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Motivational Climate, Achievement Goals, Perceived Sport Ability, and Enjoyment in
Finnish Junior Ice-Hockey Players

Running head: Achievement Goal Theory and Enjoyment

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Abstract

The aim of this study was to investigate the relations among situational motivational climate, dispositional approach and avoidance achievement goals, perceived sport ability, and enjoyment in Finnish male junior ice hockey players. The sample comprised 265 junior B level male players with a mean age of 17.03 years ($SD = .63$). Players filled questionnaires tapping their perceptions of coach motivational climate, their achievement goals, perceived sport ability, and enjoyment. For the statistical analysis, players were divided into high and low perceived sport ability groups. Multigroup Structural Equation Modeling (SEM) revealed an indirect path from task-involving motivational climate via task-approach goal to enjoyment. Additionally, SEM demonstrated four other direct associations which existed in both perceived ability groups: from ego-involving motivational climate to ego-approach and ego-avoidance goals; from ego-approach goal to ego-avoidance goal; and from task-avoidance goal to ego-avoidance goal. Additionally, in the high perceived sport ability group there was an association from task-involving motivational climate to enjoyment. The results of this study reveal that motivational climate emphasizing effort, personal development and improvement, and achievement goal mastering tasks are significant elements of enjoyment in junior ice-hockey.

Keywords: motivational climate, achievement goals, sport ability, enjoyment, youth sports

Enjoyment is considered as one of the most important motivational factors in youth sports because it has been positively linked with adaptive motivation and continued participation (Fraser-Thomas et al., 2008; Wall & Cote, 2008) and inversely with dropout and burnout (Butcher et al., 2002; Strachan et al., 2009). In Finnish youth sport, dropout has been recognized as a significant problem, and lack of enjoyment has been identified as a principal reason for dropout (Tiirikainen & Konu, 2013). Various theoretical models have been developed to explain and understand the concept of enjoyment. In the present study, enjoyment is operationalized as a positive affective response to a particular sport activity that reflects generalized feeling states such as enjoyment, happiness, and fun. This construct is more specific than global positive affect but is more general than excitement (Scanlan & Simons, 1992).

Achievement Goal Theory (AGT; Nicholls, 1989) provides a social-cognitive approach to understand and study motivation. According to the AGT, individuals' main motive in achievement settings is to develop competence (Nicholls, 1989). AGT argues that both individuals' achievement goals (the competence-based aim used to guide behavior) and motivational climate (perception of social environment) can determine the quality of their affective, cognitive and behavioral experiences. Traditionally (e.g., Maehr, 1989; Nicholls, 1989), achievement goals have been divided into task and ego orientation. With task orientation, competence and satisfaction are derived when a person learns new skills, improves their performance, and do their best. Thus, perception of ability is self-referenced. With ego orientation an individual perceives him/her as competent and feels satisfaction only when outperforming others, doing normatively well, and managing to accomplish a given task with less effort than others. Thus, with ego orientation perception of ability is normatively or socially referenced (Nicholls, 1989). Research has also clearly

shown that task orientation rather than ego orientation is related to enjoyable experiences in youth sports (e.g., Ntoumanis & Biddle, 1999; McCarthy et al., 2008).

A subsequent and extended framework for achievement goals is the 2 X 2 framework which divides both types of goals into approach and avoidance dimensions (Elliot & Harackiewicz, 1996). The basic assumption of this framework is that not all goals are directed towards approaching a desirable outcome such as demonstrating competence; some goals can also be focusing on avoiding an undesirable outcome, such as the demonstration of incompetence (Elliot & Harackiewicz, 1996). A task-approach oriented person is focused on mastering tasks, whereas a task-avoidance oriented person is interested in avoiding failure in mastering tasks. In terms of ego goals, ego-approach individuals are focused on demonstrating that they are more competent than others, whereas ego-avoidance individuals are focused on avoiding normative incompetence (Adie et al., 2010). In the area of youth sports there is not much research analyzing the relations between the goals proposed by the 2 X 2 framework and enjoyment. As an exception, Morris and Kavussanu (2009) found that a task-approach goal was positively linked with sport enjoyment. The other three goal dimensions did not have a significant association with enjoyment.

