International Journal of Sport Management, Recreation & Tourism

Peer-created Motivational Climates: Variations in the Perceptions of Collegiate Intramural Sport Participants

Evan Webb[1] & Scott Forrester[2]

1. University of Ottawa, Canada
2. Brock University, Canada

Correspondence with:

Evan Webb

ewebb015@uottawa.ca

6800 Golden Hills Way, Mississauga, ON

Canada, L5W 1P2

International Journal of Sport Management Recreation & Tourism, Vol.23, p.22-50, 2016

To link to this article: http://dx.doi.org/

DOI: 10.5199/ijsmart-1791-874X-23b

Peer-created Motivational Climates: Variations in the Perceptions of Collegiate Intramural Sport Participants

Abstract

Peer motivational climate (task-involved and ego-involved) is often examined within youth sport contexts. This research examines this concept in a collegiate intramural sport setting and analyzes how it is affected by participants' task- and ego-goal orientations in addition to several demographic and participation level variables. Empirical evidence supporting whether or not goal orientations can predict similar motivational climates, a component of achievement goal theory, was sought out in a collegiate recreational sport setting. Immediately following their participation in an intramural sport, students at a Canadian university (N = 315) completed a questionnaire that measured achievement goal orientations and peer motivational climates. MANOVAs revealed significant differences between three levels (high, medium, and low) of task-orientation on task-involved climate and ego-orientation on ego-involved climate in addition to both their subscales. Gender was the only demographic variable that showed a significant effect when ego-involvement was the dependent variable. These results support the relationship between achievement goal orientations and similar motivational climates in collegiate intramural sports but do point towards a potential need for a more adult oriented measurement of peer motivational climate.

Keywords: peer motivational climate, achievement goal theory, goal orientation, demographic, intramural sports, recreation

Peer-created Motivational Climates: Variations in the Perceptions of Collegiate Intramural Sport Participants

Introduction

The examination of peers as a central source of motivation and competence information in a sport context is very appropriate to the study of collegiate intramural sports as these are recreational contexts without the presence of parents, coaches, or physical education teachers making peers the only motivational cues present. The term motivational climate refers to "perceptions of situational motivational cues and expectations that encourage a particular goal orientation, and at a given point in time, induce a certain goal involvement state" (Ames, 1992). According to Ames (1992), these goal involvement states manifest in one of two ways. In a task-involved motivational climate athletes derive satisfaction from their own progress, perceive that personal skill improvement is emphasized by their peers, and regard errors positively as part of learning. Alternatively, ego-involved climates foster interpersonal comparison, the demonstration of normative ability, and competition with teammates. Despite peer motivational climate's relevance to the study of collegiate intramural sports, this area of research has not been explored within this context. Furthermore, the peer centric research tends to focus on youth athletes between the ages of 12 and 17 (Jõesaar, Hein, & Hagger, 2011; Smith, Gustafsson, & Hassmen, 2010; Vazou, Ntoumanis, & Duda, 2005; Vazou, Ntoumanis, & Duda 2006; Vazou, 2010) whereas very little is known about peers as a source of motivation in older youth and young adults between the ages of 17 and 24.

This study examines peer motivational climate within a collegiate intramural setting and discovers its relationship with participants' achievement goal orientations. Though this has been determined in previous research it is still unknown whether this relationship occurs within collegiate intramural sports where all the individuals involved are adult participants and the influence of coaches and parents are entirely absent. Furthermore, knowledge of achievement goal theory could inform recreational and intramural sport practitioners how participants' achievement goal orientations can be linked to the peer motivational climate perceived by participants in their sport programs. Before the methodology and results of the study are discussed the proceeding review of the literature will seek to familiarize readers with peer motivational climate and

achievement goal orientations. Furthermore, this section will examine previous research conducted that has built upon the concept of perceived peer created motivational climates within sport.

Review of Literature

Perceived Peer Motivational Climate

Traditionally, coaches (Newton, Duda, & Yin, 2000), physical education teachers (Papaioannou & Kouli, 1999), and parents (White, 1998) have received more attention as the situational motivational cues present within a sport context. More recently, however, there is increased recognition of the importance of peers as a source of motivation within sport (Vazou et al, 2005). Peers have been reported as positively or negatively influencing the quality of youths' overall sport experiences (Smith, 2003) and influencing perceptions of competence and actual competence in youth sports (Weiss & Duncan, 1992). Even outside of sports, such as in classroom settings, peers are particularly influential during early adolescence as a source of competence information (Horn & Amorose, 1998). In response to this increased recognition of peers as an important motivational cue Vazou et al. (2005) conducted an in depth exploration of peer motivational climate within youth sport. This then led to the creation of the Peer Motivational Climate in Youth Sport Questionnaire (PeerMCYSQ; Ntoumanis & Vazou, 2005) allowing researchers to empirically measure perceived task-or ego-involved peer motivational climates within youth sport settings.

In their qualitative research study, Vazou et al. (2005) conceptualized 11 dimensions of peer motivational climate based on data collected from their interviews of youth athletes. Five of these dimensions pertained to task-involved climates (individual improvement, equal treatment, relatedness/support, cooperation, and effort), three pertained to ego-involved climates (intra-team competition, intra-team conflict, and normative ability), and another three pertained to both (autonomy, reaction to mistakes, competence). Based on their interviews of 14 boys and 16 girls (N = 30) aged between 12 and 16 years old from both individual and team sports, these authors defined a task-involved climate as one where autonomy is nurtured, mistakes are accompanied by encouragement, and competence is based on personal improvement. Alternatively they defined an ego-involved climate as one where individuals felt controlled, mistakes resulted in criticism, and competence was based on one's ability to outperform others on their team. Five of these 11 dimensions (due to internal consistency issues with the other

six) later provided the basis for the creation of the PeerMCYSQ (Ntoumanis & Vazou, 2005). These lower order dimensions were Improvement, Effort, and Relatedness Support (for the higher order variable of task-involved climate) and Intra-team Competition and Intra-team Conflict (for the higher order variable of ego-involved climate).

According to Ntoumanis and Vazou (2005), who developed the PeerMCYSQ, the Improvement dimension is defined as "encouraging and providing feedback to teammates to improve" (p. 434). Effort refers to "the degree to which peers emphasize to their teammates that they should try their hardest" (p. 434). Relatedness Support is defined as "fostering the feeling of being part of a group as well as the creation of a friendly atmosphere in the team" (p. 435). Intra-team Competition is "the promotion of inter-individual competition by the peer group" (p. 434). Lastly, Intra-team Conflict refers to "negative and unsupportive behaviors (e.g., criticizing teammates when they make mistakes)" (pp. 434 – 435).

