of response, as stated here,

refers to a behavior which would bring about a desired result (i.e., a victory) and an incorrect response would bring about an undesirable result (i.e., a loss). It has been argued (e.g., Edwards, 1979) that correct responses are more likely to be dominant for home than away teams. The assumption here is that the visiting athletes are engaging in a task that is well-learned, but somehow more difficult when executed at away games as opposed to home games. This may relate to the visiting athlete's inexperience and unfamiliarity with the nuances of the home team's playing facility. Conversely, the home team performance is facilitated when they play in front of the home crowd. Unlike the visiting team athlete, the home team athletes would, presumably, be very familiar with the nuances of their own playing facility, thereby making their task more simple. Thus, correct responses are dominant and facilitated by home crowd support.

It is further argued that improved performance is not simply a function of the mere presence or absence of an audience, but, rather, it is the opportunity of the audience to evaluate the athlete's performance. Cottrell's (1972) alternative interpretation to the mere presence effect of social facilitation is that the presence of others will enhance the emission of dominant responses only when the spectators can evaluate performance. A silent, non-attentive crowd is less likely to impact upon the performance of either the home or visiting team than a vociferous crowd responding to behaviors contingent upon the deeds of the home team. It is this type of response from the audience that is likely to be viewed by the athletes as the crowd "evaluating" their performance. It is important to note that the evaluative component referred to here is simply a function of the crowd vocally cheering, chanting or booing the performance

of the athletes. This is very different from general background noise one may hear at a sporting event. Presumably the athletes can clearly distinguish between this type of noise and a more directed "evaluative" noise.

Relatedly, Baumeister and Showers (1986) indicate that audience effects may be intensified when the audience is large and vociferous. They also indicate that home teams may be more susceptible than visiting teams to audience effects because audience responses are contingent upon the deeds of the home team. Presumably, it is the evaluation apprehension that causes athletes to focus on how the audience responds to their performance. Edwards and Archambault (1989), however, point out that researchers have only been successful in manipulating the presence or absence of an audience and not audience size. There is some empirical evidence that size of the audience impacts upon performance (McKinney, Gatchel, and Paulus, 1983). Thus, it could be that size of the audience is an important factor in the construct of the HA. Furthermore, it may not necessarily be the size of the audience, but rather the proximity of the fans from the players or the vociferousness of the crowd that are of critical importance in influencing the performance of the athlete. The question remains, however, as to what athletes really perceive as having the most impact upon their performance, assuming that the crowd does have some amount of influence, whether it be negative or positive. Thus, what is needed is information about how athletes perceive crowds at home versus away. In other words, what characteristics of the audience do athletes find to influence their performance (e.g., crowd size, vociferousness) and how does this influence their performance (e.g., is it distracting).

Based upon the rationale discussed above, it is hypothesized that some audience characteristics (i.e., vociferousness, size) will be perceived by athletes as impacting upon their performance differently at home games than away games. More generally, though, it is hypothesized that the athletes will perceive the audience as having a stronger positive influence on their performance at home games than at away games.

Officiating Bias

While it is assumed that the audience effects impact upon the performance of home and visiting athletes, it is also assumed that sports officials may be affected by these same audience characteristics. As a result, sports officials may possibly be swayed by the home crowd enough so as to influence their decisions in the calls they make. It certainly has been argued by many coaches and athletes alike that the officiating in sports is not completely neutral.

Lefebre and Passer (1983) found that visiting team soccer players committed more fouls than the home team soccer players. In addition, Lehman and Reifman (1988) explored the relationship between player status ("star" of the team vs. "non-stars" of the team), site of game (home or away), and the average number of fouls called on pro basketball players. There was an interaction between site of game and player status, indicating that only "star" players were called for fewer fouls at home than on the road. NBA "stars" (as determined by performance statistics, and number of appearances in the all-star games) were called for fewer fouls at home than away, while "non-stars" did not differ in the number of fouls called. The authors claim that

this interaction between player status and site provides more evidence for an officiating bias than main effects, since it could be that home teams may, in fact, commit fewer fouls than the visiting team. This result lends support to Askin's (1978, 1979a) observation that officials are influenced by crowd reactions. Based upon these results, it is hypothesized that some athletes will report that sports officials are generally biased in the calls that they make. Presumably the influence is such that negative reactions from the home crowd, in response to a call made against the home team, may influence the officials to lean toward favoring the home team on the next close call by penalizing the visiting team. Phillips (1985) stated that sports officials perceived that the home crowd and visiting coaches would evaluate their officiating ability lower than home team coaches and players. If this is the case, it may be that sports officials could become slightly biased in favor of the home team if they, in fact, perceive the visiting coaches and athletes as being "more critical" of their officiating skills. Based upon this, it is hypothesized that some athletes will report that sports officials have a tendency to favor the home team.

Although sports officials' opinions and perceptions on whether or not the audience can influence their performance was not gathered in this study, a lot can be learned from the perceptions of athletes toward sports officials behaviors. For example, if athletes truly do believe that sports officials are not neutral in the calls they make - if in fact athletes perceive them as being biased in favor of the home team - then one might assume that the performance of the athletes at home games might be more assertive or might involve more risk taking because they would feel more confident they

could get away with this behavior than if they were playing at an away game. Based upon this rationale it is hypothesized that some athletes will report that the audience can influence sports officials' decisions. In addition, it is hypothesized that athletes will respond more assertively to officials calls at home games than away games. The assumption here is that it is not important whether or not sports officials are biased in the calls they make, but rather it is the perception of athletes that they are biased that is of importance.

Attributions

When listening to comments made by professional coaches and players about the reasons why their team may have won or lost a particular game, it is not too uncommon to note that the explanations provided are not always consistent across all outcomes (i.e., win, loss) or location (i.e., home game versus away game). One may hear of athletes or coaches claiming that a game was lost because of poor officiating, lack of talent, or lack of effort, etc. Others may claim such factors as travel fatigue or audience distractions as a source for the team's woes. Whatever the explanations may be, it is important to understand that these explanations (otherwise referred to as attributions of causality - what was the "cause" for the victory or the loss) can play a significant part in the HA. For example, one of the common attributions made by athletes and coaches for a loss on the road (especially in the professional ranks) is due to travel fatigue. Teams that have to spend long hours on a bus or plane traveling from city to city and moving from one hotel to another can often attest that this can be a very

wearisome endeavor. After having gone through this routine a few times, athletes may begin to "believe" that they are always going to be at a slight disadvantage when they play on the road because their opponents - generally speaking - are going to be more rested than they are. This is one of many examples of how attributions can become a part of the athletes' belief in the HA.

The role that attribution plays in athletics has traditionally been restricted to the four causal attributions of ability, task difficulty, effort and luck. McCauley and Gross (1983) report that these causal factors have been interpreted (Weiner, Russell, and Lerman, 1979) along the dimensions of: stability (i.e., stable versus an unstable cause), control (is the cause controllable or uncontrollable) and locus of causality (internal versus external). However, they also report that Roberts and Pascuzzi (1979) found ability, task difficulty, effort and luck to account for approximately 45% of all attributions made in a sport setting. Other possible casual explanations for the outcomes of a sport event that were not previously analyzed but that could be categorized with respect to dimensions of stability, control, and locus of causality are: injury, weather (for outdoor sports), officiating, and coaching.

McCauley and Gross (1983) found that winner's attributions were more internal, stable, and controllable than loser's attributions. McCauley, Russell and Gross (1983) found clear and consistent differences in attributions (e.g., low effort, ability, luck) and affective reactions (e.g., shame, elation, frustration) of winners and losers to their performance. In their study, controllability was found to be a more important determinant of affective reactions than the locus of cause (internal vs. external). This

finding contradicted earlier findings (Weiner, Russell and Lerman, 1979) which demonstrated locus of cause to be the most important determinant of affective reactions in athletes.

Though the attributions of winners and losers have been examined in previous studies, the importance of the context (i.e., home games vs. away games) in which the attributions are made must not be overlooked. In other words, an athlete may make differential attributions toward victory and loss depending upon where the outcome took place: at home or away. The present study examined the following variables: ability, officiating bias, audience influence, familiarity with the playing facility, errors/fouls, emotional intensity, coaching, the playing facilities, and luck, as they relate to the attributions made by athletes for wins and losses at home and away games. It is possible to categorize each of these variables along the dimensions of locus, controllability, and stability. For example, ability can be categorized as internal, uncontrollable and stable, while luck could be categorized as external, uncontrollable and unstable. In all, there are eight categories along the dimensions of locus, controllability and stability. However, due to the small number of variables examined, only the differences in the broad categorization of locus (i.e., internal vs external) were examined as a function of outcome (win or lose) and location (home and away). Athletes indicated to what extent these variables impacted upon their performance across outcomes and location. Based on this rationale, it is hypothesized that athletes' attributions on dimensions of stability, control, and locus of causality will differ as a function of outcome (i.e., win or loss) and location (i.e., home or away).

There are a number of potential environmental factors that may impact upon these performance outcomes exclusively at away games. It is important to see if these variables contribute to the "disadvantage" of athletes when they play on the road. Such attributions may include: overall impact of the surrounding town or community, travel fatigue, eating different foods than usual, sleeping in a bed other than accustomed to. It is not too difficult to imagine that athletes would perceive these variables as impacting upon their performance moreso for losses at away games than for victories at away games; after all, these do hinder their performance on the road. Based upon the assumption that losses on the road are often attributed to such variables as travel fatigue, it is of interest to see if athletes will attribute these "environmental" variables differently for victories at away games than for losses at away games.

Self-Fulfilling Prophecy and Self-Expectancy

In observing university sports teams, Leet, James and Rushall (1984) found that success expectancy was the single most important predictive variable of contest results. They state that how an athlete views the importance of the contest, the ability of their team, and the ability of their opponent is perhaps reflected in success expectancy. They continue on in saying that if athletes have a low expectancy of success, they may not make the same effort in trying to win. Relatedly, Phillips (1985) points out in his study of the officiating bias that through previous experiences, officials expect crowds and visiting coaches to be most critical in evaluating their performance during the game. It is suggested that perhaps the officials may respond according to their expectations.

In other words, they may end up in a situation where they are fulfilling their own expectations of how they perceive that the crowd or coaches may treat them. These examples are akin to what is often labelled as a "self-fulfilling prophecy" - committing a behavior that is consistent with the way one believes the results will turn out. In other words, athletes would perform better at home games than away games because they expect to perform better at home games than away games.

The immediate problem, here, is trying to infer causality from a relationship where self-expectancy and performance covary. In other words, does the expectation of success or failure (i.e., win or loss) influence performance, or does past performance (i.e., previous wins or losses) cause athletes to expect a certain outcome? It could be that athletes, generally, expect to perform more poorly and lose more often when they play away games than when they play home games. If this were true, the differential expectation could be explained by previous wins or loses at home or away games. Essentially, the previous performance may affect their expectation of present or future performances. For example, an athlete may expect to lose an away game because his/her team may have lost the last road game, or the last outing against that team. However, the differential expectation of outcome may stem from the athlete's belief system which operates independently of previous performance. For example, certain teams may develop a reputation amongst its competitors as being almost "undefeatable" when they play on their home field/court. Consequently, athletes on the visiting team may believe that they cannot defeat this team, regardless of how well or poorly they may have played in the last game against another opponent. The current methods

employed in this particular study, however, do not allow for a direct test of this causality relationship. Rather, the current methodology will only allow for a confirmation that there is or is not a relationship between athletes expectation of their performance and their belief in the HA.

Following this line of reasoning, it is hypothesized that athletes will indicate that they expect to perform better at home games than away games, and also that they perceive their performance as being better at home games than away games. Since this is an exploratory study, it is of interest to examine the nature of the relationship between athletes' performance expectations and their belief in the HA, as well the relationship between athletes' perceived performance ratings and their belief in the HA.

Anxiety and Self-Confidence

Related to the concepts of "self-fulfilling prophecy" and "success expectancy" are self-confidence and competitive state anxiety. In developing the CSAI-2 (a measure of athlete state anxiety), Martens, Burton, Vealey, Bump, and Smith (1983) found that competitive state anxiety has three components: somatic anxiety, cognitive anxiety and self-confidence. State anxiety refers to the fluxuation of these three components both prior to and during a competitive situation. State anxiety is contingent upon the situation and is not to be confused with competitive trait anxiety which is a more stable characteristic of athletes that is consistent across competitions. Thus, a person who has a high level of state anxiety would typically exhibit high levels of somatic anxiety, negative, or self-defeating thoughts, and low levels of self-confidence. Many

researchers have examined the relationship between competitive state anxiety and athletic performance, but no one has yet examined the difference in competitive anxiety as a function of location. This may tie in to an athlete's level of "self-expectancy" in that if the athlete truly believes that playing at home provides an "advantage," then it seems likely that their self-confidence would be at higher levels for home competitions than away competitions. If the relationship between anxiety and self-confidence holds true, then one would expect lower anxiety at home games than away games. Consequently, it is hypothesized that athletes will report that they are generally more anxious at away games than at home games. Thus, it is hypothesized that athletes will rate their confidence level as being higher at home games than away games.

Emotional Intensity

Emotional intensity may be another variable potentially related to the HA. Inconsistent findings on a related construct, aggression, are present in the literature. Warrell and Harris (1986) found that hockey players played more aggressively at home games than away games. Conversely, Volkamer (1972), as reported in Warrell and Harris (1986), suggest soccer players were more aggressive at away games than at home games.

Emotional intensity also relates to a second construct known as territoriality. Edwards (1979) describes territoriality as a single place where the person carries out certain functions, there is personalization of the place by markings, and there is defense against intrusion. Certainly in team sports, the objective is not defense against intrusion

as it is defense against the opponent scoring points. However, it is easy to think of many examples in which the defenders of the "home turf" become more aggressive, energized or ferocious when confronted by an opponent. Thus, it seems reasonable to anticipate that home team athletes will be more "energized" and perform with more intensity (aggression) than when they perform at away games.

The present study will investigate the level of perceived emotional intensity that athletes believe they display at home contests versus away contests. It is hypothesized that athletes will indicate that they generally play with more emotional intensity at home contests than away contests.

Visualization

Another variable that may play an important part in the HA is visualization. Woolfolk, Parrish, and Murphy (1985), indicate that athletes in closed-skill sports (those sports that require repetitive motions and that do not depend upon the interaction with a competitor, such as in gymnastics or bowling) utilize imagery more effectively than athletes in open-skilled sports (those sports that are highly interactive with the environment and in which responses require adjustments made to changes in the external environment, such as basketball and football). It may be that through imagery an athlete may become more familiar with the course, court or surface, more so than an athlete who does not utilize imagery. An example of this would be a down-hill skier who visualizes himself/herself twisting and turning around the flags and markers on the course. This may enhance the performance of the skier by helping him/her to develop

a "mental map" of the course or court. Following this line of reasoning, it is hypothesized that athletes who frequently utilize visualization techniques will indicate that visualization helps them to become more familiar with a facility than those athletes who infrequently utilize visualization techniques. The assumption here is that athletes may utilize visualization techniques to "see" themselves performing at home games more effectively than away games, since they are more familiar with their own playing surface. It is possible that visualization may have another added benefit for the athlete. An athlete who engages in this type of preparation may believe that he/she has more of an "advantage" over other athletes because this "mental map" may help athletes to become more familiar with the court or playing surface. In essence, an athlete may be able to gain more "experience" with performing on their home field, in addition to actual practice and games played, through visualizing himself/herself perform on their home field. The success of this technique may depend upon the "quality" of the visualization (i.e., the level of detail which is vividly imagined by the athlete). However, it is expected that athletes who frequently utilize visualization techniques will indicate that visualization provides them with an "advantage" over their opponent more so than those athletes who infrequently utilize visualization techniques.

Moreover, athletes who utilize visualization may benefit even further by raising their level of self-confidence by experiencing a sense of "preparedness" for the competition. In other words, the athlete who has spent time preparing for the upcoming contest "mentally" (in the sense of visualization), in addition to the physical preparation, may develop more confidence in their performance since they have, in

effect, "rehearsed" how they will perform. This may be true for both home and away game performances. Athletes who utilize visualization techniques frequently might be able to overcome the visitor's disadvantage - provided that this technique would bolster their self-confidence in their performance. Given this assumption, it is hypothesized that athletes who frequently utilize visualization techniques will indicate that visualization gives them more confidence than those athletes who infrequently utilize visualization techniques.

Familiarity with the Playing Field/Court

A variable commonly thought to parallel audience effects in its influence upon athletic performance is athlete familiarity with the playing surface (e.g., the court, course or field). It may be that athletes who are more familiar with their home playing surface perform better than the visiting athletes who are, presumably, unfamiliar with the idiosyncrasies of the field or court. As noted by Edwards and Archambault (1989), familiarity, combined with arousal from the audience, may produce an HA as predicted by Zajonc's social facilitation theory. There may be some hidden "advantage," either natural or fabricated, which may enhance the performance of those aware of it and hinder performance of those who are not aware of it, or who are unable to adjust accordingly. For example, a basketball player may be aware of a "dead spot" on the floor where the ball does not bounce the same as other locations on the court. For the home team, this may be to their advantage if they can trap opponents in that area and possibly create a turn-over. As mentioned earlier, it has been argued (e.g., Edwards,

1979) that correct responses are more likely to be dominant for home than away teams. Again, the assumption here is that the visiting athletes are engaging in a task that is well-learned, but somehow more difficult when executed at away games as opposed to home games. This may relate to the visiting athlete's inexperience and unfamiliarity with the nuances of the home team's playing facility. Conversely, the home team athletes would, presumably, be very familiar with the nuances of their own playing facility, thereby making their task more simple.

This "advantage" would, intuitively, be a function of the number of games that an athlete has played on his or her home field. Just like any new situation, the neonate member of the team is faced with learning the nuances of the court or field, and some time may be needed for the athlete to adjust. Based upon this line of reasoning, it is expected that athletes who have more experience playing and practicing on their home facility will indicate that developing a familiarity with the playing field gives them an "advantage" over their opponents, more so than athletes with lesser playing and practicing experience. Additionally, it is expected that the less experienced athletes will indicate that the opponent's playing facility is relatively more difficult to compete on than their home field, more so than the more experienced athletes.

The main theme which runs throughout this study is that an athlete's belief in a HA will lead him or her to perform up to their own expectations, generally speaking. It seems reasonable to expect that this "belief in the HA" is somehow tied in to the athlete's familiarity with the home field. It also seems plausible that this familiarity with the playing field helps the home team athletes to raise their self-confidence to a

level at home games that is not duplicated at away games. In other words, like the visualization technique, being familiar with the playing field may help athletes to feel more "prepared" to meet the challenge of the competition than when they are unfamiliar with the playing facilities. This, in turn, may enhance their self-confidence, since they are more prepared at home games than away games. The basis for this expectation seems even more likely when one considers that self-confidence has been shown to fluxuate from one sport-specific context to another. It is apparent that it is less of a "trait" in an athlete then one might initially suspect. Keeping in line with this reasoning, then, it is hypothesized that athletes who have more experience playing and practicing on their home facility will indicate that being more familiar with a playing facility gives them more confidence in their performance than athletes with lesser playing and practicing experience on their home facility.

HA Construct

The main focus of this study will be to determine what variables underlie the amorphous construct known as the "Home Advantage." The construct of the HA is highly complex. It is, most assuredly, composed of physical, psychological, and environmental variables. This study does not propose to answer the question "what exactly is the 'Home Advantage'" in definitive terms. Rather, the aim is to identify the potential psychological variables which seem to constitute the basis of this phenomenon. This research will, hopefully, serve as the stepping-stone to further research in this area to obtain a more complete picture of the phenomenon at hand.

The variables discussed in the introduction are thought to comprise the HA construct, but there needs to be a means by which several of these variables can be brought together into one analysis. This may help to give a "big picture" look at what is referred to by the HA. Thus, the last research question to be addressed is: what is the relationship between audience influence, officiating bias, self-expectancy, self-confidence, state anxiety, emotional intensity, familiarity with the playing field and the athletes' belief in the HA. In other words, to what extent do the above mentioned variables account for the variance found in the athletes' "belief" in the HA.

Differences between Sports and Level of Competition

There exists evidence in the sports literature that indicates the HA is stronger in some sports than in others. Edwards and Archambault (1989) caution that location effects are not entirely consistent in strength or direction, but vary across different sports, particular teams and game importance, among other factors. They state that of the major team sports, the HA is most pronounced in basketball and hockey, moderate in football and minimal in baseball. Furthermore, in baseball, it appears that team record is more important in predicting performance outcome than whether or not the team is playing at home or away.

In addition to the evidence which indicates the HA is different for various team sports, there is also evidence that it is weaker at the high school level than the collegiate level (McCutcheon, 1984). Further, Edwards and Archambault (1989) state that the HA for football is slightly more pronounced at the collegiate level than in the

professional ranks. This is often attributed to the professional athletes' ability to handle pressures of the audience more effectively than collegiate athletes, and that the playing fields and courts in the professional ranks are more standardized than in the collegiate ranks. It is also attributed to professionals having more experience playing on each others' fields than do college players.

Differences in the HA amongst the collegiate and high school levels are often attributed to the fact that high schools have less of an "advantage" when they compete at home because of the ability of rival fans to be able to attend the game and "neutralize" the impact of the home crowd. In this study, differences between six team sports (basketball, volleyball, football, soccer, baseball and softball) will be examined. For example, audience effects may impact on teams differentially depending upon whether or not a sport is played indoors or outdoors, or whether the crowd is closer in proximity to the field in some sports as opposed to others. In addition, familiarity with the playing facility may impact differentially on certain sports if it is played on a baseball diamond, football type field or indoor court.

An additional key variable of analysis in this study is the athlete's level of competition (i.e., high school versus college). High school and collegiate athletes will be examined for differential perceptions regarding the influence of the above mentioned variables on performance outcome. Although there is evidence that the HA at the high school level is not as pronounced as at the collegiate level, it is difficult to speculate which of the above variables may be perceived by athletes as having a differential influence on the performance outcome. Accordingly, it is of interest to examine for

differences amongst and between high school and collegiate athletes in terms of the many variables thought to comprise the HA.

Summary

Below is a brief recap of the research questions and hypotheses for this exploratory study of team sport athletes' perceptions and attributions of the environmental and psychological underpinnings of the HA. This study will examine differences between type of sport and level of competition, as well as possible interaction effects between these variables, even though no specific predictions about these variables are stated in the research questions. The evidence from previous literature does not merit such predictions, since this approach to studying the phenomenon of the HA is so entirely different from previous studies.

Audience Effects

1. It is hypothesized that athletes will indicate that they are more distracted by the crowd reactions at away games than home games.
2. It is anticipated that some audience characteristics (i.e., vociferousness, crowd size) will be perceived by the athletes as impacting upon their performance differently at home games than away games.
3. It is hypothesized that the athletes will perceive the audience as having a stronger positive influence on their performance at home games than at away games.

Officiating Bias

1. It is hypothesized that some athletes will report that sports officials are generally biased in the calls that they make.
2. It is hypothesized that some athletes will report that sports officials have a tendency to favor the home team.
3. It is hypothesized that some athletes will report that the audience can influence sports officials' decisions.
4. It is hypothesized that athletes will respond more assertively to officials' calls at home games than away games.

Attributions

1. It is hypothesized that athletes' attributions will differ for sport outcomes (i.e., win or loss) as a function of the location of the competition (i.e., home or away) on dimensions of locus of control.
2. It is of interest to see if athletes will attribute "environmental" variables differently for victories at away games than for losses at away games.

Self-Fulfilling Prophecy and Self-Expectancy

1. It is hypothesized that athletes will indicate that they expect to perform better at home games than away games.
2. It is hypothesized that athletes will indicate that they perform better at home games than away games.
3. It is of interest to examine the nature of the relationship between athletes' performance expectations and their belief in the HA.

4. It is of interest to examine the nature of the relationship between athletes' perceived performance ratings and their belief in the HA.

Anxiety and Self-Confidence

1. It is hypothesized that athletes will report that they are generally more anxious at away games than at home games.
2. It is also hypothesized that athletes will rate their confidence level as being higher at home games than away games.

Emotional Intensity

It is expected that athletes will indicate that they generally play with more emotional intensity at home contests than away contests.

Visualization

1. It is hypothesized that athletes who frequently utilize visualization techniques will indicate that visualization helps them to become more familiar with a facility than those athletes who infrequently utilize visualization techniques.
2. It is hypothesized that athletes who frequently utilize visualization techniques will indicate that visualization gives them more confidence than those athletes who infrequently utilize visualization techniques.
3. It is hypothesized that athletes who frequently utilize visualization techniques will indicate that visualization provides them with an "advantage" over their opponent more so than those athletes who infrequently utilize visualization techniques.

Familiarity with the Playing Field/Court

1. It is expected that athletes who have more experience playing and practicing on their home facility will indicate that developing a familiarity with the playing field gives them an "advantage" over their opponents, more so than athletes with lesser playing and practicing experience.
2. It is expected that athletes who have less experience playing and practicing on their home facility will indicate that it is more difficult to perform on their opponent's facility than their home facility, more so than athletes with more playing and practicing experience.
3. It is expected that athletes who have more experience playing and practicing on their home facility will indicate that being familiar with a playing facility gives them more confidence in their performance than athletes with lesser playing and practicing experience.

HA Construct

What is the relationship between audience influence, officiating bias, self-expectancy, self-confidence, state anxiety, emotional intensity, familiarity with the playing field and the athletes' belief in the HA.

Most researchers have chosen to examine seasonal performance records of athletic teams in order to infer the underlying variables that produce the apparent "advantage" for the home team athletes. This approach, however, only provides a part of the picture as to why teams generally win more games at home than away. This study of the "Home Advantage," however, complements the previous research in that

it helps fill in some of the gaps left by previous methods. The focus of this research is not on documenting the existence of the HA or on describing the performance variables that define it - this has been done quite successfully by previous researchers - but rather to assess the psychological factors (beliefs mainly) that may help to explain why the HA exists. Combining this research with previous methods provides a more comprehensive picture as to what the basis is for the amorphous construct known as the HA.