Another main concept in AGT is the motivational climate created by significant others (Ames, 1992; Duda & Ntoumanis, 2003; Jaakkola & Digelidis, 2007; Nicholls, 1989). Motivational climate can be separated into either task- or ego-involving facets. In a task-involving climate individuals are evaluated on the basis of their personal development, they are rewarded for effort and individual improvement, and are placed in mixed-ability groupings (Ames, 1992). Ego-involving climates, instead, stress normative standards and promote social comparison between individuals. Motivational climate research within youth sports has shown that a task-involving motivational climate is

associated with increased enjoyment (Cumming et al., 2007; Newton et al., 2000; Seifriz et al., 1992; Vazou et al., 2006). In contrast, an ego-involving motivational climate has typically been found to be linked with decreased enjoyment (Cumming et al., 2007; MacDonald et al., 2011; Newton et al., 2000; Vazou et al., 2006). However, in some studies the correlation between an ego-involving motivational climate and enjoyment has been non-significant (e.g., Boixados et al., 2004).

According to AGT, situational motivational climate and dispositional achievement goals interact to produce affective, cognitive, and behavioral consequences (Ames, 1992; Nicholls, 1989; Duda & Balaquer, 2007). Therefore, the literature embedded within the AGT framework has suggested to concurrently analyze both sets of variables when examining youth sport experience (Duda & Balaquer, 2007). In previous studies within the sport context situational motivational climate and achievement goals has been concurrently investigated by using two alternative approaches. These essentially test the following sequences: a) situational motivational climate > dispositional achievement goal > motivational consequences (e.g., Morris & Kavussanu, 2008; Ommundsen et al., 2005), or b) dispositional achievement goal > situational motivational climate > motivational consequences (e.g., Newton & Duda, 1999; Treasure & Roberts, 1998). In this study we analyzed the former sequence because we are interested in how motivational climates perceived by junior ice-hockey players initiate the motivational process of goal adoption and affective consequences; however, reciprocal links are expected to be in operation over time. To our knowledge, only two studies to date in the AGT field have reported analyzing situational motivational climate and dispositional achievement goals as concurrent predictors of young athletes' enjoyment. Seifriz et al. (1992) found that both task-involving motivational climate and task orientation were significant predictors of enjoyment in youth basketball. In Newton and Duda's (1999)

study, task-involving motivational climate was the strongest predictor of enjoyment in female junior volleyball players.

AGT assumes that perceived ability plays a moderating role, in the process by which dispositional achievement goals produce affective, cognitive, and behavioral responses (Nicholls, 1989; Duda & Balaquer, 2007). According to AGT, high ego-oriented individuals who question the adequacy of their ability and are fearful of social evaluation, are likely to experience tension and anxiety because their self-worth is under threat (Duda & Balaquer, 2007). However, it is suggested that high ego goal is not detrimental to individual motivation and well-being if one perceives high competence (Nicholls, 1989). Previous empirical evidence have supported the moderating role of perceived competence in the process by which ego goal produces affective and cognitive consequences (e.g., Hatzigeorgiadis & Biddle, 1999; Li & Chi, 2007; Liukkonen, 1998).

The purpose of this study

The review of the AGT research related to enjoyment in youth sports shows a few shortcomings. Only two studies have analyzed the concurrent effects of motivational climate and achievement goals in predicting young athletes' enjoyment (Newton & Duda, 1999; Sefriz et al., 1992). However, no study so far has utilized the 2 X 2 approach-avoidance achievement goal framework (Elliot & Harackiewicz, 1996). Additionally, these studies did not employ structural equation modeling analysis, which allows researchers to analyze relations among all study variables at the same time, controlling for their relative effects. It is also a shortcoming that there are no studies that tested the moderating role of perceived competence when investigating the concurrent effects of approach-avoidance goals and motivational climate on enjoyment in youth sports.