Since its creation in 2005, few studies have utilized the PeerMCYSQ (Harwood, Keegan, Smith, & Raine, 2015). However, those that have used this instrument found particular variables predictive of, or resultant from, youth athletes' perceptions of task- and ego-involved peer motivational climates. For instance, Vazou's (2010) study examining perceptions of peer and coach motivational climates found that youth athletes' ego-goal orientations towards sport participation predicted perceptions of an ego-involved peer motivational climate while task-goal orientations predicted perceptions of a task-involved climate. Vazou also indicated that teams successful in their respective sports primarily reported perceptions of task-involved climates. Moreover, Vazou et al. (2006), utilizing the PeerMCYSQ found that perceptions of task-involved climates positively predicted youth athletes' physical self-worth and enjoyment. This finding supports previous research by Duda and Nicholls (1992) who also determined that enjoyment and satisfaction were associated with task-involved climates. However, the latter study occurred in a class room setting and did not utilize questionnaires to measure participants' perceptions of peer motivational climate. Vazou et al. (2006) also found that men tend to perceive more ego-involved climates on average compared to women within sport while women mainly perceived more task-involved climates than men. White and Duda (1994) found this same tendency for men and women to perceive different types of motivational climates though they also did not utilize the PeerMCYSQ or a sport based setting. However, these studies do point towards individual level

factors, specifically gender, having an effect on perceptions of peer-created motivational climates prompting this study to include such factors in its own analyses.

Smith et al. (2010), who also utilized the PeerMCYSQ, reported that perceptions of task-involved climates inversely predicted youth athletes' reduced sense of accomplishment, perceived stress, and sport devaluation or burnout. Another study utilizing the peerMCYSQ was Joesaar et al. (2011) who tested a model specifying that peer motivational climates allowed for the satisfaction of three basic psychological needs (perceived autonomy, perceived competence, and perceived relatedness) acting as precursors to youth athletes' intrinsic motivation and persistence in sports. Using a series of structural equation models they found that perceived task-involved climate was positively related to the satisfaction of the three basic psychological needs (and thus intrinsic motivation and persistence) while perceptions of ego-involved climates were negatively correlated with perceived relatedness and not predictive of youth athletes' autonomy or competence.

García-Calvo et al. (2014) conducted a longitudinal study measuring peer motivational climate with the PeerMCYSQ. This study determined, through multilevel modelling analyses, that task-involved peer created motivational climate (in addition to coach created climate) was positively associated with the variables representing perceived team cohesion. Also, Hein and Joesaar (2015), utilizing a sample of 662 young athletes aged 11-16 years, through structural equation modelling found that autonomy support (from achievement goal theory) from parents and coaches acted as antecedents in forming the perceived peer motivational climate (measured with the PeerMCYSQ) which was in turn predictive of self-determined motivation. Specifically, autonomy support from coaches was positively related to the Improvement, Relatedness Support, and Effort dimensions whereas autonomy support from parents only predicted Effort. Moreover, Intra-team Conflict was only predicted by perceived autonomy support from coaches (negatively) while Intra-team Competition had no significant relationships with autonomy support from adults. Further, only Intra-team Competition had any significant (negative) effect on athletes' self-determined motivation. Another recent study by Davies, Stellino, Nichols and Coleman (2016) using 243 youth hockey players determined through hierarchical regressions that at the Bantam/Midget levels, which is comprised of older athletes at a higher level of competition than those in PeeWee hockey, perceptions of ego-involved climates (specifically intra-team conflict) were present and related to athletes' perceptions of the presence of poor sports behaviours.

Also, at Bantam/Midget levels, peer influenced motivational climate emerged as a more relevant variable than for athletes at the PeeWee level further indicating that peer influence is particularly influential to older adolescents than younger children (Horn & Amorose, 1998).

Goal Orientation towards Sport Participation

Achievement goal orientations, from Achievement Goal Theory (Duda, 1989), refer to how an individual participant defines success in sports which falls into the categories of task-orientation or ego-orientation. Castillo et al., (2009) describes a task-orientation towards sports participation as one where gaining skills or knowledge and performing one's best makes up one's idea of success in sports. Alternatively, they explain that those with an ego-orientation define success in sport as the demonstration of superior competence and ability compared to other athletes.

Task and ego-orientation in sport are commonly measured using the Task and Ego Orientation in Sport Questionnaire (TEOSQ; Duda, 1989). This questionnaire is comprised of 13 items, seven pertaining to task-orientation and six pertaining to ego-orientation, that gauge one's idea of success within their sport participation. The questionnaire is based on a dichotomous framework of achievement goal theory in which it determines whether an individual is primarily task-orientated or ego-oriented towards their sport participation. Since its inception additional categories have been added to the framework of achievement goal theory including splitting both task and ego goals into approach goals (where individuals strive for positive evaluations of their performance) and avoidance goals (where individuals avoid negative evaluations of their performance) thus resulting in a 2x2 framework (Elliot & Church, 1997; Elliot & McGregor, 2001). Further alterations resulted in a 2x3 framework ([1]absolute/task orientation, [2] intrapersonal/self orientation, and [3] interpersonal/self orientation split by [1] approach and [2] avoidance goals; Elliot, Murayama & Pekrun, 2011). However, these alterations to achievement goal theory have occurred outside of sport research while it has also been argued that showing competence or avoiding showing incompetence does not encapsulate the many ways success can be experienced within sports (Papaioannou, Zourbanos, Krommidas & Ampatzoglou, 2012; Roberts, 2012). Therefore the dichotomous framework and TEOSQ, due to their reliability and validity in the sport context, were utilized for this research.

Previous research found that task- and ego-orientation were related to participants' perceptions of task- and ego-involved peer motivational climate within youth sport (Vazou, 2010). Though similar in intent to this study, their research measured these variables outside of the collegiate intramural sport context (i.e., age 17 and up) and among participants whose ages ranged from 12-17. Additionally, a meta-analysis of physical activity research reported that task-orientation generally demonstrated positive relationships with positive affect and moderate to weak, inverse relationships with negative affect with scant evidence of relationships between ego-orientation and positive or negative affect (Ntoumanis & Biddle, 1999). Similarly, a systematic review of physical activity research found that 89.4% of studies reviewed identified a positive association between task-orientation and positive affect and less consistent findings between ego-orientation and positive affect (4.5% negative association; 70.5% no association, and 25% a positive association; Biddle, Wang, Kavussanu, & Spray, 2003). These results were supported by Webb and Forrester (2015) who found in their survey study of collegiate intramural sport participants, through MANCOVA analysis, that individuals reporting higher levels of task-orientation also reported significantly higher levels of positive affect. Recently, research by Atkins, Johnson, Force and Petrie (2015) found that their participants of 205 eighth grade boys, who participate in a least one sport, with higher task goal orientations reported greater sport competence, self-esteem, and more enjoyment in sports.

Task-orientation has also been found to be a significant covariate in three out of four analyses in a study of 2,404 students participating in club sports, group fitness classes, and intramural sports at a postsecondary institution in the U.S. comparing program participants' reported academic, fitness, social, and overall benefits of participation (Lower, Turner, & Peterson, 2013). On the other hand, ego-orientation was a significant covariate in one out of four of these analyses.