CHAPTER 2

METHODS

Self-report data on athletes' perceptions and attributions of the environmental and psychological underpinnings of the HA from six team sports (football, soccer, basketball, volleyball, baseball and softball) were collected at both the high school and collegiate levels. Participating athletes completed a self-administered, general questionnaire during the beginning of their competitive season, designed to assess the variables thought to be related to the HA: belief in the HA, self-fulfilling prophecy/self-expectancy, audience effects, officiating bias, familiarity with the playing field, emotional intensity, visualization, anxiety/self-confidence and attributions.

Research Design

The design of this study was set up to assess the perceived impact that a number of environmental and psychological variables have upon athletes as a function of location (i.e., home versus away). Thus the main focus of interest was to determine the effects of location on the variables of interest, independent of the type of sport or level of competition of an athlete. This helps us to understand the general characteristics of the HA in the broadest sense. As discussed in the introduction, however, some of the past literature (e.g., Edwards and Archambault, 1989) notes that the effect of the HA is not the same across all types of sports or all levels of

competition (i.e., high school vs. college). It may very well be that the audience effects in football, for example, may be attributed mostly to the vociferousness of the crowd but for basketball, it may be the proximity of the crowd to the court that truly makes an impact. Thus, a secondary focus of this study was to make comparisons between sports (basketball, volleyball, football, soccer, baseball, softball) and level of ability (high school vs. college) on most of the variable dimensions, so that differences in the variables that allegedly underlie the HA can be examined as a function of sport type and level of competition and experience. It is possible that differences among high school and collegiate athletes in terms of their perceptions of the HA may be a result of simply the amount of competitive experience one obtains as one moves from high school to collegiate athletics, but it may also be a result of age and maturity. Since collegiate athletes are older than high school athletes - generally speaking - this design allows for exploration of possible effects of age and maturity on the variables being studied, although these effects are not tested in this study.

Although past research on the HA documents that the effect of the HA varies from sport to sport and across levels, it only examined for sports that have all male membership. This limits the generalizability of the results only to all male sports teams. However, if we truly want to understand what constitutes the basis of the HA effect, we must include comparisons that have women sports included as well. The current study examined a total of six sports - three of which are exclusively female (women's basketball, women's volleyball, women's softball). By including these

sports, the findings may be generalized across a multitude of sports - including female sports teams.

This brings to light one problem in this type of approach - there is a perfect confound of gender by team. All organized sport teams at every level of competition are homogeneous in terms of gender. When making comparisons among sports that have the same gender the results are interpretable, but when making comparisons among sports that have gender bias (i.e., football vs. women's volleyball) the results are not clearly interpretable. It could be that the differences (if any) are due to the membership in that sport (i.e., being a football player vs. a volleyball player), but it could also be that the differences are related to gender influence as well. Although gender was not included as an independent variable of interest in this study, preliminary analyses examining for potential gender effects were completed for all of the primary research hypotheses. This was done to ensure that interpretation of results are clear when making comparisons of sports.

In trying to gather valid information on what athletes perceive as the underlying variables contributing to the HA, the current author felt it necessary to limit the sample of athletes in two ways. It was assumed that athletes would be able to provide accurate information regarding the HA only if they had prior experience competing on an organized team for their respective sports. It is not too uncommon to have an athlete play a particular sport for the first time in high school, though this happens less frequently in college. In this instance, it would be difficult for them to provide accurate answers to questions about variables that allegedly influence their performance

when they had never before played that sport in organized inter-school competition. Thus, the first limitation to the sample was that only athletes who had prior experience participating in the sport were allowed to provide data. A secondary concern was that there might have been some athletes who were not on the team during the last competitive season. This was of concern since certain questions about the HA cannot be answered knowledgeably unless the athletes had the opportunity to experience victory or defeat at their home-site (at least once) and at an away location. Thus, an additional constraint was that athletes must have participated in that sport the previous season in order to provide data.

Procedure

One researcher was responsible for contacting coaches from selected high school and college football, soccer, volleyball, basketball, softball and baseball teams from throughout the Chicagoland area, and asking their permission to let their athletes participate in the study. Appointments were made with coaches, at the beginning of the season, to have their athletes complete the self-administered questionnaires as a group (prior to or after one of their practice sessions), and to have the coach sign a consent form indicating their approval for the athletes to participate in the study.

Before he or she distributed the questionnaires, the researcher briefly explained to the athletes that the study was being conducted to get their opinions on what they thought about the HA. At this time, athletes were asked to respond honestly and in an unbiased manner, and were told that confidentiality in their answers was assured. Once

athletes were done, the researcher collected the questionnaires. Out of the 415 questionnaires returned to the researcher, 388 were completed for a 93% completion rate. The questionnaire was considered complete if a majority of the items were answered. The 27 incomplete questionnaires were primarily blank.

Subjects

Of the 388 athletes in the sample, there were a total of 207 high school athletes (53% of the sample), and 181 college athletes (47%). There were a total of 228 male athletes (59% of the sample), and 160 women (41%). The breakdown of sport type by level of competition is: 35 high school football players (9% of the sample), and 18 college football players (5%); 65 high school boy's soccer players (17%), and 40 college men's soccer players (10%); 37 high school girl's volleyball players (9%), and 40 college women's volleyball players (10%); 24 high school boy's basketball players (6%), and 21 college men's basketball players (5%); 11 high school girl's basketball players (3%), and 28 college women's basketball players (7%); 17 high school girl's softball players (4%), and 27 college women's softball players (7%); 18 high school boy's baseball players (5%), and 7 college men's baseball players (2%).

There were a total of 40 teams in 31 schools that participated in the study. The breakdown is: 2 high school football teams, and 1 college football team; 5 high school soccer teams, and 3 college soccer teams; 3 high school volleyball teams, and 5 college volleyball teams; 5 high school boy's basketball teams, and 3 college men's basketball teams; 2 high school girl's basketball teams, and 4 college women's basketball teams;

2 high school girl's softball teams, and 2 college women's softball teams; 2 high school boy's baseball teams, and 1 college men's baseball team.

Of the 40 teams that participated in the study, 25 had win/loss records above the .500 mark during the previous season (62.5% of the teams), but at the time of data collection the season had not started so people did not know yet if they were winners. The concern was to ensure that sample was not biased in terms of athletes that come from all winning teams or from all losing teams.

Instrumentation

The self-report questionnaire completed at the beginning of the season assessed athletes' perceptions and attributions of the environmental and psychological underpinnings of the HA. There were 30 questions on the instrument, some of which had multiple components for a total of 114 items (see appendix A for item number, question wording and response categories for all items in the questionnaire that were used as part of the data analysis). It should be noted here that 29 of the items were 7-point scales that appeared on the questionnaire with a range from +3, through -3, with 0 as the midpoint. All "agreement" scales range from Strongly Agree (+3) through Strongly Disagree (-3), while the "influence" scales range from Strong Positive Influence (+3) through Strong Negative Influence (-3). These positive and negative values were chosen to emphasize the positive (i.e., Strongly Agree, Strong Positive Influence) and negative (i.e., Strongly Disagree, Strong Negative Influence) ends of the scale. Zero was provided as the midpoint (i.e., Neither Agree nor Disagree, Neither

Negative or Positive Influence), since it allows the athlete to indicate a neutral stance for questions with these two types of response categories. However, the mean values represented in either table or bar chart form in appendix B all have positive integer values ranging from 1 through 7 for the items that have agreement or influence scales. In all cases, the lowest value represents the strongest level of agreement or positive influence, and the highest values represents the strongest amount of disagreement or negative influence. Psychologically, it is questionable whether an athlete can truly indicate that something has absolutely no influence or that there is neither agreement or disagreement, but statistically this is another matter. By leaving out the midpoint, the athlete is forced to make a decision which he/she may feel is not accurate. The argument is that by eliminating the midpoint, one may "inflate" the positive or negative ratings more so than if the midpoint is kept on the scale. In other words, having no mid-point may "create" variance where there is no variance. A majority of the other items (n=61) used a 5-point scale ranging from 1=Always a reason to 5=Never a reason.

Athletes were queried on how they generally felt the following categories of variables influenced their overall performance (regardless of location) and/or their typical performance at home games versus away games: belief in a home advantage, audience influence, familiarity with the playing facilities, officiating bias, visualization, self-confidence, emotional intensity, self-fulfilling prophecy, attributions toward winning and losing at home and away and, type of strategy employed to enhance or limit the HA. See Appendix A for a copy of the questionnaire.

CHAPTER 3

RESULTS

The results of the data analysis are ordered much in the same way that the variables and their corresponding hypotheses are presented in the summary section of Chapter 1. There will be subsections with the following headings: audience effects; officiating bias; attributions; self-fulfilling prophecy/self-expectancy; anxiety/self-confidence; emotional intensity; visualization; familiarity with the playing field/court; and, HA construct. The statistical results reported in these subsections are organized in terms of the sequence with which the research hypotheses are presented in the introduction of this document. When discussing variables used for a particular analysis, often there are references made to the question item numbers (e.g., Q2, Q3, etc.) as they appear in Appendix A of this document.

Appendix B of this document contains appropriate tables, that are referenced in this section, while Appendix C contains all the figures. The tables that appear will generally contain ANOVA source table information for omnibus tests yielding significant results, but they may also provide summary information from any other significant statistical tests or in some cases mean values (where appropriate). However, most mean values appear in figure form in Appendix C. All other results will be presented only within the body of the text. All of the analyses presented in this section are based only upon respondents to the questionnaire items used for any particular

analysis. Thus, any respondents that had missing data for any one analysis were consequently dropped from the analysis.

It is important to discuss the findings from some preliminary analyses that were conducted prior to the primary data analysis. In order to make comparisons among sport type without concern for gender as an influence, 2 (gender) x 2 (level) ANOVA's were conducted on the following 43 items: Q1, Q2, Q2 Part A, Q3, Q3 Part A, Q4, Q5, Q6, Q8, Q9, Q10, Q11, Q14, and Q15 to Q27 (see Appendix A for the questionnaire items). These questionnaire items were selected because they are the variables used in the primary data analysis (except for attributional ratings). Using this design, the 388 member sample breaks down into high school males (n=142), high school females (n=65), college males (n=86), and college females (n=95). Of the 43 questions analyzed, there were no significant interactions between gender and level, but there were 18 significant ($p < .05$) main effects of gender. Table 2 in Appendix B contains a summary of these significant main effects - providing mean values, and ANOVA source table information.

It is of interest to note that these significant effects are fairly concentrated amongst three of the constructs of interest. For example, items Q3, Q2a3, Q2a5, Q2a6, Q3a1, Q3a3, Q3a4, Q3a5, and Q3a6 all relate to audience effects. Upon examination of Table 2, one can see that in all cases, the males have significantly lower mean ratings than the females, indicating that males perceive that these particular audience characteristics have a more positive influence on their performance than female athletes.

Items Q15 and Q16 reflect athletes' perceptions of their confidence levels at home and away games. Table 2 yields mean results indicate that the males perceive themselves as having higher levels of confidence at both home games and away games than do female athletes.

Items Q20 and Q21 reflect athletes' perceptions of their typical performance levels at home and away games. Examination of Table 1 means indicates that the males perceive that they typically perform better at home games and away games than do the female athletes.

Despite the fact that there were significant effects of gender on some of the variables that are thought to be contributors to the belief in the HA, there were no gender differences on many of the key variables used in the ensuing analyses: belief in the HA (Q1), many audience characteristics as they relate to the home crowd (Q2, Q2a1, Q2a2, Q2a4, Q2a7), familiarity with the playing field (Q5, Q6), officiating bias (Q10), emotional intensity (Q17--Q19), and team and individual levels of performance expectation (Q24--Q27). These results indicate that there need be some caution exercised in explaining any differences in the analyses as being due solely to level of competitive experience or type of sport without consideration of gender. However, since there is a perfect confound between gender and it is equally as difficult to assess differences of gender without the type of sport being a potential contributor to the underlying differences. Although the primary focus of the data analysis was to examine for location effects for the variables thought to constitute the basis of the HA, much of the data analysis also examines for differences in these location effects for the various

sports across levels of competition. In order to increase statistical power for a sport by level ANOVA, the following determinations were made in light of the above findings. It was determined that men's and women's basketball could be analyzed as one unit rather than as two separate sports. In addition, due to the low numbers of high school softball (n=17), high school baseball (n=18) and college baseball players (n=7), baseball and softball players were also analyzed as one unit. Consequently, any higher level ANOVA's using sport and level as independent groupings were structured as a 5 (Sport) x 2 (Level) design.

One further preliminary analysis was conducted before any of the "hypothesis related" tests. Since the athletes level of belief in the HA is of major significance to most of stated hypotheses and research questions, a 5 (Sport) x 2 (Level) ANOVA was conducted on item Q1 (belief that the home team has an "advantage" over the visiting team). The results indicated a significant main effect for sport $F(4,366) = 3.54$, $p < .008$, but not for level, nor was there a significant interaction. Student Newman Keuls analysis of the means (Basketball = 2.12; Volleyball = 2.22; Soccer = 2.27; Football = 2.37; Baseball = 2.82) indicated that baseball players have significantly less of a belief in the HA than do athletes from other sports. However, the athletes from the remaining sports do not differ significantly from each other. This finding is not surprising given that Edwards (1979) found the HA to be least pronounced in baseball and football and most pronounced in basketball. Note that these means fall within the range of 2 (somewhat agree) and 3 (slightly agree). Thus, on average, there is a moderately high agreement amongst all athletes in the sample that an HA exists.

Audience Effects

Items Q4a through Q4f from the questionnaire were used to form two separate "distraction" indices. Items Q4a, Q4c, and Q4e probe into the athletes' perceptions that the home crowd "distracts" their performance at home competitions through the athletes: 1) thinking about how the home fans will react to their performance, 2) being distracted by the reactions of the home crowd, and 3) allowing crowd reactions to influence their mistakes or errors. Items Q4b, Q4d, and Q4f, conversely, probe into the same perceptions except that they reflect the impact of an opposing crowd's influence on athletes' performance at away games. Inter-item correlations between these two sets of items can be seen in Table 3 in Appendix B.

Upon examination of Table 3, it is of interest to note that all of the correlation coefficients, though on the low side, are significant at $p < .0002$. Thus, these items were combined into two indices: "disthome" equals the sum of Q4a, Q4c, and Q4e divided by 3, and "distaway" equals the sum of Q4b, Q4d, Q4f divided by 3. A paired comparisons t-test was calculated to examine mean differences between the "disthome" ($M=3.43$) and "distaway" ($M=3.9$) indices: $t = -8.69$, $df = (1,376)$, $p < .0002$. Contrary to the stated hypothesis that athletes will indicate that they are more distracted by the crowd reactions at away games than home games, but not entirely contrary to Baron's distraction-conflict theory, this result provides evidence that athletes perceive that the home audience "distracts" their performance more so than an opposing team's audience.

To examine this contrary finding in more depth, a post-hoc analysis examining differences between item pairs (Q4a with Q4b; Q4c with Q4d; Q4e with Q4f), was conducted using paired comparisons t-tests. Items Q4a (M=2.38) and Q4b (M=3.43) were significantly different from each other: $t = -13.02$, $df = (1,380)$, $p < .0002$. This result indicates that athletes are more cognizant of their home audience's reactions to their performance than an opposing team's audience. The difficulty with this finding, however, is that it can not be determined if this "thinking" about fan reactions leads to positive or negative behaviors of the athlete. It could be that "thinking" about the home crowd reactions moreso than an opponent's audience reactions may simply be a function of the athlete wanting to perform better in front of the home crowd, which may result in better performance at home games, as suggested by Baron, if the home crowd is more distracting.

Additionally, items Q4e (M=3.61) and Q4f (M=3.96) were significantly different from each other: $t = -4.90$, $df = (1,376)$, $p < .0002$. This finding provides evidence that the reactions of the home crowd influences athletes' mistakes more so than an opposing team's crowd. However, it is not possible to tell from this analysis whether the athletes make more or fewer errors as a result of this crowd influence. It could be that the perceived "influence" of the home crowd produces less mistakes and errors at home games because the athlete, again, wants to perform better in front of the home crowd.

The question wording for items Q4c and Q4d more clearly reflects a negative outcome (i.e., distraction) as a result of the crowd influence than either of the other two

components of the "distraction indices." However, the mean values for these two items were not significantly different from each other. This would seem to indicate that there are no differences among athletes in terms of them being more distracted by crowd reactions at away games than home games. Clearly, the results of the post-hoc analyses makes the interpretation of the original finding ambiguous. Thus, the results need to be interpreted with caution.

Using the same two indices, it was of interest to examine differences in "distraction" across sports and level of competition. A 5 (sport) x 2 (level) x 2 (location) ANOVA with repeated measures on the last factor was calculated. Figure 1 in Appendix C illustrates the mean values for the "distraction" indices for each sport by level of competition. Table 4 in Appendix B provides the ANOVA summary table from the omnibus test.

Of particular interest is the significant three-way interaction, $F(4,378) = 2.74$, $p < .03$. Upon examination of Figure 1, one can see that pattern of mean ratings is essentially the same for all sports except for football. In addition, there was a marginal main effect of level, $F(1,378) = 3.04$, $p < .08$. Generally speaking, the most "distracted" athletes are the high school athletes at home games, and the least distracted athletes are the collegiate athletes at away games. However, this pattern does not hold true for football players.

A followup analysis utilizing the Newman Kuels technique yielded significant differences between levels of competition (collapsed across sports) for the "home" index ($p < .05$). The high school athletes ($M=3.23$) indicated that they are more distracted

at home games than collegiate athletes (M=3.53). There were no differences between the levels on ratings for away games. If the fact that high school athletes are more distracted at home games than collegiate athletes is a measure of the HA, then this result stands in contrast with McCutcheons (1984) finding that the HA is weaker at the high school level. As with the above finding, these results need to be interpreted with caution.

Items Q2a1 through Q2a7 and Q3a1 through Q3a7 were investigated to see if any of the audience characteristics (e.g., crowd present, vociferousness of crowd, etc.) were perceived by athletes as impacting upon their performance differently at home games than away games. To accomplish this, each audience characteristic was treated separately in a series of paired comparisons t-tests. Table 5 in Appendix B provides a summary of these results, showing the mean values for each item in the analysis, the degrees of freedom, the mean difference between the pairs, as well as the t value and significance level.

Upon examination of Table 5, it is of interest to note that all comparisons were significant at $p < .0002$. This supports the stated hypothesis that some audience characteristics will be perceived by the athletes as impacting upon their performance differently at home games than away games. It is important to point out that the differences between the mean values indicate that all the characteristics of the audience influence have more of a positive impact upon athletes at home games than away games, with the exception of when the crowd boos the performance (Q2a3, and Q3a3), which indicates that the impact is more negative at home games than away games.

Although all of the comparisons are significant, it is of interest to note that having a crowd present (Q2a1, and Q3a1) and the noise level of the crowd (Q2a5, and Q3a5) produce the largest mean differences amongst the audience characteristics. In contrast, having friends or family present at the game (Q2q7, and Q3a7) account for the smallest mean differences. These results suggest that perhaps the most influential components of the audience influence are having a crowd present, and how much noise the crowd makes. It is also of interest to note that the crowd cheering at home games had the lowest overall mean, suggesting that audience evaluation may also play an important role in the HA.

It was also of interest to examine for differences in audience characteristics across sports and level of competition as a function of location. A 5 (sport) x 2 (level) x 2 (location) x 7 (trait) ANOVA with repeated measures on the last two factors was calculated. Figures 2 through 8 in Appendix C illustrate the means for sport x level x location separately for each of the seven audience characteristics. Table 6 in Appendix B provides the ANOVA source table information from the omnibus test.

Of particular interest is the significant four-way interaction, $F(24,1980) = 2.26$, $p < .0005$. Upon examination of Figures 2 through 8, one can notice the following similarity in the pattern of mean ratings: 1) high school home ratings are the lowest (more positive influence) across all audience characteristics than all other conditions (high school away; college home; college away) except for when the crowd boos the performance, and also for the proximity of the crowd, 2) college away ratings are the highest across all audience characteristics except for when the crowd boos, 3) home

ratings (regardless of level) are generally lower than away ratings across all audience characteristics except for when the crowd boos the performance - in this condition the pattern is reversed. It is also of interest to note that the lowest overall mean ratings appear to be for when the crowd cheers, and when family or friends are at the game. The highest overall mean ratings appear to be when the crowd boos and the proximity of the crowd. These results combined with the data from the paired comparisons analysis would suggest that perhaps the most important characteristic of the audience influence in terms of its contribution to the HA would be the crowd cheering the performance, followed by the presence of the crowd, noise level of the crowd, and the presence of family or friends in the audience. These results indicate that the other audience characteristics (size and proximity of the crowd) do not play as much of a role in the HA, although these might affect the others such as "presence" and "noise level."

Generally speaking, these results are consistent with Greer's (1983) conclusions that the audience enhances the performance of home team athletes. In addition, evidence of the crowd cheering the performance supports Cottrell's (1972) contention that enhanced performance is a result of spectators evaluating the performance. However, social facilitation theory laid down by Zajonc (1965) is also supported by results showing mere presence to be an important factor of audience influence.

A followup analysis examining for mean differences among the sports was conducted using the Newman Keuls technique. Table 7 summarizes the followup analysis of the audience characteristics at home games and away games. At home games, the analysis yielded the following significant results ($p < .05$): 1) when the

home crowd boos the performance of the home team (item Q2a3), football players (M=4.14) and basketball players (M=4.19) are significantly less negatively influenced than are soccer players (M=4.56), volleyball players (M=5.00), or baseball players (M=5.06); 2) football players (M=1.69), soccer players (1.99), volleyball players (M=2.04), and basketball players (M=2.08) are more positively influenced by the noise level of the home crowd (item Q2a5) than are baseball players (M=2.67); 3) football players are more positively influenced by having friends or family present at the game (M=1.46) than are basketball players (M=1.77), soccer players (2.07), volleyball players (M=2.09), and baseball players (M=2.23).

When the Newman Keuls technique is used to analyze the audience characteristics at away games, a very different pattern of significant results ($p < .05$) are found: 1) Football players are different from all other sports in terms of being the most positively influenced from having a crowd present at away games (M=2.02); basketball players are more positively influenced (M=2.5) than are volleyball players (M=2.98) or soccer players (M=3.07), and these athletes are all more positively influenced than are baseball players (M=3.62); 2) when the away crowd cheers on their performance, volleyball players (M=2.05), basketball players (M=2.08), and football players (M=2.09) are all more positively influenced than are soccer players (M=2.36) or baseball players (M=2.71); 3) when the away crowd boos their performance, football players (M=3.55) and basketball players (M=3.93) are less negatively influenced than soccer players (M=4.22), baseball players (4.63), and volleyball players (M=4.71); 4) football players (M=2.42), basketball players

(M=2.98) and soccer players (M=3.0) are similar in positive influence from the size of the crowd (item Q3a4), but football players are more positively influenced than volleyball players (M=3.23); all these sports are more positively influenced than baseball players (M=3.92); 5) the noise level of the crowd impacts more positively on football players (M=2.27) than any other sport, and basketball players (M=2.94), soccer players (M=3.05), and volleyball players (M=3.42) are more positively influenced than baseball players (M=4.14); 6) football players (M=2.95), basketball players (M=3.29), and soccer players (M=3.42) are all more positively influenced by the proximity of the crowd to the field (item Q3a6) than are volleyball players (M=4.02), and baseball players (M=4.17); 7) when friends or family are present at the game, football players (M=1.79), basketball players (M=2.19), volleyball players (M=2.20), and soccer players (M=2.30) are not significantly different from each other, but football players are more positively influenced than baseball players (M=2.77).

It is also important to note the significant main effect of sport $F(4,330) = 11.46$, $p < .0002$, and the significant sport x location interaction, $F(4,1980) = 4.66$, $p < .0002$. Based upon these collective results, it appears that there is a great deal of variance amongst the team sports in terms of the audience influence. However, it seems evident that the sport that is most influenced by the audience (positive influence) is football. This provides evidence that the HA is strong for football, a finding that is contrary to what Edwards (1979) discovered in analyzing game statistics. Conversely,

the audience effects, generally speaking, are least for baseball -- consistent with the conclusion that the HA is least for baseball (Edwards and Archambault, 1989).

Items Q2 and Q3 were used to do a paired comparisons t-test analysis, assessing the differences between mean ratings of overall audience influence at home games (M=2.09) vs. away games (M=3.25): $t = 14.82$, $df = (1,380)$, $p < .0002$. The mean ratings indicate that, overall, athletes rate their home crowd as having a much more positive influence on their performance than when they perform in front of their opponents' home crowd, supporting the hypothesis that athletes will perceive the audience as having a stronger positive influence on their performance at home games than away games. Supporting this finding is a significant main effect of location in Table 6, $F(1,1980) = 4.66$, $p < .0002$.

Using these same variables, mean differences among the different types of sports and levels of competition, were examined using a 5 (sport) x 2 (level) x 2 (location) ANOVA with repeated measures on the last factor. Figure 9 in Appendix C has the mean ratings for sport by level as a function of location. Table 8 in Appendix B provides the ANOVA source table information for the overall omnibus test.

It is of interest to note that there is a significant three-way interaction, $F(4,371) = 3.71$, $p < .006$. Upon examination of Figure 9, one can see that across all sports, except football, the audience exerts a much more positive influence at home games than away games. For football, there appears to be little difference between means, but this is most true at the collegiate level. One may also note that the audience has the least impact on college away games, and the most impact on high school home games - a

pattern that was consistent throughout the several components of the audience characteristics (Figures 2 through 8). This pattern of means and the overall main effect of level would suggest that the HA, in terms of overall audience influence, is slightly stronger at the high school level than the collegiate level. Consistent with this finding are the significant main effects of level in table 6, $F(1,330) = 6.43$, $p < .02$, and in table 8, $F(1,371) = 20.89$, $p < .0002$.

