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Vello Hein\textsuperscript{a} & Helen Jõesaar\textsuperscript{b}

\textsuperscript{a} Institute of Sport Pedagogy and Coaching Sciences, Faculty of Exercise and Sports Sciences, University of Tartu, Tartu, Estonia
\textsuperscript{b} Archimedes Foundation, Coordinator of Faculty Development, Centre for Higher Education Development, Tartu, Estonia

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How perceived autonomy support from adults and peer motivational climate are related with self-determined motivation among young athletes

Vello Hein\textsuperscript{a}\textsuperscript{*} and Helen Jõesaar\textsuperscript{b}

\textsuperscript{a}Institute of Sport Pedagogy and Coaching Sciences, Faculty of Exercise and Sports Sciences, University of Tartu, Tartu, Estonia; \textsuperscript{b}Archimedes Foundation, Coordinator of Faculty Development, Centre for Higher Education Development, Tartu, Estonia

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Assessing the motivational responses of 662 young athletes aged 11-16 years, this study examined a model of motivation that incorporates constructs from achievement goal and self-determination theories. The focus was on the prediction of young athletes’ self-determined motivation from perceived autonomy support from parent and coaches and from dimensions of peer motivational climate. The structural equation modelling analysis supported the model in which autonomy support from parents and coaches as antecedents in forming the perceived peer motivational climate are related to prediction of self-determined motivation. Autonomy support from parents was a stronger predictor of self-determined motivation than autonomy support from coaches. From the dimensions of peer motivational climate, the intra-team competition/ability was the only dimension that had a negative significant direct effect on self-determined motivation. From an applied perspective, these results highlighted the importance of peers as essential influencers, along with adults, on young athletes’ sport motivation.

Keywords: self-determined motivation; achievement goal theory; autonomy support

Introduction

Sport is a prominent context in young peoples’ lives (Smoll & Smith, 2002). Participation in sports organised and/or supervised by adults’ plays an important role in the development of today’s children and youth. The social relationships of youth sports participants can contribute to or restrain from sport motivation and involvement with physical activity and are, therefore, of interest to sport psychology researchers. Recent research has showed that peers are key contributors along with adults in creating a motivational climate in sport settings (Jõesaar, Hein, & Hagger, 2012; Ntoumanis, Taylor, & Thøgersen-Ntoumani, 2012; Ntoumanis & Vazou, 2005; Ullrich-French & Smith, 2006, 2009; Vazou, Ntoumanis, & Duda, 2006). Adopting a self-determination theory (SDT, Deci & Ryan, 1985) and achievement goal theory (AGT, Nicholls, 1989) perspective, this research is focused on the relationship of perceived autonomy support from coaches, parents and peer motivational climate with self-determined motivation among young athletes.

Perceived motivational climate

The motivational climate studies are based on the goal orientation profile framework called AGT (Nicholls, 1989). Motivational climate reflects the salient features of an environment that create a
task- or ego-oriented goal structure (Ames & Archer, 1988). Ames (1992) and Treasure and Roberts (1998) have noted that variations in achievement behaviour can be explained by the motivational climate created by significant others. In sport context, the studies of perceived motivational climate are principally based on the climate created by a coach (Newton, Duda, & Yin, 2000; Seifriz, Duda, & Chi, 1992; Walling, Duda, & Chi, 1993). However, according to several authors (Evans & Roberts, 1987; Weiss, Smith, & Theeboom, 1996) peers can form opportunities for skill development and represent sources of validation, social support and positive affect in achievement contexts. Pintrich, Conley, and Kempler (2003) have pointed out that interaction with peers who may have a differing approach from the teacher towards engaging in the task, might impact students’ achievement goals in the classroom. Previous studies (Carr, Weigand, & Hussey, 1999; Carr, Weigand, & Jones, 2000; Jõesaar et al., 2012; Ntoumanis et al., 2012; Ntoumanis & Vazou, 2005) have explained how the motivational climate created by peers may be related to self-determined motivation and affective outcomes. Carr et al. (1999, 2000) have examined the peer motivational climate as well as the influence of parents, teachers and sports heroes on children’s achievement-related responses in physical education (PE) and sport. However, Carr with her colleagues assessed peer-created climate by rephrasing items from the PE Class Climate Scale (Biddle et al., 1995) and the Parental-Initiated Motivational Climate Questionnaire-2 (White, 1996). Their research evidenced that both adult- and peer-created climate can relate to children’s goal orientations, intrinsic motivation and perceptions of physical competence.