Demographic Differences in Peer Motivational Climates

Research suggests that age and gender differences can exist in one's perceptions of peer motivational climates. Typically, females and younger athletes perceive stronger task-involved climates in sports than their male and older counterparts (Vazou et al., 2006). Vazou et al. reported that, in sports, males perceived higher ego-involved climates than females, who perceived higher task-involved climates. Also, older males tended to perceive significantly more ego-involvement than females while younger

males did not differ significantly from females. Similarly, the study conducted by Smith et al. (2010) suggests that males typically scored higher on the ego-involving aspects of the PeerMCYSQ (Intra-team Competition and Intra-team Conflict) whereas females scored higher than males on the Effort facet of task-involvement. These results highlight that age and gender are particular demographic variables that may impact participants' views on peer motivational climate and should be accounted for in research examining this concept.

Aside from these demographic differences found in the literature there are additional factors that this study took into account as well. Specifically, it is possible that the types of motivational climates perceived by participants can differ based on one's gender and age as previously indicated but also an individual's ethnicity and their year of study at the institution in which this research took place. Additionally, program specific factors in intramural sports such as program gender composition, and whether or not individuals won, tied, or lost their last game may also affect participants' perceptions of peer motivational climates as well.

Importance and Purpose of Research

Intramural sport participation has been linked to several perceived positive outcomes such as self-esteem (Forrester & Beggs, 2005; Kanters & Forrester, 1997a; 1997b), quality of life (Ellis, Compton, Tyson & Bohlig, 2002), academic performance (Belch, Gebel, & Maas, 2001; Lower et al., 2013) and social benefits (Artinger et al., 2006; Lower et al., 2013). Nevertheless, this study is the first to examine task- and ego-involved peer motivational climates and link these to the constructs of task- and ego-goal orientations within an adult recreation and collegiate intramural sport setting. Thus, the purpose of this study was to examine peer motivational climate in collegiate intramural sports from participants' achievement goal orientations and various demographic and participation based characteristics. More specifically, this study sought to answer the following research questions:

1. Are there significant differences between participants' genders, years of study, type of intramural sport, and whether participants won, lost, or tied their last game on their perceptions of: (i) overall task-involved and ego-involved peer motivational climates?, and (ii) the lower order facets of task-involved (Improvement, Effort and Relatedness Support) and ego-involved (Intra-team Competition and Intra-team Conflict) peer motivational climates?

2. Are there significant differences between participants' reported low, medium, and high levels of task- and ego-orientation on their perceptions of: (i) overall task-involved and ego-involved peer motivational climates?, and (ii) the lower order facets of task-involved (Improvement, Effort and Relatedness Support) and ego-involved (Intra-team Competition, Intra-team Conflict) peer motivational climates.

Methodology

Sample

The study consisted of students (N = 315) from a Canadian University who participated in intramural sports and had just finished playing their game. Survey distribution occurred at the locations of the games after they took place. Purposive sampling was employed as this ensured that all contributors were participants in at least one intramural sport on campus while also ensuring that all individuals completing the survey had just finished playing their game. Participants were from co-ed 4's volleyball (n = 75), co-ed slow pitch (n = 29), co-ed flag football (n = 63), co-ed ultimate Frisbee (n = 21), 4's men's and 4's women's volleyball (n = 41), co-ed outdoor soccer (n = 65), co-ed ball hockey (n = 13), and co-ed water polo (n = 8).

Design

This was a descriptive, non-experimental, quantitative, survey study. The first section of the survey consisted of demographic and participation related questions. The next section utilized the Task and Ego-Orientation in Sport Questionnaire (TEOSQ; Duda, 1989). Both of these sections measured the independent variables of this study. The next 21 items measured the dependent variables of perceived peer motivational climate including the higher order task- and ego-involved climate factors and the lower order Improvement, Effort, Relatedness Support, Intra-team Competition, and Intra-team Conflict factors utilizing the PeerMCYSQ (Ntoumanis & Vazou, 2005).

Questionnaire

Participant Information. Participants were asked to provide demographic information (i.e., gender, age, ethnicity, year of study) and participation information (i.e., whether it was a men's, women's, or co-ed intramural sport, and whether or not they won, lost, or tied their last game).

TEOSQ. Participants also indicated their orientation towards sport participation, with task- and ego-oriented criteria, using the 13 item TEOSQ. The TEOSQ records responses on a five-point Likert scale anchored by 1 (strongly disagree) and 5 (strongly agree).

The PeerMCYSQ. The 21 item PeerMCYSQ assessed participants' perceptions of the peer motivational climate on their intramural teams. These 21 items measure perceptions of task-involved and ego-involved peer motivational climates along with their respective dimensions: (1) Improvement, (2) Relatedness/Support, (3) Effort, (4) Intra-team Competition, and (5) Intra-team Conflict. Next to each statement participants indicated to what extent they agreed or disagreed using a seven-point Likert scale anchored by 1 (strongly disagree) and 7 (strongly agree).

Procedure

Surveys were available, only to intramural athletes, at a recruitment table set up near where various intramural games occurred (i.e., outside of gymnasiums and on the sidelines of an intramural soccer field and baseball diamond) for several sessions. All intramural participants were invited to participate in the study at the recruitment table once they finished playing their game. Data were collected once at each intramural program (e.g., males / females volleyball, co-ed flag football, co-ed soccer) thus participants had only one opportunity to complete the questionnaire. We also requested that if participants had participated in the study previously, because they were a part of another intramural program where data collection already occurred, that they not complete the questionnaire a second time. Participants gave informed consent before completing their survey. Research ethics clearance was granted by the Research Ethics Board of the institution where this study took place.

Statistical Analysis

Exploratory factor analyses (EFA) with varimax rotations and Cronbach's Alphas were performed on the PeerMCYSQ and the TEOSQ to confirm their reliability and validity. These analyses would be repeated later with the entire Relatedness Support variable removed and the PeerMCYSQ item '*Try to do better than their teammates'* from the Intra-team Competition variable removed due their inability to demonstrate goodness of fit and reliability (being below the 0.5 factor loading cut-off and having alpha scores below .70). A K-means (non-hierarchical) cluster analysis was also used to transform the task- and ego-orientation factors, collected as continuous and numerically operationalized variables, into discrete and categorical variables with the groups low, medium, and high levels of task- or ego-orientation. The first analysis grouped participants into three clusters representing high, medium, and low amounts of task-orientation based on their overall values to the task-orientation variable (which was originally numerical on a scale of 1 – 5). The second analysis grouped participants into

three clusters representing high, medium, and low levels of ego-orientation based on their overall values to the ego-orientation variable (also originally numerical on a scale of 1 – 5).

