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1 Running Head: DEVELOPMENTAL EXPERIENCES IN ELITE YOUTH SOCCER

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10 The Social Environment and Developmental Experiences in Elite Youth Soccer

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## Abstract

**Objectives:** We aimed to examine social-contextual correlates of players' developmental experiences in an elite youth soccer context. Specifically, we hypothesized that player perceptions of team cohesion and coach rapport would be positively associated with psychological need fulfillment. In turn, psychological need satisfaction was proposed to be positively related to adaptive developmental experiences in youth soccer (i.e., opportunities for leadership, emotional regulation, and goal setting), and negatively related to social exclusion.

**Design:** Cross-sectional

**Method:** 133 male elite soccer players, aged between 11 and 18 years old, completed a self-report questionnaire assessing the variables of interest.

**Results:** Using path analysis and bootstrapping methods, we found support for the overall model fit of the hypothesized conceptual framework and specific study hypotheses.

**Conclusions:** This study utilizes strong theoretical foundations to underscore the role of the coach and team environment in facilitating positive youth outcomes, and highlights a potential mechanism that may explain these processes.

*Keywords:* positive youth development, autonomy, competence, relatedness, self-determination theory, coaching

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52           The Social Environment and Developmental Experiences in Elite Youth Soccer

53           Soccer is one of the most popular participatory sports in the United Kingdom (UK;

54 Sport England, 2010) and children who show signs of talent and potential can be recruited

55 into professional club academies from the age of eight. Within these academies children

56 usually train on three evenings per week and play competitive matches at weekends, thus,

57 soccer represents a meaningful part of these children's lives. Despite this physical,

58 psychological, and temporal investment, only a fraction will successfully make the transition

59 to adult professional soccer players. For those who do not succeed in making this switch, it is

60 important that they have developed the necessary competencies to succeed in alternative life

61 contexts, such as school, work, and interpersonal relationships. In attempting to achieve this

62 goal, coaches and peers within elite soccer academies may play a significant role (Conroy &amp;

63 Coatsworth, 2006; Smith &amp; McDonough, 2008). With this in mind, we tested a conceptual

64 model in which youth soccer players' perceptions of their coach's interpersonal rapport and

65 the degree to which team mates are united in pursuing team goals (i.e., task cohesion), were

66 proposed to be positively associated with fundamental psychological need satisfaction. In

67 turn, psychological need fulfillment was suggested to be positively related to players'

68 experiences of goal setting, leadership opportunities, emotional regulation; and negatively

69 related to their experiences of social exclusion.

70           Over the last decade, there has been significant interest in how organized youth sport

71 can foster positive psycho-social developmental experiences (e.g., Côté &amp; Fraser-Thomas,

72 2011; Danish, Hodge, Heke, &amp; Taylor, 2003; Gould &amp; Carson, 2008). The governing body of

73 soccer in the UK (the Football Association) has also embraced this trend by supporting

74 projects, such as *Street League* and *The Goals Project* that aim to develop important life

75 skills in disadvantaged youth in parallel with soccer skills. However, this movement has

76 minimally influenced elite youth soccer in the UK, where winning matches remains the  
77 primary focus (Cushion & Jones, 2006). In view of this, more attention on positive youth  
78 development in soccer academies seems warranted.

79         The term positive youth development has encapsulated the general facilitation of  
80 desirable consequences in young people (Damon, 2004). Within the present study, we  
81 focused on four developmental experiences that may be significant for adolescents'  
82 psychosocial development. First, we considered the degree to which adolescents set goals  
83 because this skill is a key facet of developing the core quality of initiative (Larson, 2000).  
84 Second, as controlling one's affective responses is integral to successful psychosocial  
85 functioning (Zeman, Cassano, Perry-Parish, & Stegall, 2006) and sports performance (Jones,  
86 2003), we examined the extent to which players successfully regulated their emotions. This  
87 construct also represented the broader category of self-regulatory skills. To complement these  
88 two intrapersonal skills, we also wanted to tap into interpersonal and social experiences. Thus  
89 we explored adolescents' opportunities to demonstrate leadership and responsibility because  
90 young athletes and coaches perceived this to be an important life skill that can be developed  
91 through sport (Jones & Lavalley, 2009). Finally, given that feelings of isolation within one's  
92 peer group have been highlighted as a predictor of poor psychological health among children  
93 (e.g., van der Wal, de Wit, & Hirasing, 2003) and harmful interpersonal dynamics may exist  
94 within professional soccer academies (Cushion & Jones, 2006), we investigated the amount  
95 of social exclusion that adolescents experienced.

