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# Analyzing aspects of coaching in amateur sport teams, and their association with team cohesion and team performance

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**Abstract**

In this research different aspects of coaching were analyzed. The data were collected from the players ($N = 84$) and coaches ($N = 12$) of ten amateur sport teams, using questionnaires. The following conclusions are based on the answers the players gave on these questionnaires. We found a positive significant relationship between task cohesion and subjective and objective team performance (group means), but not between social cohesion and subjective and objective team performance. We also found a positive relationship between leadership dimensions (coaching behaviors) and satisfaction with the coach, especially for the training and instruction dimension. The leadership dimension teambuilding contributed the most in predicting task cohesion (individual and mean team scores) and the dimensions training and instruction and participative leadership contributed in predicting social cohesion (mean scores). Team members experiencing a better working relationship with their coach evaluated the team performance more positively and did objectively perform better when looking at the group means. No significant negative relationship was found between social differential treatment and either team atmosphere or task cohesion. Besides this, the better team members considered the relationship with their coach, the more they considered social and task differential treatment within the team as fair.

**1. Introduction**

Teams have to work together with their coaches to reach their established goals. In the top level of sports, the importance of sport psychology increased in recent years. In different sports coaches are advised by psychologists to let their team perform the best they can. In amateur sports coaches have an important influence on the performances of teams, too. However, less is known about the way players can be coached best in order to perform optimally and to combine good results and fun.

There seems to be a clear relationship between team cohesion and performance. Team cohesion is positively related to team performance. However, the direction of this relationship is a matter of discussion. According to some authors, performance has more impact on cohesion than cohesion has on performance (Grieve, Whelan, & Meyers, 2000; Mullen & Copper, 1994). Other authors assume that task and social cohesion may have a significant effect on performance as well (Chang & Bordia, 2001; Mach, Dolan, & Tzafrir, 2010).

The cohesion-performance relationship is influenced by task type (Carron & Hausenblas, 1998). Many team sports, such as korfball, hockey, basketball and volleyball, require extensive interaction in order to achieve the team goals. Therefore, greater cohesion should be associated with more effective performance. However, other sports have a low interaction requirement, such as golf, wrestling and tennis. The performance of these teams depends on summing individual outcomes. In these kinds of sports, greater cohesion should be irrelevant for team success and even rivalry among team members might be desirable. However, Mullen and Copper (1994) found that higher cohesion is associated with better team performance across all sports types.

There are two main types in which cohesion can be divided: social cohesion and task cohesion. Social cohesion regards the quality of interpersonal relations while task cohesion contains commitment to the group task (Pescosolido & Saavedra, 2012). Both task and social cohesion seem to be positive predictors of subjective and objective group task performance. In addition, task cohesion seems to be a stronger positive predictor of subjective group performance (Chang & Bordia, 2001). A high level of social cohesion is not always desirable and can even be counterproductive (Pescosolido & Saavedra, 2012). This seems to take place in groups that do not put a high and controlling value on

productivity. The first research question in this thesis will be whether there is a strong relationship between performance and cohesion. It is plausible that team cohesion built during the year will predict group performance at the end of the year. Stated as a hypothesis:

*Hypothesis 1:* Team (task and social) cohesion and team (subjective and objective) task performance are strongly associated; this relationship will be the strongest for task cohesion and subjective group performance.


Cohesion is a factor that plays an important role in the dynamics of all groups (Carron & Hausenblas, 1998). A variety of factors is positively related to group cohesion. These factors can be classified into environmental, team, personal and leadership factors, which can also influence each other. In this research I will mainly focus on the role of the leader (coach). Leader behavior and decision style are aspects of leadership that may contribute to group cohesion, either positively or negatively. In the next paragraph I will describe these aspects in more detail.

According to the multidimensional model of Chelladurai (1990), there are five dimensions of leader behavior: training and instruction, democratic behavior, autocratic behavior, social support and positive feedback (rewarding behavior). These dimensions differ in the way they are task or relationship oriented. Social support and positive feedback are more relationship oriented, training and instruction and autocratic behavior are more task oriented and democratic behavior has some of both orientations. All dimensions are positively correlated with athletes' satisfaction with leadership, but autocratic behavior is negatively correlated (Chelludurai et al., 1988, as described in Chelludurai, 1990).

Besides these five dimensions of leadership, also the relationship variables commitment, closeness and complementarity are important for predicting cohesion (Jowett & Chaundy, 2004). Leadership and relationship variables were stronger predictors of task cohesion than of social cohesion. Both leadership and relationship variables seem to be important in predicting cohesion, in which the leadership variables are stronger predictors. Shields, Gardner, Bredemeier and Bostro (1997) also found that perceived and preferred leader behaviors were related to team cohesion. The strongest

relationships occurred between perceived leader behaviors and task cohesion. It was likely that high task cohesion was encouraged by a leadership style that was strong in training and instruction, social support, democratic behavior and positive feedback and avoided autocratic decision making.

Therefore, the second research question in this thesis will be whether there is a relationship between the occurrence of various leadership behaviors and activities of the coach (training and instruction, democratic/autocratic behavior, social support and positive feedback) and the satisfaction of the athletes or team members with their coach as well as the perceived cohesion in the team. On the basis of this literature, I formulate the following hypotheses:

*Hypothesis 2a:* There is a positive relationship between athletes' description of the occurrence of various dimensions of leader behaviors by the coach and their satisfaction with the coach; this relationship will be strongest for training and instruction.

*Hypothesis 2b*: There is a positive relationship between athletes' description of the occurrence of various dimensions of leader behaviors by the coach and the perceived cohesion in the team; this relationship will be the strongest for task cohesion.


According to the Leader-Member Exchange theory, an important aspect of leadership is its relationship-based nature. When coaches and players (leaders and followers) are able to develop mature partnerships, they may profit from many benefits of these mature relationships and effective leadership processes will occur (Graen & Uhl-Bien, 1991, as described in Graen & Uhl-Bien, 1995). Mature relationships may develop over time when there is a high degree of mutual trust, respect and obligation (Graen & Uhl-Bien, 1995). For a coach it is important to build a high-quality relationship (partnership) with all of the players of his or her team.

According to Vella, Oades and Crowe (2012), individual consideration, intellectual stimulation and appropriate role modeling are the most influential leadership behaviors. A combination of transformational leadership behavior and a high-quality relationship between coach and athlete is the best predictor of positive developmental experiences (personal and social skills, cognitive skills, goal setting, initiative, negative experiences). A team member will evaluate the atmosphere in the team and the

performance of the team more positively when experiencing a good working relationship with the coach compared to experiencing a lower quality working relationship with the coach (Van Breukelen, Van der Leeden, Wesselius, & Hoes, 2012). Therefore, the third research question focuses on the relationship between the quality of the working relationship with the coach as experienced by the team members, and their evaluation of the team atmosphere and the performance of the team.

*Hypothesis 3:* Team members experiencing a good working relationship with their coach will evaluate the atmosphere in their team and the performance of their team more positively compared to team members experiencing a lower quality working relationship with the coach.