A MANOVA was used to determine if there were significant differences between genders, years of study, type of intramural sport, and whether or not participants won, lost, or tied their last game on the two dependent variables of task- and ego-involved peer motivational climate. This MANOVA also determined whether there were significant differences between participants' reported levels of task- and ego-orientation (high, medium and low) on the two dependent variables of task- and ego-involved peer motivational climate. Another MANOVA was then conducted to determine whether there were significant differences between these same independent variables on the four lower order facets of peer motivational climate: Improvement, Effort, Intra-team Competition, and Intra-team Conflict. Relatedness Support was removed as a variable in this study as a result of its EFA and Cronbach's Alpha results. Series means were computed by SPSS and replaced any randomly distributed missing data. Since MANOVA offers only hypothetical protection of inflated Type I error rates, the significance level for this study was adjusted from $p \leq .05$ to $p \leq .001$ to reduce the probability of conducting a type I error.

Results

Descriptive Statistics

There were 315 post-secondary intramural sport participants who completed a usable survey out of the 338 distributed. Some participant surveys were removed due to incompleteness (cases that had missing data greater than 10%; Hair et al., 2006) while others where all the answers had been circled the same (e.g., only 'strongly agree' was circled on the whole response list) were also removed as this implied that the participant had not read the questions in the survey nor considered a thoughtful response. Among the 315 participants, 59% (n = 186) were males and 41% (n = 129) were female. The average age of the participants was 20 years (M = 20.28, SD = 2.16), with 19.4% (n = 61) of students reporting being in their first year of study, 26% (n = 82) indicated being in their second year of study, 22.5% (n = 71) were in their third, 16.5% (n = 52) were in their fourth, 8.3% (n = 26) of students reported being in their fifth year or higher while 7.3% (n = 23) of students reported that they were graduate students (the year of which was not asked). The majority of respondents were Caucasian (83.8%; n = 264), while

2.5% (n = 8) were African Canadian, 4.1% (n = 13) were Asian Canadian, 1% (n = 3) were Hispanic or Latino, and 8.6% (n = 27) indicated they were none of the ethnicities indicated. Furthermore, 81% (n = 271) of the students in this study participated in a coed intramural program consisting of both males and females on a team (most of the programs were offered as coed) while 8.6% (n = 27) were in a females only program and 5.4% (n = 17) were in a males only program. Sixty percent (n = 189) of participants reported that they had won the game that they had just played before answering the questionnaire while 35.6% (n = 112) reported that they had lost and 2.9% (n = 9) reported that their game ended in a tie (respondents could only complete the questionnaire immediately after playing their sport).

Reliability and Validity of Subscales

Little evidence exists indicating that the PeerMCYSQ is a reliable and valid measure of perceived peer motivational climate for individuals other than youth. Therefore, exploratory factor analyses were used on the TEOSQ and PeerMCYSQ. Specifically, principle component analyses (PCA) with Varimax rotations found that, for the sample of university aged intramural participants, all items on the TEOSQ and PeerMCYSQ loaded correctly onto their subscales (listed here with their associated Cronbach's alpha; TEOSQ - task-orientation [α = 0.8] and ego-orientation [α = 0.8]; PeerMCYSQ - task-involved peer motivational climate [α = 0.87] and ego-involved peer motivational climate [α = 0.77]. The only exceptions were the smaller subscales of the PeerMCYSQ which only factored accordingly when eliminating Relatedness Support as a variable. Relatedness Support was removed as a variable from the study as the items in this factor did not meet the pre-determined factor loading cut-off of $\geq$ 0.5 and also prevented items from the other lower order factors from reaching this threshold (though all Relatedness Support items remained within the construction of the overall task-involved peer motivational climate factor as these loaded properly). Once Relatedness Support was removed, the remaining four lower order dimensions (Improvement [α = 0.77], Effort [α = 0.75], Intra-team Competition [α = 0.64], and Intra-team Conflict [α = 0.73]) all met the $\geq$ 0.5 factor loading cut-off and underwent analysis. Furthermore, this study eliminated the PeerMCYSQ item '*Try to do better than their teammates'* in the construction of the Intra-team Competition variable as it also did not meet the $\geq$ 0.5 factor loading cut-off. However, this item was still included in the construction of the overall ego-involved peer motivational climate as it factored above 0.5 for this variable (Tables 1 and 2).

Table 1. Summary of Items and Factor Loadings for PeerMCYSQ (Four-factor solution).

Factor 1: Improvement, Factor 2: Effort, Factor 3: Intra-Team Conflict, Factor 4: Intra-Team Competition.

Items	**Factor Loadings**			
	1	**2**	**3**	**4**
Offer to help their teammates develop new skills.	.762			
Help each other improve.	.716			
Teach their teammates new things.	.678			
Work together to improve the skills they don't do well.	.672			
Encourage their teammates to keep trying after they make a mistake.		.734		
Are pleased when their teammates try hard.		.645		
Encourage their teammates to try their hardest.		.624		
Praise their teammates who try hard.		.567		
Set an example on giving forth maximum effort.		.512		
Complain when the team doesn't win.			.774	
Criticize their teammates when they make mistakes.			.728	
Make negative comments that put their teammates down.			.706	
Laugh at their teammates when they make mistakes.			.636	
Care more about the opinion of the most able teammates.				.729
Want to be with the most able teammates.				.668
Encourage each other to outplay their teammates.				.638
Look pleased when they do better than their teammates.				.599

Note. Due to insufficient factor loadings this study removed the Relatedness/Support items from this factor analysis and did not include the item 'Try to do better than their teammates' in the construction of the Intra-team Competition variable. This study also did not use Relatedness/Support as an independent variable.

Table 2. Summary of Items and Factor Loadings for PeerMCYSQ (Two-factor solution). Factor 1: Task-Involved Peer Motivational Climate, Factor 2: Ego-Involved Peer Motivational Climate.

Items	**Factor Loadings**	
	1	**2**
Make their teammates feel valued.	.759	
Set an example on giving forth maximum effort.	.702	
Work together to improve the skills they don't do well.	.700	
Make their teammates feel accepted.	.677	
Offer to help their teammates develop new skills.	.653	
Help each other improve.	.652	
Encourage their teammates to try their hardest.	.648	
Encourage their teammates to keep trying after they make a mistake.	.590	
Teach their teammates new things.	.583	
Are pleased when their teammates try hard.	.573	
Praise their teammates who try hard.	.567	
Care about everyone's opinion.	.529	
Try to do better than their teammates.		.679
Make negative comments that put their teammates down.		.679
Criticize their teammates when they make mistakes.		.660
Look pleased when they do better than their teammates.		.645
Complain when the team doesn't win.		.570
Want to be with the most able teammates.		.541
Encourage each other to outplay their teammates.		.539
Care more about the opinion of the most able teammates.		.517
Laugh at their teammates when they make mistakes		.500

MANOVA

Task and Ego-Involved Peer Motivational Climate

The overall multivariate test of group differences for the independent variables age (17 – 28), gender composition of intramural sport (men's, women's or co-ed), year of study (first, second, third, fourth, fifth and over, and graduate), ethnicity (African Canadian, Asian Canadian, Hispanic Canadian, Caucasian, other) and whether or not participants won, lost or tied their last game were not significant at the $p \leq .001$ level. However gender (males and females; Pillai's trace = 0.042, $F(2, 270) = 5.957$, $p = .003$) showed a significant difference for ego involved climate ($F = 11.179$, $p = .001$) but not task involved climate. Specifically, males (M = 4.03, SE = .277) scored significantly higher than females (M = 3.62, SE = .212) on perceptions of ego-involved climates.