A followup analysis examining for differences in item Q2 among the sports was conducted using the Newman Keuls technique, which yielded the following significant ($p < .05$) results: football players ($M=1.85$), volleyball players ($M=1.97$), basketball players ($M=2.05$), and soccer players ($M=2.20$) are not significantly different from each other, but football players are more positively influenced by the home audience than are baseball players ($M=2.35$). When the effects of the audience were examined at away games, a somewhat similar pattern of results were found: football players ($M=2.60$) were more positively influenced by the away crowd than basketball players ($M=3.06$), soccer players ($M=3.35$), baseball players ($M=3.48$), and volleyball players ($M=3.60$). These results are consistent with the above findings that showed football as being the main beneficiary of the positive effects of audience influence.

Officiating Bias

In order to determine if some athletes, more so than other athletes, think sports officials are biased in the calls they make, a 5 (sport) x 2 (level) ANOVA was calculated on item Q9. Table 9 in Appendix B contains the ANOVA source table

information from the omnibus test. Figure 10 in Appendix C illustrates the mean value ratings for sport by level for item Q9.

Of particular interest is the significant main effect of level, $F(4,375) = 4.16$, $p < .05$. Also note that there is a trend for the sport by level interaction, $F(4,375) = 2.19$, $p < .07$. Upon examination of Figure 10, one can see that, generally speaking, collegiate athletes rate sports officials as being less neutral in the calls they make than high school athletes. Note that in this figure, higher scores indicate that athletes perceive sports officials as more biased. This difference is most pronounced in basketball and baseball, and slightly reversed for volleyball.

Follow up results were conducted using the Newman Keuls technique, which indicated that there was no significant difference between any of the means ($p < .05$). Although the interaction was not statistically significant, the trend for the interaction and the main effect of level lend some support to the hypothesis that some athletes will report that sports officials are generally biased in the calls they make.

A 5 (sport) x 2 (level) ANOVA was calculated for item Q10 in order to determine if some athletes, more so than other athletes, think sports officials favor the home team in the calls they make. Table 10 in Appendix B shows the ANOVA source table from the omnibus test. Figure 11 in Appendix C illustrates the means value ratings for sport by level for item Q10.

It is of interest to point out that there were significant main effects for sport, $F(4,371) = 2.68$, $p < .04$, and level, $F(1,371) = 10.24$, $p < .009$. Upon examination of Figure 11, one can notice that high school athletes have lower scores

than collegiate athletes - across all sports. This would indicate that high school athletes, moreso that collegiate athletes perceive sports officials as being more biased in favor of the home team. Followup analysis examining differences between sports using the Newman Keuls technique indicated that football players (M=2.84), baseball players (M=3.13), basketball players (M=3.30), and soccer players (M=3.31) are not different from each other, but that football players are more in agreement than volleyball players (M=3.73) that sports officials have a tendency to favor the home team.

A 5 (sport) x 2 (level) ANOVA was calculated for item Q11 in order to examine for differences among athletes ratings of their belief that the audience (regardless of location) can influence sports officials' decisions on some of the calls they make. The omnibus test yielded no significant results. However, there was a trend for level, $F(4.365) = 1.26$, $p < .08$. The mean values high school sports are as follows: football (3.17), soccer (3.09), volleyball (3.24), basketball (3.23), baseball (2.81). The mean values for college sports are as follows: football (3.50), soccer (3.02), volleyball (3.55), basketball (3.19), baseball (3.65). One can see that the means for high school athletes are slightly lower than for collegiate athletes, with the largest difference for baseball. These results, though not statistically significant, do lend some support for the hypothesis that athletes will differentially report that the audience can influence sports officials' decisions. It would appear that high school athletes perceive that the audience can influence sports officials' decisions moreso than collegiate athletes.

A paired comparisons t-test was conducted on items Q12a and Q12b to examine for differences in athletes' levels of perceived assertion against sports officials' calls made against them/their teammates at home games (M=2.82) versus away games (M=2.71): $t = -3.14$, $df = (1,377)$, $p < .002$. It was hypothesized that athletes would indicate that they respond more assertively to officials calls at home games than away games. However, these results indicate that athletes, generally speaking, perceive that they are slightly more assertive at away games than at home games in terms of responding to sports officials' calls made against them or their team, a finding that is contrary to expectation.

Attributions

Athletes provided attributional ratings for four possible outcome situations: the team wins at home (items Q28a1--Q28a13); the team loses at home (items Q28b1--Q28b13); the team wins at an away competition (items Q28c1--Q28c17), and; the team loses at an away competition (items Q28d1--Q28d17). Twelve attributions common to all four outcome situations were used to form two attribution indices - one that reflects the dimension of internal locus of causality and the other which reflects the dimension of external locus of causality. Items used for the internal index were: "team ability," "our team's errors/fouls," "being familiar with the facility," "our team's emotional intensity," and "our coach." Items used for the external index were: "officials are biased," "audience influence," "our opponent's ability," "our opponent's errors/fouls," "the playing facility," "opponent's coach," and "luck."

The two indices were used as the dependent measures in a 2 (location) x 2 (outcome) x 2 (dimension) completely within subjects design. Table 11 in Appendix B shows the ANOVA source table from the omnibus test. Figure 12 in Appendix C illustrates the means value ratings for location by outcome for the internal and external dimensions.

Surprisingly, there was no significant main effect of location, but there was a significant main effect of dimension, $F(1,260) = 522.4$, $p < .0002$. Of particular interest are the significant two-way interactions for location by outcome, $F(1,260) = 78.85$, $p < .0002$, and outcome by dimension, $F(1,260) = 32.32$, $p < .0002$. Also, note that there is a significant main effects of outcome, $F(1,260) = 118.88$, $p < .0002$. Upon examination of Figure 12, the reader will notice that the ratings for the internal dimension are consistently lower than the external dimension across all outcomes. This is different than what was expected. It would seem that athletes would make stronger internal attributions for wins than for losses, and stronger external attributions for losses than wins. However, the athletes in this sample made stronger internal attributions than external attributions regardless of outcome and location. The outcome by dimension interaction signifies that there are lower scores for both the internal and external dimensions for wins than for loses, but that this difference is more pronounced for wins than it is for losses. This suggests that the athletes are internalizing the responsibility for wins and losses moreso than one might expect. Especially in the case of a loss, one would expect a more external (e.g., officiating bias) explanation for the outcome. Also note that there is a bigger difference in attributions for home win versus loss than there

is for away win verus loss. This may suggest that the athletes (because of self-imposed pressure to "explain" losses at home games) may give more thought to what affects their differential performance (i.e., win vs loss) at home games than away games. The location by outcome interaction suggests that the attributions made for victories are slightly stronger for home games than away games (independent of dimension), but that the attributions for away games are stronger than for home games when the team loses. Finally, one can also note that there is less variation due to outcome and location for the external dimension than for the internal dimension. These results, though interesting, do not support the hypothesis that athletes' attributions will differ for sport outcomes on the dimensions of locus of control as a function of location.

These twelve variables are all plausible attributions an athlete can make about why their team wins or loses a game either at home or away. However, there are some attributions which seem to apply only to away games. Specifically, four attributions ("The surrounding town or community," "Sleeping in a bed other than my own," "Travel fatigue," and "Eating different food from what I usually eat at home") were common only to two outcome situations: win at an away competition, and lose at an away competition. Since these attributions were not in all four conditions, an analysis using these attributions was computed separately, and the results are presented below.

Attributional items that encompass environmental variables thought to be pertinent only to away games (items Q28c13--Q28c16, and Q28d13--Q28d16) were used separately in 4 paired comparisons t-tests. These tests were conducted to examine for

differences in mean attributional ratings for away games depending upon the outcome (i.e., win/loss). Table 12 in Appendix B provides a summary of these results.

It is of interest to note that these environmental variables are rated as being significantly different ($p < .05$) for victories at away games than loses at away games, supporting the hypothesis that athletes will attribute "environmental" variables differently for victories at away games than for losses at away games. Upon examination of the mean attribution ratings, the reader will note that these environmental variables are more of a factor when athletes' lose away games than when they win away games. The exception to this is "the surrounding town or community," which is rated as being more of a reason for the outcome when athletes' win on the road as opposed to losing on the road. These results are not surprising in that one might expect the athletes to attribute these "environmental" factors more to losses than to victories, simply because they appear, at face value, to be variables which would disrupt the normal routines of the athlete and impede performance to some extent (i.e., travel fatigue).

Self-Fulfilling Prophecy and Self-Expectancy

Items Q24--Q27 reflect the performance expectations for the team and the individual at home games and away games. These items were used to form two indices: one for expectation of performance at homes games, and the other for expectations of performance at away games. Before the indices were developed, the relationship between these items was examined with an inter-item correlation matrix.

The results of this are as follows: items Q24 and Q26 correlate at .52, $p < .0002$, and items q25 and Q27 correlate at .58, $p < .0002$. These indices were then analyzed in a paired comparisons t-test. The mean for expectation of performance at home games ($M=2.78$) is significantly different from the expectation of performance at away games ($M=3.17$): $t = 9.08$, $df = (1,380)$, $p < .0002$. It was hypothesized that athletes would indicate that they expect to perform better at home games than away games. These results support the stated hypothesis.

A 5 (sport) x 2 (level) x 2 (Location) ANOVA with repeated measures on the last factor was calculated using these two indices to examine any differences among athletes' expectations of performance across sports and level of competition as a function of location. Table 13 in Appendix B shows the ANOVA source table from the omnibus test. Figure 13 in Appendix C illustrates the mean value ratings for sport by level for the expectation of performance at home and away.

Of particular interest is the significant three-way interaction, $F(4,378) = 3.04$, $p < .02$. Upon examination of Figure 13, one can see the pattern of means not unlike that of several of the previous analyses: home ratings are lower than away ratings; collegiate away ratings are the highest scores and high school home scores are the lowest (although not significantly different from the collegiate home scores).

A followup analysis examining for differences among sports for the home expectation index, utilizing the Newman Keuls technique, yielded the following results: volleyball players ($M=1.75$), football players ($M=1.81$), basketball players ($M=1.83$), and soccer players (1.92) are not different from each other in terms of performance

expectation, but they all expect to perform better at home games than baseball players (M=2.12). The same pattern of results was found among sports for the away expectation index: volleyball players (M=2.00), football players (M=2.02), basketball players (M=2.04), and soccer players (2.16) are not different from each other in terms of performance expectation, but they all expect to perform better at away games than baseball players (M=2.40). Thus, baseball players have lower expectations than the other sports. This is a result of the significant main effect of sport, $F(4,378) = 3.50$, $p < .009$.

Items Q20 and Q21 reflect athletes' typical, overall performance levels at home games and away games. A paired comparisons t-test was calculated to examine differences between these means. It was hypothesized that athletes would indicate they generally do perform better at home games than away games. The significant difference between athletes' perceived typical performance at home games (M=2.36) and at away games (M=2.52), $t = 4.65$, $df = (1,379)$, $p < .0002$, indicates that athletes believe they perform slightly better at home games than away games, supporting the stated hypothesis. It is of interest to note that the mean performance ratings at home and away are both above average (3.00); this would suggest that perhaps the athletes' perceptions of their performances are slightly biased. If their ratings were more objective, one might expect to see one mean rating above average and one slightly below average (as was the case for performance expectation).

A 5 (sport) x 2 (level) x 2 (Location) ANOVA with repeated measures on the last factor was calculated to examine any differences among athletes perceived levels

of performance as a function of location. Table 14 in Appendix B shows the ANOVA source table from the omnibus test. Figure 14 in Appendix C illustrates the mean value ratings for sport by level for the ratings of typical performance at home and away games. Of particular interest is the significant three way interaction, $F(1,371) = 3.36$, $p < .03$. Upon examination of Figure 14, notice that the pattern of means for performance rating is identical to that of performance expectation (Figure 13), as previously described. The major difference, however, is evidenced by an overall decrease in the performance rating, which indicates that athletes perceive their actual performance at home and away games as much better than their actual expectation of performance. Part of this discrepancy may be attributed to the fact that the "expectation" indices are tied to both expectation of individual performance and team performance, but the actual performance ratings only apply to the individual effort.

In order to examine the relationship between athletes' performance expectations and their belief in the HA, items Q24--Q27 were analyzed with item Q1 in a multiple regressions analysis using an R-square selection method. Using all four items in the model produced the highest R-square value (0.025), but do not account for much variance. A second multiple regression analysis was completed on athletes' performance ratings (items Q20 and Q21) and their belief in the HA (item Q1). Both items together produced the largest R-square value (0.014), but again did not account for much variance in the dependent variable. In order to further examine the relationship between these performance ratings and the belief in the HA, a correlation matrix was designed utilizing items Q20, Q21, and Q24--Q27. The results are shown

in Table 15. Upon examination of Table 15 in Appendix B, one can see that the only significant relationship amongst any of these variables is item Q24 (Expectation of team's overall performance at home games). There is a near significant relationship between Q1 and item Q20 (Typical overall performance at home games), but all the remaining coefficients indicate that there is little relationship to the belief in the HA. One can only conclude from these results that there is not much ability to predict the belief in the HA based upon the athletes' perceived expectations of performance or even their perceived actual performance at home games and away games.

Although there is little relationship between the belief in the HA and expectations or performance, this must be contrasted against the large main effects of location in Table 13, $F(1,378) = 85.94$, $p < .009$, and Table 14, $F(1,371) = 81.98$, $p < .0002$. In addition, Figures 13 and 14 clearly indicate that expectations of performance and perceived performance are higher for home games than away games across all sports. This evidence suggests a further look into the relationship between expectation of performance, performance and the HA.

Anxiety and Self-Confidence

Items Q22 and Q23 reflect the athletes' general levels of pre-game anxiety at home games and away games. These items were analyzed in a paired comparisons t-test to examine for differences in mean pre-game anxiety ratings at home games versus away games. It was hypothesized that athletes would report that they are generally more anxious at away games than home games. Contrary to expectation, athletes

reported significantly higher anxiety levels at home games (M=2.40), than at away games (M=2.52): $t = -3.05$, $df = (1,382)$, $p < .003$.

It was also of interest to examine for differences in mean pre-game anxiety ratings between sport and level of competition as a function of location. A 5 (sport) x 2 (level) x 2 (location) ANOVA with repeated measures on the last factor was calculated. Figure 15 in Appendix C illustrates the means for each sport by level as a function of location. Table 16 in Appendix B contains the ANOVA source table information from the omnibus test.

Upon examination of Table 16, one can see that there are significant main effects for sport, $F(4,373) = 3.62$, $p < .007$, and location, $F(1,373) = 10.39$, $p < .002$. Also, there is a trend for the location by sport interaction, $F(4,373) = 2.22$, $p < .06$. Examination of Figure 15 shows that football players' anxiety ratings are on the whole much lower than the other sports, while the baseball players' have the highest ratings. In this particular instance, the lower scores exhibit higher anxiety ratings. So, it appears that across all conditions football players have the highest pre-game anxiety amongst the sports. Comparisons among means for sports were analyzed using the Newman Keuls technique. This analysis indicated that the means for football players (M=2.02) and volleyball players (M=2.31) at home games are not significantly different from each other, but that the football players exhibit more anxiety than basketball players (M=2.47), soccer players (M=2.48), and baseball players (M=2.55). The same pattern exists for the mean ratings at away games: football players (M=2.0) have more anxiety at away games than basketball players (M=2.47),

soccer players (M=2.56), volleyball players (M=2.57), and baseball players (M=2.83).

In regards to self-confidence, items Q15 and Q16 were used in a paired comparisons t-test to examine differences in mean ratings between athletes' confidence levels at home games (M=2.06) and away games (M=2.32). This analysis yielded a significant difference between the means: $t = 6.32$, $df = (1,380)$, $p < .0002$. These results support the hypothesis that athletes will rate their confidence levels as being higher for home games than away games. It was also of interest to examine differences between sports and level of competition as a function of location. A 5 (sport) x 2 (level) x 2 (location) ANOVA with repeated measures on the last factor was calculated. Figure 16 in Appendix C illustrates the means for each sport by level as a function of location. Table 17 in Appendix B provides the ANOVA source table information from the omnibus test.

Examination of Table 17 indicates that there are significant main effects for sport, $F(4,371) = 10.97$, $p < .0002$, and location, $F(1,371) = 32.53$, $p < .0002$. Comparisons among confidence ratings at home games for each of the sports were analyzed using the Newman Keuls technique ($p < .05$). This analysis indicated that basketball players (M=1.76) and football players (M=1.77) are not different from each other, but that both have more confidence at home games than volleyball players (M=2.14), soccer players (M=2.24), and baseball players (M=2.26). The same pattern exists for away games: football players (M=1.91) and basketball players (M=1.97) are not different from each other, but both have higher confidence ratings

at home games than volleyball players (M=2.36), baseball players (M=2.49), and soccer players (M=2.64).

As a point of interest, a correlation matrix was set up between anxiety ratings at home and away (items Q22 and Q23) and self-confidence ratings at home and away (items Q15 and Q16) to see what relationship exists between these two constructs. As would be expected, there is a strong relationship between confidence ratings at home and away ($r=.58$, $p < .0002$), and an even stronger relationship between anxiety ratings at home and away ($r=.72$, $p < .0002$). Surprisingly, the relationship between anxiety and confidence at home games ($r=.20$, $p < .0002$), and anxiety and confidence at away games ($r=.17$, $p < .0008$) is a positive one. This is contrary to what one would anticipate given that the relationship between the constructs of state anxiety and self-confidence are negatively related (Martens, et al., 1983). Since anxiety and self-confidence were not assessed with the CSAI-2, it may be that the current measurement instrument was not effectively tapping into the constructs of anxiety and self-confidence. However, it could also simply mean that anxiety as measured here represents an anxiety that enhances performance (i.e., a "good" anxiety).

Emotional Intensity

Items Q18 and Q19 reflect the athletes' general levels of emotional intensity at home games and away games. These items were analyzed in a paired comparisons t-test to examine differences in emotional intensity ratings at home games and away games. Athletes reported significantly lower scores at home games (M=2.02), than at away games (M=2.18): $t = 3.97$, $df = (1,382)$, $p < .0002$. Since lower scores

indicate more emotional intensity, these results support the hypothesis that athletes will indicate that they generally play with more emotional intensity at home contests than away contests.

It was also of interest to examine for differences between sports and level of competition as a function of location. A 5 (sport) x 2 (level) x 2 (location) ANOVA with repeated measures on the last factor was calculated. Figure 17 in Appendix C illustrates the means for each sport by level as a function of location. Table 18 in Appendix B provides the ANOVA source table information from the omnibus test.

Of particular interest is a significant three-way interaction, $F(4,373) = 2.75$, $p < .03$. Examination of Figure 17 indicates that the intensity levels of athletes is more for home games than away games, with the one exception of high school basketball - which has more intensity at away games than home games. Also note that there is not much difference between levels in their emotional intensity ratings. It is also of interest to note that football players on the whole have the most perceived intensity, while the baseball players have the least perceived intensity. A followup analysis using the Newman Keuls technique ($p < .05$) examined for differences among the sports for emotional intensity levels at home games. The results indicated that football players ($M=1.67$) and volleyball players ($M=1.76$) are not different from each other, but that they have higher intensity levels than basketball players ($M=2.06$), soccer players ($M=2.19$), and baseball players ($M=2.30$).

A similar pattern of results were found when differences between sports was examined at away games. Football players ($M=1.91$), volleyball players ($M=2.02$),

and basketball players (M=2.07) have similar intensity levels during away games, but all of them have higher levels of emotional intensity than soccer players (M=2.29), and baseball players (M=2.56).

Visualization

Item Q14 asked athletes to provide an indication of the frequency with which they visualize themselves competing or performing on the playing facility (independent of location). Those who responded "never" were instructed to skip the ensuing questions which asked more detailed information about visualization (items Q14a1, Q14a2, Q14a3, Q14a4). The number of athletes who answered "always" (n=113), "usually" (n=102), "sometimes" (n=91), and "rarely" (n=46) were combined into three groups of visualization frequency: those who utilize high levels of visualization (n=113), those who utilize moderate levels of visualization (n=102), and those who exhibit low levels of visualization (n=137). The later category is simply a combining of those who responded "sometimes" or "rarely" to item Q14. These three groups of visualization frequency (high, medium, and low) were then analyzed using a simple ANOVA design to examine for differences in their mean ratings on visualization helping them to become more familiar with the playing facility (item Q14a2). The results yielded a significant main effect of visualization frequency, $F(2,342) = 5.73$, $p < .004$. Followup analysis utilizing the Newman Keuls technique ($p < .05$) indicated that the moderate visualization group (M=2.83) and the high visualization group (M=2.92) are not different from each other, but have higher levels of agreement

that visualization helps them to become more familiar with a facility than the low visualization group (M=3.36). These results support the hypothesis that athletes who frequently utilize visualization techniques believe this helps them to become more familiar with a facility than those athletes who infrequently utilize visualization techniques.

These same three groups were then analyzed using a simple ANOVA design to assess for differences in mean ratings that visualization helps give them more confidence than if they do not visualize (item Q14a3). The results yielded a significant main effect of visualization frequency, $F(2,342) = 8.16$, $p < .0004$. Follow-up analysis utilizing the Newman Keuls technique ($p < .05$) indicated that the moderate visualization group (M=2.63) and the high visualization group (M=2.40) are not different from each other, but they have higher levels of agreement that visualization helps to give them more confidence than the low visualization group (M=3.05). These results support the hypothesis athletes who frequently utilize visualization techniques will indicate that visualization gives them more confidence than those athletes who do not frequently utilize visualization techniques.

Finally, these three groups were then analyzed using a simple ANOVA design to examine differences in mean ratings on item Q14a4, which asked athletes to indicate to what extent visualization helps give them an advantage over opponents. The results yielded a significant main effect of visualization frequency, $F(2,342) = 15.75$, $p < .0002$. Followup analysis utilizing the Newman Keuls technique ($p < .05$) indicated that the moderate visualization group (M=2.85) and the high visualization group

(M=2.89) are not different from each other, but they have higher levels of agreement that visualization helps to give them more of an advantage over their competition than the low visualization group (M=3.65), supporting the stated hypothesis. These results support the hypothesis that athletes who frequently utilize visualization techniques will indicate that visualization provides them with an advantage over their opponent moreso than those athletes who infrequently utilize visualization techniques. However, it is important to note that always visualizing provides no more of an audience than sometimes visualizing.

In order to have a clearer understanding of how visualization impacts upon the HA, the relationship between the visualization variables and overall belief in the HA, self-confidence, and familiarity with the playing field was examined. To accomplish this, a correlation matrix was developed using the following variables: Q1 (belief in the HA), Q5 (familiarity gives an advantage), Q6 (opponents facility is more difficult), Q8 (familiarity gives more confidence), Q14A2 (visualization helps familiarity), Q14A3 (visualization gives more confidence), Q14A4 (visualization provides an advantage), Q15 (confidence at home), and Q16 (confidence away). Table 19 provides the correlation coefficients and the significance values for these correlations. It is of interest to note that none of the visualization measures were significantly correlated with the belief in the HA (Q1), nor was there a significant correlation between confidence measures (Q15, Q16) and athletes' ratings that visualization helps their confidence. However, Table 19 shows that the correlations between visualization items and

familiarity ratings (i.e., Q14a2 and Q6; Q14a3 and Q8; and especially Q14a4 and Q5) are significant ($p < .05$).

Familiarity with the Playing Field/Court

Items Q7 and Q13 were used to develop an index of familiarity for all sample members. Since the frequency with which one practices on the home field/court is often higher than the frequency with which one competes on the home field/court, it was determined that item Q7 should have a higher weighted value in the development of the index than item Q13. The index was developed simply by multiplying the number of days a week for which one practices on the home field/court (item Q7) by a constant of 3. The number of games one has played on the home field/court was multiplied by a constant of 1.5. The sum of these two products was then divided by 2 to provide an index of "familiarity" with one's home field/court. Thus, the sample was split into thirds which yielded a low experience group (n=113), a moderate experience group (n=117), and a high experience group (n=119). These groupings were then used in a simple ANOVA to examine for mean differences among the groups on their ratings that being familiar with the playing field gives them an "advantage" over their opponents (item Q5). Results from this analysis yielded non-significant differences among the mean values for all three groups (High Experience Mean=2.48, Moderate Experience Mean=2.34, Low Experience Mean=2.40). This finding fails to support the hypothesis that athletes who have more experience playing and practicing on their home facility will indicate that developing a familiarity with the playing field

gives them an "advantage" over opponents, more so than athletes with lesser playing and practicing experience.

A 5 (sport) x 2 (level) ANOVA was conducted which examined for differences in athletes' mean ratings that being familiar with a playing facility (either home or away) gives them an advantage over athletes who are not familiar with the playing facility (item Q5). Figure 18 in Appendix C shows the mean ratings for each sport by level. Table 20 in Appendix B provides the ANOVA source table information from the omnibus test.

It is of interest to note that there is a significant main effect of sport, $F(4,371) = 2.98$, $p < .02$. However, the followup analysis, using the Newman Keuls technique, yielded no significant differences between the means for the sports. Upon examination of Figure 18, one can notice that the pattern of means is such that the high school athletes have lower scores than collegiate athletes, across all sports except for basketball (which has a reversed pattern). Also note that soccer and baseball have the lowest ratings and volleyball has the highest overall ratings.

A second simple ANOVA was conducted to examine for mean differences among the experience groups on their ratings that it is more difficult to perform on the opponents' playing field/court than on their home facility. As with the above, there were no significant differences among the mean ratings for the three experience groups (High Experience Mean=3.06, Moderate Experience Mean=2.85, and Low Experience Mean=3.23).