Differential treatment by a leader refers to unequal behaviors of the leader toward team or group members. A leader may treat members differently as to social or task-related aspects and may differently hand out positive and negative rewards (Van Breukelen et al., 2012). There is a difference to make between social differential treatment and task differential treatment. Social differential treatment concerns for example (personal) attention, sympathy and feedback, whereas task differential treatment concerns for example playing time and influence on team composition and tactics. Social differential treatment and team atmosphere were negatively associated in the aforementioned study. Team members evaluated the atmosphere in the team less positively when perceiving a high degree of social differential treatment within the team compared to perceiving a low degree of social differential treatment.

According to Sias and Jablin (1995, as described in Van Breukelen et al., 2012) employees will consider incidents of differential treatment as unfair when they have a low-quality relationship with their leader and as fair when they have a high-quality relationship with the leader. It is likely this is also the case in sports teams. The fourth research question in this thesis will focus on the relationship between social differential treatment and team atmosphere/ social cohesion and the relationship between social differential treatment and task cohesion.

*Hypothesis 4:* There is a negative relationship between the occurrence of social differential treatment and team atmosphere/ social cohesion and between social differential treatment and task cohesion.

The fifth and final research question looks at the potential differences in perceptions of fairness of differential treatment between members who have a low-quality relationship with the coach and members who have a high-quality relationship with the coach. Stated as a hypothesis:

*Hypothesis 5*: Team members who have a low-quality relationship with their coach will tend to consider differential treatment within the team as unfair, while members who have a high-quality relationship with their coach will consider differential treatment as fair.

## 2.    Method

Participants were members (N = 84) and coaches (N = 12) of ten amateur teams of varying team sports. Three korfball teams (N = 10, N = 10, N = 9), four handball teams (N = 7, N = 4, N = 8, N = 8), two hockey teams (N = 8, N = 10) and one ice hockey team (N = 10) participated. The korfball teams were coached by two coaches and two handball teams had the same coach. The handball and the hockey teams were female teams, the ice hockey team was a male team and the korfball teams were mixed teams. The coaches were approached directly or via a team member and were asked for permission and willingness to participate in this research. The teams were visited by the researcher, and the team members and coaches were handed out questionnaires to fill in. These questionnaires were used in former research and have been approved with respect to reliability and validity. The questionnaire for the coaches differed from the questionnaire for the players in several ways, but the items were very comparable (see Appendix). The questionnaires for the players consisted of 86 items and 8 demographic questions. The questionnaires for the coaches consisted of 59 items and 15 demographic questions. Both questionnaires are attached at the end.

The various *leadership dimensions* were measured with questions like: "Our coach pays attention improving potential mistakes of players" (1= never; 2 = seldom; 3 = sometimes; 4 = often; 5 = very often) (training and instruction), "Our coach encourages players to help thinking about important decisions" (1= never; 2 = seldom; 3 = sometimes; 4 = often; 5 = very often) (participative leadership), and "Our coach pays attention building a  good team atmosphere" (1= never; 2 = seldom; 3 = sometimes; 4 = often; 5 = very often) (teambuilding).

The quality of the *working relationship between coach and player* was measured with questions like: "Is your coach satisfied with your achievements during games?" (1= never; 2 = seldom; 3 = sometimes yes, sometimes not; 4 = often; 5 = always), and "Does your coach have faith in your (sport)capacities?" (1 = very little; 2 = little; 3 = a bit; 4 = much; 5 = very much).

The occurrence of *differential treatment* was measured with questions like: "Does your coach give some players of the team more compliments than other players?" (1 = never; 2 = seldom; 3 = sometimes; 4 = often; 5 = very often) (social differential treatment), and "Does your coach make a difference between players concerning the number of minutes they play in a season?" (1 = no difference at all; 2 = barely a difference; 3 = some difference; 4 = quite a difference; 5 = a lot of difference) (task differential treatment).

The *fairness of social and task differential treatment* was measured with the question "Do you consider this as right?" (1= not right; 2 = sometimes not right, sometimes right; 3 = right; 4 = I cannot judge that) after each question about the occurrence of differential treatment.

The *social cohesion in the team/ team atmosphere* was measured with questions like: "Do you have contact with other players in your team apart from sporting?" (1 = not at all; 2 = seldom; 3 = sometimes; 4 = regularly; 5 = very often), and "Do you feel accepted by the other players in your team?" (1 = not at all; 2 = not really accepted; 3 = quite accepted; 4 = well accepted; 5 = very well accepted).

The *task cohesion in the team* was measured with questions like "Is the team united in reaching the ultimate team goal?" (1 = not united at all; 2 = not really united; 3 = somewhat united; 4 = properly united; 5 = completely united), and "Do team members catch up someone else's mistakes on the field?" (1 = no, not at all; 2 = no, barely; 3 = yes, somewhat; 4 = yes, well; 5 = yes, very well).

The *subjective performance* of the team, that is the performance of the team as perceived by the players, was measured with questions like: "Is this a good sports season when you look at the team performance?" (1 = not good at all; 2 = not really good; 3 = moderate (not good and not bad); 4 = good; 5 = really good), and "On which level do you play this season, compared to last season?" (1 = much lower now than last season; 2 = somewhat lower now than last season; 3 = on the same level as last season; 4 = somewhat higher now than last season; 5 = much higher now than last season).

To measure the *objective team performance*, the players and the coach were asked which position the team had in the final ranking at the end of the competition and how many teams there were as competitors. The correlation between the players' subjective evaluation of the performance of their team and the objective performance (as measured by the position on the ranking of the teams in the poule) was .54 ($p < .001$, $N = 80$).

The *satisfaction of players with the coach* was measured with questions like: "Did you learn much from your coach concerning sport this season?" (1 = very little; 2 = little; 3 = not little, not much; 4 = much; 5 = very much), and "When it's up to you, would you like to play under this coach next season?" (1 = absolutely not; 2 = probably not; 3 = I do not know yet; 4 = probably yes; 5 = absolutely yes).

In the final section of the questionnaires there was space to write comments down. The questions were almost all on a 5-point answering scale and some were yes or no questions. Several questions were designed to measure the interpersonal and group relationships on a task and social level. There were also questions about the cooperation with the coach from a member's perspective. During the filling in the participants were offered a drink and after completing the questionnaires, they were handed in personally. The data could not be traced back to the names of the participants and were treated confidentially.

## 3.     Results

First of all, a series of Principal Component Analyses was performed, respectively on the leadership dimensions questions, the cohesion questions, the differential treatment questions and the questions regarding the working relationship with the coach. In these analyses it was examined if the questions reflected the various dimensions they were intended to measure.

In addition to the Principal Component Analyses, various reliability analyses were performed to look if substantive close items were closely related in the data in order to lead to reliable scales. We looked at the items of the scales training and instruction, participative leadership, teambuilding, social cohesion, task cohesion, social differential treatment, task differential treatment, subjective team performance, satisfaction with the coach and the quality of the working relationship with the coach. In general, scales are considered reliable when they have values of Cronbach's alpha of .70 or higher. For an overview, the final scales after these analyses are also shown in Table 5.

