An Exploratory Examination Into the Effect of Absence Due to Hypothetical Injury on Collective Efficacy

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The effect of hypothetical injuries to pivotal and nonpivotal players on collective efficacy perceptions was studied in this exploratory investigation. A collective efficacy inventory was given to male soccer players (N = 194) from 12 semi-professional teams, as well as a hypothetical scenario describing an injury to a pivotal or less pivotal player. Based on the PFA, the collective efficacy inventory was determined to have two factors: perseverance collective efficacy (PCE) and skills (physical) collective efficacy (SCE). Both PCE and SCE were subsequently analyzed to determine if the hypothesized loss of a player influenced such perceptions. Findings indicated that following the injury scenario, PCE perceptions only, significantly decreased following the loss of either player. PCE appears to be readily affected by player loss, whereas the results for SCE were more ambivalent. Future research, implications and limitations are discussed in detail.

Consistent performance appraisals of players and teams pervade our sporting environments and determine perceptions of efficacy in a social cognitive manner (Bandura, 1997). Bandura (1977, 1997) proposed efficacy theory within the framework of social cognitive theory in an attempt to help explain this cognitive process of self and group appraisal. Self-efficacy, is considered personal agency, and pertains to an individual’s confidence in his or her ability to obtain the desired result in a highly specific task (Bandura, 1982, 1986, 1997). Collective efficacy, an extension of self-efficacy theory, purports to explain human agency from a collective, or team perspective. Bandura (1997) defined collective efficacy as, “a group’s shared belief in its conjoint capabilities to organize and execute the courses of action required to produce given levels of attainments” (p. 477), although measurement occurs on the individual level (Zaccaro, Blair, Peterson, & Zazanis, 1995). The specific confidence players possess in the abilities of their team as a functional group has been posited to be instrumental to various psychosocial processes of...
a group (Bandura, 2000). Collective efficacy perceptions have been theorized to
be an integral component in determining a team’s ability to persevere in the face
of failure, a team’s levels of goals, a team’s affective state, the amount of effort a
team puts forth, the future motivations of a team, as well as the expected outcomes
of a team (Bandura, 2000).

Collective efficacy has been found to contribute to team performance in many
interactive sports (Feltz & Lirgg, 2001; Myers & Feltz, 2007). For example, col-
lective efficacy has been found to be associated with performance in hockey (Feltz
& Lirgg, 1998; Myers, Payment, & Feltz, 2004), volleyball (Paskevich, Brawley,
Dorsch, & Widmeyer, 1999; Spink, 1990); football (Myers, Feltz, & Short, 2004),
basketball (Watson, Chemers, & Preiser, 2001), and adventure racing teams
(Edmonds & Tenenbaum, 2004), as well as groups on a muscular endurance task
(Hodges & Carron, 1992).

Efficacy perceptions are consciously and unconsciously created through four
principle sources of efficacy information (Bandura, 1997). The most influential
source of efficacy information is enactive mastery experience (i.e., personal
or team success). Successful individual and team performance typically raise
efficacy perceptions whereas a poor or defeating performance have the opposite
effect. Vicarious experience, a second source of efficacy information, allows the
appraisal of capabilities in relation to others. This efficacy judgment is obtained
through watching similar players and cognitively assessing whether one’s own
skills are better or worse than those being observed. Essentially, “efficacy beliefs
are heightened by alleged performance superiority in relation to group norms but
diminished by alleged low normative standing” (Bandura, 1997, p. 87). A third
source of efficacy information is verbal persuasion which can be verbally stated
or spoken to oneself (Bandura, 1997) For example, verbal persuasion involves list-
ening to coaches, friends, parents, media and oneself as a source of performance
feedback. Positive and negative verbal persuasion can elevate or be deleterious to
efficacy perceptions depending on the situation or circumstances. The fourth source
of efficacy information, physiological and affective states, has the least amount of
influence on efficacy perceptions in sport situations. Generally, efficacy is purported
to be augmented when a player or team enters a game with elevated arousal levels
and in a positive affective state (Bandura, 1997).