A 5 (sport) x 2 (level) ANOVA was conducted which examined for differences in athletes' mean ratings that competing on the opponent's facility is more difficult than competing on their own home facility. Surprisingly, this test failed to yield any significant differences between sports (Football=3.29, Soccer=2.83, Volleyball=3.0, Basketball=2.92, Baseball=3.31). Collectively, these two findings failed to support the hypothesis that athletes who have more experience playing and practicing on their home facility will indicate that it is more difficult to perform on their opponent's facility, more so than athletes with lesser playing and practicing experience.

A third simple ANOVA was conducted to examine for mean differences among the experience groups on their ratings that being more familiar with a playing facility helps them to feel more confident that they will play well at the facility. As with the above, there were no significant differences among the mean ratings for the three groups (High Experience Mean=2.48, Moderate Experience Mean=2.33, and Low Experience Mean=2.40). This, again, fails to support the hypothesis that athletes who have more playing and practicing experience on their home facility will indicate that being familiar with a playing facility gives them more confidence in their performance than athletes with lesser playing and practicing experience.

A 5 (sport) x 2 (level) ANOVA was conducted which examined for differences in athletes' mean ratings that being familiar with a playing facility (either home or away) gives them more confidence in their performance than when they are unfamiliar with the playing facility (item Q8). Figure 19 in Appendix C shows the mean ratings

for each sport by level. Table 21 in Appendix B provides the ANOVA source table information from the omnibus test.

It is of interest to point out that there are significant main effects for sport, $F(4,373) = 2.53$, $p < .05$, and level, $F(1,373) = 5.24$, $p < .03$. Also, there is a trend for the sport by level interaction, $F(4,373) = 2.19$, $p < .08$. Examination of Figure 19 shows that the mean ratings for high school are lower than college across all sports, except for soccer. Follow up analysis using the Newman Keuls technique indicated that the mean level for high school athletes ($M=2.32$) is significantly lower than for college athletes ($M=2.57$).

HA Construct

Since the main tenet of this thesis is that the HA is tied into the belief structure of the athlete, it is of importance to examine the relationship between the athletes' belief in the HA and the other variable domains discussed in this analysis section: audience influence, officiating bias, anxiety, self-confidence, emotional intensity, and familiarity with the playing field. Thus, items: Q2, Q3, Q5, Q10, Q11, Q15, Q16, and Q18-Q27 were analyzed in a correlation matrix with the belief in the HA (item Q1). In addition, these items were also used in a multiple regression analysis using an R-square selection method (since there is no theoretical model that allows us to enter the variables into the equation in a certain order) with Q1 as the dependent variable.

The results of the correlation matrix can be seen in Table 22. Upon examination of this table, one can see that the following variables are significantly related to the

belief in the HA: Q2 (Does the audience influence your performance at home games), Q5 (Being familiar with the playing facility gives me an advantage), Q10 (Officials tend to favor the home team), Q15 (Confidence levels at home games), and Q20 (typical overall performance at home games). Please note that each of these items (with the exception of item Q5) reflect the ratings made specifically for home games. Intuitively, this makes a great deal of sense since the focus here is on what variables are related to the belief in the HA. If the relationship between the HA and the away ratings were stronger than that for home games, one might suspect that the measures used would not be a true reflection of the athletes' perceptions at home and away games. It is important to recall, however, that some previous analyses showed no relationship between some of these variable domains and belief in the HA (e.g., the relationship between visualization and the HA).

The results of the multiple regression analysis revealed that having all the variables in the model produced the largest R-square value (0.1406), but the most efficient model was only two variables (Q2 and Q5) that accounted for the majority of the variance (R-square = 0.116). Thus it appears that the best variables that can account for the variance in the belief in the HA are the home crowd's perceived influence on the athletes' performance (item Q2) and the athletes' belief that being familiar with the playing facility gives them an advantage over other athletes not familiar with the facility (item Q5). If one wanted to extend the model to include more variables, the next best models involve items Q2, Q5, and Q10 (R-square = .121) and items (Q2, Q5, Q10, Q15, Q20, and Q21). The latter is the most intriguing since it

adds officiating bias (item Q10), self-confidence (item Q15), and performance ratings at home (item Q20) and away (item Q21) to the model, although these new additions to the model do not account for as much variance as items Q2 and Q5 do. The intrigue lies in the fact that there is an assumption made by the author that the belief in the HA is related to an athlete's performance.

CHAPTER 4

DISCUSSION

Past research (e.g. Edwards, 1979; Edwards and Archambault, 1989; McCutcheon, 1984; Scwartz and Barsky, 1977) provides us with strong evidence that documents the existence of the HA phenomenon. Researchers have investigated this phenomenon primarily by examining game statistics, such as the number of wins and losses a team accrues at home contests versus away contests. In addition, there is evidence that the phenomenon is more pronounced in professional hockey and basketball (as well as collegiate basketball) than other major sports such as football and baseball (Edwards and Archambault, 1989). Although there is an abundance of evidence that documents the existence of an HA (e.g., Edwards, 1979; Edwards and Archambault, 1989; McCutcheon, 1984; Schwartz and Barsky, 1977), researchers know little to nothing about how perceptions of athletes may contribute to the HA. As a result, there is very little empirical information that describes the psychological and environmental influences upon the HA.

Courneya and Carron (1992) suggest in their literature review of the HA that the descriptive phase of inquiry has been completed and well documented, and that it is time to move on to explanations that address the underlying mechanisms responsible for producing the HA. Analyzing game statistics from several team sports, provides us with an incomplete picture as to what truly are the variables that contribute to and

form the basis of this phenomenon. Analyzing game statistics cannot reveal underlying psychological variables that may be operating to produce this "advantage."

Thus, the specific aim of this exploratory study was to investigate which psychological, physical and/or environmental variables constitute the basis of the HA, and whether or not they tend to operate differentially amongst various team sports and levels of competition (i.e., high school and college). General research questions and hypotheses were developed from the following set of variables thought to underlie the construct of the HA: audience effects, officiating bias, attributions, self-fulfilling prophecy, anxiety and self-confidence, emotional intensity, visualization and familiarity with the playing field.

More generally, this study looked to further our understanding of the relationship between a person's belief and their perceived behavior. The underlying assumption in this thesis is that an athletes' behavior (i.e., better performance at home games than away games) is related to his/her belief in the HA. In other words, the HA phenomenon exists as a result of athletes' beliefs that they and their respective teams will perform better at home games than away games. This belief in the HA would, consequently, be the underlying impetus for athletes' increased levels of performance expectations, self-confidence, emotional intensity and other factors at home games versus away games. As a result, these increased levels of self-confidence at home games versus away games help to produce better performance at home games versus away games - thereby further strengthening athletes' beliefs in the HA. However, since actual performance measures were not analyzed for the athletes participating in this

study, this assumption was not actually tested. Even if the relationship between actual performance and belief in the HA were analyzed using multiple regression techniques, one would not be able to determine the direction of causality with any certainty. Causality could be better tested with a longitudinal design. It could be that belief in the HA causes better performance at home games versus away games, or vice versa. It is clear from the results of Q1 that athletes do strongly believe in the HA. This belief is moderately strong across sports (although weakest for baseball), and is not much different between the levels of competition.

Clearly, the assumption that the belief in the HA helps to produce better performance at home games than away games further assumes that all other factors remain equal (i.e., the skills and athletic abilities of the athletes on both home and visiting teams are the same). Thus, it is not suggested by the current author that the HA exists simply because athletes believe in the HA. If one team is clearly superior to another team in both talent and ability, then it would be unlikely that they would lose to a far inferior opponent regardless of where the game was played. Rather, the present study provides a basis whereby we can begin to set down a framework for understanding the psychological variables that may be operating to produce the phenomenon known as the HA.

Audience Effects

Intuitively, it was often thought by many athletes, fans, and coaches that the support of the home crowd can often contribute significantly to the outcome of the

game. Assuming that athletes' perceptions of their own performance levels are fairly accurate, then the present results from this study clearly indicate that the audience does indeed make an impact on athletes' performance. As was expected, athletes do perceive that the home crowd exerts a more positive influence on their performance than does an opponent's crowd at away games. This lends support to the notion that audience effects are a part of the phenomenon known as the HA. This is best exemplified by the finding that belief in crowd influence was significantly correlated with belief in the HA. This finding comes as no surprise, since it does nothing more than support a belief that a countless number of individuals have presumably thought to be a "given." However, the findings in this study also indicate that the effect of the audience influence is slightly stronger for high school athletes than collegiate athletes. This stands in contrast to McCutcheon's (1984) finding that the HA is weaker at the high school level than the collegiate level.

Though the understanding that overall audience effects impact upon athletes differentially as a function of location is important, it does not tell us anything about which characteristics of the audience appear to have the most impact upon athletes. The present study provided a more in depth look at the characteristics of an audience that might be important in terms of influence on athletes' performance. Past research on audience effects suggests that it might be the mere presence of the crowd that enhances the athletes' performance (Zajonc, 1965), while other research suggests that it may be that the audience has a chance to evaluate the athletes' performance (Cottrell, 1972). Others contend that it may be the size or the vociferousness of the crowd that

makes a difference (Baumeister and Showers, 1986). The present results suggest that all of these components of the audience have a differential impact upon the athletes' performance at home and away games, thus contributing overall to the HA. Though each of the audience characteristics produce differential effects based upon location, it is important to note that the most influential characteristics of the audience appear to be the crowd cheering the performance (evaluative component of the audience), crowd presence (mere presence effect), and noise level of the crowd. These results are concurrent with findings from Cottrell (1972), Zajonc (1965), and Baumeister and Showers (1986), which indicated that an audience's ability to evaluate performance, the mere presence of an audience, and the vociferousness of the crowd all constitute audience effects on the athletes' performance. In the same light, the proximity of the crowd - though showing significant differences as a function of location - appears to have less of an impact upon athlete performance.

It is also clear from the present results that these characteristics of the audience impact on some sports differently than others, and that the strength of this impact is contingent upon whether it is a home crowd or an opponent's crowd. Generally, speaking, it appears that football and basketball players are more positively influenced all around by these characteristics of the audience than the other sports, regardless of location. These results both conflict and concur with the findings from Edwards and Archambault (1989). Their results indicated that the HA was found to be more pronounced in pro basketball and hockey (and collegiate basketball) than other sports, and least pronounced in football and baseball. The present results concur with these

findings in that baseball appears to be the least affected by audience effects, and that basketball is one of the beneficiaries, but they contrast in that football appears to be the primary beneficiary of the audience effects. Additionally, the results indicate that the audience effects are slightly stronger at the high school than the collegiate levels, once again contrasting with findings from McCutcheon (1984).

Contrary to expectation, however, was the finding that athletes were more distracted by the audience at home games than away games. This finding, though somewhat consistent with Baumeister and Steinhilber's (1984) finding that home team players have been known to "choke" under pressure, it is not entirely consistent with athletes' perceptions that the home audience influences their performance more positively than away crowds. However, these findings need to be interpreted with caution. The overall "distraction" index was composed of three questions: 1) thinking about how fans will react to their performance, 2) distracted by the reactions of the crowd, and 3) crowd reactions have an influence on mistakes or errors, show more of an effect at home games than away games. However, when examined independently, item two ("distraction") did not show significant differences. Since it is not clear if items one and three produce negative effects, one can not conclude from the results that athletes are more distracted by crowd reactions at away games than home games. Taking Baron's (1986) distraction-conflict theory of social facilitation into consideration, however, this could be a result of the "distraction" producing more arousal for the home team players which could possibly facilitate their performance.

Though this result is not clearly interpreted, it does correspond with the finding that athletes' levels of reported anxiety are also higher for home games than away games. Athletes may be self-focusing their attention more at home simply because they feel more pressure to perform well at home games than away games. Athletes may feel that the home crowd may be evaluating their performance more so than the away crowd, thereby causing the athlete to shift their focus of attention inwardly rather than to the task at hand. But, it could also be that athletes are attending to the crowd rather than self-focusing their attention.

Although it appears that audience effects play a major role in understanding the basis of the HA, the above results must be interpreted with a certain degree of caution. The reader will recall that the effects that were found for gender were concentrated in three primary areas of interest, one of which was audience effects. This may not impact so much on the findings that relate to the level of competition, but it may play an important role in understanding how the audience effects differ across sports.

Officiating Bias

Many coaches and athletes often attribute loses at away games to "bad calls" made by the officials, and sometimes even loses at home games. The assumption is that the officials are somewhat biased in favor of the home team because the home crowd is somehow able to influence the calls that the sports officials make. Askins (1978) purported that the officials are influenced by the negative reactions of the home crowd as a result of making a call against the home team, and thus are likely to lean

toward the home team on the next close call by penalizing the visiting team. The present results are in agreement with Askins (1978) findings. However, the results are not consistent in their direction. For example, collegiate athletes believe that sports officials are less neutral in the calls they make than high school athletes, yet high school athletes agree more than collegiate athletes that sports officials have a tendency to favor the home team. Additionally, though there is not a significant difference between level, the results moderately indicate that high school athletes moreso than collegiate athletes perceive that the audience can influence sports officials' decisions. All these results point to the fact that athletes, generally speaking, perceive that sports officials are not free from bias in the calls they make, nor are they exempt from the impact of the audience influence. These results are also consistent with Phillip's (1985) report that officials are biased in favor of the home team.

It was hypothesized that athletes would respond more assertively at home games than away games, presumably because athletes may assume that they can get away with this behavior more at home games than away games. The results indicated the contrary - athletes perceive that they respond to officials calls made against themselves/their teammates more assertively at away games than at home games. One possible explanation for this contrary finding is that athletes may try to increase their overall aggressiveness at away games in order to compensate for HA effects. The present results indicated that athletes' have more emotional intensity at home games than away games, but this may not necessarily be tied into assertiveness toward officials. In light of the above results, it appears that officiating bias does play a part in the HA

construct, but further research needs to be done (perhaps by questioning the sports officials themselves) in order to determine the extent of the audience influence on officiating decisions, or the athlete's ability to influence the calls made by officials.

Attributions

It was hypothesized that athletes' attributions would differ for sport outcomes (i.e., win vs. loss) on dimensions of locus of causality as a function of location. Though this hypothesis was not supported there were some interesting findings. For the most part, athletes make internal attributions moreso than external attributions across all sport outcomes. Additionally, athletes indicated that internal and external attributions were more of a reason for winning outcomes than for losing outcomes. Also, there were more differential attributions for wins and losses at home games than away games.

Considering that the internal, controllable, and stable dimension consists primarily of ability, tactics (i.e., coaching), and motivation (i.e., emotional intensity), it is not too surprising that athletes would consider these factors to be the primary responsibility for the outcome of the game. Yet it seems that if the attributions were truly a component of the HA, athletes would be consider that wins and losses at home games would be attributed to more internal factors, and wins and losses at away games would be attributed more to external dimensions, particularly for losses when one considers that many athletes will "blame" a loss on such things as poor officiating, fatigue, or other external reasons. According to self-enhancing or defensive attribution

ideas, one should attribute success internally and failure externally (at least for males), and these tendencies are accentuated at home (vs away) as the home crowd enhances self-identity.

Part of the reason for these findings might be a result of combining 12 attributional ratings into two general indices. It could be that very different results would be obtained if the effects of the individual items were examined separately. In addition, "effort" was not included as one of the attributional ratings in this study, which is a central attribution and one implicated by theory to be affected by location.

The attributions made toward the environmental variables (e.g., travel fatigue, etc.) support the hypothesis that athletes will attribute these variables differently for victories at away games than for losses at away games. It is not surprising that they are deemed more relevant to away losses (as expected) than away wins, since they are all negative factors. What is surprising, though, is that the mean ratings indicate that these variables are only "somewhat" to "rarely" a reason for the outcome of the performance. This does not lend strong support to the notion that such things as travel fatigue, sleeping in a strange bed, etc. have a strong influence as a basis for the HA phenomenon. However, keeping in mind that the almost all the high school members of this sample (and most of the collegiate athletes as well) are less likely to be affected by these variables than professional athletes might be (due to the lack of extensive or prolonged road trips), one can not conclude that attributions do not play an important role in the HA. If the sample would have included professional sports teams or high

profile collegiate teams, the results may have looked much different in terms of the types of attributions made.

Had the attributions varied more as a function of outcome and location, one would be able to fit attributions nicely into a model of the HA. Further research, examining professional as well as amateur athletes, would need to be conducted in order to learn how much this variable construct truly relates to the HA, especially on attributional dimensions such as effort that are more likely to be affected by location and crowds.

Self-Fulfilling Prophecy and Self-Expectancy

The present results supported the hypotheses that athletes perceive that they expect to perform and believe they actually perform better for home games than away games. However, this expectation of performance and ratings of actual performance does vary across sports and level of ability. For example, both perceived expectation of performance and actual performance is slightly stronger for high school athletes than collegiate athletes. Once again, this contrasts with McCutcheon (1984). The finding that baseball players have the lowest ratings of expected and actual performance are consistent with the game statistics reported by Edwards and Archambault (1989).

These results do need to be interpreted with a certain amount of caution, however, because the athletes' ratings of their actual performance may indicate a strong bias in their responses. When the athletes reported their perceived levels of expected performance at home versus away games, the ratings for home were slightly above

average, and the ratings for away games were slightly below average. However, for actual performance ratings, the means were both well above the midpoint on the scale for home and away games. This does not seem likely, because it is not possible for all performances to be above average. If the athletes are trying to imply that they perform with consistency at home games and away games, then the consistency should be reflected in ratings of "average" performance at home and away games.

As stated previously, the underlying assumption of this study is that the HA is tied into the belief structure of the athlete. If this were true, there would be evidence that objective performance measures (not collected or analyzed in this study), and perceived actual and expected levels of performance would be strongly related to the athletes' belief in the HA. Though the present results supported the hypotheses that athletes perceive that they expect to perform and actually perform better for home games than away games, it is clear from the multiple regression analyses that there is a nonsignificant relationship between athletes' belief in the HA and their actual or expected performance ratings.

These results as a whole indicate that performance expectation and actual performance do play a role in the HA, but it seems apparent from these results that the "self-fulfilling prophecy" phenomenon does not play much of a role in the HA as anticipated. Clearly, the final determination on this matter cannot be made unless there is further analysis done by using objective performance measures as they relate to the athlete's belief in the HA. It would be an important step to show that athletes who believe in the HA construct do in fact perform significantly better at home games than

away games on a battery of objective performance measures. Conversely, one would also have to provide evidence that those who do not share such a strong belief in the HA would have to demonstrate about equal levels of performance at both home and away games. Even if this were done, however, and the results showed that there is a strong positive relationship between belief and performance, the results would need to be interpreted with caution since "causality" would could not be determined. In addition, the effects of gender are also a potential threat to making a clear interpretation of the relationship between perceived performance and the HA.

Anxiety and Self-Confidence

The present results indicate that athletes exhibit higher levels of confidence at home games and away games, suggesting that there may be some connection between the HA construct and athletes' confidence levels. These results should be interpreted with caution, however, since there were gender differences on both measures of self-confidence (items Q15 and Q16). Contrary to expectation, however, athletes' anxiety ratings were higher (more anxiety) for home games than away games. These effects are not the same for all sports. It appears that football players exhibit higher anxiety levels than most other sports, but they also tend to have more self-confidence than the other sports. Despite the fact that these results are contrary to expectation, they do indicate that anxiety also plays a role in the HA. The questions then becomes, why do athletes generally report more anxiety at home than away games, but more confidence

at home games. In order to answer this question, the relationship between anxiety, and self-confidence needs to be examined.

Martens et al. (1983) found that state anxiety levels have three components: somatic anxiety, cognitive anxiety, and self-confidence. In this scheme, self-confidence is negatively related to the components of anxiety (this manifests itself in the form of self-defeating thoughts). The present results yielded a positive relationship between anxiety and self-confidence. This may be explained in a couple of ways. First, since these questions were single item responses (as opposed to the CSAI-2, developed by Martens et al., which has a battery of responses that tap into the three constructs), we cannot be sure exactly what it is we have measured. At face value, anxiety and self-confidence are being measured, but the validity of the measures come into question. Secondly, the positive relationship here may simply be an indication that higher anxiety coupled with high self-confidence adds to the HA because it serves as a stimulus to perform better at home games than away games. This is also implicated by the fact that athletes have higher levels of emotional intensity at home games than away games and, as noted before, feel more distracted by the crowd at home. High levels of anxiety can interfere with performance if the task involves a highly complex task, but does not have as much of a negative impact (and may also have a positive effect) on simpler tasks (Martens et al., 1983). In the case of football, the higher levels of anxiety may serve as more of an "energizer" than for sports such as baseball - where higher levels of anxiety may be less helpful.

In order to truly determine the impact of anxiety and self-confidence on the HA, athletes' levels of state-anxiety would have to be assessed at home games versus away games using the CSAI-2 developed by Martens et al. (1983), to see if state-anxiety varies as a function of location. Additionally, one would then have to examine performance as it relates to these anxiety levels. Since self-confidence is a component of state-anxiety, athletes would generally have to exhibit higher levels of state-anxiety, lower levels of self-confidence and poorer performance at away games (and the opposite pattern at home games) in order to truly establish that anxiety and self-confidence play a role in the HA construct.

Emotional Intensity

The present results support the hypothesis that athletes will generally perceive themselves as playing with more emotional intensity at home games than away games. Though this finding is inconsistent with what Volkamer (1972) found, it is consistent with the findings of Warrell and Harris (1986). As it is, the results from this study can not be directly compared to these previous findings since they examined a related construct - aggression. It is not necessarily the case that athletes who exhibit high levels of emotional intensity are also exhibiting high levels of aggression. However, the reverse is probably true. There appears to be not much of a difference between levels of competition, yet there are differences among the sports with football exhibiting the highest levels of emotional intensity. It makes sense that football players would have the highest intensity since they also have the highest levels of anxiety. Again,

these variables may serve as the impetus for "arousal" or as an "energizer" to the athletes.

The results of this study may possibly be explained by the fact that since athletes are performing in front of their home crowd, they may have stepped up their levels of emotional intensity so as not to make themselves look bad in front of the home fans. Just as the HA is a common belief amongst athletes, it is also a common belief amongst fans. When they go to see that team play at home they generally expect the home team to win the game because they are supporting and encouraging the home team.

Visualization

The present results supported all three stated hypotheses on the effects of visualization as they relate to the HA. It is clear from the results that those who utilize visualization techniques more often than those who do not, indicate that they become more familiar with the playing facility; that they have more confidence in their playing ability; and, have an advantage over their opponents who do not visualize. These results seem to provide a clear indication that visualization has at least a small part to play as one of the underlying variables in the HA construct. Essentially, it is an extension of visualization's impact upon the performance of the individual sport athlete (i.e., down-hill skier, cross-country runner, golfer). The mechanism for how this would theoretically work is that athletes, through the process of vivid mental rehearsal, would become more familiar with their playing field/court because they would "see" themselves successfully performing the appropriate skills (i.e., executing an offensive

play, making a catch, making a good throw) on a regular basis. By doing so, they would accomplish several things: 1) more familiarity with the playing facility by "seeing" the court/field, 2) gain in confidence because of "seeing" themselves successfully perform the action repetitively, and 3) a better learned response for the behavior since the action(s) is carried out both physically and through continual mental rehearsal.

In order to have an even clearer understanding of how visualization impacts upon the HA, the relationship between the visualization variables and overall belief in the HA, self-confidence, and familiarity with the playing field was examined via a correlation matrix. Though these correlations did not indicate a relationship between visualization and belief in the HA, or self-confidence, perhaps there exists a chain of relationships that were not tested. Perhaps visualization as a technique enhances the athletes' levels of self-confidence. It may be this increased self-confidence that may lead to an increased belief in the HA. As it stands, however, visualization does appear to enhance the athletes' ability to become more familiar with playing field, and as a result it seems to affect their self-confidence. This technique, if applied correctly, could theoretically reduce the difference in familiarity at home versus away games. In other words, it could serve as a way to neutralize the effects of the HA when athletes play away games.

Familiarity with the Playing Field/Court

The biggest surprise in all of the data analyses was the fact that the familiarity with the playing field (as indicated by their ratings of how frequently they practiced and performed on their home field/court) yielded no significant results. The only results that are worth noting from the analyses are that high school athletes indicated that familiarity with the playing field gives them more of an advantage over opponents and also more confidence, than the collegiate athletes. Also, volleyball players think that familiarity with the playing field gives them an "advantage" over their opponents moreso than other sports, while soccer and baseball players are the least affected by this "advantage." It was thought that familiarity with the playing field would evidence itself as being an important factor underlying the HA. However, the design of the questionnaire used in this study did not allow for comparisons between home and away ratings of "familiarity" with the playing field, or levels of confidence as it results from familiarity. Had the questionnaire been designed a little differently, then more direct tests (examining the differences of familiarity for sport and level as a function of location) could have been implemented. As a result, the effect tested here (amount of experience on belief in familiarity) is somewhat removed from the idea that familiarity accounts for the HA.

Although the results did not come out as expected, it is of interest to note that almost all the athletes in the sample indicated some level of agreement that familiarity with the playing field/court gives them an advantage, more confidence, and a feeling that it is more difficult to play on an opponent's facility than their own facility. Had

the responses to these questions from athletes been more equally distributed among the answer categories (rather than skewed), then one might conclude that familiarity is not related to the HA construct. As it is, though, the ratings of being familiar with the playing field were significantly correlated with the belief in the HA. Since the results indicate general agreement that familiarity has an impact upon athletes, however, it might be concluded that the present results are attributed to the fact that familiarity with the playing field makes an impact on the athletes' performance regardless of the number of games played or practices held on the home facility. Perhaps the notion of "experience with the playing facility" needs to be dropped from the analysis and examined independently of this concept.