Peer Motivational Climate in Youth Sport Questionnaire (PeerMCYSQ) was developed by Ntoumanis and Vazou (2005) to address the need for a specific instrument to assess peer motivational climate. This instrument contains 21 items modelling ego-involving and task-involving higher order factors, which altogether include 5 of lower order factors (improvement relatedness support, effort, intra-team competition/ability and intra-team conflict). Vazou et al. (2006), using this instrument, examined the potential additive and interactive effects of the perceived coach- and peer-created motivational climate on affective and behaviour motivation-related variables in the youth sport setting. The results showed that enjoyment, measured by the subscale Interest-Enjoyment from Intrinsic Motivation Inventory (McAuley, Duncan, & Tammen, 1989), was positively predicted by both coach and peer task-involving motivational climate. Recently, Ntoumanis et al. (2012) have found the predictive effects of coach and peer motivational climate on moral attitude and emotional well-being. Also, a recent study by Jõesaar et al. (2012) indicated to the existence of the effect from perceived autonomy support from the coach to task-involving climate and intrinsic motivation. The findings of these studies strengthen evidence for the relevance of peer-created motivational climate in youth sport along with the coach-created motivational climate. Despite the general acknowledgement that coaches play a crucial role in forming motivational climate in sport setting, the role of perceived autonomy from parents to peer motivational climate remains to clarify.

**Autonomy support**

Central to SDT is the distinction between autonomous and controlling forms of motivation. SDT focuses on the extent to which different types of motivation (intrinsic, identified regulation, introjected regulation, external regulation and amotivated) are autonomous or self-determined and explains how social factors like behaviour of significant others and the social environment impact on motivation (Ryan & Deci, 2002). To be self-determined means to act with a sense of volition and choice.

In interpersonal processes, the supervisors’ behaviour can have a crucial impact on creating a motivational climate (Olympiou, Jowett, & Duda, 2008). How these authorities manage interaction, give information and instruction, make assignments or arrange other items related to
the individuals determine what type of the motivational climate is created—task-involving or ego-
involving. Autonomy support requires acknowledgement of the others’ perceptions, acceptance of the others’ feelings and the advantage of self-initiated expression and action (Ryan & Solky, 1996). According to SDT (Deci & Ryan, 1985, 1987), significant others (e.g. teachers, coaches and parents), who are autonomy-supportive, engage in behaviours that acknowledge their subordinates’ thoughts and feelings, encourage choice, self-initiation and regulation of people’s own behaviour, as well as minimise the use of pressure and demand to control others. Studies have also pointed out the link between perceived autonomy support from coaches and athletes’ motives for participation (Gagne, Ryan, & Bargmann, 2003; Pelletier, Fortier, Vallerand, & Brière, 2001). For example, Gagne et al. (2003) found that gymnasts who perceived their coaches and parents to be autonomy-supportive and involved in their participation generally reported higher self-determined motivation for gymnastics. Consistent with previous studies (Carr et al., 1999, 2000; Jõesaar et al., 2012), it allows to assume that the behaviour of supervisors has an impact on forming the motivational climate, including the peer motivational climate.