96         The primary objective of the present study was to provide practitioners and  
97 researchers with potential ways to optimize young elite soccer players' experiences of goal  
98 setting, leadership opportunities, and emotional regulation, while minimizing social  
99 exclusion. In line with Gould and Carson's (2008) recommendation to base positive youth  
100 development research on strong theoretical foundations, we proposed that self-determination

101 theory (SDT; Ryan & Deci, 2007) may help to explain the psychological requirements for  
102 positive developmental experiences to occur. In particular, SDT proposes that environments  
103 that satisfy one's innate psychological needs for autonomy, competence, and relatedness will  
104 lead to more adaptive functioning and psychological growth (Ryan & Deci, 2000). Autonomy  
105 refers to feelings of self-governance and the internal endorsement of one's actions  
106 (deCharms, 1968). Competence refers to feelings of efficacious interaction with the  
107 environment (White, 1959). Relatedness refers to a sense of connectedness with one's social  
108 milieu (Baumeister & Leary, 1995).

109 SDT-based research has shown that satisfying adolescents' psychological needs may  
110 promote positive developmental outcomes. For example, Coatsworth and Conroy (2009)  
111 found that satisfaction of young swimmers' needs for competence was positively related to  
112 their self-esteem, goal setting experiences, and the degree to which they reflected on their  
113 sense of self. In a sample of adolescent female gymnasts, Gagné, Ryan, and Bargmann (2003)  
114 reported that fluctuations in satisfaction of the three psychological needs positively predicted  
115 changes in self-esteem. Outside of the youth setting, satisfaction of the three psychological  
116 needs has been positively and indirectly related to sportspersonship, and negatively related to  
117 antisocial moral attitudes in adult British athletes (Ntoumanis & Standage, 2009). Based on  
118 this empirical evidence, we proposed that players who reported higher psychological need  
119 satisfaction would experience more positive developmental experiences (i.e., set more goals,  
120 experience more opportunities for leadership, and regulate their emotions better), and feel  
121 less social exclusion, compared to their counterparts who reported lower psychological need  
122 satisfaction.

123 If fulfilling soccer players' psychological need for autonomy, competence, and  
124 relatedness can promote positive developmental experiences, how can coaches facilitate this  
125 process? Within the present study we examined two specific facets of the coach- and player-

126 created social environment. First, we examined players' perceptions of the degree of rapport  
127 that coaches attempt to foster with players by showing understanding, being a good listener,  
128 and demonstrating concern for the holistic being of the player. Reinboth, Duda, and  
129 Ntoumanis (2004) reported a positive relationship between perceptions of coach social  
130 support and relatedness need satisfaction in a sample of adolescent cricket and soccer players.  
131 Further, adolescent baseball players whose coaches had received training on supportiveness  
132 and instructional effectiveness reported higher enjoyment and attraction among team mates,  
133 compared to players whose coaches had not received the training (Smoll, Smith, Barnett, &  
134 Everett, 1993). Developing rapport with players may also satisfy players' need for  
135 competence and autonomy, as well as relatedness, given the interrelationships between the  
136 three psychological needs (Hagger, Chatzisarantis, & Harris, 2006; Ryan & Deci, 2000). For  
137 instance, building rapport may involve acknowledging and embracing players' values and  
138 beliefs (i.e., autonomy enhancing) and cooperatively working with players to achieve goals  
139 aligned with these values (i.e., competence enhancing). Indeed within the physical education  
140 context, students' perceptions of positive socio-emotional behaviors exhibited by physical  
141 education teachers have been positively associated with fulfillment of all three psychological  
142 needs (Taylor & Ntoumanis, 2007). Building on this research we hypothesized that  
143 perceptions of coach rapport will be positively related to players' psychological need  
144 satisfaction.