The high, medium, and low task-orientation clusters (Pillai's trace = 0.152, $F(4, 542) = 11.169$, $p < .001$) and high, medium, and low ego-orientation clusters (Pillai's trace = 0.118, $F(4, 542) = 8.493$, $p < .001$) demonstrated significant differences. Tests of between-subjects effects determined that there was a significant difference between participants' levels (high, medium and low levels) of task-orientation on task-involved peer motivational climate ($F = 21.695$, $p < .001$) but not ego-involved peer motivational climate (see table 3). Univariate, post-hoc analysis of this effect revealed significant differences between high and medium ($p < .001$) and high and low ($p < .001$) levels of task-orientation though no significant differences are shown between medium and low levels of task-orientation at the $p \leq .001$ level. Specifically, individuals reporting higher levels of task-orientation tended to report significantly higher levels of task-involved peer motivational climate (M = 6.31, SE = .209) compared to those reporting medium levels (M = 5.84, SE = .212) and low levels (M = 5.39, SE = .255) of task-orientation.

Tests of between-subjects effects also determined that there was a significant difference between participants' levels (high, medium and low levels) of ego-orientation on ego-involved peer motivational climate ($F = 16.785$, $p < .001$) but not task-involved peer motivational climate (see table 3). Univariate, post-hoc analysis of this effect revealed significant differences between high and low ($p < .001$) and medium and low ($p < .001$) levels of ego-orientation though no significant differences are shown between high and medium levels of ego-orientation at the $p \leq .001$ level. Specifically, individuals reporting lower levels of ego-orientation tended to report significantly lower levels of ego-involved peer motivational climate (M = 3.34, SE = .286) compared to those reporting

medium levels (M = 3.91, SE = .113) and high levels (M = 4.22, SE = .169) of ego-orientation.

Table 3. MANOVA Multivariate Effects.

	Task-Involved Climate				Ego-Involved Climate			
Variable	**df**	**SS**	**MS**	**F**	**df**	**SS**	**MS**	**F**
Gender	1	.877	.877	1.894	1	8.956	8.956	11.179*
Year of Study	5	1.786	.357	.771	5	7.262	1.452	1.813
Program Gender Composition	2	.175	.088	.189	2	.722	.361	.451
Win/Loss/Tied	2	.870	.435	.939	2	.568	.284	.354
Ethnicity	4	4.357	1.089	2.352	4	5.291	1.323	1.651
Age	11	5.191	.472	1.019	11	8.924	.811	1.013
Task-Orientation (high/med/low)	2	20.099	10.049	21.695*	2	2.539	1.269	1.585
Ego-Orientation (high/med/low)	2	2.265	1.133	2.445	2	26.894	13.447	16.785*
Error	271	125.531	.463		271	217.109	.801	
Total	301	9323.080			301	4321.985		
Corrected Total	300	166.043			300	297.367		

* Significant at the $p \leq 0.001$ level.

Improvement, Effort, Intra-team Competition, Intra-team Conflict

The overall multivariate test of group differences for the independent variables of gender (male and females), age (17 – 28), gender composition of intramural sport (men's, women's or co-ed), year of study (first, second, third, fourth, fifth and over, and graduate), ethnicity (African Canadian, Asian Canadian, Hispanic Canadian, Caucasian, other) and whether or not participants won, lost or tied their last game were not significant at the $p \leq .001$ level.

The high, medium, and low task-orientation clusters (Pillai's trace = 0.179, $F(8, 538) = 6.612$, $p < .001$) and high, medium, and low ego-orientation clusters (Pillai's trace = 0.137, $F(8, 538) = 4.946$, $p < .001$) demonstrated significant differences. Tests of between-subjects effects determined that there was a significant difference between participants' levels (high, medium and low levels) of task-orientation on Improvement ($F = 10.898$, $p < .001$) and Effort ($F = 25.229$, $p < .001$) but not Intra-team Competition and Intra-team Conflict (see table 4). Univariate, post-hoc analysis of this effect revealed significant differences between high and low ($p < .001$) and (to a lesser extent) medium and high ($p = .001$) levels of task-orientation on Improvement though no significant differences were found between medium and low levels of task-orientation at the $p \leq .001$ level. Also, there were significant differences between high and low ($p < .001$) and high and medium ($p = .001$) levels of task-orientation on Effort though no significant differences are shown between medium and low levels of Effort at the $p \leq .001$ level. Specifically, individuals reporting higher levels of task-orientation tended to report: (1) significantly higher levels of Improvement (M = 6.07, SE = .263) compared to those reporting medium levels (M = 5.68, SE = .267) and low levels (M = 5.20, SE = .322) of task-orientation and (2) significantly higher levels of Effort (M = 6.53, SE = .225) compared to those reporting medium levels (M = 5.97, SE = .229) and low levels (M = 5.47, SE = .276) of task-orientation.

Tests of between-subjects effects also determined that there was a significant difference between participants' levels (high, medium and low levels) of ego-orientation on Intra-team Competition ($F = 14.793$, $p < .000$) and Intra-team Conflict ($F = 7.564$, $p = .001$) but not on Improvement and Effort (see table 5). Univariate, post-hoc analysis of this effect revealed significant differences between high and low ($p < .001$) and medium and low ($p < .001$) levels of ego-orientation on Intra-team Competition though no significant differences are shown between high and medium levels of ego-orientation at the $p \leq .001$ level. Furthermore, significant differences were found between high and low ($p < .001$) levels of ego-orientation on Intra-team Conflict though no significant differences were found between high and medium and medium and low levels of ego-orientation at the $p < .001$ level. Specifically, individuals reporting lower levels of ego-orientation tended to report significantly lower levels of Intra-team Competition (M = 3.852, SE = .325) compared to those reporting medium levels (M = 4.502, SE = .323) and high levels (M = 4.74, SE = .338) of ego-orientation. Also, individuals reporting lower levels of ego-orientation tended to report significantly lower levels of Intra-team Conflict

(M = 3.112, SE = .385) than those reporting higher levels (M = 3.913, SE = .401) of ego-orientation.

Table 4. MANOVA Multivariate Effects.