HA Construct

Since the main tenet of this thesis is that the HA is tied into the belief structure of the athlete, it was critical to examine the relationship between the athletes' belief in the HA and the various constructs thought to underlie the HA: audience influence, officiating bias, anxiety, self-confidence, emotional intensity, and familiarity with the playing field. Overall only 14% of the variance in Q1 (belief in the HA) was accounted for by the supposed predictors - of these Q2 (overall audience influence at home games) and Q5 (familiarity with the playing facility provides an advantage) were the most significant. Thus it appears that constructs most closely tied to the HA are audience influence and familiarity with the playing field. This does not seem surprising in that these two constructs appear to be the most "popular" intuitive explanations for why the

HA exists (e.g., Edwards, 1979). The other variable constructs that appear to account for the HA to some extent are: officiating bias and confidence.

It is clear from the correlation matrix (Table 16) that many of the variable constructs are not closely tied to the athlete's belief in the HA, including such critical variables as perceived performance and expected performance, as initially thought. This does not lend much support to the notion that the HA is a function of the athlete's beliefs that they will perform better at home than away. As stated earlier, this needs to be examined further by taking a critical look at objective performance measures and their relationship to the belief in the HA. Because of these results, it is not possible to determine clearly how all of these variable domains relate to the HA construct. Certainly there are a number of effects of location, and these effects do not appear to be the same across all types of sports nor all levels of competition. This does give some concrete evidence as to what some of the underlying psychological variables are that constitute the basis of the HA, but the results from the present study suggest that the relationship between these constructs and the HA is not strong.

In order to further clarify the nature of the relationship between these various constructs and the HA, one would need to examine the actual performance of athletes at home games and away games and assess their corresponding levels of the variable constructs (i.e., emotional intensity, etc.). There would be strong evidence that these variable constructs are a part of the HA construct if athletes generally had higher levels of the construct (e.g., emotional intensity) at home games and, correspondingly, better measures of performance at home games than at away games. Until this happens, we

can only state with limited certainty that the variable domains as presented in this thesis account for at least some of the phenomenon known as the HA.

Conclusion

This research, contrary to previous research done on the "HA," is driven by a theoretical perspective which seeks to explain why there is a predisposition for some teams to win more games and perform better at home competitions than at away competitions. It is not enough to simply show that teams display a tendency to win more games at home than away. Rather, the primary focus should be: what contributes to this systematic advantage and why does this happen? It was hoped that the theoretical perspective adopted in this study would be advanced through examining how well the concepts of self-fulfilling prophecy, visualization, self-confidence, anxiety, officiating bias, emotional intensity, attributions, audience effects and familiarity with the playing field matched the actual data. Though most of the hypotheses were confirmed, there are a number of them that were not. This may be a function of several things. First, it may be that the above results that failed to find any significant differences, might be a function of the measurement instrument not being able to successfully tap into the different types of constructs of interest. Although the instrument was pre-tested twice, it may be that the questions on the questionnaire do not reflect the true nature of that particular variable construct (i.e., officiating bias, attributions, and familiarity with the playing field). That is, the measures may be invalid.

A second possibility, even though the results of this study are insignificant on some or all of these dimensions, may be that they are byproducts of having a convenience sample as opposed to a true random sample. There is a limitation in the inability to draw a more representative sample from the population, but this sample selection was determined by cost limitations and a concern for the possibility of low return rates if done in another manner (i.e., mail survey). It would have been ideal to have a sample of professional athletes, but this was not feasible. The sample was certainly large enough to detect effects, but consisted of small and uneven sized categories (gender and sport), which contributed to increased variance. A larger and/or more homogeneous sample is needed in order to provide more credence to the conclusions that are drawn. One concern related to this is the issue of gender effects. As stated in Chapter 3, there were a number of items in the survey that showed main effects of gender. These effects need to be better accounted for. It is possible that the HA operates differentially upon gender as well as different sports.

Another problem was the fact that it was a self-administered survey. Respondents are least likely to react to "evaluation apprehension" or to respond in a socially desirable fashion if surveyed on the telephone. However, in trying to design a method that made efficient use of the sample to collect data, it was imperative that the data collection be self-administered.

It is possible a certain amount of "evaluation apprehension" occurred. Given the pretense that fair play in sport is the idealized objective, some athletes might have found it difficult to admit that they "manipulate" something in order to gain an

advantage. As a guard against this it was emphasized during the survey that there were no "right" or "wrong" answers and there was assurance that their coach and teammates would not see their responses.

However, the method chosen and sample used helped to broaden our understanding of what some of the variables are that constitute the basis of the HA, and under which conditions they are likely to operate. The method used to study the HA was useful in clarifying which variables constitute this construct, at least preliminarily. The HA clearly was an amorphous construct which needed to be concretely defined. That objective has not been reached yet, but with further investigation we can gain an even clearer understanding of all the variables that underlie the basis of the HA. This self-report approach to assessing the HA construct is unique and when combined with more empirical data, such as performance outcome measures, it can at least provide researchers with some concept of what it is we are discussing when we speak of the HA.

APPENDIX A

QUESTIONNAIRE ITEMS

LEGEND:

RESPONSE CATEGORY

A = SA (+3).....SD (-3)
B = SPI (+3).....SNI (-3)
C = Very Assertively (1).....Not Assertive at all (4)
D = Always (1).....Never (5)
E = Extremely (1).....Not at all (5)
F = Outstanding (1).....Poor (5)

Table 1. Item number, question wording, and response category to the Home Advantage questionnaire

Item number	Question wording	Response category
Q1	Some athletes believe that the home-team has an "advantage" over the visiting team, while other athletes do not believe this. To what extent do you agree or disagree that the home team has an "advantage" over the visiting team? (Circle one number)	A
Q2	Some athletes believe that the audience can influence their performance either positively or negatively, while others do not believe this. To what extent does the audience influence your performance at home games? (Circle one number)	B
Please indicate to what extent each characteristic of the audience seems to influence your performance at home games.		
Q2a1	Having a crowd present	B
Q2a2	Crowd cheers on our performance	B
Q2a3	Crowd boos our performance	B
Q2a4	Size of the crowd	B
Q2a5	Noise level of the crowd	B
Q2a6	Closeness of the crowd to our court or field	B
Q2a7	Having friends or family present at the game.	B
Q3	Some athletes believe that the audience can influence their performance either positively or negatively, while others do not believe this. To what extent does the audience influence your performance at away games? (Circle one number)	B

Table 1. Continued

Item number	Question wording	Response category
Please indicate to what extent each characteristic of the audience seems to influence your performance at away games.		
Q3a1	Having a crowd present	B
Q3a2	Crowd cheers on our performance	B
Q3a3	Crowd boos our performance	B
Q3a4	Size of the crowd	B
Q3a5	Noise level of the crowd	B
Q3a6	Closeness of the crowd to our court or field	B
Q3a7	Having friends or family present at the game.	B
Q4a	When I compete at home, I think about how fans will react to my performance.	A
Q4b	When I compete away, I think about how fans will react to my performance.	A
Q4c	When I compete at home, I am distracted by the reactions of the crowd.	A
Q4d	When I compete away, I am distracted by the reactions of the crowd.	A
Q4e	When I compete at home, crowd reactions have an influence on mistakes or errors.	A
Q4f	When I compete away, crowd reactions have an influence on mistakes or errors.	A
Q5	Some athletes agree that being familiar with the playing facility gives them an "advantage" over other athletes not familiar with the facility. Other athletes do not agree. To what extent do you agree or disagree that being familiar with the playing facility gives you an edge over your opponent? (Circle one number)	A
Q6	Some athletes agree that competing on their opponents' facility is more difficult than competing on their own facility, while others disagree. To what extent do you agree or disagree that competing on your opponent's facility is more difficult than competing on your own facility? (Circle one number)	A

Table 1. Continued

Item number	Question wording	Response category
Q7	During your season how many times a week, on average, do you workout on your home court or field?	A
Q8	To what extent do you agree or disagree that being familiar with a playing facility (i.e. you have played there before) helps you to feel more confident that you will perform well on that playing facility? (Circle one number)	A
Q9	To what extent do you agree or disagree that sports officials are always neutral in the calls (i.e., penalties or fouls) they make? (Circle one number)	A
Q10	To what extent do you agree or disagree that sports officials have a tendency to favor the home team? (Circle one number)	A
Q11	It is sometimes thought that the fans can influence sports officials' decisions on some of the calls they make. To what extent do you agree or disagree with this statement? (Circle one number)	A
Some athletes claim they respond to officials' calls more assertively (i.e., yell at the officials or argue with them) at home games than away games, while other athletes do not state this claim. Respond to each of the following statements by circling one number for each:		
Q12a	At home games, I respond to the officials calls against me/my teammates...	C
Q12b	At home games, I respond to the officials calls against me/my teammates...	C
Q13	Please indicate the number of games that you have played on your home facility since you have been a member of your team.	
Q14	Within a few days before your competition, how often do you visualize yourself competing or performing on the playing facilities (at home or away)? (Circle one number)	D
Indicate the extent to which you agree or disagree with each of the following statements.		
Q14a1	It is easier to visualize myself performiong on my home facility than on a competitor's facility.	A
Q14a2	Visualizing myself perform on a court or field helps me to become more familiar with a facility.	A
Q14a3	Visualizing myself perform on a court or field gives me more confidence than if I did not visualize.	A

Table 1. Continued

Item number	Question wording	Response category
Q14a4	Visualizing myself perform on a court or field gives me a bit of an advantage over the competition.	A
Q15	Which of the following best describes your confidence level when you compete at home games? (Circle one number)	E
Q16	Which of the following best describes your confidence level when you compete at away games? (Circle one number)	E
Q17	Indicate the extent to which you agree or disagree with the following statement: When I compete with a high level of emotional intensity, I perform better than if I were to compete with a lower level of emotional intensity. (Circle one number)	A
Q18	Generally speaking, which of the following best describes your emotional intensity level during home games? (Circle one number)	E
Q19	Generally speaking, which of the following best describes your emotional intensity level during away games? (Circle one number)	E
Q20	Generally speaking, which of the following best describes your typical, overall performance at home games? (Circle one number)	F
Q21	Which of the following best describes your typical, overall performance at away games? (Circle one number)	F
Q22	Just before a home game, I generally feel: (Circle one number)	E
Q23	Just before an away game, I generally feel: (Circle one neumber)	E
Q24	Generally speaking, how good or bad do you expect your team's overall performance to be at home games. (Circle one number).	F
Q25	Generally speaking, how good or bad do you expect your team's overall performance to be at away games. (Circle one number).	F
Q26	Generally speaking, how good or bad do you expect your overall performance to be at home games. (Circle one number).	F
Q27	Generally speaking, how good or bad do you expect your overall performance to be at away games. (Circle one number).	F
Indicate to what extent each of the following are reasons why your team wins at home.		
Q28a1	Team Ability	D
Q28a2	Officials are biased	D

Table 1. Continued

Item number	Question wording	Response category
Q28a3	Audience influence (i.e., cheering, booing, heckling, etc.)	D
Q28a4	Being familiar with the facility	D
Q28a5	Opponent's errors/fouls	D
Q28a6	Our coach	D
Q28a7	Opponent's coach	D
Q28a8	Our team's emotional intensity	D
Q28a9	Luck	D
Q28a10	Something else	D
Q28a11	Our team's errors/fouls	D
Q28a12	The playing facility (court, field, etc.)	D
Q28a13	Our opponents' ability	D
Indicate to what extent each of the following are reasons why your team loses at home.		
Q28b1	Team Ability	D
Q28b2	Officials are biased	D
Q28b3	Audience influence (i.e., cheering, booing, heckling, etc.)	D
Q28b4	Being familiar with the facility	D
Q28b5	Opponent's errors/fouls	D
Q28b6	Our coach	D
Q28b7	Opponents' coach	D
Q28b8	Our team's emotional intensity	D
Q28b9	Luck	D
Q28b10	Something else	D
Q28b11	Our team's errors/fouls	D
Q28b12	The playing facility (court, field, etc.)	D
Q28b13	Our opponents' ability	D

Table 1. Continued

Item number	Question wording	Response category
Indicate to what extent each of the following are reasons why your team wins away.		
Q28c1	Team Ability	D
Q28c2	Officials are biased	D
Q28c3	Audience influence (i.e., cheering, booing, heckling, etc.)	D
Q28c4	Being familiar with the facility	D
Q28c5	Opponent's errors/fouls	D
Q28c6	Our coach	D
Q28c7	Opponents' coach	D
Q28c8	Our team's emotional intensity	D
Q28c9	Luck	D
Q28c10	Something else	D
Q28c11	Our team's errors/fouls	D
Q28c12	The playing facility (court, field, etc.)	D
Q28c13	The surrounding team or community	D
Q28c14	Sleeping in a bed other than my own	D
Q28c15	Travel fatigue	D
Q28c16	Eating different foods from what I usually eat when at home	D
Q28c17	Our opponents' ability	D
Indicate to what extent each of the following are reasons why your team loses away.		
Q28d1	Team Ability	D
Q28d2	Officials are biased	D
Q28d3	Audience influence (i.e., cheering, booing, heckling, etc.)	D
Q28d4	Being familiar with the facility	D
Q28d4	Opponent's errors/fouls	D
Q28d6	Our coach	D
Q28d7	Opponents' coach	D

Table 1. Continued

Item number	Question wording	Response category
Q28d8	Our team's emotional intensity	D
Q28d9	Luck	D
Q28d10	Something else	D
Q28d11	Our team's errors/fouls	D
Q28d12	The playing facility (court, field, etc.)	D
Q28d13	The surrounding team or community	D
Q28d14	Sleeping in a bed other than my own	D
Q28d15	Travel fatigue	D
Q28d16	Eating different foods from what I usually eat when at home	D
Q28d17	Our opponents' ability	D

APPENDIX B

STATISTICAL SUMMARY TABLES

Table 2. Item number, mean gender values, and source table information for significant gender effects from the gender x level analysis of variance

Item number	Mean value for males	Mean value for females	F ratio	df	p
Q2a3	4.41	4.81	5.32	1, 373	.02
Q2a5	1.99	2.34	6.69	1, 368	.008
Q2a6	2.85	3.15	4.40	1, 367	.03
Q3	3.06	3.54	11.57	1, 378	.0007
Q3a1	2.65	3.12	10.45	1, 362	.002
Q3a3	3.85	4.67	21.43	1, 365	.0001
Q3a4	2.82	3.47	19.72	1, 366	.0001
Q3a5	2.85	3.55	17.38	1, 360	.0001
Q3a6	3.24	3.96	24.06	1, 364	.0001
Q4b	3.22	3.74	9.73	1, 377	.002
Q8	2.24	2.71	14.69	1, 379	.0001
Q11	3.09	3.42	5.52	1, 371	.01
Q14	2.22	2.71	14.26	1, 379	.0002
Q15	1.97	2.19	5.99	1, 377	.01
Q16	2.24	2.42	4.00	1, 377	.04
Q20	2.23	2.54	18.47	1, 376	.0001
Q21	2.41	2.67	12.77	1, 378	.0004
Q23	2.41	2.67	6.21	1, 379	.01

Table 3. Inter-item correlations and probability levels for items Q4a--Q4f

Items	Pearson r	p	Items	Pearson r	p
Q4a & Q4c	.31	$p < .0002$	Q4b & Q4d	.31	.0001
Q4a & Q4e	.39	$p < .0002$	Q4b & Q4f	.32	.0001
Q4c & Q4e	.43	$p < .0002$	Q4d & Q4f	.56	.0001

Table 4. Sport x level x location analysis of variance for distraction indices at home games vs. away games (Q4a--Q4f)

Source	SS	df	MS	F	p
SPORT	14.44	4	3.61	1.30	n.s.
LEVEL	8.43	1	8.43	3.04	.07
SPORT*LEVEL	10.44	4	2.61	0.94	n.s.
Error	1047.14	378	2.77		
LOCATION	33.80	1	33.80	63.05	.0001
LOCATION*SPORT	6.95	4	1.73	3.24	.01
LOCATION*LEVEL	0.00	1	0.00	0.00	n.s
LOCATION*SPORT*LEVEL	5.87	4	1.46	2.74	.02
Error	202.69	378	0.53		

Table 5. Summary of paired comparisons t-tests examining differences in mean ratings for characteristics of audience influence at home games vs. away games

Item #	Mean Value	df	Diff	t	p
Q2a1	1.79				
Q3a1	2.87	(1,339)	1.08	13.89	.0001
Q2a2	1.5				
Q3a2	2.25	(1,339)	0.75	11.65	.0001
Q2a3	4.56				
Q3a3	4.19	(1,363)	-0.37	-4.23	.0001
Q2a4	2.29				
Q3a4	3.11	(1,339)	0.82	9.92	.0001
Q2a5	2.08				
Q3a5	3.17	(1,339)	1.08	11.99	.0001
Q2a6	2.96				
Q3a6	3.57	(1,339)	0.62	7.55	.0001
Q2a7	1.95				
Q3a7	2.26	(1,339)	0.31	4.87	.0001

Table 6. Sport x level x trait x location analysis of variance for influence of audience characteristics at home games vs. away games (Q2a1--Q2a7 and Q3a1--Q3a7)

Source	SS	df	MS	F	p
SPORT	318.99	4	79.74	11.46	.0001
LEVEL	44.71	1	44.71	6.43	.01
SPORT*LEVEL	13.77	4	3.44	0.49	n.s.
Error	2296.15	330	6.95		
LOCATION	401.76	1	401.76	147.15	.0001
LOCATION*SPORT	50.88	4	12.72	4.66	.0001
LOCATION*LEVEL	1.98	1	1.89	0.73	n.s.
LOCATION*SPORT*LEVEL	59.26	4	14.82	5.43	.0003
Error (LOCATION)	900.97	330	2.73		
TRAIT	5465.81	6	910.96	262.85	.0001
TRAIT*SPORT	215.23	24	8.96	2.59	.0001
TRAIT*LEVEL	23.03	6	3.83	1.11	n.s.
TRAIT*SPORT*LEVEL	107.37	24	4.47	1.29	n.s.
Error (TRAIT)	6862.23	1900	3.46		
LOCATION*TRAIT	246.41	6	41.07	57.40	.0001
LOCATION*TRAIT*SPORT	35.09	24	1.46	2.04	.002
LOCATION*TRAIT*LEVEL	6.27	6	1.04	1.46	n.s.
LOCATION*TRAIT*SPORT* LEVEL	38.84	24	1.61	2.26	.0004
Error (LOCATION*TRAIT)	1416.75	1980	0.72		

Table 7. Summary of mean differences on audience characteristics at home and away games using newman keuls

Item	Characteristic	Football	Soccer	Volleyball	Basketball	Baseball
Q2a3	Boo (Home)	4.14 A	4.56 B	5.00 B	4.19 A	5.06 B
Q2a5	Noise (Home)	1.69 A	1.99 A	2.04 A	2.08 A	2.67 B
Q2a7	Friends (Home)	1.46 A	2.07 B	2.09 B	1.77 B	2.23 B
Q3a1	Crowd (Away)	2.02 A	3.07 C	2.98 C	2.50 B	3.62 D
Q3a2	Cheer (Away)	2.09 A	2.36 B	2.05 A	2.08 A	2.71 B
Q3a3	Boo (Away)	3.55 A	4.22 B	4.71 B	3.93 A	4.63 B
Q3a4	Size (Away)	2.42 A,B	3.00 A,C	3.23 C	2.98 A,C	3.92 D
Q3a5	Noise (Away)	2.27 A	3.05 B	3.42 B	2.94 B	4.14 C
Q3a6	Proximity (Away)	2.95 A	3.42 A	4.02 B	3.29 A	4.17 B
Q3a7	Friends (Away)	1.79 A,B	2.30 A,C	2.20 A,C	2.19 A,C	2.77 C

Note: Means with same letters are not significantly different from each other

Table 8. Sport x level x location analysis of variance for overall audience influence at home games vs. away games (Q2 and Q3)

Source	SS	df	MS	F	p
SPORT	27.32	4	6.83	3.84	.0045
LEVEL	37.19	1	37.19	20.89	.0001
SPORT*LEVEL	9.37	4	2.34	1.32	n.s.
Error	660.70	371	1.78		
LOCATION	225.86	1	225.86	203.11	.0001
LOCATION*SPORT	14.94	4	3.73	3.36	.01
LOCATION*LEVEL	0.06	1	0.06	0.05	n.s
LOCATION*SPORT*LEVEL	16.51	4	4.12	3.71	.005
Error	412.57	371	1.11		

Table 9. Sport x level analysis of variance for agreement that sports officials are always neutral in the calls they make (Q9)

Source	SS	df	MS	F	p
SPORT	14.30	4	3.57	1.10	n.s.
LEVEL	13.44	1	13.44	4.15	.04
SPORT*LEVEL	28.42	4	7.10	2.19	.06
Error	1214.25	375	3.23		

Table 10. Sport x level analysis of variance for officiating bias (Q10)

Source	SS	df	MS	F	p
SPORT	22.55	4	5.63	2.68	.03
LEVEL	21.57	1	21.57	10.24	.001
SPORT*LEVEL	3.95	4	0.98	0.47	n.s.
Error	781.80	371	3.23		

Table 11. Location x outcome x dimension analysis of variance for attributional ratings as a function of outcome and location

Source	SS	df	MS	F	p
LOCATION	0.07	1	0.07	0.38	n.s.
Error (LOCATION)	51.22	260	0.19		
OUTCOME	59.39	1	59.39	118.88	0.0001
Error (OUTCOME)	129.91	260	0.49		
DIMENSION	780.33	1	780.33	522.40	.0001
Error (DIMENSION)	388.37	260	1.49		
LOCATION*OUTCOME	14.32	1	14.32	78.85	.0001
Error (LOCATION*OUTCOME)	47.24	260	0.18		
LOCATION*DIMENSION	0.10	1	0.10	1.40	n.s.
Error (LOCATION*DIMENSION)	18.94	260	0.07		
OUTCOME*DIMENSION	6.11	1	6.11	32.32	.0001
Error (OUTCOME*DIMENSION)	49.22	260	0.18		
LOCATION*OUTCOME*DIMENSION	0.01	1	0.01	0.25	n.s.
Error (LOCATION*OUTCOME* DIMENSION)	16.79	260	0.06		

Table 12. Summary of paired comparisons t-tests examining differences in mean attributional ratings of environmental variables as an influence of performance outcome at away games

Item #	Mean Value	N	Diff	t	p
Q28c13	3.68				
Q28d13	3.82	361	0.14	2.51	.01
Q28c14	3.95				
Q28d14	3.77	360	-0.18	-3.11	.002
Q28c15	3.60				
Q28d15	3.23	367	-0.37	-5.31	.0001
Q28c16	3.81				
Q28d16	3.66	367	-0.14	-2.51	.01

Table 13. Sport x level x location analysis of variance for expectation of performance indices at home games vs. away games (Q24--Q27)

Source	SS	df	MS	F	p
SPORT	10.78	4	2.69	3.50	.008
LEVEL	0.48	1	0.48	0.63	n.s.
SPORT*LEVEL	2.65	4	0.66	0.86	n.s.
Error	291.35	378	0.77		
LOCATION	11.26	1	11.26	85.94	.0002
LOCATION*SPORT	0.19	4	0.04	0.37	n.s.
LOCATION*LEVEL	0.00	1	0.00	0.00	n.s
LOCATION*SPORT*LEVEL	1.59	4	0.39	3.04	.01
Error	49.55	378	0.13		

Table 14. Sport x level x location analysis of variance for athletes perceived levels of performance at home games vs. away games (Q20 and Q21)

Source	SS	df	MS	F	p
SPORT	12.67	4	3.16	4.40	.002
LEVEL	0.02	1	0.02	0.03	n.s.
SPORT*LEVEL	4.05	4	1.01	1.41	n.s.
Error	266.93	371	0.72		
LOCATION	10.66	1	10.66	81.98	.0001
LOCATION*SPORT	0.12	4	0.03	0.24	n.s.
LOCATION*LEVEL	0.01	1	0.01	0.03	n.s
LOCATION*SPORT*LEVEL	1.74	4	0.43	3.36	.02
Error	48.26	371	0.13		

Table 15. Inter-item correlations and probability levels for items Q20, Q21, Q24--Q27 with the belief in the HA (Q1)

Items	Pearson r	p	Items	Pearson r	p
Q1 & Q20	.09	.09	Q1 & Q25	.02	.82
Q1 & Q21	-.02	.77	Q1 & Q26	.00	.99
Q1 & Q24	.11	.04	Q1 & Q27	.05	.37

Table 16. Sport x level x location analysis of variance for anxiety levels at home games vs. away games (Q22 and Q23)

Source	SS	df	MS	F	p
SPORT	26.32	4	6.58	3.62	.0065
LEVEL	1.48	1	1.48	0.82	n.s.
SPORT*LEVEL	4.47	4	1.19	0.66	n.s.
Error	678.03	373	1.81		
LOCATION	3.01	1	3.01	10.39	.0014
LOCATION*SPORT	2.57	4	0.64	2.22	.06
LOCATION*LEVEL	0.19	1	0.19	0.38	n.s
LOCATION*SPORT*LEVEL	2.13	4	0.53	1.84	n.s.
Error	108.13	373	0.28		

Table 17. Sport x level x location analysis of variance for self-confidence at home games vs. away games (Q15 and Q16)

Source	SS	df	MS	F	p
SPORT	45.13	4	11.28	10.97	.0001
LEVEL	1.43	1	1.43	1.39	n.s.
SPORT*LEVEL	1.66	4	0.41	0.40	n.s.
Error	381.59	371	1.02		
LOCATION	9.91	1	9.91	32.53	.0001
LOCATION*SPORT	1.59	4	0.39	1.31	n.s.
LOCATION*LEVEL	0.40	1	0.40	1.33	n.s.
LOCATION*SPORT*LEVEL	2.14	4	0.53	1.76	n.s.
Error	113.08	371	0.30		

Table 18. Sport x level x location analysis of variance for emotional intensity at home games vs. away games (Q18 and Q19)