Researchers have posited that collective efficacy has distinct, yet homologous
sources to self-efficacy (Feltz & Lirgg, 2001; Zaccaro et al., 1995). Zaccaro and
colleagues contend that in addition to Bandura’s (1997) sources of efficacy informa-
tion, prior performance, leadership behaviors, group size, and cohesion are specific
sources of collective efficacy information used by teams to judge their capabilities.
Prior performance has similar effects to Bandura’s (1997) enactive mastery experi-
ence and pertains to the consistent success of teams and its subsequent relation to
elevated collective efficacy levels, whereas consistent unsuccessful performance
is related to lower levels of collective efficacy. Zaccaro et al. posit that unwavering
successful performance is a key component in groups with high collective efficacy.
Leadership processes are another source of collective efficacy and augment such
beliefs through the verbal persuasion and encouragement of teammates (Zaccaro
et al.). For example, successful leaders facilitate a sturdy sense of collective effi-
cacy among team members by persuading and developing competence as a team
(Bandura, 1997; Zaccaro et al.). Group size is also posited to affect the collective
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efficacy levels of teams. Members of smaller teams are better able to coordinate
group functioning and hence, have more potential to possess elevated levels of
efficacy as a unit (Zaccaro et al.). Teams that possess elevated levels of group cohe-
sion have greater influence over individual members, which facilitates an increase
in acceptance of group roles, responsibility, and standards (Zaccaro et al.). The
focus of this manuscript is on pivotal and nonpivotal players as potential sources
of collective efficacy perceptions.

Because of the proposed positive implications of pivotal players on the collective
efficacy of teams, it seems probable that following a sudden removal of such
a beneficial force, collective efficacy of teams may inadvertently and deleteriously
suffer. A pervasive and potentially damaging way players are removed from com-
petition is through injury. Surprisingly, collective efficacy and injury in sport have
only recently been empirically researched. Edmonds and Tenenbaum (2004) sought
to determine the predictive strength of sources of collective efficacy as well as the
relationships between collective efficacy and performance in adventure racing
teams (N = 17). The researchers examined collective efficacy, self-efficacy, prior
performance, preparation/effort, environmental factors, and race performance in
each of the race participants at five points (prerace, checkpoints one to three, and
final). Correlations between initial collective efficacy and final team performance
were computed, and linear hierarchical regression was used to determine the
mediating role of collective efficacy and performance. The relationship between
collective efficacy and performance proved to be circular in that, as teams won,
their collective efficacy increased, which improved performance, and subsequent
collective efficacy and so on. In addition, through the analysis of relevant influential
sources of collective efficacy, the researchers found that collective efficacy had a
negative relationship to teammate injury in adventure racing teams (Edmonds &
Tenenbaum, 2004). Teams who had suffered an injury to one of their racers subse-
quently reported decreased levels of collective efficacy for their team. Adventure
racing and soccer teams are similar in a number of ways. Both teams are composed
of individual participants endeavoring toward a common goal (to outperform their
competition), where each athlete is a symbiotic component necessary to achieve
this goal. Because coordinated effort from each participant is an essential part of
a successful adventure racing team (i.e., high interdependence), similar conclu-
sions may be expected for soccer teams. According to Bandura (1997), this finding
is not a surprise considering, “athletic teams also experience a crisis of efficacy
after the loss of a superstar (i.e., pivotal player), especially, if they attribute much
of their success to their departed teammate” (p. 403). Bandura’s (1977) social
cognitive theory contends that efficacy is largely shaped by social influence (e.g.,
enactive mastery experience, verbal persuasion). In the case of sport, teammates
and coaches for example, may contribute to players’ sense of collective efficacy,
therefore any loss of such a contributing force may have a deleterious impact on
collective efficacy perceptions.

Bandura (1997) believes that:

A highly gifted player in a key position on a team of an interdependent sport
can raise the perceived team efficacy of mediocre teammates. The assessed
perceived collective efficacy of a hockey team illustrates this point. The play-
ers collectively judged their team efficacy much higher than the sum of their
own efficacies because they had a phenomenal goalie who repeatedly rescued them from their missteps. The quality of teamwork in an interdependent sport can greatly affect a team’s sense of collective efficacy. (p. 403)

Because efficacy is dynamic rather than a static trait, it is constantly being reassessed and reevaluated (Bandura, 1997). According to Bandura (1997), when players gauge the collective efficacy they have in their teams, they certainly consider whether the most pivotal players are in the lineup and whether these individuals are playing well. For example, because soccer is considered an interdependent sport, the collective efficacy of such teams would be expected to be reduced if players knew their pivotal players would be out of the lineup due to injury.

Player injuries happen on a consistent basis in sport teams, yet currently there is a paucity of research on the effect of such injuries on collective efficacy perceptions. Only recently have researchers provided evidence that noted a high rate of sport injury for male and female professional soccer players. In a recent study of eight professional women’s soccer teams across two seasons, researchers reported 173 total injuries (Giza, Mithofer, Farell, Zarins, & Gill, 2005). In addition, of the 202 players that participated in the league, 110 of them experienced at least one injury across the two seasons (an incident rate of 55%). In a similar study of injury rates of Major League Soccer players in the US, researchers reported that of the 237 players in the league, 256 injuries occurred across one season (Morgan & Oberlander, 2001). Of these injuries, 79% caused the player to lose playing time. Given the elevated number of injuries in soccer and its potential to effect the relationship between collective efficacy and performance, it is important to determine the effect player injuries have on the efficacy of teams in an elite, interactive sporting environment.