First we examined the leadership dimensions questions. A Principal Component Analysis was performed on the 19 leadership activities and behaviors in the questionnaire, with a 3-factor solution (Table 1). Even though there were four factors with an eigenvalue higher than one, we chose a 3-factor solution, because this part of the questionnaire was constructed to measure three leadership dimensions. We found that items A1, A2, A8, A11, A12, A14, A16 and A18 have a loading higher than .40 on the first factor. Items A3, A6, A7, A10, A13, A15 and A18 have a loading higher than .40 on the second factor. Items A1, A4, A5, A9, A10, A16, A17 and A19 have a loading higher than .40 on the third factor. Items A1, A10, A16 and A18 thus have a loading higher than .40 on two factors. The loadings of A1 and A16 are higher on the first factor, so they seem to fit better on this factor than the other one. The loading of A18 on the second factor is higher than on the first factor, so this item seems to fit better on this factor than the other one. The loading of A10 is slightly higher on the third factor, so this item seems to fit better on this factor than the other one.

*Table 1. Rotated Component Matrix of the items measuring the various Leadership Dimensions (N = 80)*

| Our coach: | | Component 1 | Component 2 | Component 3 |
|---|---|---|---|---|
| A1 | Makes expectations clear | **.56** | .32 | **.41** |
| A2 | Pays attention to mistakes | **.71** | .06 | .03 |
| A3 | Helps to solve differences in opinions | .01 | **.62** | .26 |
| A4 | Pays attention to little things | .16 | .27 | **.74** |
| A5 | Gives compliments to well-performing players | .34 | .37 | **.51** |
| A6 | Explains decisions about positions | .27 | **.57** | .05 |
| A7 | Encourages players to think along | .03 | **.62** | .32 |
| A8 | Makes vision on way of playing clear | **.63** | .31 | .24 |
| A9 | Pays attention to create team atmosphere | .22 | .35 | **.62** |
| A10 | Is willing to change when players ask for it | -.13 | **.46** | **.50** |
| A11 | Assigns clear and specific tasks during games | **.77** | .06 | -.03 |
| A12 | Tries to get everything out of the team | **.69** | .09 | .20 |
| A13 | Encourages players | .01 | **.75** | .11 |
| A14 | Pays attention to development and achievements on long term | **.62** | .17 | .39 |
| A15 | Gives chance to try things despite mistakes | .11 | **.57** | .09 |
| A16 | Sets challenging team goals | **.65** | -.09 | **.43** |
| A17 | Expresses trust in capacities | .25 | -.08 | **.77** |
| A18 | Gives convincing arguments for decisions | **.41** | **.61** | -.04 |
| A19 | Strives to perform as a team | .36 | .38 | **.40** |

When we looked at the content of the factors, three components (leadership dimensions) could be identified. The first component refers to training and instruction, the second component to participative leadership and the third component refers to teambuilding. Because item A3 (the coach helps to solve disagreements) actually was constructed to measure teambuilding, this item was placed in this scale and not in the

participative leadership one. Because item A10 (the coach is willing to change when players ask for it) actually was constructed to measure participative leadership, this item was placed in this scale and not in the teambuilding one. The Cronbach's alpha's for the scales training and instruction (7 items), participative leadership (6 items) and teambuilding (6 items) are .85, .73 and .79, respectively.

Next, a Principal Component Analysis was performed on the 11 cohesion items for a 2-factor solution (Table 2). There were two factors with an eigenvalue higher than one. We chose for a 2-factor solution, because this part of the questionnaire was constructed to measure two cohesion dimensions.We found that items E3, F2, F9, F10, F12, F13, F14 and F15 had a loading higher than .40 on the first factor. Items E1, E2, F9 and F16 had a loading higher than .40 on the second factor. Item F9 had a loading higher than .40 on both factors. The loading on factor two was higher, so this item seems to fit better on this factor than the other one. When we looked at the content of the factors, two cohesion dimensions could be determined. The first component refers to task cohesion and the second component to social cohesion/ team atmosphere. Because item F2 and F15 were actually constructed to measure social cohesion, these items were combined with the other social cohesion items into a social cohesion scale and not in the task cohesion one. The Cronbach's alpha was .76 for the social cohesion scale (6 items) and .71 for the task cohesion scale (5 items).

*Table 2. Rotated Component Matrix of the items measuring*
*Team Cohesion (N = 79)*

|  |  | Component | |
|---|---|---|---|
|  |  | 1 | 2 |
| E1 | Stay at the club after training/ game for sociability | -.11 | **.80** |
| E2 | Contact with other players besides sporting | .18 | **.87** |
| F9 | Accepted by other team players | **.42** | **.52** |
| F15 | Connection with team | **.73** | .38 |
| F16 | Good interaction when things are not as wanted | .28 | **.63** |
| E3 | Description of collaboration between team players | **.71** | .20 |
| F2 | Good sports season regarding team atmosphere | **.71** | .17 |
| F10 | Able to count on other team players | **.63** | .23 |
| F12 | Catching up someone else's mistakes by team members | **.52** | .21 |
| F13 | Helping team members with team tasks | **.60** | .00 |
| F14 | Team united towards attaining team goal | **.74** | -.07 |

Then, a Principal Component Analysis was performed on the 10 differential treatment items. We chose a 2-factor solution, because there were two factors with an eigenvalue higher than one, and this part of the questionnaire was constructed to measure two dimensions of differential treatment (Table 3). We found that items C3a, C5a, C6a, C7a, C8a and C9a had a loading higher than .40 on the first factor. Items C1a, C2a and C4a had a loading higher than .40 on the second factor. Item C10a did not load sufficiently on any of these two factors. Item C4a was only significantly correlated at the .05 level with item C1a, and was therefore excluded from the scale. When we look at the content of the factors, two scales can be determined. The first component refers to social differential treatment and the second factor refers to task differential treatment. Because

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item C6a (preference players because of capacities) actually was constructed to measure task differential treatment but did not fit into this scale, this item was also excluded from the final scales. Because of the content of the items C3a (difference in influence position) and C10a (helping certain players more in improving individual qualities) it was decided to examine these items individually. The Cronbach's alpha was .79 for the social differential treatment scale (4 items) and .61 for the task differential treatment scale (2 items). For the scales measuring the fairness of social and task differential treatment, the corresponding (b-)questions were combined into scales. These questions had four answering categories (1= not right; 2 = sometimes not right, sometimes right; 3 = right; 4 = I cannot judge that), of which the fourth was excluded from further analyses because it indicated that the team members could not judge the question. The resulting Cronbach's Alpha's were .73 for the fairness of social differential treatment scale (4 items) and .74 for the fairness of the task differential treatment scale (2 items).