145 As well as coaches, team mates may be significant in shaping the overall interpersonal  
146 context within soccer academies; hence, we investigated the degree to which players perceive  
147 their team to be united in their pursuit of task-relevant goals (i.e., task cohesion). Previous  
148 research has shown a positive relationship between task cohesion and the psychological needs  
149 for autonomy, competence, and relatedness in a cross-sectional sample of non-elite young  
150 adult basketball players (Blanchard, Amiot, Perrault, Vallerand, & Provencher, 2009). We





175 Participants were 133 male soccer players from four youth academies associated with  
176 professional clubs in the UK (three from the second tier and one from the fourth tier of  
177 professional soccer in England). Mean age of the participants was 14.23 ( $SD = 1.79$ , range =  
178 11-18 years). No data on ethnicity were collected; however, the participants were  
179 predominantly either of Black- or White-English ethnic origin.

180 After obtaining verbal permission from the directors of participating academies,  
181 parents or guardians of potential participants were contacted and an information sheet  
182 explaining the study was given to them. Parents then had the opportunity to decline  
183 participation on behalf of their child. Informed written assent was also obtained from the  
184 participants. Following an explanation of the study at the end of a scheduled coaching  
185 session, the participants were asked to anonymously and individually complete a multi-  
186 section questionnaire. A coach was present in the room at all times but did not engage with  
187 the participants during the data collection. The researcher responsible for data collection  
188 asked participants to answer honestly and emphasized that there were no right or wrong  
189 answers. Data collection lasted approximately 25 minutes.

## 190 **Measures**

191 **Coach rapport.** Six items from the personal rapport subscale of the Coach Behavior  
192 Scale for Sport (Côté, Baker, Hay, Yardley, & Sedgwick, 1997) were used in the present  
193 study. The original subscale comprised seven items, however, one item (“My coach is always  
194 available when I need him/her”) was shown to be psychometrically problematic in  
195 subsequent work (Côté et al., 1997). The items were answered using a 7-point scale, anchored  
196 by 1 (*never*) and 7 (*always*). An example item is “My coach is a good listener”. Côté,  
197 Yardley, Hay, Sedgwick, and Baker (1999) reported acceptable internal consistency, test-  
198 retest reliability, and factorial validity of the subscale in a sample of child and adult athletes  
199 from a variety of sports.

200           **Task cohesion.** The eight items from the task cohesion subscale of the Youth Sport  
201 Environment Questionnaire (YSEQ; Eys, Loughead, Bray, & Carron, 2009) were used. The  
202 items were answered using a 9-point scale anchored by 1 (*strongly disagree*) and 9 (*strongly*  
203 *agree*). An example item is “We all share the same commitment to our team’s goals”. Eys et  
204 al. (2009) reported acceptable factorial validity in a sample of youth athletes.

205           **Psychological need satisfaction.** The nine items from the Basic Need Satisfaction in  
206 Relationships Scale (La Guardia, Ryan, Couchman, & Deci, 2000) adapted to reflect the  
207 soccer context were used in the present study. The items were answered using a 7-point scale  
208 anchored by 1 (*never*) and 7 (*always*). Example items are “I feel cared about” (relatedness),  
209 “I have a say in what happens and I can voice my opinion” (autonomy) and “I feel like a  
210 competent person” (competence). La Guardia et al. (2000; Study 2) reported acceptable  
211 factorial validity and internal consistency in a sample of undergraduate students. In line with  
212 these authors’ work we averaged the nine items to produce an overall composite need  
213 satisfaction score.

214           **Developmental Experiences.** The four developmental experiences (i.e., goal setting,  
215 emotional regulation, leadership, and social exclusion) were measured using the respective  
216 subscales from the Youth Experiences Survey (version 2.0; Hansen & Larson, 2005). Each  
217 subscale contained three items, with the exception of emotional regulation, which contained  
218 four items. The items were answered using a 4-point scale anchored by 1 (*yes, definitely*) and  
219 4 (*not at all*), however, scores were reversed prior to data analysis so that higher scores  
220 reflected greater experiences. Example items are “I set goals for myself in this activity” (goal  
221 setting), “I became better at handling fear and anxiety” (emotional regulation), “I learned  
222 about the challenges of being a leader” (leadership), and “I felt left out” (social exclusion).  
223 Hansen and Larson (2005) reported adequate factorial and convergent validity, as well as  
224 acceptable internal consistency in a sample of adolescents.