Hence, the first aim of this study was to investigate the relations among situational motivational climate, dispositional approach-avoidance achievement goals, and enjoyment

with 17-year old Finnish ice hockey players. We expected to find a positive path from task-involving motivational climate via task-approach goal to enjoyment and a negative path from ego-involving motivational climate via ego-approach goal to enjoyment. The second aim of this study was to investigate if perceived sport ability moderates the concurrent associations of achievement goals and motivational climate on enjoyment. More specifically, we divided players into high and low perceived sport ability groups and tested if the associations among motivational climates, achievement goals and enjoyment differed between these two groups.

Materials and method

Participants

The participants of this study were recruited from the junior male teams of the Finnish ice-hockey premier league. The players ($n = 265$) represented 12 out of 13 premier junior teams in Finland. The mean age was 17.03 years ($SD = .63$ years).

Procedure

The questionnaire was administered to the players prior to a training session by the researchers. Team coaches were not present during data collection. The participants were told that their involvement in the study was voluntary, and that their responses would be kept confidential. The participants were also told to ask for help if confused concerning either the instructions or the clarity of a particular item. No confusion was reported.

Measures

Motivational Climate in Physical Education Scale (MCPES). Motivational climate was measured by using the Finnish version of the Motivational Climate in Physical Education Scale (MCPES) which was modified to reflect the ice hockey context. The scale consists of four subscales comprising autonomy support, social relatedness, and task- and ego-involving climate factors (Soini et al., 2014). For the purposes of this study, only the

task-involving and ego-involving subscales of the MCPES were used. The task-involving climate factor consists of four items (e.g. “It is important for the players to try their best during training”) and the ego-involving factor includes four items (e.g. “It is important for the players to show being better than other players in training”). Each item was rated on a five-point scale ranging from 1 = *strongly disagree* to 5 = *strongly agree*. The MCPES had the individual item stem “During ice hockey training...”. Research has demonstrated satisfactory reliability and validity for the MCPES (Soini et al., 2014).

Achievement goal. Achievement goals were assessed by the Finnish version of the 12-item Achievement Goals Questionnaire for Sport (AGQ-S; Conroy et al., 2003). The AGQ-S provides scores for four achievement goals in sport; task-approach (TA_p) (e.g., “It is important to me to perform as well as I possibly can”), task-avoidance (TA_v) (e.g., “I worry that I may not perform as well as I possibly can”), ego-approach (EA_p) (e.g., “It is important to me to do well compared to others”), and ego-avoidance (EA_v) (e.g., “My goal is to avoid performing worse than everyone else”). Participants were asked to consider their present goals for ice hockey and to rate each item on a 5-point Likert scale ranging from 1 = *totally disagree* to 5 = *totally agree*.

Enjoyment. Enjoyment in ice hockey was measured using the Finnish version of the Sport Enjoyment Scale (Scanlan et al., 1993), which was modified to reflect the ice hockey context, using the stem: “In my ice hockey training...”. The scale comprises four items (e.g., “I enjoy ice hockey trainings”) to tap enjoyment, pleasure, fun, and happiness, all rated on a five-point scale ranging from 1 = *strongly disagree* to 5 = *strongly agree*. The Finnish version of the Sport Enjoyment Scale has been found to be a valid and reliable tool when employed with 14-year-old male soccer players (Liukkonen 1998), as well as 13-year-old school students (Kalaja et al., 2010).

Perceived sport ability. Perceived sport ability was measured by the Finnish version of the Beliefs About Ability and the Expectancies for Success subscales of the Self- and Task-Perception Questionnaire (STPQ; Eccles et al., 1984). Altogether, the questionnaire comprises of four items; two items measuring beliefs about ability (e.g., “How good are you in ice hockey compared to other players”) and two items tapping expectancies for success (e.g., “How well do you believe you will succeed during this season compared to other players”). The stem of the questionnaire was “Assess yourself in ice hockey”. Each item was rated on a five-point Likert scale ranging from 1 = *I am not good/I do not succeed well* to 5 = *I am good/I do succeed well*.

All measures were translated into Finnish by a panel of experts in sport psychology and later translated back into English by a first-language English-speaking translator. The back-translated English version was compared with the original version for consistency. Items that were shown to have a number of possible meanings in Finnish were discussed by the panel of experts in order to redraft them to be as accurate as possible in meaning, compared to the original English version (Carlson, 2000).