Although much research exists in the literature regarding the individual psychology of sport injury, researchers have primarily focused on independent dynamics, while not accounting for possible team effects. The four primary areas of injury research have been cognitive responses, attributions for injury, self-perceptions, and attributions following injury (Brewer, 2001). While important to overall understanding of rehabilitation from an individual cognitive perspective, researchers have yet to determine the effect of injury on teams utilizing a social cognitive theory framework.

The current study was formed in response to the following issues regarding collective efficacy and sport injury: the preponderance of injury in elite sport, with soccer being no exception; Bandura’s (1997) calls for additional research on sport injury utilizing social cognitive theory; the lack of research on sport injury’s effect on the team; and the belief that collective efficacy would change following the loss of a pivotal player (Bandura, 1997). The paucity of research on player injury and its subsequent affect on collective efficacy allows us to posit the possibility of collective efficacy decreasing or actually increasing following such an event. Yet, to date, research on injury and collective efficacy as well as the contentions of Bandura (1997) have led us to hypothesize that collective efficacy perceptions following the loss of a pivotal player would decrease. Therefore, utilizing Bandura’s (1997) theoretical propositions for collective efficacy and considering that enactive mastery experience and vicarious experiences are potent forms of efficacy information, the following hypotheses were posited. Collective efficacy perceptions will
remain unchanged following the scenario-based loss of a nonpivotal player and will decrease following the loss of a pivotal player.

Method

Participants

Semiprofessional male soccer players ($N=194$) participated in the preseason data collection. The number of players on each of the 12 teams ranged from 11 to 20 with an average of 16 ($SD=2.89$). The age of the players ranged from 16 to 33 years with a mean of 23.37 years ($SD=3.82$). Players averaged 69.87 min ($SD=31.86$) per game with a range of 0–90 min. Players reported an average of 2.78 ($SD=2.38$) seasons of semiprofessional soccer experience that ranged from 0 (first season) to 12 seasons. At the time of data collection, there were four players who reported that they were in their first season with the teams.

Procedures

Following permission to collect data from the primary author’s Institutional Review Board, coaches were contacted and asked for their teams’ voluntary participation. A date and time to collect data were subsequently arranged at the convenience of each team, either immediately before or after a weeknight training session. Data were collected for every team in the semiprofessional soccer league of Western Australia before the first game (i.e., preseason). We believed that the nearly three seasons of training and competing together allowed collective efficacy judgments to be accurately assessed before the season commenced. Before any data collection, each team was read a set of standardized instructions and given an opportunity to ask questions or to decline participation. None of the players on any of the teams declined to participate. Each player was then given a packet of questionnaires containing an informed consent document, a demographic inventory, a collective efficacy inventory (Appendix A), a scenario describing a loss to either a pivotal player or a nonpivotal player, with an additional collective efficacy inventory based on player loss. Players were randomly assigned questionnaires on each team, which resulted in nearly half of the players receiving either a scenario assessing collective efficacy perceptions following the loss of either a nonpivotal player with not much playing time (Appendix B), or a pivotal player who was highly skilled and greatly contributed to the team’s success (Appendix C). The scenarios were exactly the same with the exception of the injured player. The players were then thanked for their participation and informed the results of the study were available upon request.

Instruments

Collective Efficacy Measurement. A 16-item collective efficacy researcher-constructed inventory designed specifically for use with semiprofessional soccer players and teams was used in the current study. The rationale behind the creation and utilization of this inventory was based on previous researchers (e.g., Feltz & Lirgg, 1998, 2001; Kozub & McDonnell, 2000) as well as the recommendations of Bandura (1997, 2006). Bandura (2006) states that
The “one measure fits all” approach usually has limited explanatory and predictive value because most of the items in an all-purpose test may have little or no relevance to the domain of functioning. Moreover, in an attempt to serve all purposes, items in such a measure are usually cast in general terms divorced from the situational demands and circumstances. This leaves much ambiguity about exactly what is being measured or the level of task and situational demands that must be managed. (p. 307)

Bandura contends that measures of efficacy are only valid while created with a specific population relative to that specific group’s functioning. Hence, each inventory relative to self-efficacy or collective efficacy perceptions needs to be specifically designed within the population or sample in question.