## Results

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### Preliminary Analysis

Prior to analysis, missing values were replaced using an Expectation Maximization algorithm because no identifiable patterns in missing data were identified. Next, confirmatory factor analyses (CFA) with EQS software (version 6.1; Bentler, 2003) using the robust maximum likelihood method were carried out to examine the factorial structure of all scales. Hu and Bentler (1999) proposed that a comparative fit index (CFI) approaching .95, a standardized root-mean-square residual (SRMR) close to .08, and a root-mean-square error of approximation (RMSEA) close to .06 were indicative of satisfactory model fit. Results of the CFAs can be seen in Table 1. As shown, the subscales measuring task cohesion and emotional regulation were shown to have acceptable factor structure. However, the factorial structure of the coach rapport and psychological need satisfaction scales were poor. In such cases, removing indicators that loaded poorly on to their respective latent factor is justified because the original structure is still retained, but with only the best performing indicators (Hofmann, 1995). Inspection of the standardized loadings and modification indices suggested the removal of two items from the coach rapport subscale (“my coach shows understanding for me as a person” and “my coach is a good listener”), and the three negatively worded items in the psychological need satisfaction scale (“When I am with my coach, I often feel inadequate or incompetent”, “When I am with my coach, I often feel a lot of distance in our relationship”, and “When I am with my coach, I feel controlled and pressured to be certain ways”). These modifications resulted in both scales having an acceptable model fit. The scales measuring goal setting, leadership, and social exclusion included three items each, therefore, the number of variances and covariances within the proposed factor structure equaled the number of parameters to be estimated (i.e., six). As a result, the models had no degrees of freedom (i.e., they were just-identified) and could never be rejected, therefore,

250 examining the model fit indices had no merit. Nonetheless, examination of the factor loadings  
251 revealed that all items loaded adequately on their respective latent factor (loadings ranged  
252 from .48 to .83).

### 253 **Descriptive Statistics, Internal Reliabilities, and Correlation Coefficients**

254 As shown in Table 2, the participants reported moderate to high levels of all study  
255 variables, with the exception of relatively low scores of social exclusion. The Cronbach's  
256 alpha coefficients were above 0.70 for all variables indicating acceptable internal reliability.  
257 All correlation coefficients were in the expected direction. Specifically, coach rapport was  
258 positively correlated with psychological need satisfaction. Team cohesion was positively  
259 correlated with psychological need satisfaction, goal setting, and emotional regulation.  
260 Psychological need satisfaction was positively correlated with goal setting, emotional  
261 regulation, leadership, and negatively correlated with social exclusion. As age did not  
262 correlate with any of the outcome variables (i.e., the developmental experiences) it was not  
263 included in the path analysis<sup>1</sup>.

### 264 **Primary Analysis**

265 The hypothesized model was tested using the robust maximum likelihood estimation  
266 method due to non-normality of the data (Mardia's normalized estimate of multivariate  
267 kurtosis = 5.47). Given the sample size (N=133), observed variables were used in the  
268 structural model to ensure an acceptable participants to parameter ratio. Moreover, to enhance  
269 confidence in our results we used the bootstrapping method to obtain a sampling distribution  
270 for each parameter based on 1000 sample replications (Kline, 2010). 95% confidence  
271 intervals (CIs) for each parameter estimate were calculated from these distributions. If zero  
272 did not fall within these CIs then it could be concluded that the parameter was statistically  
273 significant (Shrout & Bolger, 2002). Model fit indices showed that the hypothesized model  
274 was weak: Satorra-Bentler  $\chi^2$  (15) = 32.97; CFI = .80; SRMR = .10; RMSEA = .10).