Source	SS	df	MS	F	p
SPORT	33.97	4	8.49	6.85	.0001
LEVEL	0.65	1	0.65	0.53	n.s.
SPORT*LEVEL	1.68	4	0.42	0.34	n.s.
Error	462.13	373	1.23		
LOCATION	4.99	1	4.99	16.57	.0001
LOCATION*SPORT	2.26	4	0.56	1.88	n.s.
LOCATION*LEVEL	0.06	1	0.06	0.23	n.s.
LOCATION*SPORT*LEVEL	3.31	4	0.82	2.75	.028
Error	112.43	373	0.30		

Table 19. Inter-item correlations and probability levels for items Q1, Q5, Q6, Q8, Q14a2--Q14a4, Q15, Q16

Items	Pearson r	p	Items	Pearson r	p
Q1 & Q14a2	.01	.84	Q14a3 & Q16	.02	.71
Q1 & Q14a3	-.02	.68	Q14a2 & Q6	.12	.03
Q1 & Q14a4	.04	.41	Q14a3 & Q8	.20	.0001
Q14a3 & Q15	.06	.24	Q14a4 & Q5	.56	.0001

Table 20. Sport x level analysis of variance for being familiar with a playing facility provides an advantage over the opponent (Q5)

Source	SS	df	MS	F	p
SPORT	18.32	4	4.58	2.98	.02
LEVEL	1.53	1	1.53	1.00	n.s.
SPORT*LEVEL	6.32	4	1.58	1.03	n.s.
Error	570.05	371	1.53		

Table 21. Sport x level analysis of variance for familiarity with playing field providing more confidence in performance (Q8)

Source	SS	df	MS	F	p
SPORT	13.86	4	3.46	2.53	.04
LEVEL	7.19	1	7.19	5.24	.02
SPORT*LEVEL	12.00	4	3.00	2.19	.07
Error	511.94	373	1.37		

Table 22. Inter-item correlations and probability levels for items Q2, Q3, Q5, Q10, Q11, Q15, Q16, Q18--Q27 with belief in the HA (Q1)

Items	Pearson r	p	Items	Pearson r	p
Q1 & Q2	.24	.0002	Q1 & Q20	.12	.02
Q1 & Q3	.04	.37	Q1 & Q21	-.01	.71
Q1 & Q5	.25	.0002	Q1 & Q22	.03	.61
Q1 & Q10	.14	.009	Q1 & Q23	.01	.83
Q1 & Q11	.06	.27	Q1 & Q24	.07	.20
Q1 & Q15	.12	.03	Q1 & Q25	-.00	.97
Q1 & Q16	-.00	.96	Q1 & Q26	.02	.71
Q1 & Q18	.06	.27	Q1 & Q27	-.03	.61
Q1 & Q19	.01	.80			