Content validity was enhanced via input from former semiprofessional soccer players and current coaches in the construction of the efficacy inventory. Specifically, Premier League coaches and past players were asked to name several tasks necessary for success in Premier League soccer in Western Australia. The tasks were then compiled into a master list and distributed to previous league players and coaches. They were then asked if the 16 tasks accurately reflected skills necessary for success in semiprofessional soccer. Minor amendments were made to the tasks and the final collective efficacy inventory was created (Appendix A). Following the suggestions of Bandura (2006) on collective efficacy psychometric construction, the collective efficacy inventory asked each player to, “indicate your confidence level that your team as a whole can complete these tasks on a scale from 0 (cannot do at all) to 10 (certain can do)”. A sample question includes: “How confident are you in your team’s ability to accurately shoot under pressure?”

_Hypothetical Scenarios._ Separate descriptions were created in an attempt to differentiate the pivotal player from nonpivotal player. Jim, the nonpivotal player, was described as someone who fills in when the teams needs him to and contributes when he is on the field (Appendix B). Scenario two described Will, the pivotal player (Appendix C), as a team leader with great skills and someone who is looked up to on and off the field. An analogous scenario was constructed in which all players were described a realistic game-like situation near the endpoint of the season. In this scenario, players read a description of either Jim or Will, who get injured and has to immediately leave the game. The players are told that this player will not be returning to their team anytime in the near future. Through random assignment of each team, approximately half of the players on each team received a hypothetical injury scenario describing an injury to Jim, while the other half were detailed an injury to Will. All players were then asked to complete the same collective efficacy inventory as before. One sentence was added to the end of each of the 16 collective efficacy items depending on which scenario they received (without Jim, or without Will). For example, “My team’s ability to cross balls accurately” was subsequently changed to “My team’s ability to cross balls accurately without Jim.” Therefore, any differences between the initial collective efficacy inventory and the collective efficacy inventory following the scenario would be due to the loss of the aforementioned player.

After a preseason roster check of names, Will and Jim were chosen because no player on any of the teams had these names which could have confounded the data.
In addition, the two divergent descriptions of players were created to determine if losing any player would cause a decrement in collective efficacy perceptions, or if a pivotal player was needed to cause a decrease in collective efficacy perceptions.

**Results**

**Factor Analysis**

A principal axis factor analysis with direct oblimin rotation was conducted on the collective efficacy inventory to determine possible subscales. Initial criteria used in this analysis were eigenvalue values greater than 1.0 and loadings greater than .55 on the primary factor, but less than .30 on all other factors. Eliminating items in this manner produced 10 items that loaded on three factors. Of the three factors, two were clearly interpreted from a conceptual standpoint. Next, the conceptually vague items in the third factor were eliminated and a second factor analysis was then conducted. Following the second factor analysis, we found two interpretable factors with seven items loading cleanly on these two dimensions (Table 1). Item content analysis indicated that these two factors reflected Perseverance Collective Efficacy (PCE, 3-items) and Skills Collective Efficacy (SCE, 4-items). Together, these factors accounted for approximately 58% of the variance in the collective efficacy data. Internal consistency analyses revealed very good coherence for the PCE and SCE subscales with alpha coefficients of .88 and .90, respectively. The resulting correlation coefficients for the skills and perseverance subscales at baseline were highly positive (r = .46, p = .001) and increased their association following the scenarios (r = .65, p = .001).

<table>
<thead>
<tr>
<th>Factor</th>
<th>Pattern Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td><strong>1. Skills Collective Efficacy (SCE)</strong></td>
<td></td>
</tr>
<tr>
<td>My team’s ability to accurately shoot under pressure</td>
<td>.883</td>
</tr>
<tr>
<td>My team’s ability to cross balls accurately</td>
<td>.708</td>
</tr>
<tr>
<td>My team’s ability to control the ball under pressure</td>
<td>.640</td>
</tr>
<tr>
<td>My team’s ability to dribble past opponents effectively</td>
<td>.616</td>
</tr>
<tr>
<td><strong>2. Perseverance Collective Efficacy (PCE)</strong></td>
<td></td>
</tr>
<tr>
<td>My team’s ability to rebound from a difficult loss</td>
<td>−.113</td>
</tr>
<tr>
<td>My team’s ability to persevere in the face of failure</td>
<td>.069</td>
</tr>
<tr>
<td>My team’s ability to maintain physical endurance necessary to compete</td>
<td>.076</td>
</tr>
</tbody>
</table>

*Note. Details of the full psychometrics on the factor analyses are available from the primary author upon request.*
Descriptive Statistics

The baseline PCE for all players was 7.48 ($SD = 1.42$), and following the player loss scenarios the PCE mean decreased to 7.04 ($SD = 1.32$). For SCE, the baseline collective efficacy mean was 6.71 ($SD = 1.42$), and following the scenarios it slightly increased to 6.89 ($SD = 1.30$). The complete descriptive statistics for PCE and SCE can be found in Table 2.