It also suggests that the autonomy-supportive behaviour of authorities, which may be characterised as allowing to make decisions on the part of participants and providing feedback that is directed towards the accomplishment of tasks and individual improvement, leading to the creation of task-involved climate. Several studies in various life domains have found that self-determined behaviour is promoted within a supportive non-coercive family climate (Grolnick, 2003; Soenens & Vansteenkiste, 2005). Hence, it is critical for people’s optimal functioning to experience a sense of autonomy and discretion in one’s actions (Deci & Ryan, 2000; Ryan & Deci, 2002). According to several authors, it is important for parents to support their children’s autonomous self-regulation (Gray & Steinberg, 1999; Silk, Morris, Kanaya, & Steinberg, 2003; Steinberg & Silk, 2002). Empirical research grounded in a variety of theoretical perspectives has suggested that parents and peers are key socialising agents in youth sport (Brustad & Partridge, 2002; Fredricks & Eccles, 2004). Indeed, parents who value and foster collaboration, improvement and effort in communication with their children about sport activities might also affect task-involving peer motivational climate, which, in turn, is likely to develop their self-determined motivation.

To the best of our knowledge, no study has attempted to test how perceived autonomy support from coaches and parents as social agents in combination are related with peer motivational climate and self-determined motivation in the sport context.

Therefore, the major purpose of this study was to examine how youth athletes’ perceptions of autonomy support from their parents and coaches affect their sport motivation via peer motivational climate. In general, based on previous research and theoretical tenets, we assumed that youth athletes’ perception of autonomy support from parents and coaches would influence youth athletes’ self-determined motivation directly and indirectly via the dimensions of peer motivational climate.

More specifically, we hypothesised that perceived autonomy support from parents and coaches would be positively related to task-involving dimensions of PeerMCYSQ (improvement/relatedness support and effort), which, in turn, would be positively related to self-determined motivation. Also, we hypothesised that perceived autonomy support from parents and coaches would be negatively related to ego-involving dimensions of PeerMCYSQ (intra-team competition/ability and intra-team conflict), which, in turn, would be negatively related to self-determined motivation.

**Method**

**Research participants**

The participants were 662 young athletes (441 males and 221 females) with ages ranging from 11 to 16 years (mean age 13.18 years; SD = 1.52). The participants were recruited from different
sports clubs in Estonia. The sample included basketball (46%), volleyball (25%) and soccer players (29%). Athletes were taking training voluntarily as members of different sports clubs in Estonia that were enrolled in competition at national and provincial levels, but were not members of professional sports team.

**Procedure**

Permission to carry out the study in each club was afforded from the coach. The participants were asked to complete the questionnaires before a regularly scheduled training session where the coach was absent during that period of time. It was emphasised that the questionnaire was developed to measure athletes’ general feeling about training climate. It was clearly stated to participants that confidentiality would prevail at all times and, more specifically, their coach would not see their responses. Participation was voluntary and all ethical data collection procedures (institutional approval, parent and coach consent and participant assent) were employed.

**Measures**

**Peer-created motivational climate.** PeerMCYSQ (Ntoumanis & Vazou, 2005) was used to determine athletes’ perceptions of the peer-created motivational climate in their training group. The questionnaire contained 21 items modelling ego-involving and task-involving higher order factors, which altogether included 5 lower order factors. Athletes answered to the stem “In this team/training group, most athletes …” followed by four items measuring the improvement subscale (e.g. “… work together to improve the skills they do not do well”), three items measuring the relatedness support subscale (e.g. “… make their teammates feel valued”), five items measuring the effort subscale (e.g. “… encourage their teammates to keep trying after they make a mistake”), five items measuring the intra-team competition/ability (e.g. “… try to do better than their teammates”) and four items measuring the intra-team conflict (e.g. “… make negative comments that put their teammates down”). Participants rated their responses on 7-point scales anchored by “strongly disagree” (1) and “strongly agree” (7).