	Improvement				**Effort**			
Variable	**df**	**SS**	**MS**	**F**	**df**	**SS**	**MS**	**F**
Gender	1	2.355	2.355	3.189	1	.110	.110	.203
Year of Study	5	1.591	.318	.431	5	1.649	.330	.610
Program Gender Composition	2	.106	.053	.072	2	.316	.158	.292
Win/Loss/Tied	2	.959	.480	.649	2	1.734	.867	1.604
Ethnicity	4	6.737	1.684	2.280	4	3.078	.769	1.423
Age	11	7.556	.687	.930	11	6.481	.589	1.090
Task-Orientation (high/med/low)	2	16.099	8.050	10.898*	2	27.284	13.642	25.229*
Ego-Orientation (high/med/low)	2	3.193	1.597	2.162	2	2.077	1.039	1.921
Error	271	200.161	.739		271	146.532	.541	
Total	301	8700.257			301	9951.434		
Corrected Total	300	239.802			300	193.940		

* Significant at the $p \leq 0.001$ level.

Table 5. MANOVA Multivariate Effects.

	Intra-team Competition				Intra-team Conflict			
Variable	**df**	**SS**	**MS**	**F**	**df**	**SS**	**MS**	**F**
Gender	1	6.036	6.036	5.869	1	7.912	7.912	5.467
Year of Study	5	4.067	.813	.791	5	14.959	2.992	2.067
Program Gender Composition	2	.379	.189	.184	2	6.436	3.218	2.224
Win/Loss/Tied	2	.914	.457	.444	2	.231	.115	.080
Ethnicity	4	4.751	1.188	1.155	4	13.296	3.324	2.297
Age	11	11.206	1.019	.990	11	13.649	1.241	.857
Task-Orientation (high/med/low)	2	7.734	3.867	3.760	2	8.684	4.342	3.000
Ego-Orientation (high/med/low)	2	30.431	15.215	14.793*	2	21.894	10.947	7.564*
Error	271	278.734	1.029		271	392.191	1.447	
Total	301	6082.265			301	3119.726		
Corrected Total	300	360.227			300	496.473		

* Significant at the $p \leq 0.001$ level.

Discussion

The purpose of this study was to examine peer motivational climate within collegiate intramural sports and determine whether or not this was impacted by students' goal orientations or self-defined perceptions of success in sports in addition to a series of other demographic and participation related variables. Overall, most of the groups within the demographic and participation variables (i.e., age, gender composition of intramural sport, year of study, ethnicity, and whether or not participants won, lost or tied their last game) showed no significant differences on the dependent, higher and lower order, peer motivational climate variables. Gender emerged in this study as significantly different for the dependent variable, ego-involved peer motivational climate, only with men perceiving

more ego-involved peer motivational climates in their intramural sports than women. These results are somewhat similar to those from Vazou et al. (2006) and Smith et al. (2010) as these studies found significant differences between gender, age, and perceptions of peer motivational climate. However, there were no significant differences between ages for any of the dependent variables in this study.

Task-orientation showed no significant differences between the groups on ego-involved peer motivational climate or its lower order variables (Intra-team Competition or Intra-team conflict) but was significantly different on task-involved peer motivational climate and its lower order variables (Improvement and Effort). Ego-orientation showed no significant differences on task-involved peer motivational climate or its lower order categories but was significantly different on ego-involved peer motivational climate and its lower order categories. Specifically, individuals in the high task-orientation group reported significantly higher levels of task-involved peer motivational climate compared to the medium and low task-orientation groups. What this tells us is that athletes with a higher task-orientation perceive a higher task-involved climate on their team compared to athletes with a lower task-orientation. Also, individuals in the low ego-orientation group reported significantly lower levels of ego-involved peer motivational climate compared to those in the medium and high ego-orientation groups. This indicates that athletes with a higher ego-orientation perceive higher ego-involved climates on their teams compared to those with a lower ego-orientation. Similar results are reported by Vazou (2010) in which athletes' task-goal orientations positively predicted perceptions of a task-involved peer motivational climate while ego-goal orientations positively predicted perceptions of an ego-involved climate within a youth sport context that included coaches. This study's results support Vazou's findings with older sport participants in a context without coaches present. Furthermore, these relationships between task- and ego-oriented achievement goals and task- and ego-involved peer motivational climates are consistent with achievement goal theory (Ames, 1992; Nicholls, 1989).

Significant differences were also found between the groups of task-orientation on the lower order categories of task-involved peer motivational climate, Improvement and Effort. Specifically, individuals in the high task-orientation group reported significantly higher levels of Improvement and Effort compared to the medium and low task-orientation groups. This suggests that athletes with a higher task-orientation had greater perceptions of a climate in which personal skill improvement and maximum effort are emphasized by the players on their team than athletes with a lower task-orientation.

Significant differences were also found between the groups of ego-orientation on the lower order categories of ego-involved climate, Intra-team Competition and Intra-team Conflict. Specifically, there were significant differences between the low - high and low - medium ego-orientation groups on Intra-team Competition and only significant differences between the low and high groups on Intra-team Conflict. Overall the athletes with a high ego-orientation had greater perceptions of a climate in which inter-individual competition was promoted by peers and negative and unsupportive behaviours were present than athletes with a low ego-orientation. Previous research has not compared task- and ego-goal orientations with these lower order categories of peer motivational climate unique to the PeerMCYSQ. Regardless, these results are consistent with this study's findings regarding the higher order variables (task- and ego-involvement).

In light of these findings it should be noted that the PeerMCYSQ measured peer motivational climates to a limited degree with this study's collegiate aged participants. Based on the factor loadings of the PCA, an item was removed from analysis in the construction of the Intra-team Competition variable while Relatedness Support was removed as a study variable all together, though the overall task- and ego-involved peer motivational climate factors contained all their 12 and 9 items respectively as intended. With regards to Intra-team Competition, this particular variable has shown marginal levels of reliability in studies utilizing the PeerMCYSQ (Smith, et al., 2010; Vazou et al., 2006) and closer examination into this subscale's performance may be needed (perhaps with special attention to the item that was problematic in this study's analyses). It is acknowledged, however, that Relatedness Support is an important aspect of peer motivational climate and one of the unique factors that comprise it in comparison to that of coach and parent created motivational climates.

Relatedness Support's low factor loadings, sub-par reliability coefficient, and subsequent removal from analyses, while a limitation of this study, provides direction for future research in collegiate recreational sport. Intramural games for each sport typically occur only once a week for four to six weeks depending upon the length of the season, perhaps making relatedness with others on these teams less likely in this particular context. Unfortunately there is no research in collegiate recreational sport contexts that can address whether or not this is the case. However, Rubin, Bukowski and Parker (2006) explain that in order for peers on sports teams to form relationships they need to engage in peer-to-peer interactions long enough for a sense of belonging and membership to develop. The short amount of time allocated to intramural teams towards

engaging in their sport programs may prevent many players from developing this sense of relatedness (e.g., fostering the feeling of being part of a group) and offer little outside of simple short-term interactions. Researchers studying recreational sport with older youth or adult participants, even within the collegiate setting, may benefit from a more appropriate tool for measuring perceived peer motivational climate. Therefore, an instrument measuring perceived peer motivational climate geared towards older participants (age 17 and older) grounded within data collected in an adult recreational sport or collegiate intramural setting is recommended.