MANOVA

A multiple analysis of variance (MANOVA) was initially conducted to determine possible multivariate effects for time and scenario. The MANOVA revealed a significant multivariate effect for time, Wilks’s Lambda $= .83$, $F(2, 190) = 19.47$, $p > .001$. To understand the role time played in collective efficacy perceptions more clearly, follow up univariate analyses were subsequently conducted.

ANOVA

Two-way, mixed model analyses of variance (ANOVA) were conducted on the PCE and SCE subscales to determine if differences in collective efficacy ratings varied systematically by time of assessment (before player lost versus after player lost) and player (pivotal player injury versus nonpivotal player injury). For PCE, a significant difference, $F(1, 192) = 26.48$, $p > .001$, was found between baseline perseverance collective efficacy ratings ($M = 7.48$, $SD = 1.42$) and postloss (player)

Table 2: Descriptive Statistics for Perseverance and Skills Collective Efficacy ($N = 194$)

<table>
<thead>
<tr>
<th>Player Injured</th>
<th>Mean</th>
<th>SD</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline PCE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Will (Pivotal)</td>
<td>7.40</td>
<td>1.40</td>
<td>100</td>
</tr>
<tr>
<td>Jim (Nonpivotal)</td>
<td>7.55</td>
<td>1.43</td>
<td>94</td>
</tr>
<tr>
<td>Total</td>
<td>7.48</td>
<td>1.42</td>
<td>194</td>
</tr>
<tr>
<td>Post-Player Injury PCE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Will (Pivotal)</td>
<td>7.03</td>
<td>1.42</td>
<td>100</td>
</tr>
<tr>
<td>Jim (Nonpivotal)</td>
<td>7.04</td>
<td>1.22</td>
<td>94</td>
</tr>
<tr>
<td>Total</td>
<td>7.04</td>
<td>1.32</td>
<td>194</td>
</tr>
<tr>
<td>Baseline SCE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Will (Pivotal)</td>
<td>6.74</td>
<td>1.34</td>
<td>100</td>
</tr>
<tr>
<td>Jim (Nonpivotal)</td>
<td>6.68</td>
<td>1.32</td>
<td>94</td>
</tr>
<tr>
<td>Total</td>
<td>6.71</td>
<td>1.42</td>
<td>194</td>
</tr>
<tr>
<td>Post-Player Injury SCE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Will (Pivotal)</td>
<td>6.84</td>
<td>1.26</td>
<td>100</td>
</tr>
<tr>
<td>Jim (Nonpivotal)</td>
<td>6.93</td>
<td>1.33</td>
<td>94</td>
</tr>
<tr>
<td>Total</td>
<td>6.89</td>
<td>1.30</td>
<td>194</td>
</tr>
</tbody>
</table>
perseverance collective efficacy ratings \((M = 7.04, SD = 1.32)\). The effect size was found to be small, but indicated a meaningful difference (Cohen’s \(d = .31\)). No significant interaction \(F (1, 191) = .61, p < .05\) was found between time of assessment and player injured. Thus, regardless of which hypothetical player was involved, postplayer injury PCE significantly decreased following the loss of a player. Essentially, losing a player regardless of status (i.e., pivotal or nonpivotal) had a significant negative effect on perceptions of PCE.

The \(2 \times 2\) ANOVA for SCE also revealed a significant main effect for time, \(F (1, 192) = 5.96, p < .02\), but no significant interaction, \(F (1, 192) = 1.05, p = .31\). Although statistical significance was found between baseline SCE and postplayer injury SCE, further analysis of the data in terms of effect size indicated that this difference was very small and unlikely to be meaningful (Cohen’s \(d = -.13\)).

**Discussion**

Within the current study we sought to examine the effect of hypothetical player loss through injury, either pivotal or nonpivotal, on perceptions of perseverance and skills collective efficacy for players on semiprofessional soccer teams. Overall, the findings partially supported our hypotheses. Players reported decreased perseverance collective efficacy (PCE) following the loss of a player, regardless of how pivotal that player was said to be. The decrease in PCE perceptions supported our hypothesis, yet, the indifference to which player was injured ran contrary to our expectations. Although participants reported a significant increase from baseline skills collective efficacy levels following the loss of a player, this difference was considered trivial and was inferentially interpreted as being unchanged. Possible reasons for this finding are discussed in detail.