**Sport Motivation Scale.** The Sport Motivation Scale (SMS, Pelletier et al., 1995) was used to assess individuals’ motivation towards sport participation. The athletes were asked how much they agreed with the items based on the root question “Why do you currently participate in sport?” The SMS consisted of 28 items that are divided into 7 subscales—amotivation, three types of extrinsic motivation (external, introjected and identified regulation) and three types of intrinsic motivation (to know, towards accomplishment and to experience stimulation). Response options indicated a 7-point scale ranging from 1 (does not correspond at all) to 7 (corresponds exactly). Support for the validity and reliability of the intrinsic scales from the SMS modified for PE context was previously obtained from Estonian sample (Hein, Müür, & Koka, 2004). In the present study involving youth sport athletes, the factor structure for the SMS was tested using confirmatory factor analysis (CFA) and psychometrical parameters were estimated.

The seven motivational constructs measured by items from the SMS were integrated into a Self-determination Index (SDI). This had the effect of reducing the overall number of variables in the model and maximising the parsimony of subsequent models. First of all, the items of each motivational construct were measured by two random aggregates of items. For instance, the four items of external motivation were grouped in two-item-averaged scores via random splitting of the scale. The SDI was calculated by giving each subscale a specific weight according to the method used in several studies (Vallerand, 1997; Vallerand & Fortier, 1998). The scores for the
three types of intrinsic motivation were averaged and assigned the highest positive weight (+2) because intrinsic motivation is the highest self-determined form of motivation. Identified extrinsic motivation, a self-determined type of extrinsic motivation, was assigned a lower weight (+1). The scores for external regulation and introjection were averaged and assigned a negative weight (−1), and amotivation, which represents the absence of self-determination, was weighted highly negatively (−2). The latent variables assessing self-determined youth athletes’ motivation (SDI) consisted of two composite indexes, as the number of items of each subscale was aggregated to form two two-item-averaged scores.

Autonomy support by coaches and parents. The items adopted from the Sport Climate Questionnaire (SCQ, Hagger, Chatzisarantis, Culverhouse, & Biddle, 2003) measured participants’ perception of the autonomy-supportive behaviours exhibited by their coaches and parents. The short version of the SCQ contains six items. It is designed to be used by athletes to report their perceptions of their coaches or sport instructors. Nevertheless, the wording can be adjusted easily to assess autonomy-supportive behaviours (in the particular situation) by significant others such as parents. A sample item constituting the coaches’ autonomy-supportive scale is: “I feel that my coach provides me choices and options”. A sample item comprising the parents’ autonomy-supportive scale is: “My parents convey confidence in me to be active/successful in sports”. Responses for each item were made on 7-point Likert-type scales. Response options range from strongly disagree (1) to strongly agree (7), with higher scores evidencing a more autonomy-supportive style.

Translation procedures. To produce an Estonian version of the questionnaire, we used the standardised back-translation technique (Brislin, 1986). At first, an interpreter translated the English version of the questionnaire into Estonian and then another independent bilingual interpreter translated the same items back into English. Second, the original English version was compared to the back-translated version and all errors and discrepancies were identified. The back-translation comparison process was used until all the discrepancies were eliminated. The final version exhibited no contradictions with the original English version of the measures when back-translated.

Data analyses. In this study, the CFA and structural equation modelling (SEM) were conducted using the LISREL 8.8 statistical software. For CFA and SEM models, the following indices were analysed: the coefficient $\chi^2$, the chi-square to degrees of freedom ratio ($\chi^2/df$), Comparative Fit Index (CFI), Non-normed Fit Index (NNFI) and root mean square error of approximation (RMSEA). Cut-off values greater than 0.95 for CFI and NNFI and values equal to or less than 0.08 for RMSEA were considered acceptable (Hu & Bentler, 1999).

A series of CFAs were used to test the factorial validity of PeerMCYSQ, the scales of perceived autonomy support from coaches and parents (Table 2, Models 1, 2, 3 and 4).

Also, CFA was used to support the discriminant validity of the scales (measurement model, Table 2, Model 5) before structural modelling (Table 2, Model 6). In the analysis, items representing constructs from the PeerMCYSQ (four scales), perceived autonomy support from coaches and parents, and from self-determined motivation were all set to indicate separate latent variable.