275 However, examination of the modification indices suggested the addition of a covariance  
276 path between the errors of emotional regulation and leadership skills. This path indicates  
277 shared variance between the two developmental experiences that is not accounted for by the  
278 predictors (Kline, 2010). As the developmental experiences in the path model are dependent  
279 variables, their interrelationship can only be presented by correlating their errors. This  
280 modification was implemented because it is conceptually defensible and did not represent an  
281 addition to merely obtain acceptable model fit (Byrne, 2006; see also the Discussion section).  
282 The fit of this revised model was acceptable: Satorra -Bentler  $\chi^2$  (14) = 19.51; CFI = .94;  
283 SRMR = .08; RMSEA = .06). This revised model can be seen in Figure 1. Bootstrapped  
284 estimates shown in Table 3 revealed that, as hypothesized, players who report more coach  
285 rapport and task cohesion experienced greater psychological need satisfaction, compared to  
286 players who reported less coach rapport and task cohesion. In turn, psychological need  
287 satisfaction was positively associated with more goal setting experiences, leadership  
288 opportunities, and better emotional regulation, as well as less social exclusion. Following the  
289 guidelines offered by Preacher and Hayes (2004), we also obtained bootstrapped estimates  
290 for the indirect effects of the two environmental factors on the four developmental  
291 experiences via psychological need satisfaction. Results showed that coach rapport indirectly  
292 predicted the four developmental experiences via psychological need satisfaction, and task  
293 cohesion indirectly predicted the three adaptive developmental experiences (i.e., goal setting,  
294 emotional regulation, and leadership), via psychological need satisfaction.

295 Finally, we ran a model with the direct effects from coach rapport and task cohesion  
296 to the four developmental experiences included, as well as the hypothesized indirect paths.  
297 CIs obtained from the bootstrapped distribution indicated that only the direct relationship  
298 between coach rapport and goal setting was statistically significant ( $\beta = .21$ ; 95% CI = .01 to  
299 .39).

## 300 **Discussion**

301 In the present study we examined elite youth soccer players' perceptions of the extent to  
302 which coaches built up a rapport with players and how cohesive their team was in pursuing task-  
303 relevant goals. The relationships between these two contextual influences and players'  
304 psychological need satisfaction were investigated, as well as the association between  
305 psychological need satisfaction and four important developmental outcomes; namely goal  
306 setting, emotional regulation, leadership and (lack of) social exclusion. Overall, evidence was  
307 found for the existence of these relationships.

308 Our results supported the hypothesized positive relationship between psychological need  
309 satisfaction and goal setting. Coatsworth and Conroy (2009) similarly proposed that satisfying  
310 adolescent swimmers' psychological need for competence would lead to greater goal setting  
311 because their self-perceptions would be enhanced. This finding has particular significance given  
312 the central role goal setting plays in developing initiative (Larson, Hansen, & Moneta, 2006).  
313 Having a psychologically satisfying relationship with one's coach, therefore, may be an  
314 important interpersonal mechanism for the development of greater personal agency, attention,  
315 and effort towards the challenges that young soccer players encounter.

316 As well as enhanced goal setting, results from the present study showed that satisfying  
317 players' psychological needs was positively related to leadership and responsibility experiences.  
318 This finding extends a general proposal by self-determination theorists (i.e., that psychological  
319 need fulfillment will lead to optimal growth; Ryan & Deci, 2000) to the specific psycho-social  
320 development of elite youth soccer players. Players who are made to feel efficacious, valued, and  
321 autonomous by their coach may have a propensity to grasp opportunities to show leadership and  
322 take responsibility or they may be given more opportunities by the coach, compared to players  
323 whose needs are not fulfilled. Further, it seems that players who feel autonomous, specifically,

324 within the coach-player relationship may have the opportunity to further satisfy their need for  
325 autonomy by taking responsibility for their own actions in the larger soccer academy context.

326 The outcomes of our analysis also shed light on the under researched processes  
327 concerning how youth activities can develop emotional skills. Specifically, the findings offer  
328 support for the proposed links between psychological need fulfillment and emotional regulation.  
329 Ryan, La Guardia, Solky-Butzel, Chirkov, and Kim (2005) reported that individuals who feel  
330 that their needs are supported in close interpersonal relationships are more likely to emotionally  
331 regulate through social support, compared to individuals whose needs are not fulfilled. We  
332 extend this research to the coach-athlete relationship and to more general forms of emotional  
333 regulation. Thus, soccer coaches who are sensitive to players' needs for autonomy, competence  
334 and relatedness may help players manage the various and fluctuating emotions associated with  
335 high level soccer performance.