PCE asked players to rate the confidence they possess in the ability of their team to persevere in the face of failure, to rebound from a difficult loss, and to maintain physical endurance necessary for success. Players believed that following the loss of a player on their team, the confidence in the ability of their team to do these tasks would be less. A possible explanation for this finding includes the impact of certain players on a team’s PCE. At an elite level, teammates may do little in terms of augmenting confidence in the team’s physical abilities yet, when it comes to increasing the player’s ability to persevere when down and rebound from a difficult loss, they seem to readily be able to verbally and nonverbally motivate their teammates. Zaccaro et al. (1995) believe that leaders influence collective efficacy perceptions by way of verbal persuasion and encouragement of teammates. Hence, it may seem each player may be contributing to their team’s perceptions of their perseverance capabilities and once one of these players are removed, the confidence in the team’s ability to persevere and rebound from losses are hampered.

Players believed the confidence they have in the abilities of their team to physically perform integral skills necessary for success would remain unchanged following the loss of a player, and may actually be interpreted as a small increase in collective efficacy. This is an interesting finding and worthy of further discussion. Players may believe that following the loss of a teammate, additional players can readily step up and fill the physical void left by the injured player. But, if a player becomes injured it seems it may be more difficult to fill those shoes mentally. At
an elite level, physical skill is streamlined with many players being on the same skill plane, in relative terms. Yet, from a motivational and efficacy perspective, certain players may be instrumental in molding, motivating and empowering other players to raise the level of their game. If such a player was no longer able to play, then it seems the team may suffer efficaciously (i.e., decreased PCE) without any decrements, or quite possibly an increase, in the confidence in the team’s physical abilities (SCE).

Possible reasons for not finding differences based on player injured (pivotal or nonpivotal) may be because of the players’ understanding of the descriptions of the hypothetical players. The descriptions of the players on the scenarios may not have been properly delineated nonpivotal players as such. Hence, players may have construed the nonpivotal player descriptions to be someone who is seen as an asset to their team. For example, the first sentence in the nonpivotal player description reads, “Jim is a player who fills in multiple roles on his team and is ready to play any position that the team needs him to step into.” This description may have been interpreted as an important attribute of a player who possesses a unique ability to fill in multiple roles and positions. To determine if this was the case, we conducted a small-scale validation study of 21 current and former male and female athletes of various sports. These athletes were used in lieu of the players in the current study because of the time which had passed since the original data collection and the turnover of players on these teams. Players were asked to, “please read the following descriptions and provide a rating for the importance of each player to the performance success of his team.” The descriptions for Will and Jim were analogous to the descriptions used for the current study and can be found in Appendix B and C, respectively. Following these descriptions, participants were asked to give a rating for each player based on a scale from 1 (not important) to 5 (very important) on how important each player was considered to be to the success of his team. The mean rating for Will was 4.57 (SD = .68), while Jim’s was 4.09 (SD = .77). The results of a paired samples \( t \) test revealed that Will was perceived to be statistically significantly \((t (20) = 2.50, p = .021)\) more important to the performance of his team. Moreover, when asked to choose which of these players they would prefer to have on the field in a crucial game situation, 16 of 21 respondents selected Will, one chose Jim and four chose to have them both on the field. In summary, from the results of the posthoc study it was clear that the two scenarios successfully delineated pivotal and nonpivotal players.

The findings of the current study are similar to the findings of other collective efficacy and injury researchers utilizing interdependent teams (Edmonds & Tenenbaum, 2004). Edmonds and Tenenbaum found collective efficacy levels to significantly decrease following the injury of members of adventure racing teams. Interdependent teams require every player to fill a certain role in order for the team to reach a common goal. Essentially, from the results of this exploratory study, if any one member of an interdependent team becomes injured, perseverance collective efficacy perceptions will suffer.

**Implications**

Athletic injuries are a ubiquitous occurrence in sports. Yet, to date, research regarding the collective efficacy of teams following such losses has been deficient. This
exploratory research into hypothetical injury on collective efficacy perceptions have given glimpses into the effect of player loss on perseverance and skills collective efficacy. From the following study it may be concluded that each player contributes to the team’s overall perceptions of its capabilities and therefore, a loss to any one of these players may have a potential negative effect on a team’s ability to persevere in the face of failure and rebound from difficult losses. These attributes are the hallmark of a successful collectively efficacious group (Bandura, 1997).