Results

Preliminary analysis

Descriptive statistics (means and standard deviations), reliability and correlations among latent variables are presented in Table 1. Overall, the participants reported higher scores in autonomy
support from parents than from coaches. The effort domain from PeerMCYSQ was evaluated higher than others. Internal reliability, using Cronbach’s alpha coefficient, was acceptable ($\alpha > 0.70$) for all study variables, except intra-team competition/ability subscale of the PeerMCYSQ ($\alpha = 0.58$). A low reliability of this scale in comparison with others was also found in the work of Vazou et al. (2006).

The analyses of the skewness and kurtosis estimate values revealed that not all data were normally distributed. To protect from departures from normality, we generated the polychoric correlations and the asymptotic covariance matrices in subsequent CFAs and structural equation model analyses.

The PeerMCYSQ was tested for factorial validity and measurement model with all study variables were tested for discriminant validity. One item from intra-team competition/ability (“Encourage each other to outplay their team-mates”) was problematic with very low factor loading. The internal reliability of this scale was also not acceptable ($\alpha = 0.49$). Therefore, this item was removed. The CFA model with 20 items produced a 5-factor model with adequate fit indices (Table 2, Model 1).

Furthermore, due to the high correlation between improvement/relatedness support ($r = 0.90$), relatedness support/effort ($r = 0.84$) and improvement/effort ($r = 0.84$), a 4-factor model in which improvement and relatedness support were combined into one factor was retested. The results showed also adequate fit indices for the 4-factor model (Table 2, Model 2).

The results of the CFA confirmed the acceptable fit with the data of the SMS ($\chi^2 = 829.96$, df = 340, $p = 0.00$, RMSEA = 0.047 (90% CI = 0.043-0.051), NNFI = 0.98, CFI = 0.98).1

### Table 1. Descriptive statistics, reliability and correlation among latent variables.

<table>
<thead>
<tr>
<th>Latent Variable</th>
<th>Mean</th>
<th>SD</th>
<th>$\alpha$</th>
<th>Correlation with other variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Autonomy support from coaches</td>
<td>5.33</td>
<td>1.11</td>
<td>0.82</td>
<td>–</td>
</tr>
<tr>
<td>(2) Autonomy support from parents</td>
<td>5.89</td>
<td>0.97</td>
<td>0.81</td>
<td>0.53* –</td>
</tr>
<tr>
<td>(3) Improvement/relatedness support</td>
<td>5.04</td>
<td>0.93</td>
<td>0.83</td>
<td>0.44* 0.34* –</td>
</tr>
<tr>
<td>(4) Effort</td>
<td>5.42</td>
<td>0.96</td>
<td>0.80</td>
<td>0.46* 0.35* 0.86* –</td>
</tr>
<tr>
<td>(5) Intra-team competition/ability</td>
<td>4.89</td>
<td>0.91</td>
<td>0.58</td>
<td>0.07 0.14* 0.02 0.18* –</td>
</tr>
<tr>
<td>(6) Intra-team conflict</td>
<td>3.67</td>
<td>1.28</td>
<td>0.76</td>
<td>0.20* 0.18* 0.54* 0.43* 0.57* –</td>
</tr>
<tr>
<td>(7) Self-determined Motivation Index</td>
<td>0.25</td>
<td>0.25</td>
<td>0.22</td>
<td>0.21 –0.32 0.25</td>
</tr>
</tbody>
</table>

Note: *$p < 0.05$.