Data analyses

The validity and reliability of the scales were analyzed using confirmatory factor analysis (CFA) and Cronbach’s alpha coefficients, respectively. The participants’ scores for the self-report questionnaires were summarized using descriptive statistics. Pearson’s correlation coefficients and structural equation modeling were used to examine the relations between study variables. More specifically, multigroup structural equation modeling (SEM), recommended by Bentler (1995), was used to test whether the associations between the study variables varied in high and low perceived sport ability groups. To determine the appropriateness of CFA and SEM models, the Tucker-Lewis Index (TLI), Comparative Fit Index (CFI), and the Root Mean Square Error of

Approximation (RMSEA) scores were calculated (Muthén & Muthén, 1998-2012). The TLI and CFI indices varied from 0 to 1. Fit indices greater than 0.90 are indicative of acceptable model fit. In addition, an RMSEA score of lower than 0.10 is indicative of a representative model. Finally, the normed chi-square index (χ^2/df) representing parsimonious fit should be below the marginal maximum of 3.00 (Kline, 2011). Based on their responses to the Perceived Ability Scale, players were divided into two equal size groups (based on median split). Statistical analyses were conducted using the Mplus 7.11 program (Muthén & Muthén, 1998-2012).

Results

Validity and reliability of the scales

In order to examine how well the two-factor structure of the MCPES, the four-factor structure of the AGQ-S, the one-factor structure of the STPQ, and one-factor structure of the Sport Enjoyment Scale fitted to the data, confirmatory factor analyses with a maximum likelihood method were conducted. Factors were allowed to correlate and no correlated residuals were permitted. The goodness-of-fit indices are shown in Table 1. The results indicated that the MCPES, the AGQ-S, and the Sport Enjoyment Scale fitted the data well. In the STPQ, χ^2/df and RMSEA were not within acceptable limits but it should be recognized that the scale was used only as grouping variable in further analyses. Cronbach's alpha coefficients for the subdimensions of the AGQ-S, MCPES, the Sport Enjoyment Scale, and the STPQ were above .70, except those of task climate dimension (.66), task-approach goal (.56), and ego-avoidance goal (.67), which were marginal.

Descriptives and correlations

Descriptive statistics showed that ice hockey players perceived high levels of task-involving climate and enjoyed practicing and playing ice hockey. Additionally, players scored high in task-approach goal. They had low scores in task- and ego-avoidance

achievement goals. The associations among study variables showed that task-involving climate correlated highly and positively with task-approach goal and enjoyment. Ego-involving climate, instead, had high and positive correlation only with ego-approach goal. Task-approach goal had high correlation with enjoyment. All other achievement goals had weak associations with enjoyment. Lastly, perceived sport ability had positive and moderate correlation with task-approach goal, ego-approach goal, and enjoyment. Descriptive statistics and correlations among study variables are presented in Table 2.

Structural equation modeling

The adequacy of the hypothesized model of study variables were analyzed via SEM. Prior to the analysis, descriptive statistics were analyzed and results indicated that all scales were not normally distributed. Therefore, the mean and variance adjusted weighted least squares method (WLSMV) was applied (Muthén & Muthén, 1998-2012). Additionally, the proportion of explained variance of the dependent variables were calculated using squared multiple correlations (R^2). We applied the multigroup SEM method (Bentler, 1995) to test whether the associations between the study variables varied in the subgroups of high and low perceived sport ability groups. The equality of the coefficients between these two models was compared by using the χ^2 difference test.