Collegiate recreational sport practitioners may want to keep aware of peer motivational climate as a present force within students' experiences of their programs. Research generally points towards a relationship between positive and negative sport experiences as a result of perceptions of the peer created motivational climate within one's sports team. For instance, perceptions of task-involved climates predict physical self-esteem, enjoyment, interest, and performance satisfaction (Balaguer, Duda, Atienza, & Mayo, 2002; Smith et al. 2010; Vazou et al., 2006) in addition to the satisfaction of needs (perceived autonomy, relatedness, competence) that predict intrinsic motivation to participate and persistence in sports participation (Jõesaar et al., 2011). Similarly, task-involved climates show inverse relationships with reduced sense of accomplishment, trait anxiety, and sport devaluation or burnout (Smith et al., 2010). Meanwhile, ego-involved climates have positive relationships with maladaptive outcomes such as reduced effort and trait anxiety (Ntoumanis & Biddle, 1999; Vazou et al., 2006). This being the case, intramural sport programs may find it beneficial, if resources permit, to monitor peer motivational climate with a tool more appropriate to the collegiate intramural context to make sure that it is remaining predominantly task-involved. They may also want to encourage an atmosphere of task-involvement as this could permit students to experience various positive psychological outcomes such as the ones indicated above. Ames (1992) proposed a guideline regarding how task-involved motivational climates can be facilitated with TARGET which highlights the areas that should addressed; task, authority, recognition, grouping, evaluation, and time:

> In a task-involving climate, activities that make learning interesting and involve variety and personal challenge are promoted (task), athletes are involved in the decision making and have a choice of tasks (authority), rewards are perceived as informative and recognition is provided based on personal improvement and progress (recognition), opportunities for cooperative group learning and peer

> interactions are provided (grouping), evaluation is based on personal improvement and task mastery (evaluation), and the time allocated for completing learning activities is adjusted to meet the athletes' needs (time) (Ames, 1992, p. 173).

Also, as this study proposes that those who are generally task-oriented perceive a more task-involved peer motivational climate, collegiate recreational practitioners may want to promote a task-orientation in their intramural sport participants. This could include indications within promotional material or at the captains' meetings before the intramural season that participants should strive towards a task-oriented approach to their sport participation (e.g., learning new skills, playing one's best, having fun) as opposed to an ego-oriented approach (e.g., outplaying teammates and competitors, not being a team player).

Collegiate recreational departments are often struggling for legitimate inclusion within the post-secondary environment and find themselves in a position to argue their standing within a school's funding allocation decisions. The various objective and subjective benefits students can gain from intramural sport participation are a source of strong support. Of course any indication that positive subjective benefits will accrue from perceptions of task-involved peer motivational climates should be taken with caution. This is especially the case with cross-sectional research that cannot imply causality and examines subjective perceptions that can vary substantially between players (Harwood et al., 2015).

Limitations

For several reasons, readers should take caution in generalizing the results from this study. First, the PeerMCYSQ is intended for adolescent participants (Ntoumanis & Vazou, 2005) and has not yet been tested in a university sample until now. Though this is the reason why factor analyses and Cronbach's alphas were conducted to test for validity and reliability, its use as a measurement tool with a university sample may warrant some scrutiny since that was not its original purpose. Second, the sample is also not representative of all intramural sports since not all sports offered by collegiate intramural programs are uniform between all universities, therefore generalizing this study's results beyond the sports surveyed in this study could be problematic. Third, while these results may represent the ethnic makeup of intramural participants at the university where the study took place, the participants do not display an even distribution

ethnically as an overwhelming amount reported themselves as Caucasian. Fourth, due to the large proportion of students who reported participating in coed intramural programs, the study's results may not generalize well to those who participate on single gender (men's only and women's only) teams. However, this result was expected since most of the sports offered at the university were coed and these particular programs accrue the most participants.

It is also worth mentioning that the purposive sampling method used in this study tends to have less rigor than approaches falling under the category of random sampling since non-random samples in studies analyzing its data statistically can increase the chance of a type I error (Tabachnick & Fidell, 2007). Despite this limitation, purposive sampling was the best way to recruit participants for this study in that it resulted in a large sample size, ensured only intramural participants took part, and was the best way to approach participants immediately after their sport took place. While still a limitation, this ensured more immediate and accurate recollections could be collected in responses to items concerning participants' perceptions of their team's peer motivational climate.

Conclusion

Future research should continue to explore peer motivational climate within intramural collegiate programs as currently this area of study tends to focus on youth between the ages of 12-17. However, in collegiate intramural settings peers are the strongest, and perhaps the sole, source of motivation and competence information since coaches, parents, and other individuals lying outside of the direct peer group are absent. Most important, this study may have pointed towards a need to develop a tool to measure peer motivational climate that is more applicable to the recreational collegiate setting. This would require extensive empirical data collection within adult recreational sport settings or within collegiate intramural sport programs but will likely result in a tool that is more appropriate to use in these contexts.

References

Ames, C. (1992). Achievement goals, motivational climate, and motivational processes. In G. C. Roberts (Ed.), Motivation in sport and exercise (pp. 161-177). Champaign, IL: Human Kinetics.

Artinger, L., Clapham, L., Hunt, C., Meigs, M., Milord, N., Sampson, B. & Forrester, S. (2006). The social benefits of intramural sports. *National Association of Student*

Personnel Administrators (NASPA) Journal, 43, 69–86.

Atkins, M. R., Johnson, D. M., Force, E. C. & Petrie, T. A. (2015). Peers, parents, and coaches, oh my: The relation of the motivational climate to boys' intention to continue in sport. *Psychology of Sport and Exercise*, 16, 170-180.

Balaguer, I., Duda, J. L., Atienza, F. L. & Mayo, C. (2002). Situational and dispositional goals as predictors of perceptions of individual and team improvement, satisfaction and coach rating among elite female handball teams. *Psychology of Sport and Exercise*, 3, 293-308.

Belch, H. A., Gebel, M., & Maas, G. M. (2001). Relationship between student recreation complex use, academic performance, and persistence of fist-time freshmen. *National Association of Student Personnel Administrators (NASPA) Journal*, 38, 254-268.

Biddle, S.J. H., Wang, C. K. J., Kavussanu, M. & Spray, C. M. (2003). Correlates of achievement goal orientations in physical activity: A systematic review of research. *European Journal of Sport Science*, 3, 1–20. doi:10.1080/17461390300073504

Castillo, I., Tomas, I., Balaguer, I., Fonseca, A. M., Dias, C. & Duda, J. L. (2009). The Task and Ego Orientation in Sport Questionnaire: Testing for measurement invariance and latent mean differences in Spanish and Portuguese adolescents. *International Journal of Testing*, 9, 21-32.

Davies, M. J., Stellino, M. B., Nichols, B. A. & Coleman, L. M. (2016). Other-initiated motivational climate and youth hockey players' good and poor sport behaviours. *Journal of Applied Sport Psychology*, 28(1), 78-96.