APPENDIX C

BAR CHART FIGURES

Fig. 1. Means for distraction indices for sport x level for home and away

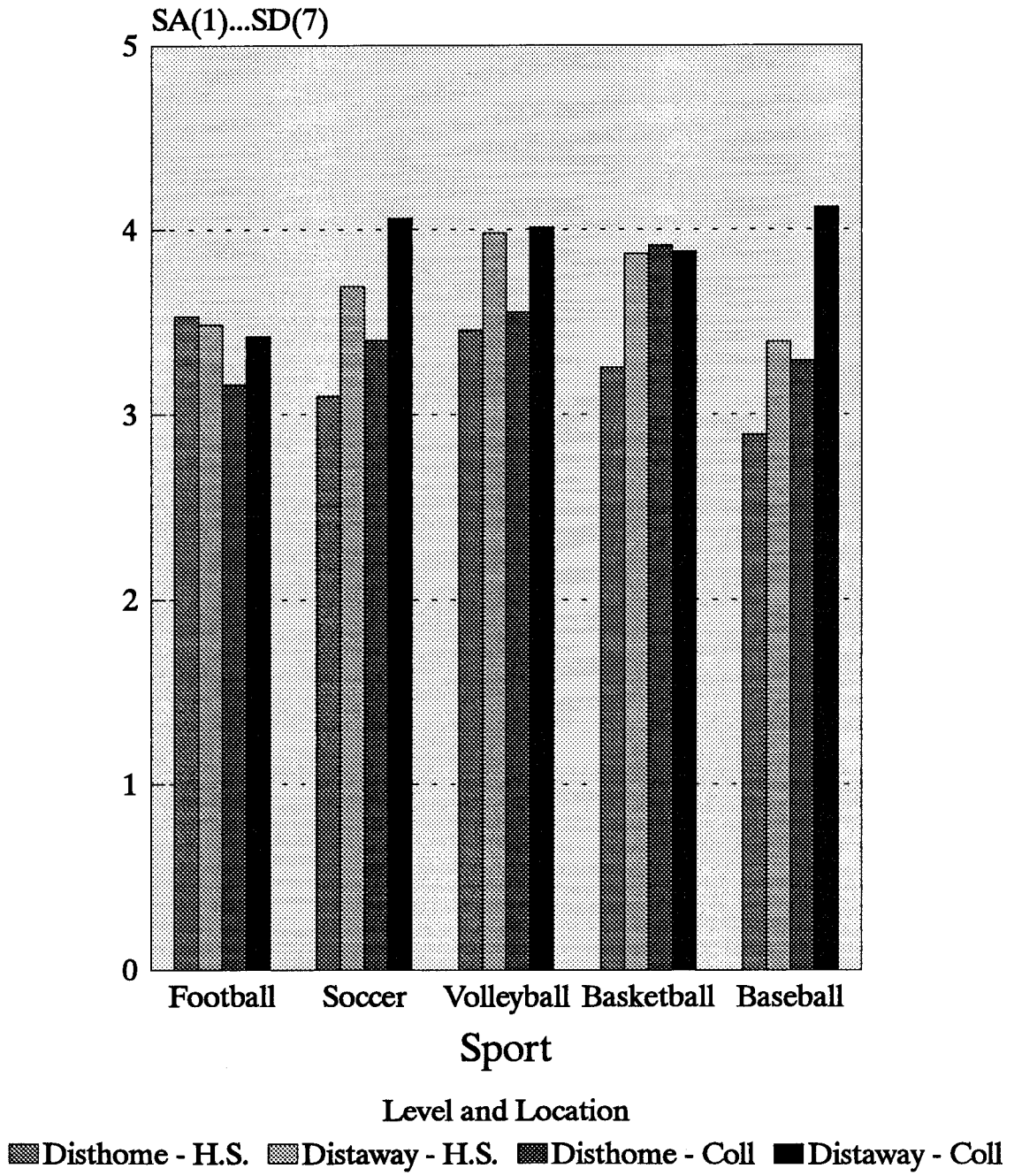


Fig. 2. Means for having a crowd present for sport x level x location

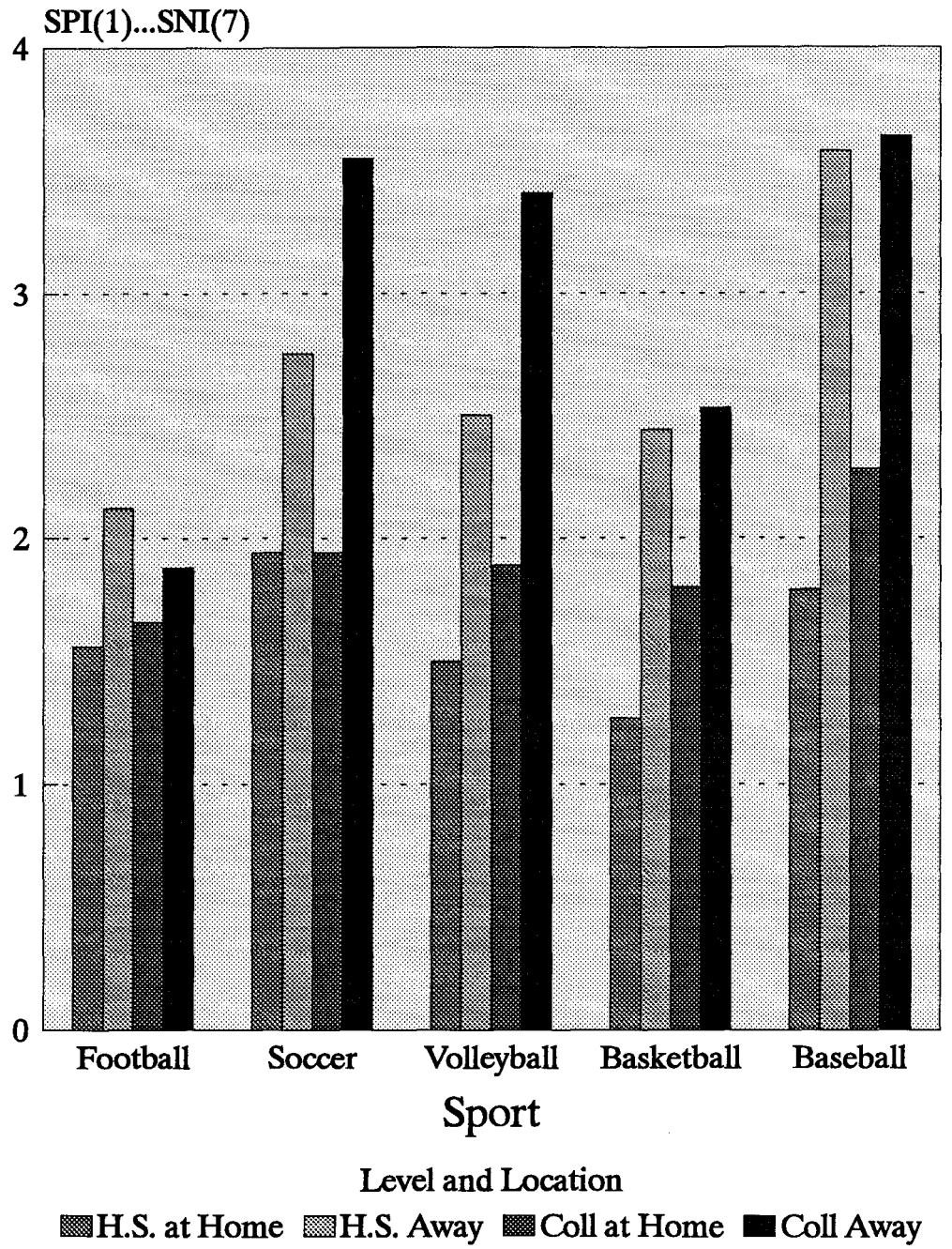


Fig. 3. Means for crowd cheering performance for sport x level x location

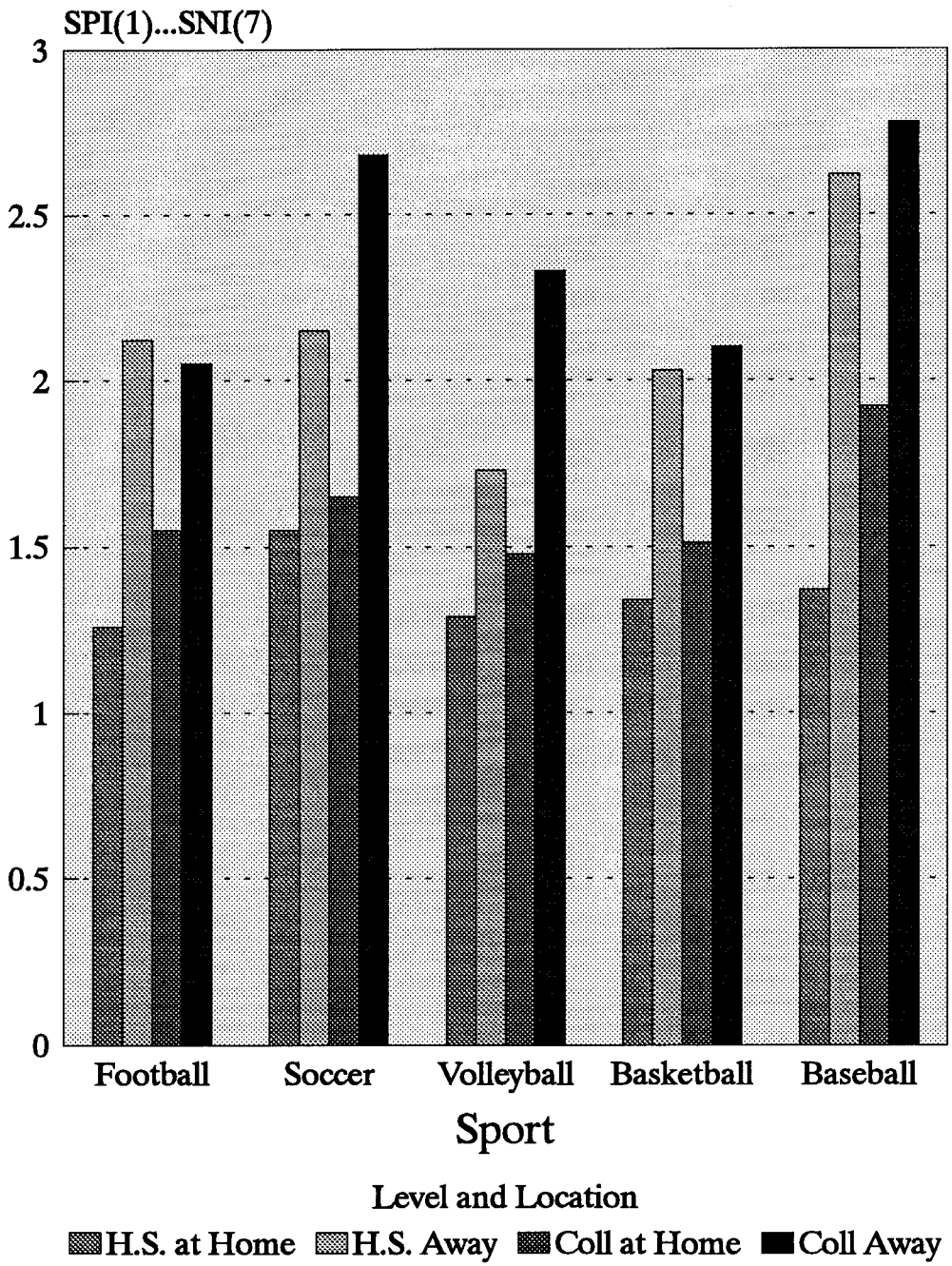


Fig. 4. Means for crowd boos performance for sport x level x location

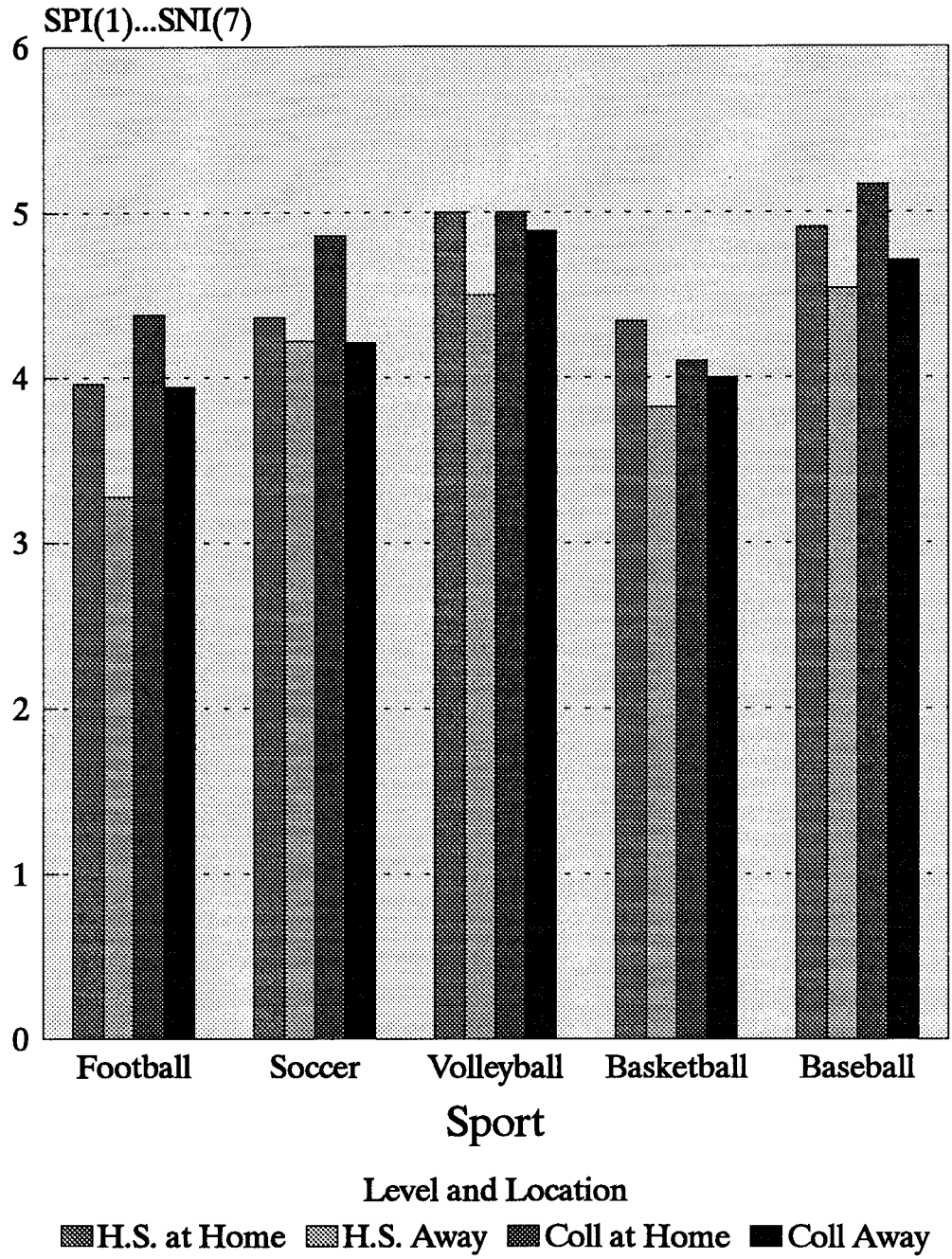


Fig. 5. Means for size of crowd for sport x level x location

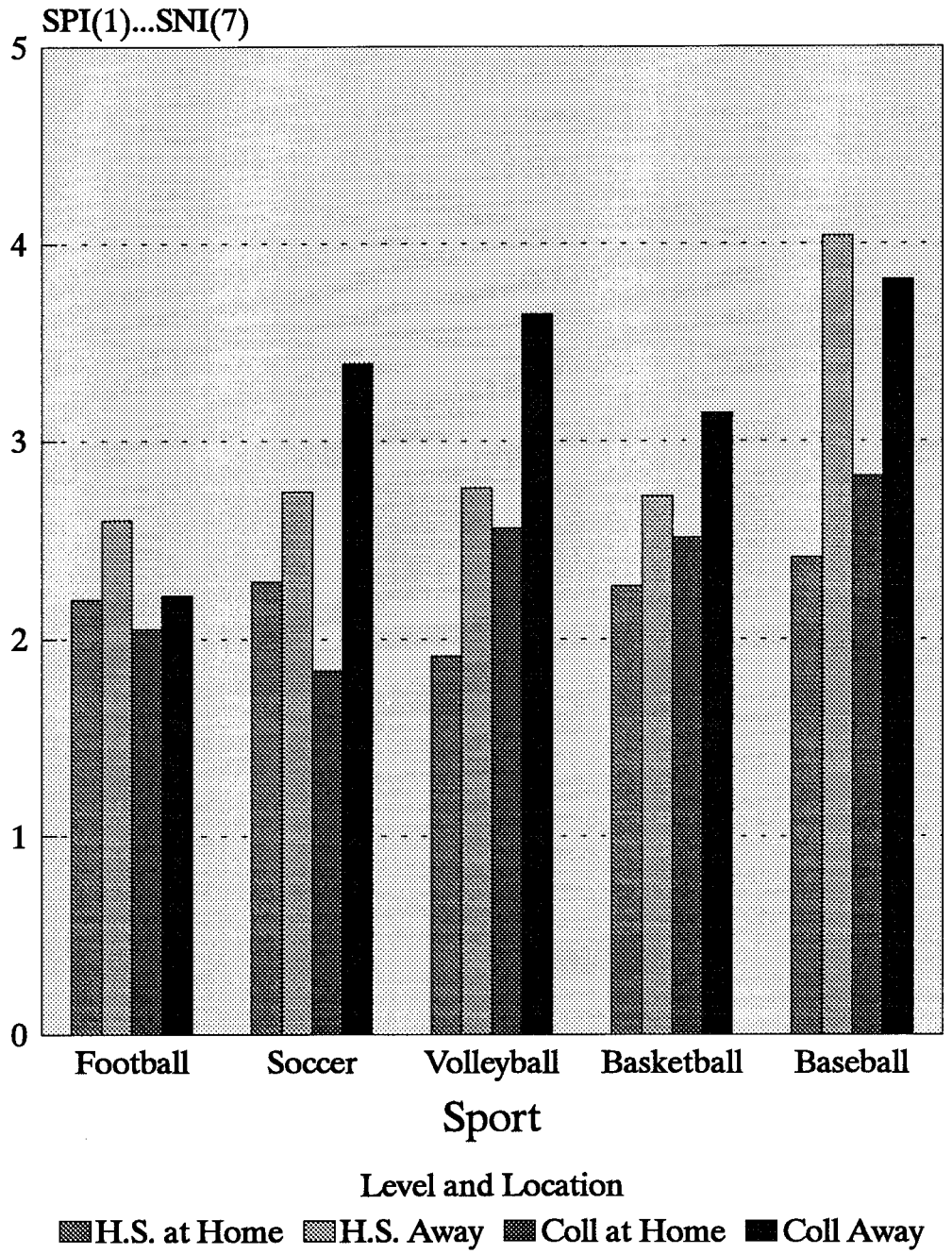


Fig. 6. Means for noise level of crowd for sport x level x location

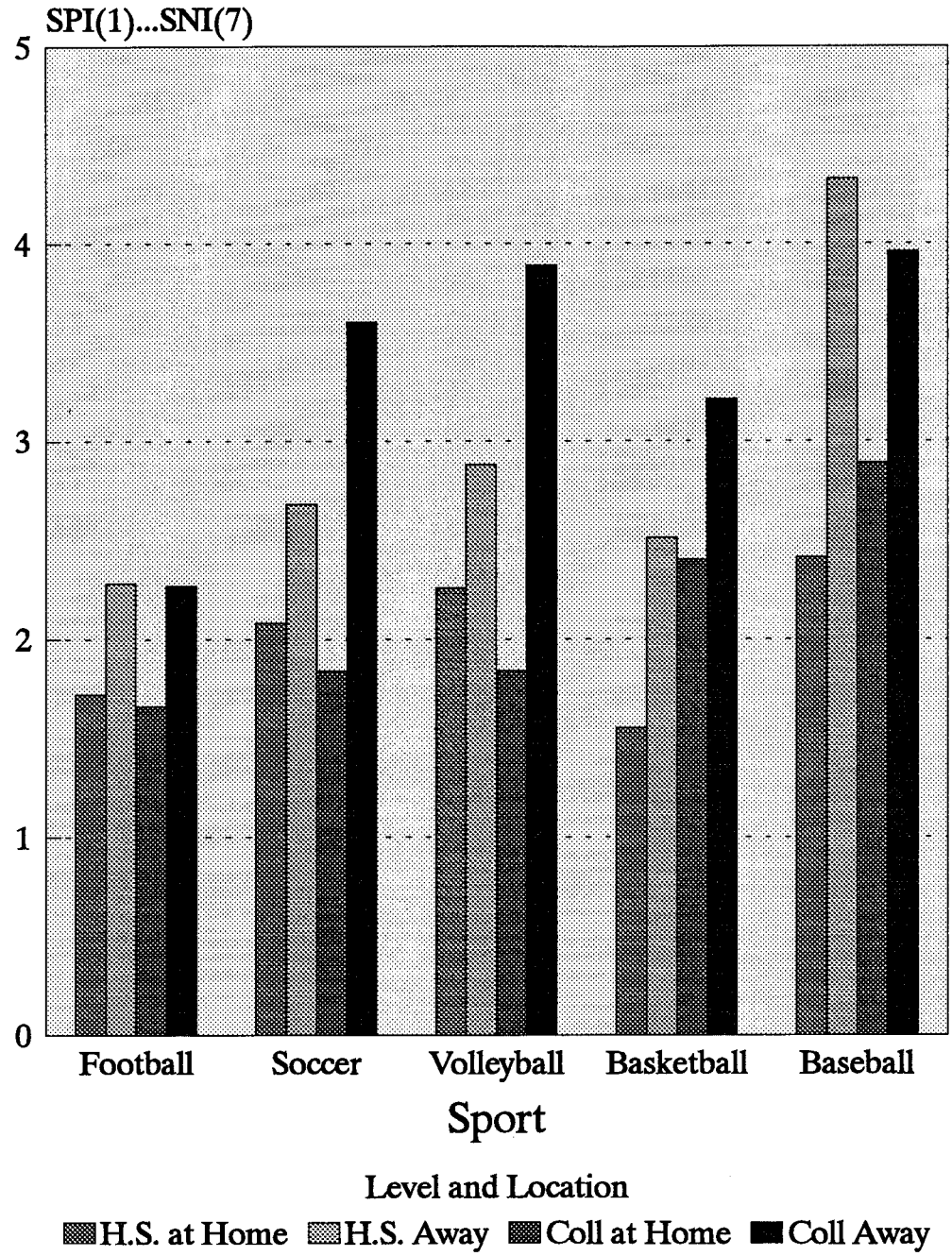


Fig. 7. Means for proximity of crowd to field for sport x level x location

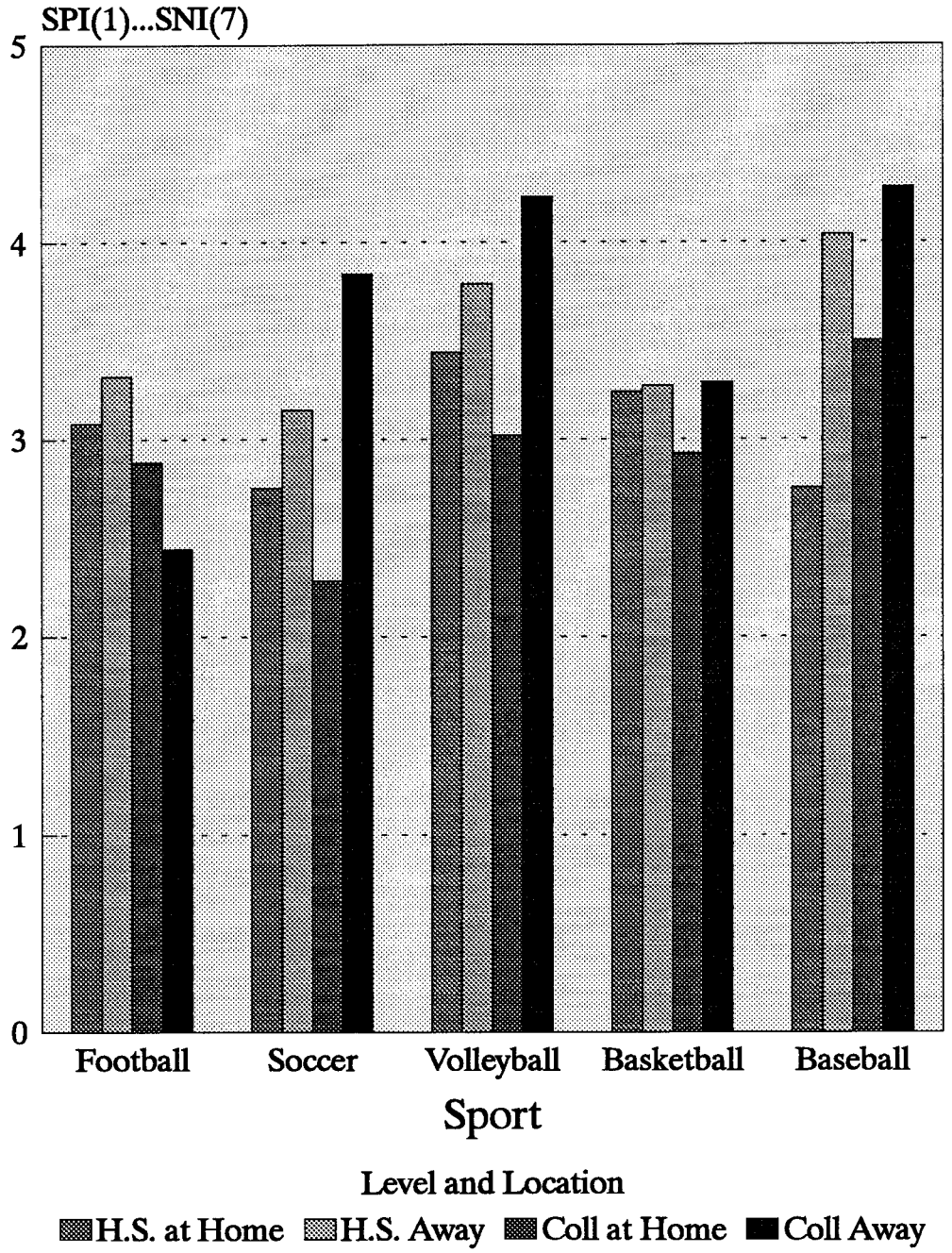


Fig. 8. Means for friends are present at game for sport x level x location

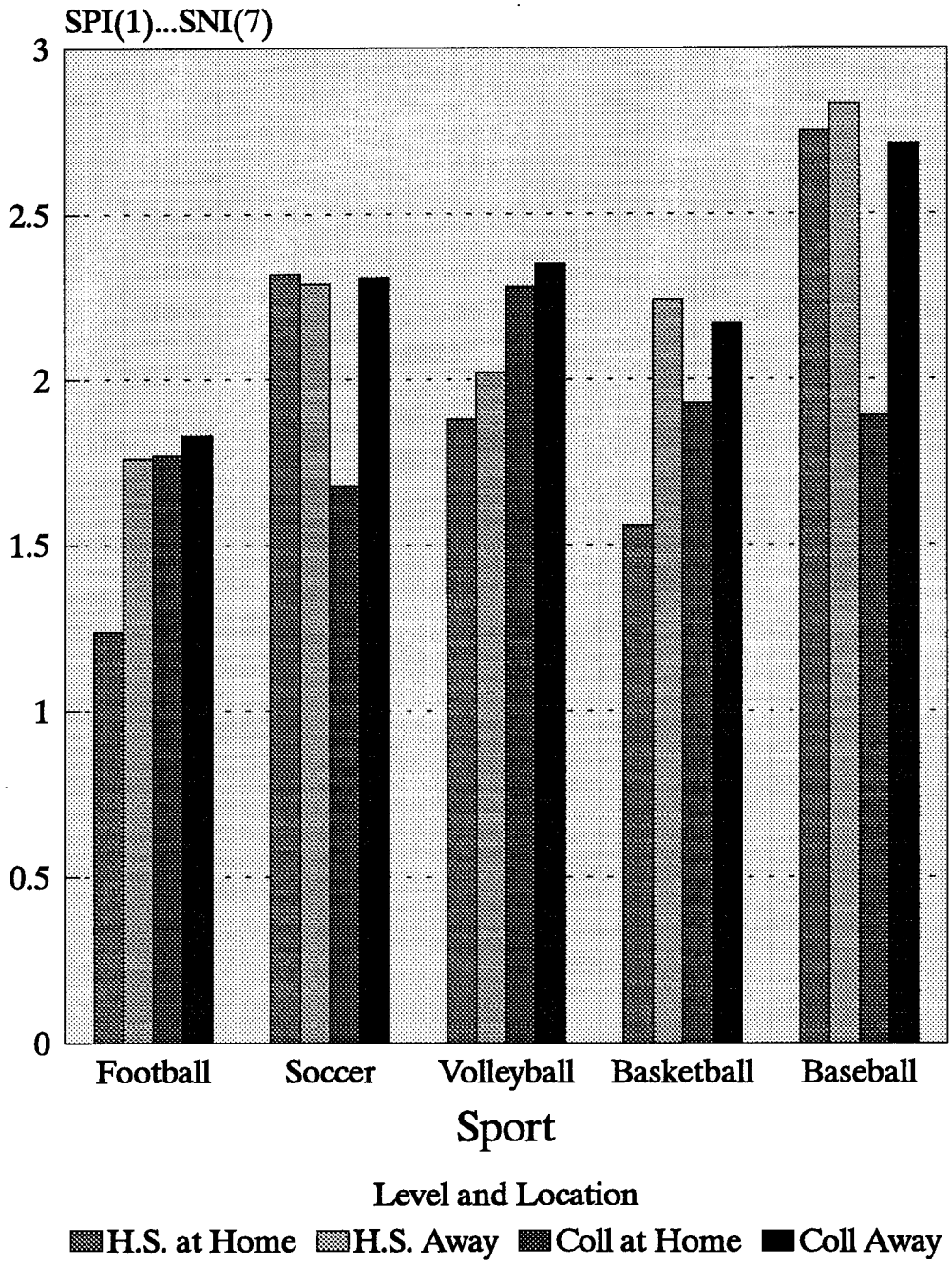


Fig. 9. Means for audience influence

for sport x level x location

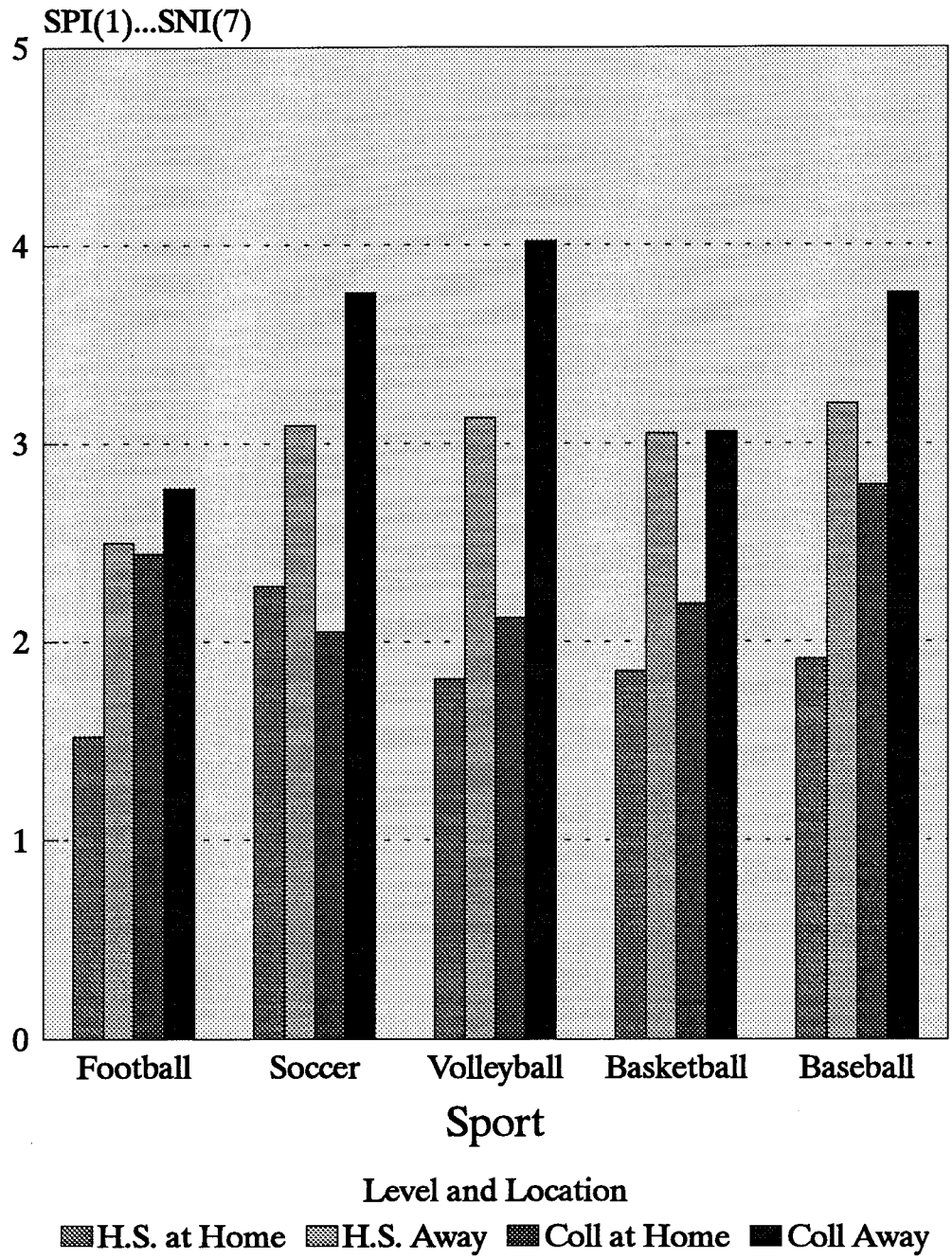


Fig. 10. Means for officials are always neutral for sport x level x location

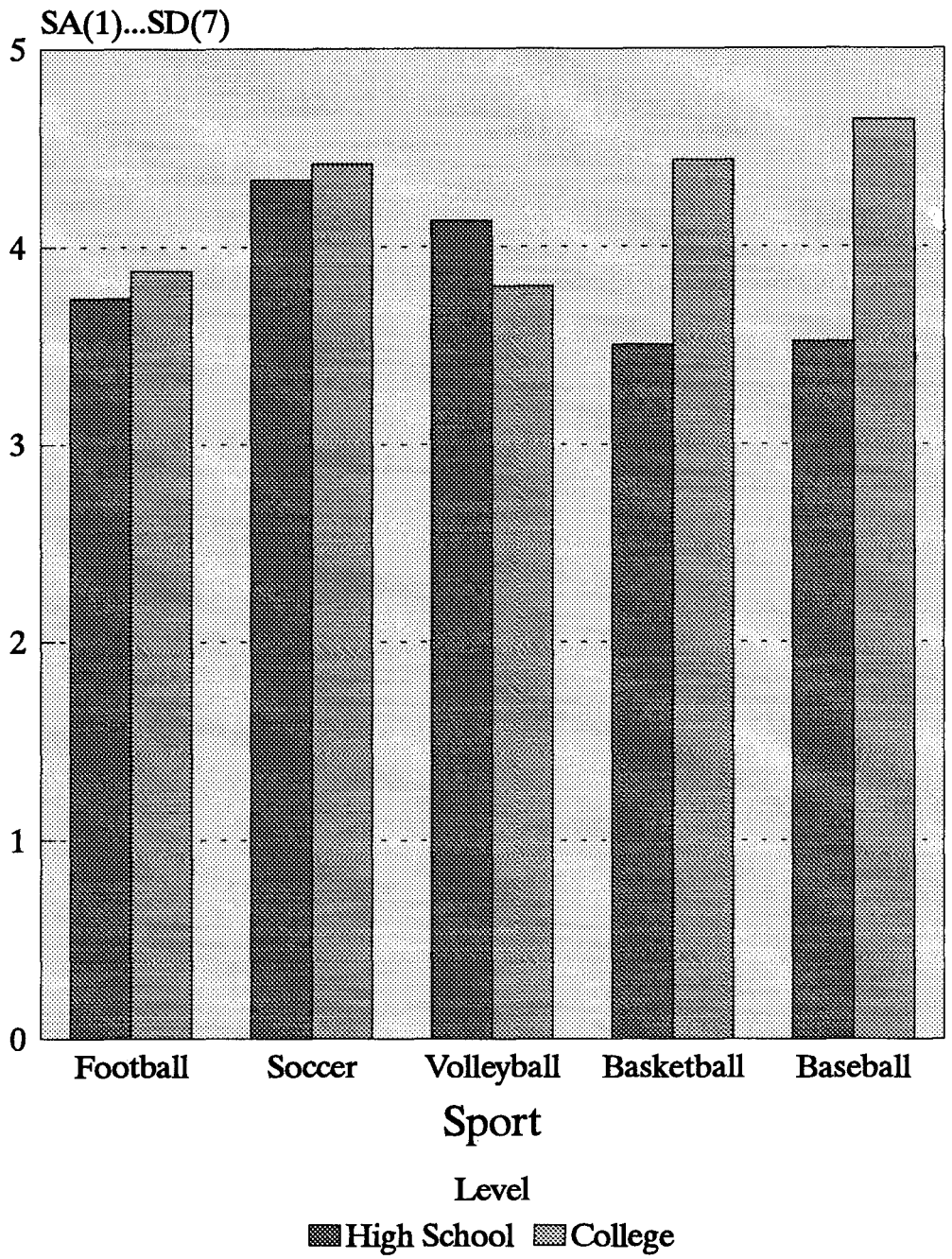


Fig. 11. Means for officials favor home team for sport x level x location

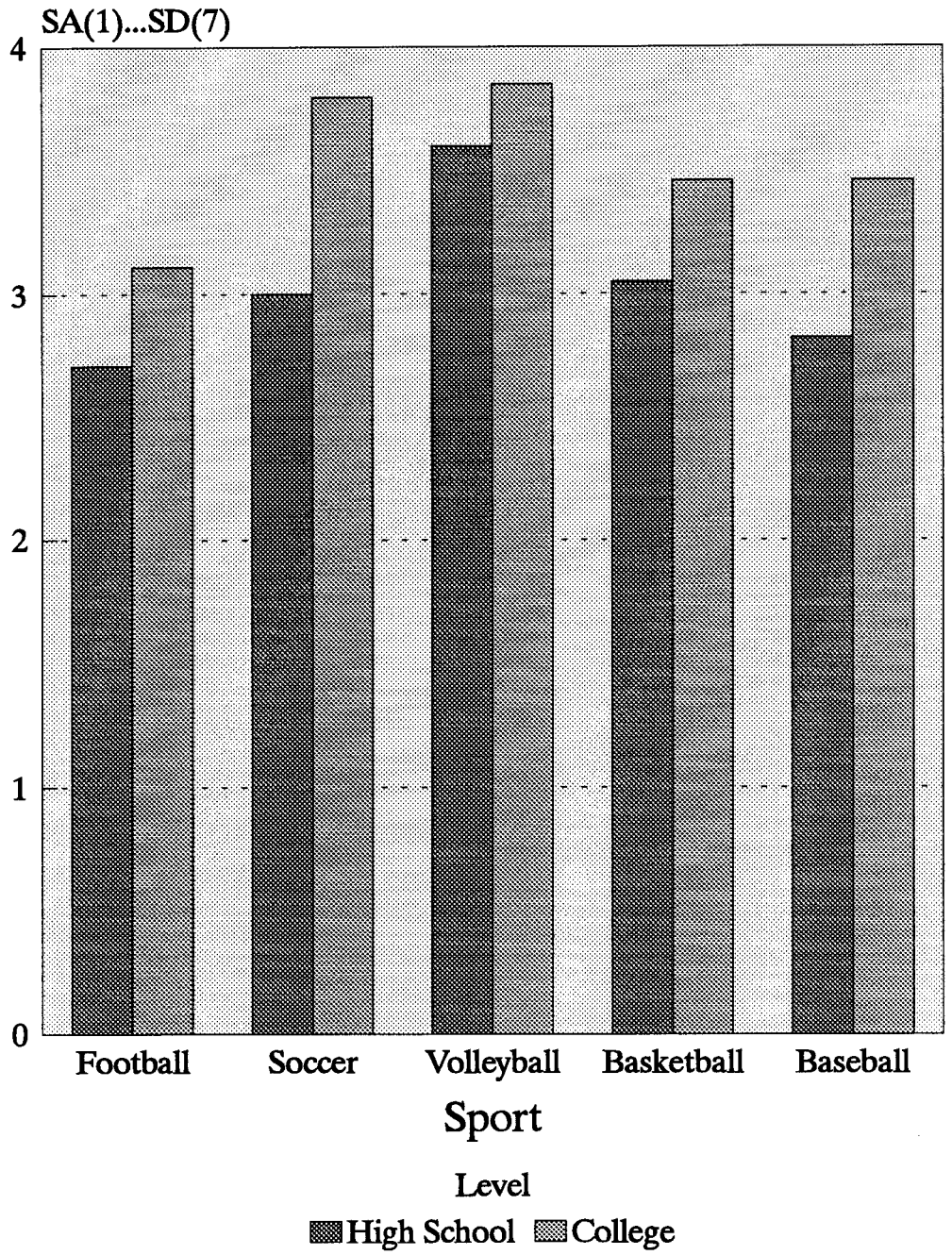


Fig. 12. Mean attribution ratings for location x outcome

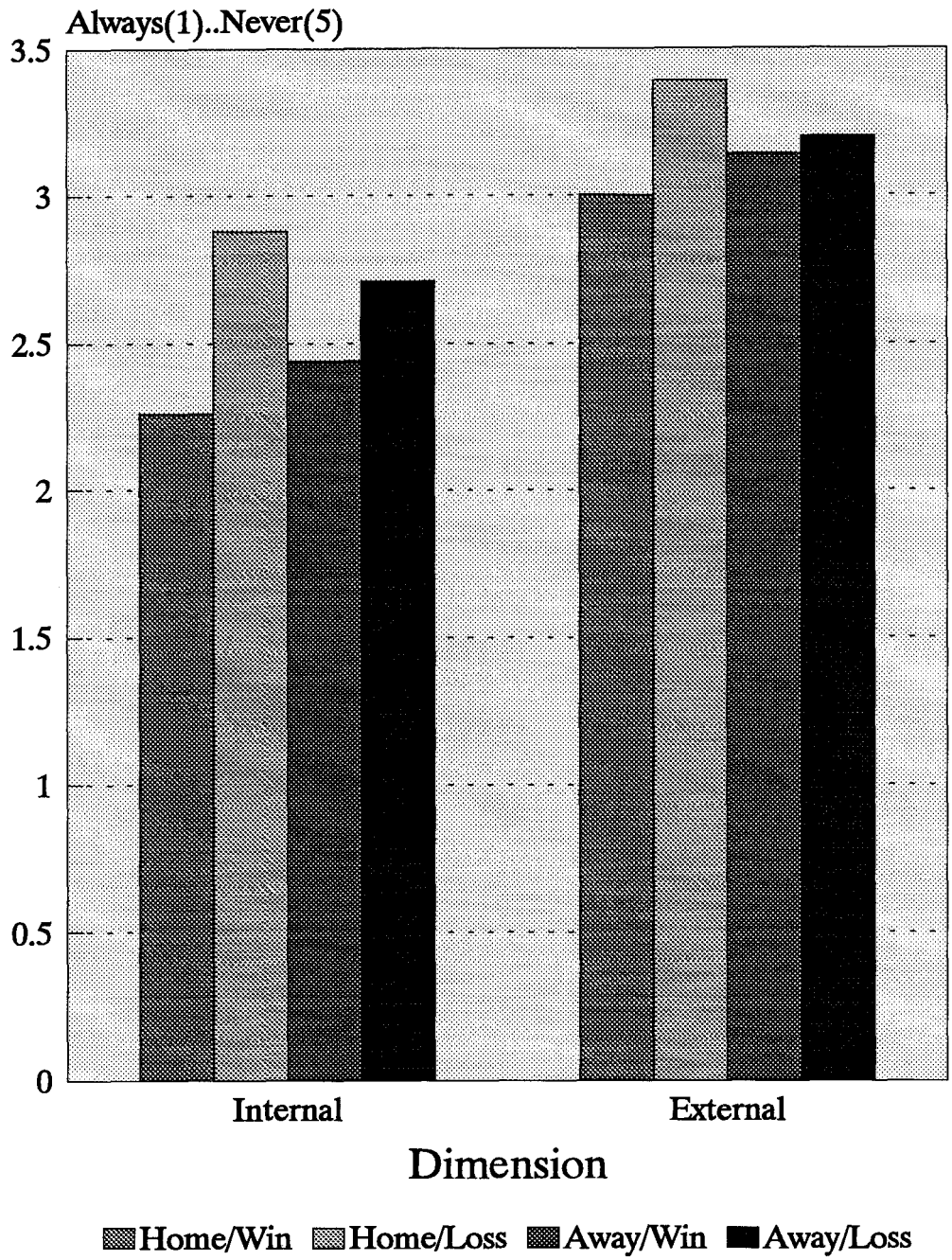


Fig. 13. Means for expectation indices for sport x level x location

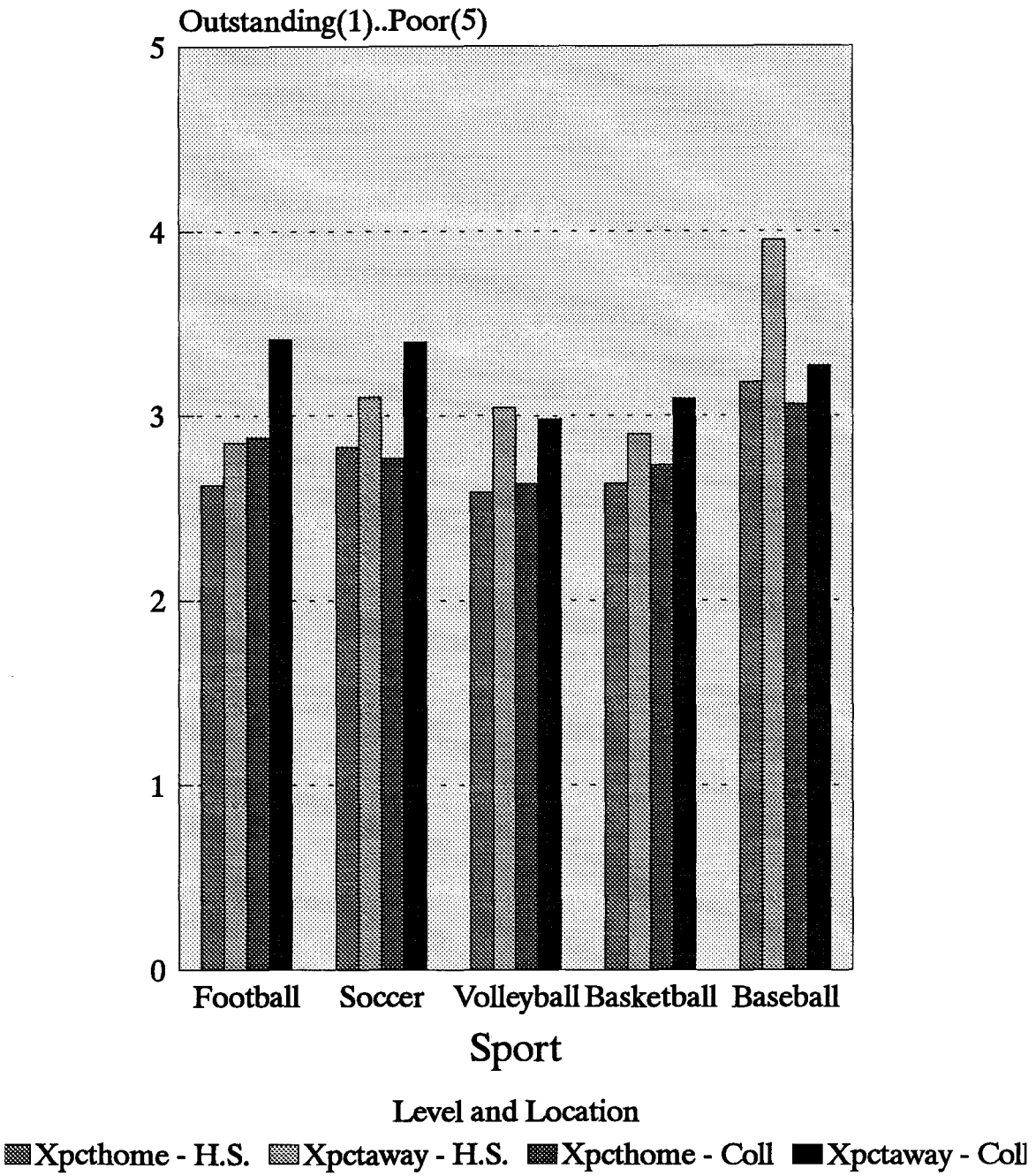


Fig. 14. Means of performance ratings for sport x level x location

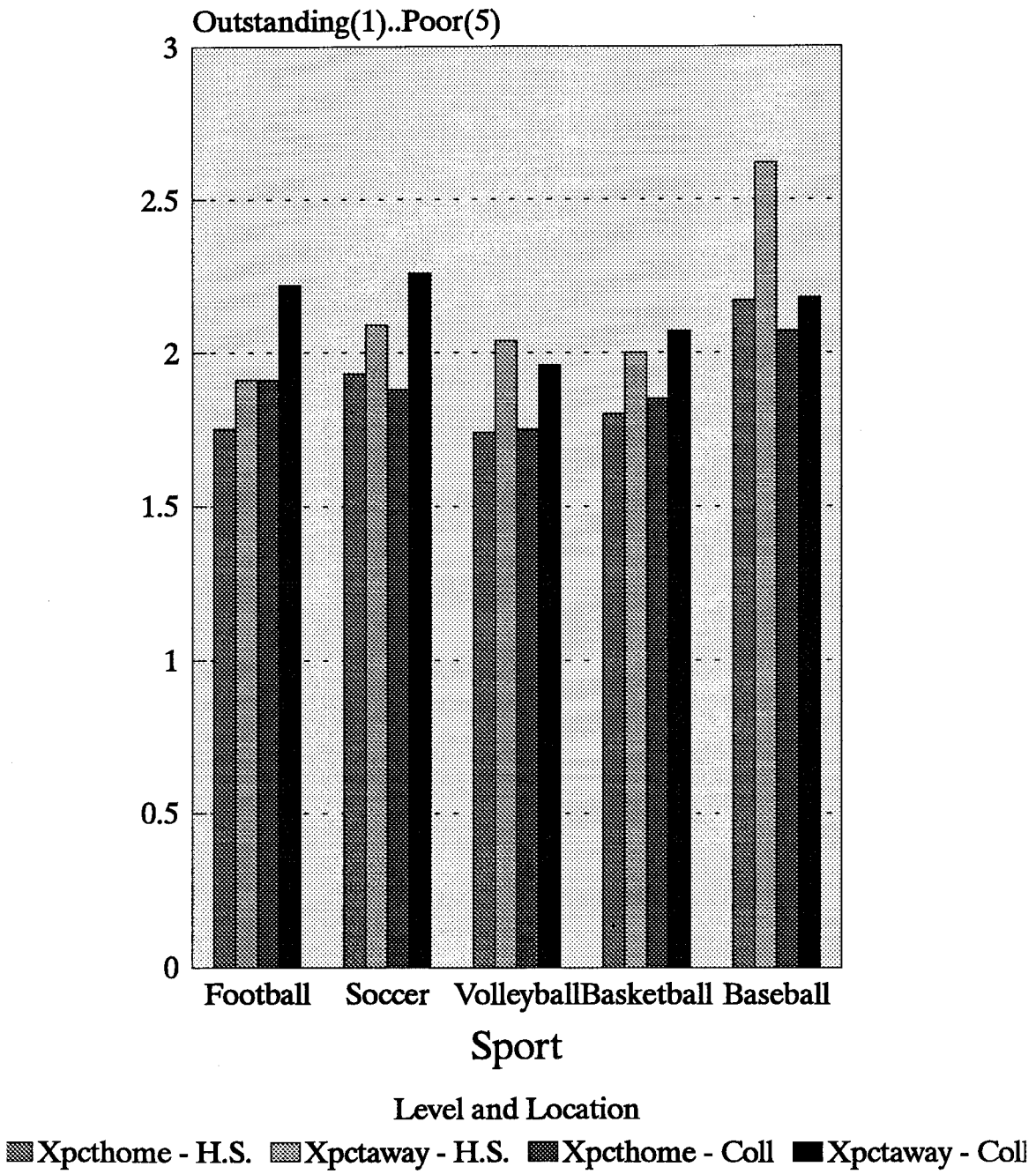


Fig. 15. Means for pre-game anxiety for sport x level x location

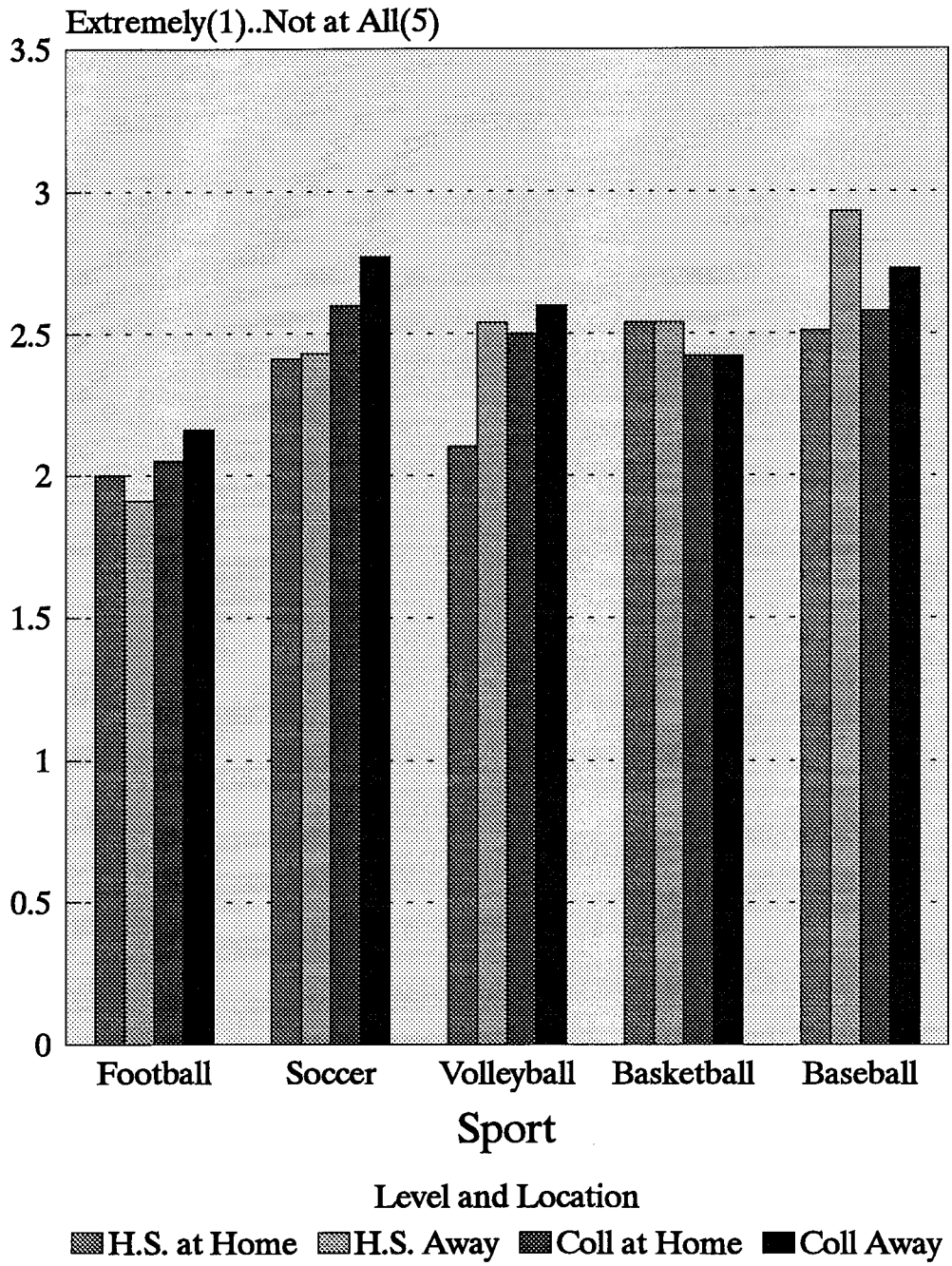


Fig. 16. Means for confidence levels for sport x level x location

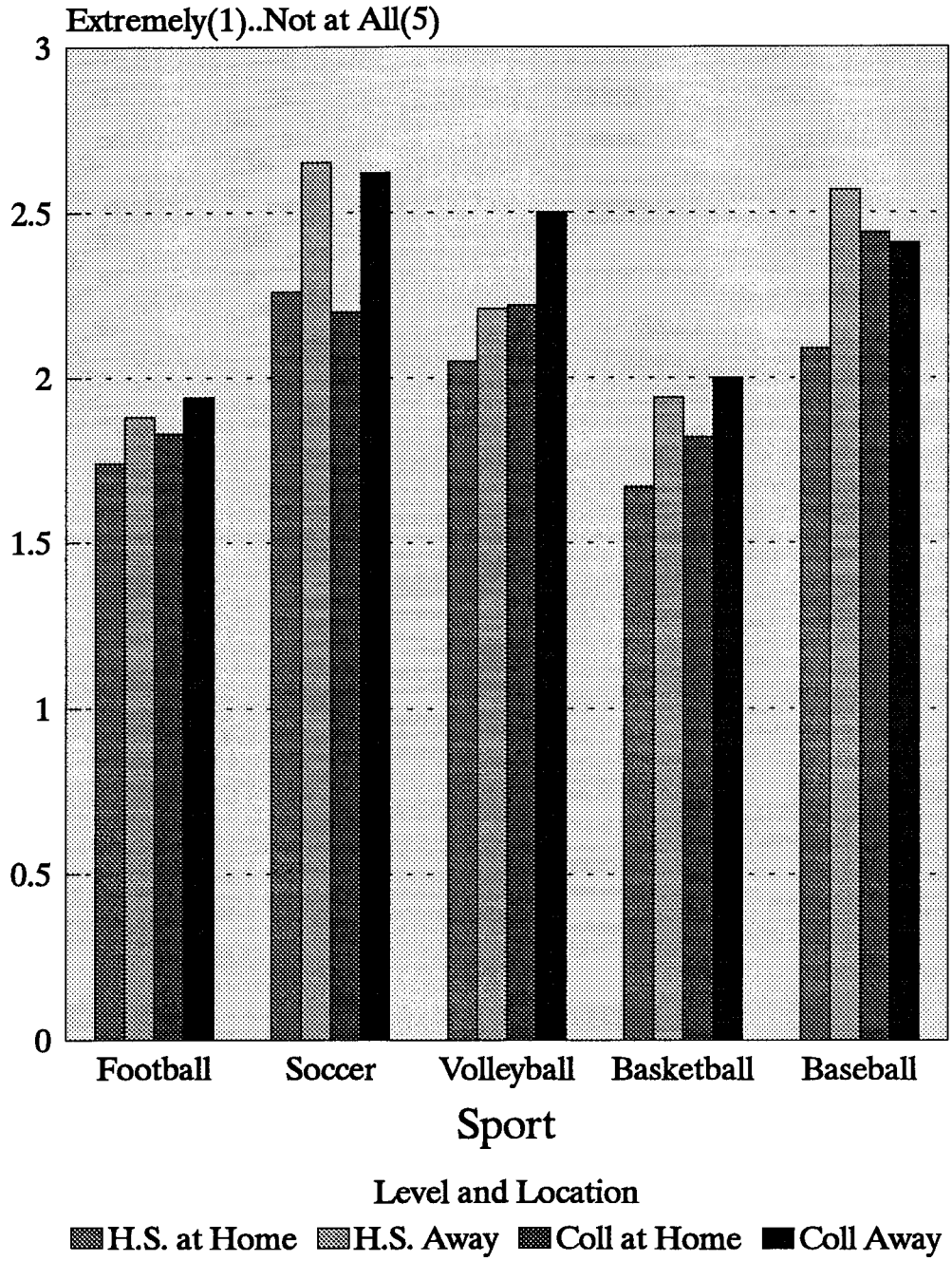


Fig. 17. Means for emotional intensity for sport x level x location

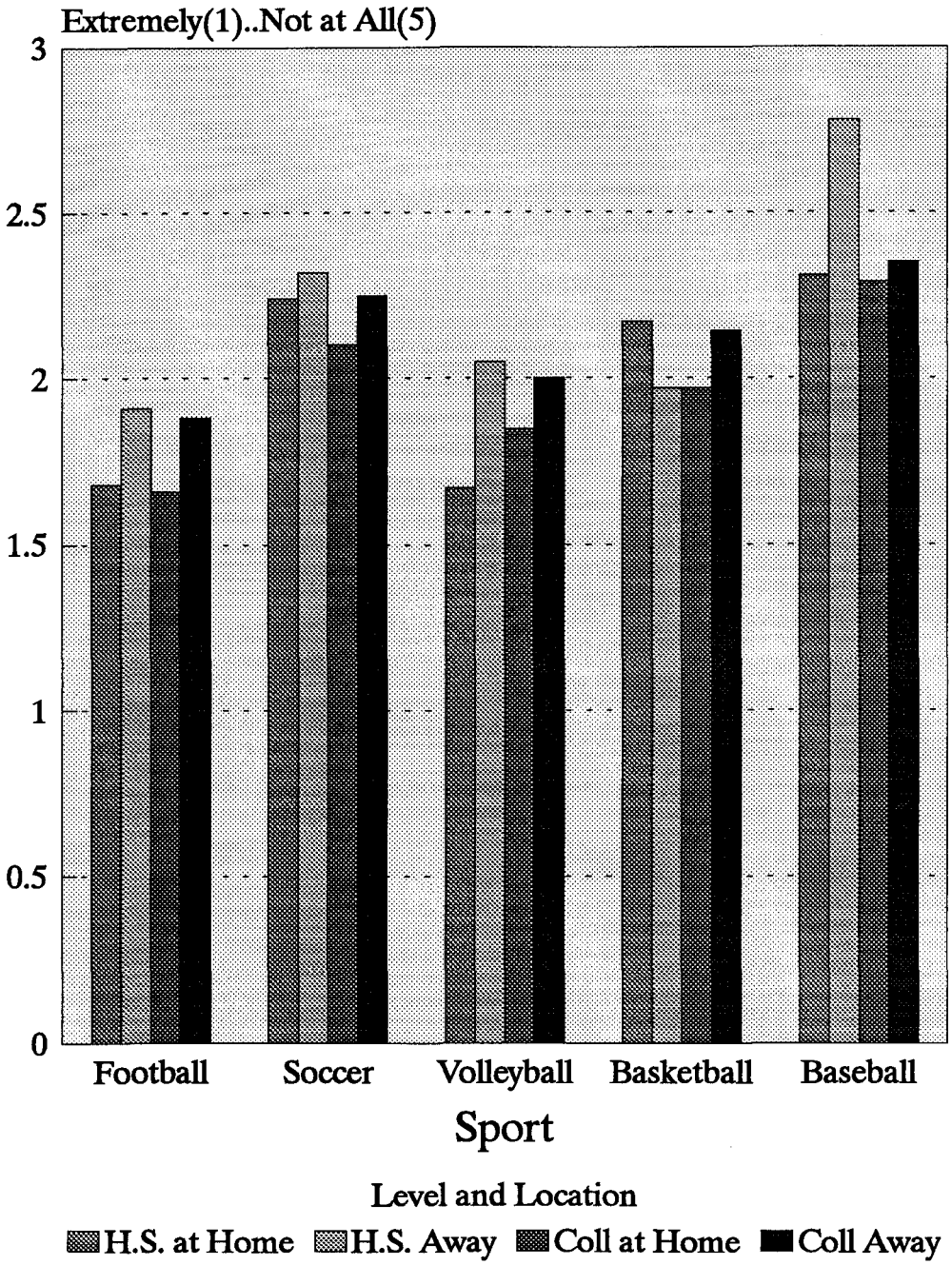


Fig. 18. Means for familairity gives an advanatge for sport x level x location

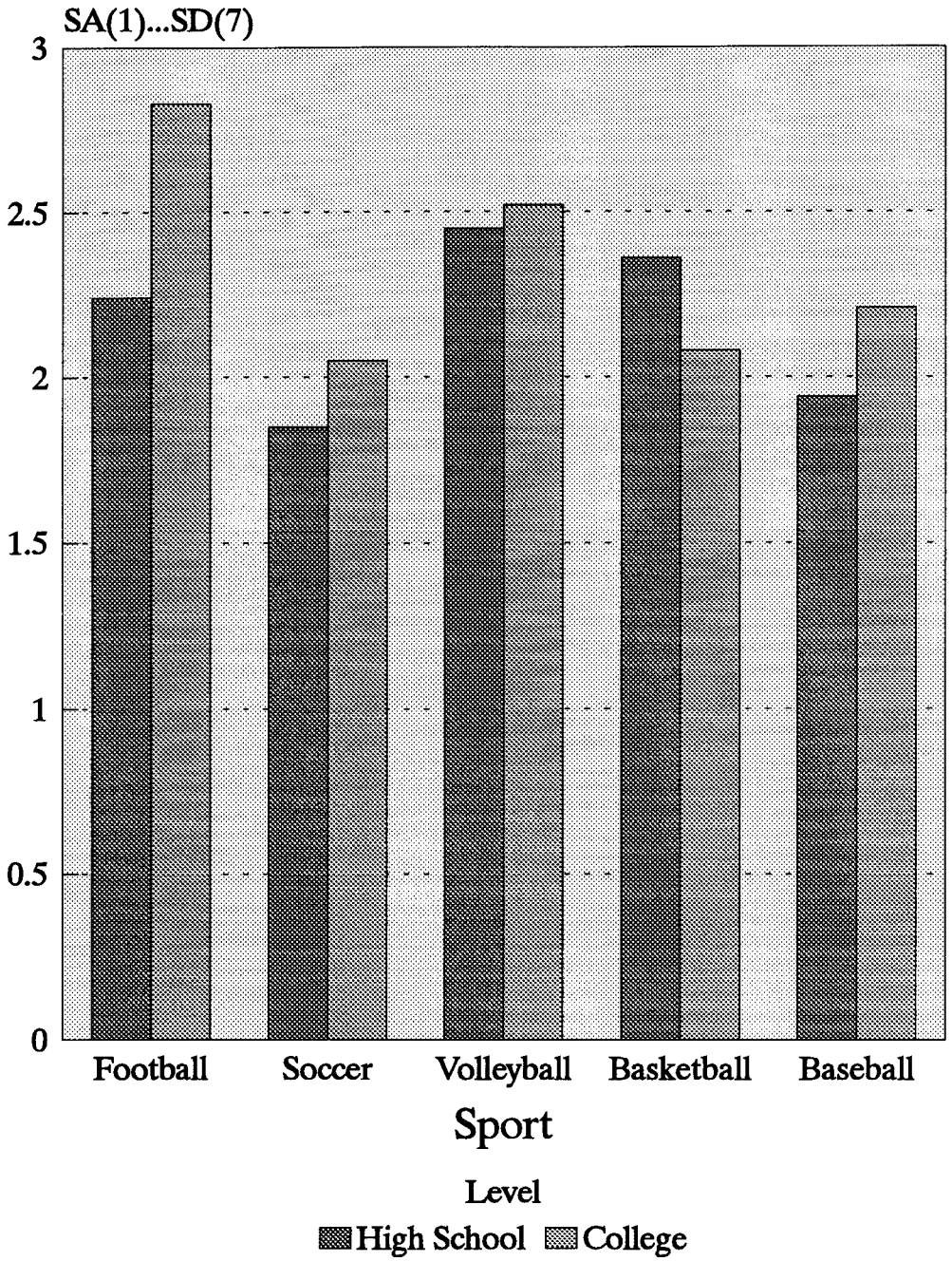
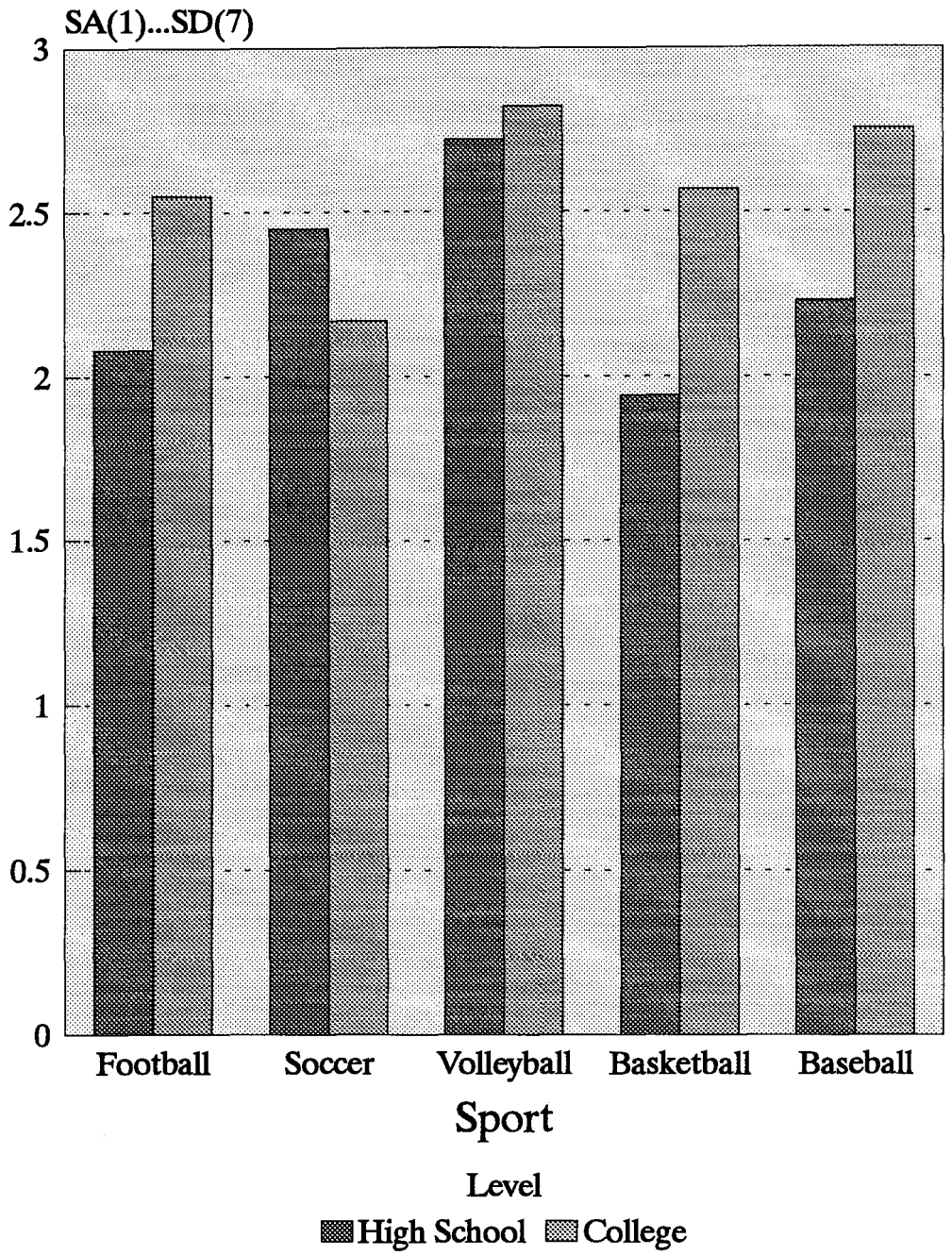


Fig. 19. Means for familiarity gives confidence for sport x level x location



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VITA

Gary Donzelli began his graduate career at Loyola University in January, 1990. During this time he also published an article entitled "Competitive State and Competitive Trait Anxiety Differences in Non-Elite Runners" in the Journal of Sport Behavior, along with Dr. Bernie Dugoni and Dr. James Johnson from Loyola.