Several theoretical ramifications on efficacy theory in sport can be garnered from the findings of the current study. Bandura’s (1997) proposition that collective efficacy beliefs will be affected by player loss has received support. One theoretical rationale for this discovery includes using enactive mastery experience to interpret the findings. Enactive mastery experience pertains to achieving performance success as a team, which then elevates collective efficacy perceptions. If players believed that much of their past success was based on a particular player being in the line-up, then following the loss of such a player, collective efficacy would be expected to decrease. In addition, using enactive mastery experience as a source of efficacy information, the players may have previously had a pivotal player injured on their team and possibly noticed a negative effect on team performance as a corollary.

Limitations and Future Research

A hypothetical scenario is an efficient way to gather player injury perceptions without any injuries occurring, yet although players were allowed to ask questions through data collection, the players may not have understood this process. Although the hypothetical scenarios were realistic, one inherent drawback to such a methodological approach is the fact that the situation was not real. Bandura (1997) cautions researchers against using hypothetical situations to assess efficacy beliefs because individuals may believe they have confidence to do something, yet when faced with the actual task that confidence may differ.

In previous sport injury research, hypothetical scenarios were effectively used to determine attributions for rapid or slow recovery from injury (Grove, Hanrahan, & Stewart, 1990). Grove et al. used two hypothetical situations with undergraduate physical education majors. Half of the participants were asked to vividly imagine what it would be like if they had an injury and were recovering very slowly, while the other half received a similar scenario with a rapid recovery rate. The researchers found that participants in the rapid recovering scenario attributed their progress to stable, personal and internal factors more so than subjects who received the slow recovery scenario. In an attempt to extend and replicate the findings of Grove et al., Laubach, Brewer, Van Raalte, and Petipas (1996) used participants recovering from actual knee injuries to determine the congruence between hypothetical participants’ attributions of slow versus rapid recovery rates. The researchers asked 34 knee rehabilitation patients about their perceived rate of recovery as well as various open-ended questions about the perceived causal attributions of this recovery rate. Consistent with the findings of Grove et al., Laubach and colleagues found that participants who perceived themselves to be recovering rapidly, attributed this to stable, internal and external controllable factors. Taken as a whole, these researchers elucidated the fact that hypothetical injury studies show congruence to actual injury research. Therefore, in exploratory research, a hypothetical research design
is an appropriate means to determine possible effects before research into actual sport injury occurs.

Because of the exploratory nature of the current study, future research on injury and collective efficacy in sport is ripe with possibilities. Additional research should seek to replicate the above study with a similar hypothetical loss of players on an interdependent team with the exception of actual players on the team who are deemed pivotal and nonpivotal to the team’s performance success. Furthermore, because of the influence of leaders’ collective efficacy on followers’ collective efficacy, it is essential to determine if these actual pivotal players are also considered the leaders on the team. This will allow further implications to be discussed in terms of, not only performance success, but also loss of influential leaders in terms of social influence and modeling.

A longitudinal study assessing collective efficacy over the course of a season with interdependent teams is the next step in determining if collective efficacy changes following the loss of certain players. Researchers should first determine which players are considered the most pivotal to their team’s performance success, then determine collective efficacy beliefs following an injury to one of more of these players. The longitudinal design is advantageous because of the possibility of teammates believing they may be able to step up (in the short term) to fill the void left by an injured player. Over the course of a season the void left by one or more players may cause a periodic and less salient decrease in collective efficacy perceptions that may only be detected by a longitudinal research design. A qualitative end-of-the-year interview should also be conducted with each player to determine possible reasons collective efficacy perceptions may have fluctuated following injuries.

Coaches should also be the foci of future research to determine their potential social influence on collective efficacy perceptions of their players. According to Bandura (1997), excellent coaches are ones who are successful efficacy builders who “do more than simply convey positive appraisals or inspirational homilies” (p. 106), they facilitate in the encouragement of success and confidence through self-improvement in lieu of triumph over others. Similarly, Vargas-Tonsing, Myers, and Feltz (2004) found that players and coaches believed effective efficacy enhancing techniques included, having the coaches act confident themselves and using positive verbal persuasion. Future study could determine the effect coaches may have on the mitigation of collective efficacy perceptions following the loss of a pivotal player through positive verbal persuasion and acting confident in the face of adversity and injury.

Conclusions

The researchers conducted this exploratory study in an effort to determine how elite soccer players would judge their team’s capabilities after the loss of pivotal and nonpivotal players. We found decreases in PCE, while SCE remained relatively unchanged. Players reported lower levels of PCE following the loss of a player, while the player removed did not seem to matter. Interestingly, players believed confidence in their team’s abilities to perform physical skills would remain relatively unchanged following the loss of a player. Because collective efficacy has been found to be an
important variable in sport performance, especially for interdependent teams, any decrement in such perceptions would be expected to decrease performance through lowered levels of motivation, effort, affective states and persistence in the face of failure (Bandura, 2000).