Duda, J. L. (1989). Relationship between task and ego orientation and the perceived purpose of sport among high school athletes. *Journal of Sport and Exercise Psychology*, 11, 318-335.

Duda, J. L. & Nicholls, J. G. (1992). Dimensions of achievement motivation in schoolwork and sport. *Journal of Educational Psychology*, 84(3), 290-299.

Elliot, A. J. & Church, M. A. (1997). A hierarchical model of approach and avoidance achievement motivation. *Journal of Personality and Social Psychology*, 72, 218-232.

Elliot, A. J. & McGregor, H. A. (2001). A 2 x 2 achievement goal framework. *Journal of Personality and Social Psychology*, 80(3), 501-519.

Elliot, A. J., Murayama, K. & Pekrun, R. (2011). A 3 x 2 achievement goal model. *Journal of Educational Psychology*, 103(3), 632-648.

Ellis, G. D., Compton, D. M., Tyson, B. & Bohlig, M. (2002). Campus recreation participation, health, and quality of life. *Recreational Sports Journal*, 26, 51–60.

Forrester, S., & Beggs, B. (2005). Gender and self-esteem in intramural sports. *Physical and Health Education Journal*, 70, 12–19.

Garcia-Calvo, T., Leo, F. M., Gonzalez-Ponce, I., Sanchez-Miguel, P. A., Mouratidis, A. & Ntoumanis, N. (2014). Perceived coach-created and peer-created motivational climates and their associations with team cohesion and athlete satisfaction: Evidence from a longitudinal study. *Journal of Sports Sciences*, 23(18), 1738-1750.

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E. & Tatham, R. L. (2006). *Multivariate data analysis.* (6th ed.). Upper Saddle River, NJ: Pearson Education.

Harwood, C. G., Keegan, R. J., Smith, J. M. J. & Raine, A. S. (2015). A systematic review of the interpersonal correlates of motivational climate perceptions in sport and physical activity. *Psychology of Sport and Exercise*, 18, 9-25.

Hein, V. & Jõesaar, H. (2015). How perceived autonomy support from adults and peer motivational climate are related with self-determined motivation among young athletes. *International Journal of Sport and Exercise Psychology*, 13(3), 193-204.

Horn, T. S. & Amorose, A. J. (1998). Sources of competence information. In J. L. Duda (Ed.), Advances in sport and exercise psychology measurement (pp. 49–63). Morgantown, WV: Fitness Information Technology.

Jõesaar, H., Hein, V. & Hagger, M. S. (2011). Peer influence on young athletes' need satisfaction, intrinsic motivation, and persistence in sport: A 12-month prospective study. *Psychology of Sport and Exercise*, 12, 500-508.

Kanters, M. A. & Forrester, S. (1997a). Leisure motivation and self-concept: A comparison of campus recreation participants and non-participants. *NIRSA Journal*, 22, 29–33.

Kanters, M. A. & Forrester, S. (1997b). The motivations and self-esteem of intramural sports participants. *NIRSA Journal*, 21, 3–7.

Lower, L., Turner, B.A. & Peterson, J.C. (2013). A comparative analysis of perceived benefits of participation between recreational sport programs. *Recreational Sports Journal*, 37(2), 66–83.

Newton, M., Duda, J. L. & Yin, Z. (2000). Examination of the psychometric properties of the perceived motivational climate in sport questionnaire-2 in a sample of female athletes. *Journal of Sports Sciences*, 18, 275–290.

Nicholls, J. G. (1989). *The competitive ethos and democratic education*. Cambridge, MA: Harvard University Press.

Ntoumanis, N. & Biddle, S.J.H. (1999). Affect and achievement goals in physical activity: A meta-analysis. *Scandinavian Journal of Medicine & Science in Sports*, 9, 315–332. doi:10.1111/j.1600-0838.1999.tb00253.x

Ntoumanis, N. & Vazou, S. (2005). Peer motivational climate in youth sport: Measurement development and validation. *Journal of Sport and Exercise Psychology*, 27, 432-455.

Papaioannou, A. & Kouli, O. (1999). The effect of task structure, perceived motivational climate and goal orientations on students' task involvement and anxiety. *Journal of Applied Sport Psychology*, 11, 51–71. doi:10.1080/10413209908402950

Papaioannou, A., Zourbanos, N., Krommidas, C. & Ampatzouglou, G. (2012). The place of achievement goals in the social context of sport: A comparison of Nicholls' and Elliot's Models. In G. C. Roberts & D. C. Treasure (Eds.), Advances in motivation in sport and exercise (3rd ed., pp. 59-90). Human Kinetics: Champaign, IL.

Roberts, G. C. (2012). Motivation in sport and exercise from an achievement goal theory perspective: After 30 years, where are we? In G. C. Roberts & D. C. Treasure (Eds.), Advances in motivation in sport and exercise (3rd ed., pp. 5-58). Human Kinetics: Champaign, IL.

Rubin, K. H., Bukowski, W. & Parker, J. G. (2006). Peer interactions, relationships, and groups. In W. Damon, R. M. Lerner, & N. Eisenberg (Eds.), Handbook of child psychology: Vol. 3. Social, emotional, and personality development (6th ed., pp. 571-645). New York: Wiley.

Smith, A. L. (2003) Peer relationships in physical activity contexts: A road less traveled in youth sport and exercise psychology research. *Psychology of Sport and Exercise*, 4, 25-39.

Smith, A. L., Gustafsson, H., & Hassmen, P. (2010). Peer motivational climate and burnout perceptions of adolescent athletes. *Psychology of Sports and Exercise*, 11, 453-460.

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). Boston, MA: Pearson Education, Inc.

Vazou, S. (2010). Variations in the perceptions of peer and coach motivational climate. *Research Quarterly for Exercise and Sport*, 81(2), 199-211.

Vazou, S., Ntoumanis, N. & Duda, J. L. (2006). Predicting young athletes' motivational

indices as a function of their perceptions of the coach- and peer-created climate. *Psychology of Sport and Exercise*, 7, 215-233.

Vazou, S., Ntoumanis, N. & Duda, J. L. (2005). Peer motivational climate in youth sport: A qualitative inquiry. *Psychology of Sport and Exercise*, 6, 497-516.

Webb, E. & Forrester, S. (2015). Affective outcomes of intramural sport participation. *Recreational Sports Journal*, 39, 69-81.

Weiss, M. R. & Duncan, S. C. (1992). The relationship between physical competence and peer acceptance in the context of children's sport participation. *Journal of Sport and Exercise Psychology*, 14, 177–191.

White, S. A. (1998). Adolescent goal profiles, perceptions of the parent-initiated motivational climate and competitive trait anxiety. *The Sport Psychologist*, 12, 16-33.

White, S. A. & Duda, J. L. (1994). The relationship of gender, level of sport involvement, and participant motivation to task and ego orientation. *International Journal of Sport Psychology*, 25(1), 4-18.