*Table 3. Rotated Component Matrix of the items measuring the Occurrence of Differential Treatment (N = 84)*

|  |  | Component | |
| --- | --- | --- | --- |
|  |  | 1 | 2 |
| C1a | Difference in minutes play time | .20 | **.82** |
| C2a | Difference in number of replacements | .19 | **.65** |
| C6a | Preference for certain players due to capacities | **.56** | .32 |
| C5a | Sooner criticism for certain players | **.71** | .24 |
| C7a | Preference for certain players due to personality | **.75** | -.05 |
| C8a | Difference in compliments players | **.77** | .18 |
| C9a | Nicer to some players | **.70** | .29 |
| C10a | Helping certain players more in improving individual qualities | **.40** | .23 |
| C4a | Difference in guidelines training attendance | -.03 | **.54** |
| C3a | Difference in influence positions | **.61** | -.21 |

Finally, a Principal Component Analysis was performed on the 9 items measuring the working relationship with the coach and the professional expertise of the coach. We

chose a 2-factor solution, because there were two factors with an eigenvalue higher than one, and this part of the questionnaire was constructed to measure two dimensions: the quality of the working relationship with the coach and de professional expertise of the coach (Table 4). We found that items B3, B4, B6, B7, B8 and B9 had a loading higher than .40 on the first factor. Items B1 and B2 had a loading higher than .40 on the second factor. Item B5 did not load sufficiently on any of these two factors. When we look at the content of the factors, two scales can be determined. The first component refers to the professional expertise of the coach and the second factor refers to the quality of the working relationship with the coach. Because items B4, B5, B6 and B8 were actually constructed to measure the working relationship of the coach, these items were placed into this scale and not in the professional expertise of the coach scale. The Cronbach's alpha was .78 for the professional expertise of the coach scale (3 items) and .64 for the working relationship with the coach scale (6 items). Cronbach's alpha of the latter one was actually not high enough ($\alpha = .64$) to meet the commonly used threshold value of .70. Still, we considered this scale usable in answering the research question 4 and 6.

*Table 4. Rotated Component Matrix of the items measuring the Quality of the Relationship with the Coach, and the Professional Expertise of the coach (N = 83)*

|  |  | Component | |
|---|---|---|---|
|  |  | 1 | 2 |
| B1 | Is coach satisfied with the player's performance | -.10 | **.81** |
| B2 | Has coach trust in capacities of the player | .14 | **.77** |
| B3 | Opinion on technical and tactical knowledge coach | **.68** | .15 |
| B4 | Chance that coach will defend player | **.43** | .04 |
| B5 | Does coach pay attention to player's wishes about way of playing and positions | .24 | .39 |
| B6 | Characterization cooperation coach | **.73** | .35 |
| B7 | Is player impressed by competences coach | **.87** | -.12 |
| B8 | Good bonding with coach | **.82** | .07 |
| B9 | Trust of player in coaching during game | **.74** | .26 |

In addition to the aforementioned scales, a reliability analysis was performed for the items intended to measure the perceptions of the respondents on the performance of their team, i.e., subjective team performance (items F1, F3, F4 and F6). The Cronbach's alpha was high enough ($\alpha = .71$), but got even higher when item F4 was deleted ($\alpha = .77$). Because this was in line with the content of the scale, the decision was made to remove item F4. The content of item F4 was about sufficient or non-sufficient team capacities for the level at which the team played during the current season.

Finally, a reliability analysis was performed on the items intended to measure satisfaction with the coach (items F7, F8, F11 and F17). Item F11 first had to be recoded into a different variable in order to ensure that the answering scale of this variable matched with the other ones. The resulting Cronbach's alpha was .81.

The Cronbach's alpha's of all scales are above .70, except for the task differential treatment scale and the working relationship with the coach scale (see Table 5). This is not that bad, because the scale with the lowest reliability (task differential treatment) only exists of two items (Cortina, 1993). In Appendix 1, a correlation matrix is included with the intercorrelations between the scales listed in Table 5.

*Table 5. Final Scales and Results of Reliability Analyses*

| Scale | Items | *N* | Cronbach's Alpha |
|---|---|---|---|
| Training and instruction | A1, A2, A8, A11, A12, A14, A16 | 80 | .85 |
| Participative leadership | A6, A7, A10, A13, A15, A18 | 84 | .73 |
| Teambuilding | A3, A4, A5, A9, A17, A19 | 83 | .79 |
| Social cohesion/ team atmosphere | E1, E2, F2, F9, F15, F16 | 79 | .76 |
| Task cohesion | E3, F10, F12, F13, F14 | 80 | .71 |
| Social differential treatment | C5a, C7a, C8a, C9a | 84 | .79 |
| Task differential treatment | C1a, C2a | 84 | .61 |
| Fairness of social differential treatment | C5b, C7b, C8b, C9b | 61 | .73 |
| Fairness of task differential treatment | C1b, C2b | 74 | .74 |
| Subjective team performance | F1, F3, F6 | 80 | .77 |
| Satisfaction with the coach | F7, F8, F11(reverse scored), F17 | 80 | .81 |
| Professional expertise coach | B3, B7, B9 | 84 | .78 |
| Working relationship coach | B1, B2, B4, B5, B6, B8 | 83 | .64 |

**Hypothesis 1: the relationship between cohesion and team performance**

      The first hypothesis was that there would be a strong relationship between social and task cohesion on the one hand, and subjective and objective team performance on the other hand. First, we looked at the correlations and next performed regression analyses to examine the relationship between these variables.

      *Subjective team performance as the dependent variable*

      There was a significant and positive relationship between the individual scores on task cohesion and the subjective team performance ($r = .35$; $p = .002$; $N = 77$), but the correlation between social cohesion and perceived team performance was not significant ($r = .20$; $p = .09$; $N = 77$). Next, a multiple regression analysis was performed with task cohesion and social cohesion as the independent variables and subjective team performance as the dependent variable (Table 6). The first model with the task cohesion scale was highly significant, $F(1, 75) = 10.25$, $p = .002$, $R^2 = .12$. Hence, the total variance explained ($R^2$) by the first model was 12%. When the social cohesion scale was added to the model, this second model with both scales was still significant, $F(2, 74) = 5.07$, $p = .009$, $R^2 = .12$, and the total variance explained stayed more or less the same (12%). This implies that the $R$ square change in this model was not significant, $F(1, 74) = .03$, $p = .87$, $R^2$ change $= .00$. In this second model only the unique contribution of the task cohesion scale was significant ($p = .01$).

*Table 6. Regression Coefficients with Task Cohesion and Social Cohesion as the Independent Variables and Subjective Team Performance as the Dependent Variable (individual scores; N = 77)*

| | | Standardized Coefficients | | |
|---|---|---|---|---|
| Model | | Beta | t | Sig. |
| 1 | Task cohesion | .35 | 3.20 | .002 |
| 2 | Task cohesion | .36 | 2.64 | .01 |
| | Social cohesion | -.02 | -.16 | .87 |

The aforementioned analyses refer to the individual scores of the participants. When the mean scores for the teams on these variables were calculated, the correlation between task cohesion and subjective team performance was (again) positive and significant ($r = .24$; $p = .03$; $N = 84$ from 10 teams), and the correlation between social cohesion and subjective team performance was (again) not significant ($r = .07$; $p = .55$; $N = 84$ from 10 teams). Next, a multiple regression analysis was performed with the group means of task cohesion and social cohesion as the independent variables and the group means of subjective team performance as the dependent variable (Table 7). The first model with the task cohesion scale was significant, $F(1, 82) = 4.83$, $p = .03$, $R^2 = .06$. Hence, the total variance explained ($R^2$) by the first model was 6%. When the social cohesion scale was added to the model, this second model with both scales was not significant, $F(2, 81) = 2.52$, $p = .09$, $R^2 = .06$, and the total variance explained stayed more or less the same (6%). This implies that the $R$ square change in this second model was not significant, $F(1, 81) = .25$, $p = .62$, $R^2$ change = .00. In this second model only the unique contribution of the task cohesion scale was significant ($p = .03$).