336 In addition to the relationships between psychological need satisfaction and the three  
337 positive developmental experiences, we also found a negative relationship between  
338 psychological need satisfaction and social exclusion. Of course, there is likely to be a reciprocal  
339 relationship, whereby feelings of social exclusion will lead to lower fulfillment of basic  
340 psychological needs (Gerber & Wheeler, 2009). Nonetheless, it is equally plausible that a sense  
341 of relatedness with one's coach will lead to fewer experiences of social exclusion. Moreover,  
342 highly competent and autonomous players may receive more attention and gain more social  
343 capital within the soccer academy context. Given the importance of positive social experiences in  
344 reducing antisocial behavior (e.g., DuBois & Silverthorn, 2005), encouraging coaches to form  
345 psychologically satisfying relationships with their players seems a worthy goal.

346 Overall, the positive relationships between players' psychological need fulfillment and  
347 the three positive developmental experiences, as well as the negative relationship between  
348 psychological need satisfaction and social exclusion highlight the importance of coaching

349 practices that foster autonomy, competence and relatedness within academy players. Within the  
350 present study, we found support for two such behaviors, as well as emphasizing the importance  
351 of fostering task cohesion within teams.

352 In accordance with our hypothesis, the degree to which players perceived coaches to  
353 build rapport with them was positively related to their psychological need satisfaction. Other  
354 sport-based research has reported a relationship between socio-emotional support and relatedness  
355 need satisfaction (Reinboth et al., 2004). However, the setting of our study may have significant  
356 implications, as the professional football academy context may be somewhat devoid of  
357 supportiveness, care, and warmth (see Cushion & Jones, 2006). The results found in the present  
358 study imply that it may be fruitful to challenge this zeitgeist, as approachable and trustworthy  
359 coaches who demonstrate concern for their players may satisfy the psychological needs of young  
360 players, thus creating a foundation for positive youth development.

361 In line with research examining basketball teams (Blanchard et al., 2009), task cohesion  
362 was positively related to psychological need satisfaction. As mentioned previously, players  
363 within professional soccer academies are competing to some degree with teammates for social  
364 status and a limited number of places on the senior teams, which may impact upon the degree of  
365 cohesion within teams. The finding in the present study indicates that it may be important to  
366 counterbalance this potentially damaging competition by ensuring individuals work together to  
367 win matches, and are united in the pursuit of success. Coaches can achieve this by including all  
368 players in regular evaluative and discursive team meetings, as well as promoting emotional  
369 engagement through shared personal insights during team building activities (Holt & Dunn,  
370 2006; Pain & Harwood, 2009). By enhancing cohesion in professional academies, players may  
371 be more likely to experience psychological need fulfillment, which may enhance the probability  
372 of positive developmental experiences.



373 As well as the hypothesized relationships, an additional path between the degree to which  
374 players experienced emotional regulation and leadership was added to the final conceptual model  
375 because research in workplace settings has consistently unearthed relationships between these  
376 two constructs (e.g., George, 2000; Palmer, Walls, Burgess, & Stough, 2000). With this evidence  
377 base in mind, we feel that the addition of this path was conceptually appropriate.

378 The collective findings in the study, including the significant indirect effects, support the  
379 proposal that players on united teams whose coaches have a good rapport with them are less  
380 likely to experience social exclusion, and more likely to experience successful emotional  
381 regulation, goal setting, and opportunities to lead, compared to players on fractious teams with  
382 emotionally distant coaches. Further, these relationships are mostly indirect through a  
383 psychologically fulfilling environment that supports players' needs for autonomy, competence,  
384 and relatedness. Many of these findings are unique within the youth sports setting, however,  
385 these conclusions should be considered in parallel with the limitations of the study. For instance,  
386 the study uses self-report data that cannot substantiate whether the coaches actually exhibited the  
387 types of behavior that were considered in this research. That said, self-report data are a worthy  
388 source of information because adolescents consciously engage with the social context (Hansen,  
389 Larson, & Dworkin, 2003; Larson, 2000) and one's perceptions of the social environment are of  
390 primary importance when considering the satisfaction of basic psychological needs (Deci &  
391 Ryan, 1987). Alternative measures of coach behavior, such as ratings from independent  
392 observers, may be used in future research to explore the degree of congruence between coach  
393 behaviors and players' perceptions of those behaviors, as well as potential moderating variables  
394 that influence the degree of congruence.