### Table 2. Measurement fit indexes and structural equation models.

<table>
<thead>
<tr>
<th>Models</th>
<th>$\chi^2$</th>
<th>df</th>
<th>CFI</th>
<th>RMSEA</th>
<th>CI_{95} RMSEA</th>
<th>NNFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1</td>
<td>418.71</td>
<td>160</td>
<td>0.98</td>
<td>0.049</td>
<td>0.044-0.055</td>
<td>0.97</td>
</tr>
<tr>
<td>Model 2</td>
<td>448.47</td>
<td>164</td>
<td>0.98</td>
<td>0.051</td>
<td>0.046-0.057</td>
<td>0.97</td>
</tr>
<tr>
<td>Model 3</td>
<td>40.35</td>
<td>9</td>
<td>0.99</td>
<td>0.073</td>
<td>0.051-0.096</td>
<td>0.98</td>
</tr>
<tr>
<td>Model 4</td>
<td>16.79</td>
<td>9</td>
<td>1.00</td>
<td>0.036</td>
<td>0.00-0.063</td>
<td>1.00</td>
</tr>
<tr>
<td>Model 5</td>
<td>897.45</td>
<td>506</td>
<td>0.98</td>
<td>0.034</td>
<td>0.031-0.038</td>
<td>0.98</td>
</tr>
<tr>
<td>Model 6</td>
<td>1255.47</td>
<td>512</td>
<td>0.97</td>
<td>0.047</td>
<td>0.044-0.050</td>
<td>0.97</td>
</tr>
</tbody>
</table>

Note: Model 1 = CFA of 5-factor peer motivational climate; Model 2 = CFA of 4-factor peer motivational climate; Model 3 = CFA of autonomy support from coaches; Model 4 = CFA of autonomy support from parents; Model 5 = measurement model with all study variables; Model 6 = structural equation model; $\chi^2$ = chi-square; df = degrees of freedom; CFI = Comparative Fit Index; RMSEA = root mean square error of approximation, CI_{95} = 95% confidence interval and NNFI = Non-normed Fit Index.
Despite one low internal reliability value of SMS measures (introjected regulation 0.60), the Cronbach’s alpha coefficients were within the range 0.60-0.78.

The subscales designed to measure youth athletes’ perception of autonomy support from coaches and parents demonstrated acceptable internal reliability (Table 1) and CFA confirmed the existence of one-factor structure for both scales. The psychometrical parameters are presented in Table 2, Models 3 and 4.

The CFA provided a well-fitting measurement model (Table 2, Model 5), which was based on 34 observed variables and 7 latent constructs. After having assessed the adequacy of the factor structure, the structural equation model was estimated using the maximum likelihood method (Jöreskog, Sörbom, du Toit, & du Toit, 2001).

Main analyses
The main purpose of SEM was to test the relations hypothesised among the study variables. The model (Figure 1) was constructed to test if perceived autonomy support from coaches and parents and all dimensions of peer motivational climate structures had a direct effect on self-determined motivation. In addition, perceived autonomy support from coaches and parents was set to predict youth athletes’ sport motivation indirectly via the dimensions of the peer motivation climate. Examination of the fit indexes revealed that the proposed structural model reproduced the observed covariance matrix satisfactorily (Table 2, Model 6). Overall, the model accounted for 19% of the variance in self-determined motivation. Examining the path coefficients in the model confirmed partially the first hypothesis that perceived autonomy support from parents and coaches would be positively related to task-involving dimensions (Figure 1). The perceived autonomy support from coaches was positively related to the improvement/relatedness support ($\beta = 0.44, p < 0.01$) and to the effort ($\beta = 0.44, p < 0.01$) dimensions, whereas autonomy support from parents was significantly related only to effort ($\beta = 0.13 p < 0.01$).

The hypothesis that perceived autonomy support from parents and coaches would be negatively related to both ego-involving dimensions was confirmed only with respect to intra-team conflict dimension. No significant effects of both autonomy support from parents and coaches on intra-team competition/ability were followed. Intra-team conflict was negatively related to the perceived autonomy support from coaches ($\beta = -0.22, p < 0.01$).

Autonomy support from parents predicted self-determined motivation ($\beta = 0.13, p < 0.01$), while autonomy support from coaches did not. The intra-team competition/ability was the only dimension of the peer motivational climate that had a significant direct effect on the Self-determined Motivation Index ($\beta = -0.33, p < 0.01$).