We firstly constructed separate models for the high and low perceived sport ability groups. After this procedure, we investigated both models and modification indices to determine which parameters should be fixed to be equal across ability groups and which should be freely in each group. The subsequent tests for equivalence were made against this initial model (a so called configural model; Horn & McArdle, 1992) which fitted the data well ($\chi^2 (25) = 30.50$, $p=0.21$; CFI = 0.98; TLI = 0.97; RMSEA = 0.41). Next, one at a time we examined the equality of the paths and the correlations, for both subgroups. Finally, the χ^2 difference test indicated that these paths were equal for the high and the low perceived

sport ability groups ($\Delta \chi^2 (5) = 2.91, p = 0.71$). The final model with these equality constraints had a good fit to the data ($\chi^2 (30) = 33.41, p = 0.30$; CFI = 0.99; TLI = 0.98; RMSEA = 0.03). The high and the low perceived sport ability subgroup models had several similarities. Both models showed an indirect path from task-involving motivational climate via task-approach goal to enjoyment. Both models also demonstrated direct paths from ego-involving motivational climate to ego-approach and ego-avoidance goal. Additionally, both models demonstrated two significant associations; from ego-approach goal to ego-avoidance goal and from task-avoidance goal to ego-avoidance goal. The low perceived sport ability group showed two additional associations which were from task-approach goal to ego-approach goal and from task-involving climate to ego-involving climate. The high perceived sport ability group indicated three additional associations which were from task-involving motivational climate to enjoyment, from task-involving motivational climate to ego-approach goal, and from task-avoidance goal to ego-approach goal. Squared multiple correlations revealed that significant variables explained enjoyment, 34 % and 35 % in the high and the low perceived ability group model, respectively. The final model is presented in Figure 1.

Discussion

This study investigated the relations among situational motivational climate, dispositional approach-avoidance achievement goals, perceived sport ability, and enjoyment in 17-year-old Finnish male ice hockey players. To our knowledge this was the first attempt to utilize the approach and avoidance goal model to examine the concurrent effects of achievement goals and motivational climate on enjoyment in youth sports. Additionally, this was the first study to analyze the moderating role of perceived sport ability when investigating the effects of motivational climate and approach/avoidance goals on enjoyment in youth sport.

This study supported our first hypothesis showing an indirect path from task-involving motivational climate via task-approach goal to enjoyment. This path was found to be invariant in the high and low perceived ability groups. These associations align well with findings by previous studies (Cumming et al., 2007; Newton et al., 2000; Ntoumanis & Biddle, 1999; McCarthy et al., 2008; Seifriz et al., 1992; Vazou et al., 2006). The path from task-involving motivational climate via task-approach goal to enjoyment demonstrates that in task-involving climate 17-year-old athletes develop their task-approach goal which, in turn, can predict their enjoyment. It should be recognized that our sample included the best Finnish junior B level ice hockey players. The results of this study, therefore, demonstrate that a task-involving climate and task-approach goal are key elements in producing enjoyable experiences even within young athletes who experience very high competition to be selected for adult ice hockey teams. This finding clearly shows the importance of emphasizing trying hard, personal development, learning and mastery, and co-operation in youth sport context (Epstein, 1989).

Another interesting result was that an ego-involving motivational climate did not have any association with enjoyment. We expected a negative path from ego-involving motivational climate via ego-approach goal to enjoyment. This finding reveals that ego-involving climate did not have a negative impact on enjoyment in this ice hockey players' sample. This finding contradicts that of Newton et al. (2000) who demonstrated that ego-involving climate is negatively associated with enjoyable experiences in youth sports. The reason for this unexpected result might be that the players included in our sample are used to high competition and it does not negatively influence their affective experiences any more. Children typically start ice hockey training between ages 7 to 10 in Finland. This means that by the age of 17 they have already gone through many team changes and qualification periods for the adult teams. Probably players who perceive a highly

competitive context as negative drop out earlier from these teams. However, although an ego-involving climate did not negatively predict the level of enjoyment, it should also be noted that it also did not have any positive predictive effect on young athletes' enjoyment.

Interestingly, a direct path from task-involving climate to enjoyment was evident only amongst the high perceived ability players. This finding suggests that task-involving motivational climate in itself is not sufficient for low competence ice-hockey players' enjoyment. Low competence players seem to need a task-approach goal in order to enjoy ice hockey. A task-approach goal may thus protect these players' competence from the negative effects of a highly competitive environment.