395 A second procedural limitation is the cross-sectional nature of the data; therefore, we  
396 cannot establish the direction of relationships among the study variables. Despite this drawback,  
397 the proposed conceptual model was well grounded on previous theorizing and empirical support,

398 therefore, we feel justified in hypothesizing such associations. Longitudinal designs over a  
399 soccer season, for example, will allow researchers to explore the contextual and personal factors  
400 that influence change in developmental experiences over the season. Such studies should be  
401 undertaken with larger samples, compared to the present study, which will permit study variables  
402 to be modeled as latent factors, therefore, accounting for measurement error. Field experiments  
403 can also be utilized to establish the causality among the study variables. For example, the  
404 developmental effects of an intervention aimed at promoting positive coach behaviors may be  
405 compared against a control group in which coaches receive no such training.

406         Within the present study, it is important to note that we examined developmental  
407 experiences within a youth elite soccer setting. While the three positive experiences are largely  
408 seen as important for adolescents' development in the larger life context, they cannot be called a  
409 life skill because context transference was not measured in this research (Gould & Carson,  
410 2008). Similarly, just because one is excluded in the soccer social setting does not mean that  
411 similar experiences will occur in the family and school domains. Future research may wish to  
412 investigate this potential transference across contexts. For example, can training soccer players to  
413 overcome setbacks in matches help them to do so in the classroom? Can learning how to regulate  
414 one's emotions in soccer help in the face of peer provocation in leisure-time? Such extensions to  
415 the present research may build upon the conclusion that players who perceive a cohesive team  
416 atmosphere, that their coaches psychologically prepare them for matches and have a good  
417 interpersonal rapport with them may gain positive developmental experiences because their  
418 psychological needs are fulfilled.

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Footnote

<sup>1</sup> We also ran a model in which age was included as a covariate in the conceptual model. The Wald test (an indicator of parameters to be dropped) suggested that all the paths between age and the dependent variables should be fixed at zero (i.e. they were non-significant). The model fit was also significantly lower compared to the model without age included as a covariate ( $\Delta\text{CFI} = .04$ ).

589 Table 1

590 Results of Confirmatory Factor Analyses for all Study Variables

<b>Variable</b>	<b>Sattora-Bentler <math>\chi^2</math> (df)</b>	<b>CFI</b>	<b>SRMR</b>	<b>RMSEA</b>
Coach Rapport	50.35 (9)	.81	.12	.19
Modified Coach Rapport	2.86 (2)	.99	.04	.06
Task Cohesion	29.32 (20)	.97	.05	.06
Psychological Need Satisfaction	68.40 (27)	.83	.09	.11
Modified Psychological Need Satisfaction	19.37 (9)	.95	.05	.10
Emotional Regulation	2.74 (2)	.99	.04	.05

591 *Note.* Results for leadership, goal setting, and social exclusion are not shown because the  
592 respective factorial models were just identified (i.e., they had 0 *df*).

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Table 2

*Descriptive Statistics, Cronbach's Alphas and Correlations Between all Variables*

<b>Variable</b>	<b>range</b>	<b><i>M</i></b>	<b><i>SD</i></b>	<b><math>\alpha</math></b>	<b>1.</b>	<b>2.</b>	<b>3.</b>	<b>4.</b>	<b>5.</b>	<b>6.</b>	<b>7.</b>
1. Coach Rapport	1-7	5.11	1.35	.82	–						
2. Task Cohesion	1-9	6.69	1.53	.88	.04	–					
3. Psych. Need Satisfaction	1-7	4.80	1.03	.81	.44**	.31**	–				
4. Emotional Regulation	1-4	3.08	.73	.79	.12	.17*	.29**	–			
5. Leadership	1-4	3.12	.74	.73	.02	.17	.31**	.48**	–		
6. Goal Setting	1-4	3.28	.60	.71	.01	.28**	.36**	.29**	.14	–	
7. Social Exclusion	1-4	1.58	.82	.83	-.08	-.13	-.25**	-.20*	-.23**	-.12	–
8. Age	11-18	14.2	1.79	–	-.10	-.07	-.28**	.07	.02	-.11	.00

*Note.* \*  $p < .05$ , \*\*  $p < .01$ .