The investigation of the total and indirect effects of perceived autonomy support from adults on peer motivational climate and self-determined motivation showed that the perceived autonomy support from coaches had significant total effect on motivation ($\beta = 0.20, p < 0.01$), whereas total effect from parents was not significant ($\beta = 0.10, p > 0.05$). In addition, there was no significant indirect effect of perceived autonomy support from parents and coaches on self-determined motivation.

Discussion
The purpose of this study was to gain knowledge regarding the relationship between the perceived autonomy support from coaches and parents and the perceptions of the peer motivational climate, as well as how these relations influence self-determined motivation among young athletes. With regard to the validity of the measures, several CFA were used. The results provided strong support for a 4-factor PeerMCYSQ in which improvement and relatedness support were combined into...
one factor. It is possible that participants did not distinguish very well between the items from the relatedness support factor that referred to the criterion of a friendly atmosphere in the team and items from the improvement factor where it tested on how peers work together and offer help when needed. The results of our study supported fit indices for both 5-factor and 4-factor models. However, based on the high intercorrelation between the improvement and relatedness factors we concluded that the 4-factor model is more appropriate. Nevertheless, in order to gain a better understanding of the different types of motivational climates occurring in youth sport, future research should continue to test the validity of the PeerMCYSQ.

A primary hypothesis of the present study was that youth athletes’ perception of autonomy support from parents and coaches influences youth athletes’ self-determined motivation directly and indirectly via the dimensions of peer motivational climate. The structural equation model in the present study provided partial support for this hypothesis. This model showed a positive direct effect of autonomy support from both coaches and parents on self-determined motivation, but from parents it was statistically significant. Perceiving autonomy support from parents young athletes feel more self-determined, competent and involved in the learning process. These findings support the SDT that states that the social behaviour of coaches and parents are antecedents in forming motivation (Brustad & Partridge, 2002; Pelletier et al., 2001). The results of our study are consistent with Gagne et al. (2003) where the perception of parent and coach autonomy support and involvement influenced the quality of the gymnasts’ motivation. The results of this study are also in line with previous findings in the educational domain revealing a predictive role of autonomy-supportive behaviours in autonomous self-behaviour of students (Haggar, Biddle, & Wang, 2005; Reeve, 2002; Standage, Duda, & Ntoumanis, 2003).

Figure 1. Structural equation model of perceived autonomy support from adults on peer motivational climate and motivation. Note: SDI = Self-determined Motivation Index; *p < 0.05.
We arrived at interesting results in respect to total effects of autonomy support from coaches and parents on motivation. More specifically, the total effect from perceived autonomy support on motivation was significant from coaches but not from parents. It may be conditioned because of lower level influence from the autonomy support of parents on all dimensions of peer motivational climate in comparison with coaches. More precisely, the results showed that the paths from perceived autonomy support from parents to improvement/relatedness support ($\beta = 0.12$) and effort ($\beta = 0.13$) were considerably weaker than from coaches (both paths were $\beta = 0.44$). It allows to assume that the interpersonal processes between adults and young athletes have a different impact on athletes’ motivation. Furthermore, the dimensions of perceived peer motivation climate may attenuate the impact of autonomy support from adults on motivation. As discussed by Ntoumanis and Vazou (2005), in a newly formed team the dominant role in forming the motivational climate belongs to adults, but with the passage of time peers set in to influence athletes’ motivation in the team. Moreover, in a case where peers have a different approach from adults towards a task (e.g. skill development and refinement) peers might greatly impact young athletes’ achievement goals in sport. Nevertheless, future research is needed to better understand the relative impact of perceived autonomy support from adults and perceived peer motivational climate on self-determined motivation. In addition, it will be important to consider how perceived autonomy support from coaches, parents and non-sport peers’ motivational climate predict self-determined motivation.