*Table 7. Regression Coefficients with the group means of Task Cohesion and Social Cohesion as the Independent Variables and the group means of Subjective Team Performance as the Dependent Variable (group mean scores; N = 84)*

| | | Standardized Coefficients | | |
|---|---|---|---|---|
| Model | | Beta | t | Sig. |
| 1 | Task cohesion_mean | .24 | 2.20 | .03 |
| 2 | Task cohesion_mean | .27 | 2.16 | .03 |
| | Social cohesion_mean | -.06 | -.50 | .62 |

*Objective team performance as the dependent variable*

In addition, we looked at the relationship between social and task cohesion and objective team performance. There was no significant relationship between the individual scores on task cohesion and the objective performance of the teams ($r = .16$; $p = .16$; $N =$

80 from 10 teams), and the relationship between social cohesion and objective team performance was also not significant ($r = .02$; $p = .87$; $N = 79$).

Next, a multiple regression analysis was performed with task cohesion and social cohesion as the independent variables and objective team performance as the dependent variable (Table 8). This model was not significant, $F(1, 77) = 2.38$, $p = .13$, $R^2 = .03$. Hence, only 3% of the variance in objective team performance was explained by this first model. When the social cohesion scale was added to the model, this second model with both scales was not significant $F(2, 76) = 1.53$, $p = .22$, $R^2 = .04$. Hence, the total variance explained became hardly higher (4 %). This implies that also the $R$ square change in this second model was not significant, $F(1, 76) = .69$, $p = .41$, $R^2$ change = .01. In conclusion, there was no significant unique contribution of either task cohesion or social cohesion in the explanation of the variance in objective team performance.

Table 8. *Regression Coefficients with Task Cohesion and Social Cohesion as the Independent Variables and Objective Team Performance as the Dependent Variable (individual scores; N = 79)*

|  |  | Standardized Coefficients | | |
|---|---|---|---|---|
| Model |  | Beta | t | Sig. |
| 1 | Task cohesion | .17 | 1.54 | .13 |
| 2 | Task cohesion | .24 | 1.74 | .09 |
|  | Social cohesion | -.11 | -.83 | .41 |

The aforementioned analyses refer to the individual scores of the participants on social and task cohesion. When the mean scores of the teams on social and task cohesion were calculated, the correlation between task cohesion and objective team performance was positive and significant ($r = .29$; $p = .007$; $N = 84$ from 10 teams), but the correlation between social cohesion and objective team performance was not significant ($r = .03$; $p = .82$; $N = 84$). In addition, a multiple regression analysis was performed with the group means of task cohesion and social cohesion as the independent variables and the objective performance of the teams as the dependent variable (Table 9). This first model with the task cohesion scale was highly significant, $F(1, 82) = 7.53$, $p = .007$, $R^2 = .08$.

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Hence, the total variance explained ($R^2$) by the first model was 8%. When the social cohesion scale was added to the model, this second model with both scales was still significant, $F(2, 81) = 4.53$, $p = .01$, $R^2 = .10$, and the total variance explained became somewhat higher (10%). However, the $R$ square change in the second model was not significant, $F(1, 81) = 1.49$, $p = .23$, $R^2$ change = .02. In this second model only the unique contribution of the task cohesion scale was significant ($p = .004$).

Table 9. Regression Coefficients with the group means of Task Cohesion and Social Cohesion as the Independent Variables and Objective Team Performance as the Dependent Variable (group mean scores; N = 84)

|  |  | Standardized Coefficients | | |
|---|---|---|---|---|
| Model |  | Beta | t | Sig. |
| 1 | Task cohesion_mean | .29 | 2.75 | .007 |
| 2 | Task cohesion_mean | .36 | 3.00 | .004 |
|  | Social cohesion_mean | -.15 | -.1.22 | .23 |

Therefore, Hypothesis 1 is only partly confirmed by these findings. There is a positive significant relationship between task cohesion and subjective team performance. There is no significant relationship between social cohesion and either subjective or objective team performance. We see the same results when we look at the group means. We only see a relationship between task cohesion and objective team performance when we look at the mean scores of the teams.

**Hypothesis 2a: the relationship between the various leadership dimensions and satisfaction with the coach**

The first part of the second hypothesis was that there would be a significant and positive relationship between the various leadership dimensions and satisfaction with the coach, and that the relationship would be strongest for the training and instruction dimension. The correlations between the leadership dimensions (training and instruction, teambuilding and participative leadership) and satisfaction with the coach were all positive and significant ($r = .66, p < .001, N = 77; r = .56, p < .001, N = 79; r = .40, p < .001, N = 80$).

A multiple regression analysis was performed with training and instruction, teambuilding and participative leadership as the independent variables and satisfaction with the coach as the dependent variable (Table 10). The first model with the training and instruction scale was highly significant, $F(1, 75) = 56.67, p < .001, R^2 = .43$. Therefore, the total variance explained by the first model was 43%. When the teambuilding scale was added to the model, this second model was (again) highly significant, $F(2, 74) = 33.30, p < .001, R^2 = .47$. The total variance explained was higher (47%) and the $R$ square change in this model was also significant, $F(1, 74) = 6.09, p = .02, R^2$ change $= .04$. In this model the unique contributions of training and instruction ($p < .001$) and teambuilding ($p = .02$) were significant. When also the participative leadership scale was added to the model, this third model was still highly significant, $F(3, 73) = 21.96, p < .001, R^2 = .47$. The total variance explained remained the same (47%), and the $R$ square change in this model was not significant, $F(1, 73) = .09, p = .76, R^2$ change $= .001$. In this third model only the unique contribution of the training and instruction scale was significant ($p < .001$).

*Table 10. Regression Coefficients with the three Leadership Dimensions as the Independent Variables and Satisfaction with the Coach as the Dependent Variable (individual scores; N = 77)*

| | | Standardized Coefficients | | |
|---|---|---|---|---|
| Model | | Beta | t | Sig. |
| 1 | Training and instruction | .66 | 7.53 | .00 |
| 2 | Training and instruction | .50 | 4.79 | .00 |
| | Teambuilding | .26 | 2.47 | .02 |
| 3 | Training and instruction | .50 | 4.73 | .00 |
| | Teambuilding | .24 | 1.93 | .06 |
| | Participative leadership | .03 | .31 | .76 |