Table 3

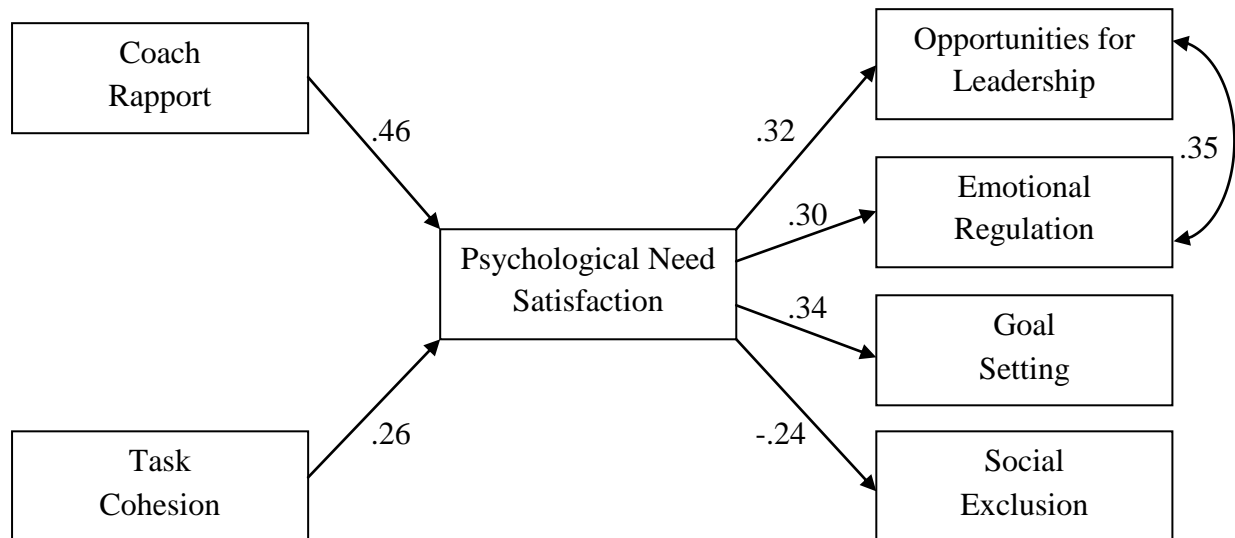
*Bootstrapped Standardized Point Estimates of Direct Effects, Covariances, and Indirect Effects within the Final Model*

<b>Parameter</b>		<b>Point estimate (SE)</b>	<b>95% CI</b>
<i>Direct Effects</i>			
Coach Rapport	→ Psych. Needs	.46 (.08)	.30 to .60
Task Cohesion	→ Psych. Needs	.26 (.08)	.11 to .41
Psych. Needs	→ Goal Setting	.34 (.08)	.17 to .51
Psych. Needs	→ Emotional Regulation	.30 (.10)	.11 to .49
Psych. Needs	→ Leadership Skills	.32 (.09)	.15 to .48
Psych. Needs	→ Social Exclusion	-.24 (.11)	.02 to .45
<i>Covariance</i>			
Leadership Skills	↔ Emotional Regulation	.35 (.09)	.15 to .54
<i>Indirect Effects</i>			
Coach Rapport	→ Goal Setting	.16 (.04)	.08 to .24
Coach Rapport	→ Emotional Regulation	.14 (.05)	.05 to .24
Coach Rapport	→ Leadership Skills	.14 (.04)	.07 to .23
Coach Rapport	→ Social Exclusion	-.11 (.06)	.01 to .23
Task Cohesion	→ Goal Setting	.09 (.04)	.03 to .17
Task Cohesion	→ Emotional Regulation	.08 (.04)	.02 to .16
Task Cohesion	→ Leadership Skills	.08 (.04)	.02 to .16
Task Cohesion	→ Social Exclusion	-.06 (.03)	-.14 to .00

Note. CI = Confidence Interval. If the CI includes zero, then the point estimate is not statistically significant ( $p < .05$ ).

Figure 1

*Revised path model of perceptions of coach behaviour, task cohesion, psychological need satisfaction, and four developmental experiences.*



*Note.* All bootstrapped point estimates are standardized and significant ( $p < .05$ ).