Study into the area of collective efficacy has recently increased in the years, yet additional research is called upon to determine how this important variable is influenced by the ubiquitous topic of player loss. This exploratory study is an important stepping-stone to future research in sport psychology on injury and collective efficacy beliefs and should be expounded upon before broad and valid conclusions can be drawn.

References


*Manuscript submitted: November 25, 2007*

*Revision received: March 22, 2008*

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**Appendix A**

**Collective Efficacy Inventory**

*Instructions*: Listed below are 16 important game abilities for success in Premier League Soccer in Western Australia. Please indicate your confidence level that your team as a whole can complete these tasks on a scale from 0 (cannot do at all) to 10 (certain can do). Circle the appropriate number to the right of the task.

<table>
<thead>
<tr>
<th>My team’s ability to . . .</th>
<th>Cannot do at all</th>
<th>Moderately certain can do</th>
<th>Certain can do</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cross balls accurately***</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Dribble past opponents effectively***</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Accurately shoot under pressure***</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
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</tr>
<tr>
<td>4. Control the ball under pressure***</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
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<tr>
<td>5. Read the game and make sound tactical choices</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Win balls in the air</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
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<tr>
<td>7. Quickly transition from offense to defense and defense to offense</td>
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<td></td>
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<tr>
<td><strong>8. Persevere in the face of failure</strong></td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
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<tr>
<td><strong>9. Rebound from a difficult loss</strong></td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
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<tr>
<td><strong>10. Maintain physical endurance necessary to compete</strong></td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
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<tr>
<td>11. Make split-second decisions</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>12. Communicate with team members</td>
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<td>13. Make runs into space</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>14. Accurately distribute the ball</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>15. Defend when outnumbered</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
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<tr>
<td>16. Make strong clean tackles</td>
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<td></td>
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</tbody>
</table>

*** Skills Collective Efficacy Items (SCE); ** Perseverance Collective Efficacy Items (PCE)
Appendix B

Nonpivotal Player Description and Scenario

Instructions: Please read the description below and think of a player on your team who most closely represents the player in the description. Use the description of the following player to answer the questions based on the following scenario found below.

Jim is a player who fills in multiple roles on his team and is ready to play any position that the team needs him to step into. He realizes how important his role is to the team and so he’s comfortable with the limited amount of playing time he gets. His performance on the field is usually raised when he plays with the highly skilled players. Jim is a player who contributes to his team’s performance success when he is on the field.

Scenario

It is near the endpoint of the season and your team is playing a very evenly matched opponent where the outcome was crucial to your team’s placement in the League. You are coming off of a great win last week. Your team is playing on its home ground with the seats packed with excited fans. Every one of your starters are fit, healthy and ready to play. There are 15 min left in the game and the score is a 1–1 draw. Suddenly, you hear a scream and Jim goes down and needs to be taken off the field. You realize there is no way he will be able to return to this game or any game in the near future and needs to be replaced by a reserve.

Please answer the questions below based on the above scenario about your team’s abilities: (Appendix D followed these instructions).

Appendix C

Pivotal Player Description and Scenario

Instructions: Please read the description below and think of a player on your team who most closely represents the player in the description. Use the description of the following player to answer the questions based on the following scenario found below.

Will is a player who is crucial to his team’s performance. He is the type of player who is always a “force” in contributing to his team’s performance but his contributions always seem to shine brightest in “big games.” He is a skilled player whose very presence serves to steady and motivate his team. Will’s presence on the field seems to raise the performance of his team mates around him. When he is on the field, his team’s potential for a great performance is greatest.

Scenario

It is near the endpoint of the season and your team is playing a very evenly matched opponent where the outcome was crucial to your team’s placement in the Premier League. You are coming off of a great win last week. Your team is playing on its home ground with the seats packed with excited fans. Every one of your starters are fit, healthy and ready to play. There are 15 min left in the game and the score
is a 1–1 draw. Suddenly, you hear a scream and Will goes down and needs to be taken off the field. You realize there is no way he will be able to return to this game or any game in the near future and must be replaced by a reserve.

Please answer the questions below based on the above scenario about your team’s abilities: (Appendix D followed these instructions).

Appendix D

Collective Efficacy Inventory Following Loss of Player

Instructions: Listed below are 16 important game abilities for success in Premier League Soccer in Western Australia. Please indicate your confidence level that your team as a whole can complete these tasks on a scale from 0 (cannot do at all) to 10 (certain can do). Circle the appropriate number to the right of the task.

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