*Analyses with the mean team scores on the variables*

The aforementioned analyses refer to the individual scores of the participants. When the mean scores of the teams were calculated, the correlations between the leadership dimensions (training and instruction, teambuilding and participative leadership) and satisfaction with the coach again were all positive and significant ($r = .82$, $p < .001$; $r = .71$, $p < .001$; $r = .56$, $p < .001$ respectively, with a $N$ of 84 from 10 teams). Next, a multiple regression analysis was performed with the group means of training and instruction, teambuilding and participative leadership as the independent variables and the group means of satisfaction with the coach as the dependent variable (Table 11). The first model with the training and instruction scale was highly significant, $F(1, 82) = 162.39$, $p < .001$, $R^2 = .66$. The total variance explained by the first model was 66%. When the teambuilding scale was added to the model, the model was also highly significant, $F(2, 81) = 114.64$, $p < .001$, $R^2 = .74$. The total variance explained was higher (74%) and the $R$ square change in this second model was highly significant, $F(1, 81) = 23.11$, $p < .001$, $R^2$ change = .07. There were significant unique contributions of training and instruction ($p < .001$) and teambuilding ($p < .001$). When also the participative leadership scale was added to the model, the model was still highly

significant, $F(3, 80) = 76.04$, $p < .001$, $R^2 = .74$. The total variance explained stayed the same (74%) and this implies that the R square change in this model was not significant, $F(1, 80) = .43$, $p = .51$, $R^2$ change $= .001$. There were significant unique contributions of training and instruction ($p < .001$) and teambuilding ($p = .002$). Hypothesis 2 can therefore be confirmed. There is indeed a positive relationship between the three leadership dimensions and satisfaction with the coach, especially for training and instruction. When we look at the group means, also teambuilding contributes to satisfaction with the coach.

*Table 11. Regression Coefficients with the means of the three Leadership Dimensions as the Independent Variables and the means of Satisfaction with the Coach as the Dependent Variable (group mean scores; N = 84)*

|       |                               | Standardized Coefficients | | |
| ----- | ----------------------------- | ---- | ----- | ---- |
| Model |                               | Beta | t     | Sig. |
| 1     | Training and instruction_ mean | .81  | 12.74 | .00  |
| 2     | Training and instruction_mean | .61  | 8.46  | .00  |
|       | Teambuilding_mean             | .34  | 4.81  | .00  |
| 3     | Training and instruction_mean | .60  | 8.23  | .00  |
|       | Teambuilding_mean             | .41  | 3.26  | .002 |
|       | Participative leadership_mean | -.08 | -.66  | .51  |

**Hypothesis 2b: the relationship between the various leadership dimensions and cohesion**

The second part of the second hypothesis was that there would be a significant and positive relationship between the various leadership dimensions and team cohesion and that the relationship would be strongest for task cohesion.

*Social cohesion as the dependent variable*

The correlations between the leadership dimensions training and instruction, teambuilding and participative leadership on the one hand and social cohesion at the other hand were all not significant ($r = .18$, $p = .12$, $N = 76$; $r = .17$, $p = .13$, $N = 78$; $r = .03$, $p = .80$, $N = 79$).

A multiple regression analysis was performed with training and instruction, teambuilding and participative leadership as the independent variables and social cohesion as the dependent variable (Table 12). The first model with the training and instruction scale was not significant, $F(1, 74) = 2.52$, $p = .12$, $R^2 = .03$. Hence, only 3.3% of the variance in social cohesion was explained by this model. Also the second model with the addition of teambuilding scale was not significant, $F(2, 73) = 1.90$, $p = .16$, $R^2 = .05$. In this second model, 5% of the variance was explained and the $R$ square change compared to the first model was not significant, $F(1, 73) = 1.27$, $p = .26$, $R^2$ change = .02. The third model with the addition of the participative leadership scale was not significant either, $F(3, 72) = 1.25$, $p = .30$, $R^2 = .05$. There was still 5% variance explained by this third model and this implies that the $R$ square change in this model was not significant, $F(1, 72) = .002$, $p = .97$, $R^2$ change = .00.

*Table 12. Regression Coefficients with the three Leadership Dimensions as the Independent Variables and Social Cohesion as the Dependent Variable (individual scores; N = 76)*

| | | Standardized Coefficients | | |
| --- | --- | --- | --- | --- |
| Model | | Beta | t | Sig. |
| 1 | Training and instruction | .18 | 1.59 | .12 |
| 2 | Training and instruction | .09 | .61 | .54 |
| | Teambuilding | .16 | 1.13 | .26 |
| 3 | Training and instruction | .09 | .60 | .55 |
| | Teambuilding | .16 | .93 | .35 |
| | Participative leadership | .01 | .04 | .97 |

*Task cohesion as the dependent variable*

The correlations between the leadership dimensions training and instruction and teambuilding on the one hand and task cohesion at the other hand were positive and significant ($r = .32$, $p = .004$, $N = 76$; $r = .36$, $p = .001$, $N = 79$). Only the correlation between the dimension participative leadership and task cohesion was not significant ($r = .15$, $p = .17$, $N = 80$).

Next, a multiple regression analysis was performed with training and instruction, teambuilding and participative leadership as the independent variables and task cohesion as the dependent variable (Table 13). The first model with the training and instruction scale was significant, $F(1, 74) = 8.68$, $p = .004$, $R^2 = .11$. Therefore, the total variance explained by the first model was 11%. When the teambuilding scale was added to the model, this second model was again significant, $F(2, 73) = 6.99$, $p = .002$, $R^2 = .16$. The total variance explained was higher (16%) and the $R$ square change in this model was significant, $F(1, 73) = 4.85$, $p = .03$, $R^2$ change $= .06$. In this second model only the unique contribution of teambuilding ($p = .03$) was significant. When also the participative leadership scale was added to the model, this third model still was significant, $F(3, 72) = 4.68$, $p = .005$, $R^2 = .16$. The total variance explained remained more or less the same

(16%). This implies that the $R$ square change was not significant in this third model, $F(1, 72) = .19$, $p = .66$, $R^2$ change $= .002$. Also in this model only the unique contribution of teambuilding ($p = .04$) was significant.

Table 13. *Regression Coefficients with the three Leadership Dimensions as the Independent Variables and Task Cohesion as the Dependent Variable (individual scores; N = 76)*

|  |  | Standardized Coefficients | | |
| --- | --- | --- | --- | --- |
| Model |  | Beta | t | Sig. |
| 1 | Training and instruction | .32 | 2.95 | .004 |
| 2 | Training and instruction | .15 | 1.12 | .27 |
|  | Teambuilding | .29 | 2.20 | .03 |
| 3 | Training and instruction | .15 | 1.15 | .26 |
|  | Teambuilding | .33 | 2.10 | .04 |
|  | Participative leadership | -.06 | -.44 | .66 |

*Analyses with the mean team scores on all variables*

When the mean scores of the teams were calculated, the correlations between the leadership dimensions (training and instruction, teambuilding and participative leadership) and task cohesion were all significant and positive ($r = .32$, $p = .003$; $r = .40$, $p < .001$; $r = .28$, $p = .01$ respectively, with an $N$ of 84 from 10 teams). The correlation between participative leadership and social cohesion was also significant, but negative ($r = -.39$, $p < .001$, with an $N$ of 84 from 10 teams). The correlations between the dimensions training and instruction and teambuilding on the one hand and social cohesion on the other hand were not significant ($r = .16$, $p = .14$; $r = -.17$, $p = .13$ respectively, with an $N$ of 84 from 10 teams).