The results of our study supported the hypothesis that perceived autonomy support from parents and coaches are positively related to task-involving dimensions of PeerMCYSQ and negatively related to ego-involving dimensions of PeerMCYSQ. The perceived autonomy support from coaches positively predicted the improvement/relatedness support and effort dimensions and negatively predicted only the intra-team conflict dimension. Therefore, the negative relationship of the perceived autonomy from coaches to intra-team conflict shows that unsupportive behaviours are likely to reduce athletes’ self-determined motivation in their sport. With respect to the relationships between autonomy support from parents and the dimensions of peer motivational climate, the only significant path was with the effort dimension. It allows assuming that in the case of high perceived autonomy support from parents young athletes may display more effort in training processes. According to the results of this study, perceived autonomy support from coaches tends to be a stronger predictor of the task-involving dimension of PeerMCYSQ than perceived autonomy support from parents. It allows to suggest that the behaviour of coaches has a stronger impact on forming the peer motivational climate than the behaviour of parents. It is not surprising that social behaviour of coaches, like autonomy support, in social sport context, is more predictive of peer motivational climate than the social behaviour of parents. This standpoint is consistent with several factors such as the context in which the support is provided and the degree of importance that young people attached to a particular source (Hagger et al., 2007). More generally, coaches are the adults most directly involved in the youth sport domain and they personify the goals of sport as well as the demands of sport rules. Therefore, athletes’ experience regarding coaches’ behaviour/actions may reflect their attitudes in terms of task- or ego-involving behaviour in sport. Although coaches may impact athletes’ experience in sport most directly, parents still have an important role on the formation of athletes’ task- or ego-involving behaviour. This is also congruent with the findings of the study of Stiller and Ryan (1992) where the perception of autonomy support from teachers and parents was correlated with students’ motivation.

In this study, it was also hypothesised that task-involving dimensions of PeerMCYSQ are positively and ego-involving dimensions of PeerMCYSQ are negatively related to self-determined motivation. This is consistent with previous research that has provided support for the association between the motivational climate created by coaches and intrinsic motivation (Duda, 2001; Duda & Hall, 2001; Ntoumanis & Biddle, 1999). In addition, our findings are
conceptually similar to the study by Vazou et al. (2006) that found a positive association between coaches and peers task-involving climate with athletes’ enjoyment. More specifically, according to our results, intra-team competition ability of ego-involving peer climate was the only significant and strong negative predictor of athletes’ self-determined motivation in sport. The negative relationship of self-determined motivation to intra-team competition ability indicates that unsupportive behaviour by peers is likely to decrease athletes’ behavioural disposition in their sport (Vazou et al., 2006). Therefore, in order to increase motivation it is important to avoid situations where teammates perceive a comparison of their ability.

Overall, the above findings extended our knowledge regarding the effects of the peer motivational climate and perceived autonomy support from adults in youth sport. The present study is unique in terms of providing evidence for supporting the proposed model for self-determined motivation in youth sport as it incorporates specific components of three significant social agents, namely perceived autonomy support from parents and from coaches and peer motivational climate. Moreover, the model indicates that autonomy support from coaches and parents are antecedents to the dimensions of peer motivational climate.

The findings of the present study also revealed that perceived autonomy support from parents directly predicted self-determined motivation. Perceived autonomy support from coaches has a significant total effect on self-determined motivation. Furthermore, the results allow to assume that the relationships between athletes’ perception of autonomy support from adults and their sport motivation might be attenuated by the perceived peer motivational climate.

From an applied perspective, these results highlight the importance of peers as essential influencers, along with adults, on adolescents’ sport motivation. However, future research should examine additional relationships between self-regulation of motivation and social-contextual factors. For example, further work, using the motivational model of sequence proposed by Valeraand (1997), might examine how relationships between autonomy support from adults and peer motivational climate influence athletes’ motivation via perceived physiological needs. Studies would also survey how these relationships with significant others namely coaches and parents further impact dropout behaviour.

Note
1. All information about the factor loadings and solution estimates are available upon request from the first author.

References