The results of this study also revealed four associations which existed in both perceived ability groups. Firstly, perception of ego-involving motivational climate correlated with both ego-approach and ego-avoidance goals. These findings mean that motivational climate emphasizing social comparison, competition, performance outcomes, and outperforming others fosters both ego goals. Although in our study enjoyment was not predicted by ego goals, previous studies in youth sports context have shown that ego-orientation is related to lowered self-esteem (Castillo et al., 2011), lowered moral functioning (Kavussanu & Ntoumanis, 2003), self-handicapping (Ntoumanis, Thøgersen & Smith, 2009), and harmful perfectionism (Flett & Hewitt, 2005).

This study also demonstrated a significant path between task-involving climate and ego-approach goal. This association existed only within the high perceived ability group. This finding suggests that a motivational climate which emphasizes trying hard, personal skill development and learning might result in high perceived ability players' orientation wanting to demonstrate their normative competence. This study also indicated that the four achievement goals were related with each other. Similar relations have been found in previous studies (Adie et al., 2010; Morris & Kavussanu, 2008).

There are some limitations in this study which need to be considered when interpreting the results. First, the cross-sectional design does not allow us to draw conclusions about causal links between the study variables. Second, Cronbach's alpha coefficients for task climate, task-approach, and ego-avoidance dimensions were not satisfactory which needs to be considered when interpreting our results. Interestingly, both task climate and task-approach goal had low internal reliability. This finding may be due to the competitive nature of junior ice-hockey. In future, researchers should consider whether there is a need to adapt these scales for highly competitive sports. Future studies using the achievement goals framework should also investigate other affective, cognitive and behavioral outcome variables besides enjoyment. Burnout is one example on such outcomes. Additionally, the recent 3 x 2 model of achievement goals (Elliot, Murayama & Pekrun, 2011) might be adapted in youth competitive sports.

The achievement goal approach (Elliot & Harackiewicz, 1996; Maehr, 1989; Nicholls, 1989) has been one of the most utilized motivational frameworks in the area of youth sports. Additionally, enjoyment is considered as one of the most important motivational factors in youth sports because it is positively linked with adaptive motivation (Fraser-Thomas et al., 2008; Wall & Cote, 2008). It is a shortcoming that there are only few studies in the area of youth sports to investigate concurrent effects of motivational climate and achievement goals on enjoyment. Subsequently, no studies so far have utilized the 2 X 2 approach-avoidance goals framework (Elliot & Harackiewicz, 1996) when studying enjoyment in youth sports. The aim of the present study is to fill this gap in the literature. The results of this study revealed that motivational climate emphasizing effort, personal development, and improvement, and achievement goal to master tasks are significant elements of enjoyment in the context of junior ice-hockey.