Throughout his graduate career, Donzelli has worked in the field of survey research for the Chicago office of Abt Associates, Inc. Donzelli has had considerable experience in the field of survey research with a primary focus in the area of educational research. He began his survey research career working on the Study of Paperwork Reduction Projects of the National School Lunch Program (1990-1991), for FNS. From this assignment he gained considerable experience in managing data collection in the field and establishing data collection procedures. This experience included such tasks as contacting schools to make arrangements for interviewer visits, overseeing data collection from school staff, and handling problems that the field staff had with data collection. He also gained extensive experience with data preparation, file construction, data base management, and development of codebooks. He also developed and implemented data cleaning specifications and assisted the project's analytic staff for the Survey of Pathologists Practices for the College of American Pathologists.

In the spring of 1991, Donzelli joined the project staff on PROSPECTS: The Congressionally-Mandated Study of Educational Growth and Opportunity, for the Department of Education. He gained even more experience in data base management, file construction, support analysis, quality control checks, development of receipt control, codebook development, and

management of data collection activity for one of the most complex longitudinal education studies ever attempted. The focus of PROSPECTS is to follow children from three grade cohorts over a period of six years. This involves linking up more than 11 data bases to each of the 26,000 plus students across a six-year period.

Although PROSPECTS has been his staple assignment since 1991, Donzelli has gained additional experience in assisting in the development of Computer Assisted Data Entry (CADE) for the institution component of the 1993 National Postsecondary Student Aid Study (NPSAS:93). This involved helping programmers to work out the problems confronted with using a computer operated data collection system. In addition, Donzelli gained experience with development of a data dictionary for the CADE system and helped to conduct training sessions on the CADE system for the field interviewing staff.

THESIS APPROVAL SHEET

The thesis submitted by Gary Donzelli has been read and approved by the following committee:

Dr. John Edwards, Director

Associate Professor, Psychology

Loyola University of Chicago

Dr. Bernie Dugoni

Assistant Professor, Psychology

Loyola University of Chicago

The final copies have been examined by the director of the committee and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the thesis is now given final approval by the Committee with reference to content and form.

The thesis is, therefore, accepted in partial fulfillment of the requirements for the degree of Master of Arts.

March 14, 1994 — Date

John D. Edwards — Director's Signature