Next, a multiple regression analysis was performed with the group means of training and instruction, teambuilding and participative leadership as the independent variables and the group means of *social cohesion* as the dependent variable (Table 14). The first model with the training and instruction scale was not significant, $F(1, 82) =$

2.22, $p = .14$, $R^2 = .03$. There was 2.6% variance explained by this model. When the teambuilding scale was added to the model, the model was significant, $F(2, 81) = 6.48$, $p = .002$, $R^2 = .14$. Therefore, the total variance explained by the second model was 14%. The R square change in this model was significant, $F(1, 81) = 10.47$, $p = .002$, $R^2$ change $= .11$. There was a significant unique contribution of training and instruction ($p = .002$) and teambuilding ($p = .002$). When also the participative leadership scale was added to the model, the model was highly significant, $F(3, 80) = 12.75$, $p < .001$, $R^2 = .32$. Therefore, the total variance explained by the third model was 32%. The R square change in this model was significant, $F(1, 80) = 21.95$, $p < .001$, $R^2$ change $= .19$. There was a significant unique contribution of training and instruction ($p = .006$) and participative leadership ($p < .001$).

*Table 14. Regression Coefficients with the means of the three Leadership Dimensions as the Independent Variables and the means of Social Cohesion (group mean scores; N = 84)*

|  |  | Standardized Coefficients | | |
| --- | --- | --- | --- | --- |
| Model |  | Beta | t | Sig. |
| 1 | Training and instruction_ mean | .16 | 1.49 | .14 |
| 2 | Training and instruction_mean | .42 | 3.22 | .002 |
|  | Teambuilding_mean | -.42 | -3.24 | .002 |
| 3 | Training and instruction_mean | .33 | 2.85 | .006 |
|  | Teambuilding_mean | .37 | 1.80 | .08 |
|  | Participative leadership_mean | -.86 | -4.69 | .00 |

Finally, a multiple regression analysis was performed with the group means of training and instruction, teambuilding and participative leadership as the independent variables and the group means of *task cohesion* as the dependent variable (Table 15). The first model with the training and instruction scale was significant, $F(1, 82) = 9.20$, $p = .003$, $R^2 = .10$. Therefore, the total variance explained by the first model was 10%. When also the teambuilding scale was added to the model, this second model was also

significant, $F(2, 81) = 8.36$, $p = .001$, $R^2 = .17$. Therefore, the total variance explained by the second model was 17%. In this second model, the $R$ square change was significant, $F(1, 81) = 6.86$, $p = .01$, $R^2$ change $= .07$. Only the unique contribution of teambuilding ($p = .01$) was significant in this model. When also the participative leadership scale was added to the model, this third model was still significant, $F(3, 80) = 6.05$, $p = .001$, $R^2 = .19$. Therefore, the total variance explained by this model was 19%. In this third model, the $R$ square change was not significant, $F(1, 80) = 1.35$, $p = .25$, $R^2$ change $= .01$. Again in this model, only the unique contribution of teambuilding ($p = .02$) was significant.

*Table 15. Regression Coefficients with the means of the three Leadership Dimensions as the Independent Variables and the means of Task Cohesion (group mean scores; N = 84)*

|  |  | Standardized Coefficients | | |
| --- | --- | --- | --- | --- |
| Model |  | Beta | t | Sig. |
| 1 | Training and instruction_ mean | .32 | 3.03 | .003 |
| 2 | Training and instruction_mean | .11 | .90 | .37 |
|  | Teambuilding_mean | .33 | 2.62 | .01 |
| 3 | Training and instruction_mean | .09 | .71 | .48 |
|  | Teambuilding_mean | .55 | 2.45 | .02 |
|  | Participative leadership_mean | -.23 | -1.16 | .25 |

At first, there seemed to be no relationship between the leadership dimensions and social cohesion. However, when we looked at the mean scores of the teams, a (negative) correlation was found between participative leadership and social cohesion. There was a unique contribution of teambuilding in predicting task cohesion when we looked at either the individual scores or at the mean scores of the teams. A striking finding is that there were unique contributions of training and instruction (positive) and participative leadership (negative) in predicting social cohesion when we looked at the mean scores of the teams.

**Hypothesis 3: the quality of the working relationship with the coach and the evaluation of team atmosphere and team performance**

*Subjective team performance as the dependent variable*

The third hypothesis was that team members experiencing a good working relationship with their coach would evaluate the atmosphere in their team and the performance of their team more positively compared to team members experiencing a lower quality working relationship with the coach. The correlation between the quality of the working relationship with the coach and subjective team performance was significant and positive on a $p < .05$ level ($r = .29$; $p = .01$; $N = 79$). The relationship between the quality of the working relationship with the coach and team atmosphere (social cohesion) was not significant ($r = .17$; $p = .15$; $N = 78$). Team members experiencing a better working relationship with their coach evaluated only the team performance more positively but not the team atmosphere.

When the mean scores of the teams were calculated, the correlation between the quality of the working relationship with the coach and subjective team performance was positive and highly significant ($r = .46$; $p < .001$; $N = 84$ from 10 teams) and the correlation between the quality of the working relationship with the coach and team atmosphere was negative and highly significant ($r = -.50$; $p < .001$; $N = 84$ from 10 teams).

*The objective performance of the teams as the dependent variable*

In addition, we looked at the relationship between the quality of the working relationship with the coach and the objective team performance (as indicated by the position of the team on the final ranking list at the end of the season). The correlation between the quality of the working relationship with the coach and this indicator of objective team performance was not significant ($r = .16$; $p = .14$; $N = 83$).

When the mean scores of the teams were calculated, the correlation between the quality of the working relationship with the coach and objective team performance was positive and significant ($r = .32$; $p = .003$; $N = 84$ from 10 teams)..

These findings indicate that Hypothesis 3 is only partly confirmed. Team members experiencing a better working relationship with their coach evaluated the team performance more positively. We saw the same result when we looked at the group means. Team members with a good working relationship did not evaluate the team atmosphere more positively. When we looked at the group means, we saw that they evaluated the team atmosphere even more negatively.

Finally, we cannot say anything about the relationship between the team members experiencing a better working relationship with the coach and their objective performance. However, when we looked at the group means of the coach-player working relationships, teams with – on average - better coach-player working relationships did perform better.

**Hypothesis 4: the relationship between social differential treatment and social and task cohesion**

The fourth hypothesis was that there would be a negative relationship between the occurrence of social differential treatment and team atmosphere/social cohesion and between social differential treatment and task cohesion. The correlation between the occurrence of social differential treatment and team atmosphere was negative, but not significant ($r = -.17$; $p = .15$; $N = 79$). Apparently, there was no significant negative relationship between social differential treatment and team atmosphere.

The correlation between social differential treatment and task cohesion was also not significant ($r = -.20$; $p = .08$; $N = 80$). So, there was no significant negative relationship between social differential treatment and task cohesion, contrary to the expectations in hypothesis 4.

When the mean scores of the teams were calculated, the correlation between social differential treatment and team atmosphere still was not significant ($r = -.08$; $p = .46$; $N = 84$ from 10 teams).

When the mean scores of the teams were calculated, the correlation between social differential treatment and task cohesion still was not significant ($r = -.05$; $p = .63$; $N = 84$ from 10 teams).