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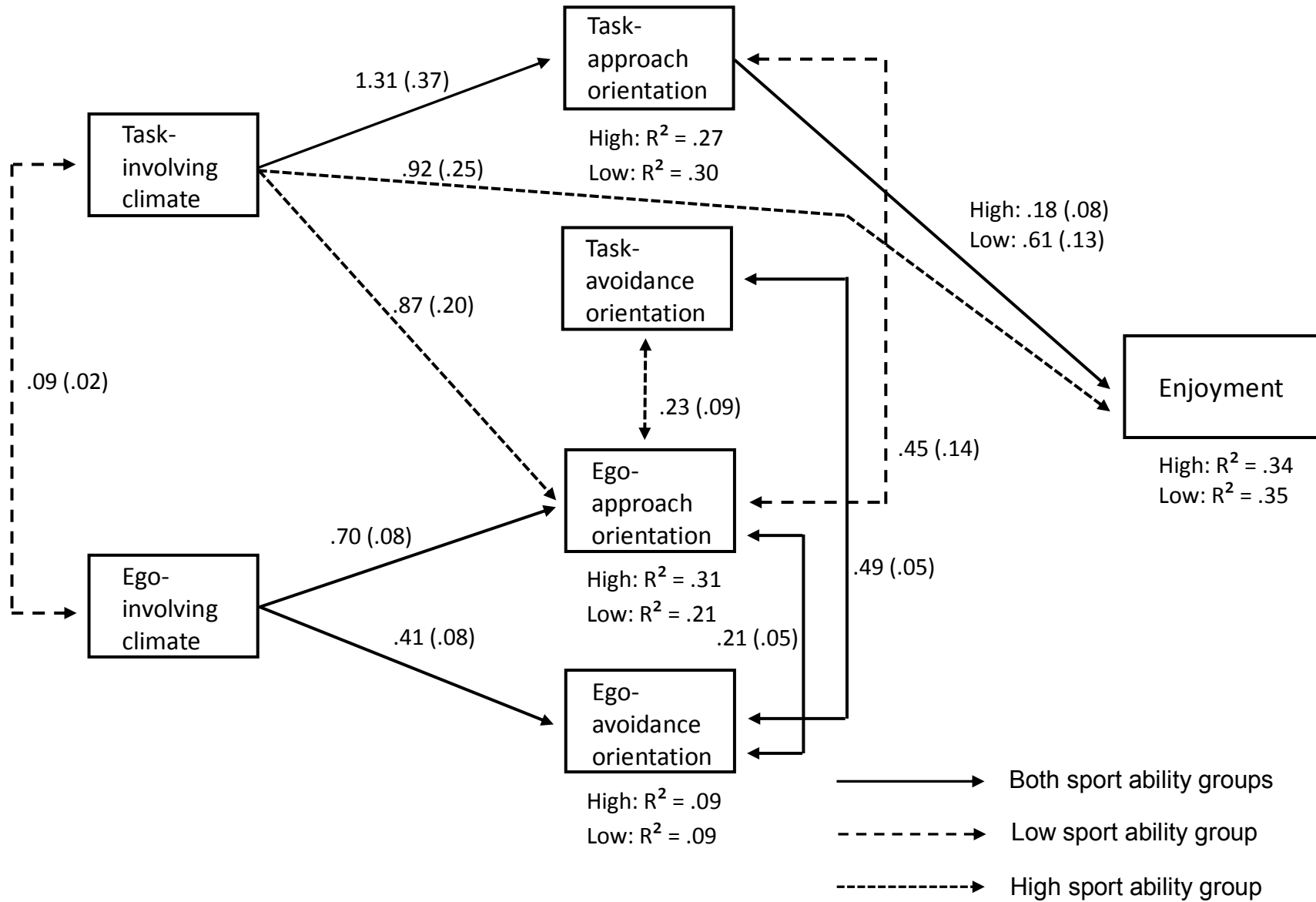


Figure 1. Multigroup Structural Equation Model.

Table 1. *Confirmatory factor analyses for the AGQ-S, the IMCPEQ, the STPQ, and the Sport Enjoyment Scale.*

Fit index	AGQ-S	IMCPEQ	Perceived Ability Scale	Sport Enjoyment Scale
Chi-square test (CMIN)	93.41	51.24	19.13	5.58
Degrees of freedom (df)	51	29	2	2
CMIN/df	1.83	1.77	9.57	2.79
Tucker-Lewis Index (TLI)	.93	.93	.92	.98
Comparative Fit Index (CFI)	.95	.94	.97	.99
Root Mean Square Error of Approximation (RMSEA)	.059	.057	.180	.086

Table 2. Descriptive statistics and correlations among study variables.

Variable	1.	2.	3.	4.	5.	6.	7.	M	SD	α
1. Task-climate	-							4.51	.41	.66
2. Ego-climate	.21**	-						3.44	.73	.74
3. Task approach	.62***	.16*	-					4.46	.49	.56
4. Task avoidance	.08	.11	.11	-				3.18	.98	.84
5. Ego approach	.29***	.51***	.28***	.13*	-			3.78	.82	.77
6. Ego avoidance	.11	.26***	-.01	.43***	.32***	-		2.91	.95	.67
7. Enjoyment	.54***	.17**	.52***	-.04	.19**	.01	-	4.23	.63	.87
8. Perceived ability	.21***	.16**	.37***	-.24***	.30***	-.03	.28***	3.77	.63	.88

$P < .05^*$, $P < .01^{**}$, $P < .001^{***}$