Therefore, Hypothesis 4 has to be rejected. There is no significant negative relationship between the occurrence of social differential treatment and either team atmosphere (social cohesion) or task cohesion.

**Hypothesis 5: the quality of the working relationship with the coach and the perception of fairness of differential treatment**

The fifth and final hypothesis was that team members who have a low-quality relationship with their coach would consider differential treatment within the team as unfair, while members who have a high-quality relationship with their coach would consider differential treatment as fair. There was a strong significant and positive correlation between the quality of the working relationship with the coach and the perceived fairness of task differentiation ($r = .36$; $p = .002$; $N = 73$), and between the quality of the working relationship with the coach and the perceived fairness of social differentiation ($r = .43$; $p = .001$; $N = 61$).

When the mean scores of the teams were calculated, there was still a significant and positive correlation between the quality of the working relationship with the coach and the perceived fairness of task differentiation ($r = .24$; $p = .03$; $N = 84$ from 10 teams). The correlation between the quality of the working relationship with the coach and the perceived fairness of social differentiation was just not significant ($r = .21$; $p = .053$; $N = 84$ from 10 teams).

These findings support Hypothesis 5. The better the team members described the quality of the working relationship with their coach, the more they considered (social and task) differential treatment by the coach within the team as fair. We see almost the same result when we look at the group means. Then, however, the relationship between the quality of the working relationship with the coach and the perceived fairness of social differentiation  just was not significant.

# 4.    Discussion

By examining different aspects of coaching, more insight is gained into the coaching of amateur team sports in a way that players can perform optimally in the team and can combine good results and fun. In this thesis only the data of the players were analyzed. The data of the coaches were analyzed in a report that was sent to the coaches of the teams afterwards.

Many studies have observed that team cohesion is positively related to team performance. However, the direction of this relationship is still a matter of discussion. Some authors have stated that performance has more impact on cohesion than cohesion has on performance (Grieve, Whelan, & Meyers, 2000; Mullen & Copper, 1994). Other authors have stated that the effect is from performance to cohesiveness rather than from cohesiveness to performance (Chang & Bordia, 2001; Mach, Dolan, & Tzafrir, 2010). In this research we found a significant relationship between task cohesion and performance. It did not make sense to look at the effect the other way around, because we measured the performance at the end of the sport season, where cohesion was build up during the year.

In his multidimensional leadership model Chelladurai (1990) described five dimensions of leader behavior: training and instruction, democratic behavior, autocratic behavior, social support and positive feedback (rewarding behavior). These dimensions differ in the way they are task or relationship oriented. In our research, only three dimensions emerged from a total of 19 items. These leadership dimensions, especially training and instruction (and also teambuilding when looking at the group mean scores), predicted satisfaction with the coach. Participative leadership did not significantly contribute in predicting satisfaction with the coach. These results show that the more task oriented dimensions predicted satisfaction with the coach. Because according to Chelludurai et al. (1988, as described in Chelludurai, 1990) autocratic behavior is negatively correlated with leader satisfaction, it seems that also relationship variables (commitment, closeness and complementarity) must be important in predicting cohesion (Jowett & Chaundy, 2004). For a coach it seems to be the best strategy focusing on the tasks and while doing that also paying attention to relationship variables.

Jowett and Chaundy (2004) also found that leadership and relationship variables were stronger predictors of task cohesion than of social cohesion. In addition, Shields et al. (1997) found the strongest relationships between perceived leader behaviors and task cohesion. In our research, the leadership dimension teambuilding contributed the most in predicting task cohesion when either looking at the individual or the group mean scores. The dimensions training and instruction (positively) and participative leadership (negatively) only contributed significantly in predicting social cohesion when we looked at the mean scores of the teams. This does not correspond with the observation of Shields et al. (1997) that high task cohesion was encouraged by a leadership style that was strong in training and instruction, social support, democratic behavior and positive feedback and avoided autocratic decision making. Avoiding autocratic decision making and striving for democratic behavior implies participative leadership and this did not contribute in predicting task cohesion, but contributed in predicting social cohesion (negatively), only when looking at the group mean scores. In our research, also training and instruction did not contribute in predicting task cohesion and contributed in predicting social cohesion (positively) only when looking at the group mean scores. However, teambuilding was important in predicting task cohesion. This dimension was not mentioned by Shields et al. (1997), but corresponds with social support and positive feedback.

The differences between the individual scores and the mean scores of the teams, might be due to the ecological fallacy. This logical fallacy is about making causal inferences from group data to individual behaviors (Schwartz, 1994). To make inferences about individual phenomena or behaviors, using individual data seems to be more useful. A wrong conclusion can be drawn about individuals on the basis of the analyses of group mean scores. I assume it is better to hold on to the analyses of the individual scores. Then no leadership dimension contributed significantly in predicting social cohesion and teambuilding contributed significantly and positively in predicting task cohesion.

According to the Leader-Member Exchange theory, an important aspect of leadership is its relationship-based nature. When coaches and players (leaders and followers) are able to develop mature partnerships, they may profit from many benefits of these mature relationships and effective leadership processes will occur (Graen & Uhl-

Bien, 1991, as described in Graen & Uhl-Bien, 1995). Mature relationships may develop over time when there is a high degree of mutual trust, respect and obligation (Graen & Uhl-Bien, 1995). A team member will evaluate the atmosphere in the team and the performance of the team more positively when experiencing a good working relationship with the coach compared to experiencing a lower quality working relationship (Van Breukelen et al., 2012). When team members experience a better working relationship with their coach, they evaluated the team performance, but not the team atmosphere more positively. Team members with a good working relationship evaluated the team atmosphere even more negatively when we looked at the group means. This was a surprising result.

Team members who experienced a better working relationship with their coach, did not belong tot the teams that performed better overall. However, when we looked at the group means, there was a positive relationship between the mean quality of the coach-player relationship and the objective performance of the team. This implies that for a coach it is important indeed to build a high-quality relationship (partnership) with all of the players of his or her team.

Van Breukelen et al. (2012) found that team members will evaluate the atmosphere in the team less positively when perceiving a high degree of social differential treatment within the team compared to perceiving a low degree of social differential treatment. However, in this research, we found no significant negative relationship between social differential treatment and either team atmosphere or task cohesion.

The better the team members considered the relationship with their coach, the more they considered (social and task) differential treatment within the team as fair. According to Sias and Jablin (1995, as described in Van Breukelen et al., 2012) employees consider incidents of differential treatment as unfair when they have a low-quality relationship with their leader and as fair when they have a high-quality relationship with the leader. This was also the case in the sport teams we examined.

*Limitations of this study*

A first limitation of this study is the way the data were collected. Not always all team members were present to fill in the questionnaires. Some members discussed certain items and in some cases might have filled in another answer than when they would have done it all by themselves.

There could also be differences due to the compositions of the teams. There were one male and six female teams, but also three mixed teams. It might be that the mixed team structure leads to different results compared to the other teams.

The final limitation is that the data are only collected at the end of the sport season. For further research it would be interesting to look at differences in data and relationships between variables at the beginning of a sport season, halfway and at the end of a sport season.

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