

## Relationships among Goal Orientations, Motivational Climate and Flow in Adolescent Athletes: Differences by Gender

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The purpose of this investigation was to examine the relationships among perceived motivational climate, individuals' goal orientations, and dispositional flow, with attention to possible gender differences. A sample of 413 young athletes, ages 12 to 16 years, completed the Perceived Motivational Climate in Sport Questionnaire-2 (PMCSQ-2) and Perception of Success Questionnaire (POSQ), as well as the Dispositional Flow Scale. Task orientation was positively and significantly related to a perceived task-involving motivational climate and to the disposition to experience flow in the sport. Ego orientation was positively and significantly associated with a perceived ego-involving motivational climate and with dispositional flow. The perceptions of task-involving and ego-involving motivational climates were positively and significantly linked to general dispositional flow. Multiple regression analysis indicated that both task and ego goal orientations and perceived task- and ego-oriented climates predicted dispositional flow. Males displayed a stronger ego orientation, and were more likely to report that they participated in an ego-oriented climate, than did females. To the contrary, the females were more likely to perceive a task-oriented climate than did the males. No meaningful differences were found between males and females in general dispositional flow.

*Keywords: motivational climate, flow, goal orientation, motivation, young athletes*

El objetivo de esta investigación era examinar las relaciones entre el clima motivacional percibido, las orientaciones de meta y la disposición al "flow" de los individuos, atendiendo las posibles diferencias de género. Una muestra de 413 atletas jóvenes, de edades entre 12 y 16 años, completaron el Perceived Motivational Climate in Sport Questionnaire-2 (PMCSQ-2) y el Perception of Success Questionnaire (POSQ), además de la Dispositional Flow Scale. La orientación a la tarea tenía una relación positiva y significativa con el clima motivacional implicante a la tarea percibido y con la disposición a experimentar el "flow" en el deporte. La orientación al ego tenía una relación positiva y significativa con el clima motivacional implicante al ego percibido y con el flow disposicional. Las percepciones de climas motivacionales implicantes a la tarea y al ego tenían una relación positiva y significativa con el flow general disposicional. El análisis de regresión múltiple indicaba que tanto las orientaciones de meta a la tarea y al ego y los climas percibidos orientados a la tarea y al ego predecían el flow disposicional. Los varones mostraron una orientación al ego más fuerte y era más probable que dijeran que participaban en un clima orientado al ego que las mujeres. En contraste, era más probable que las mujeres percibieran un clima orientado a la tarea que los varones. No se encontraron diferencias significativas entre varones y mujeres en el flow disposicional general.

*Palabras clave: clima motivacional, flow, orientación de metas, motivación, jóvenes atletas*

Numerous investigations in sport have been structured within the framework provided by achievement goal theory (Nicholls, 1989), because motivation is a key ingredient in understanding behavior patterns as well as in determining the intensity and direction of behavior (Iso-Ahola & St. Clair, 2000). According to achievement goal theory, individuals have the disposition to adopt one of two different conceptions of ability. These goal orientations have been termed task and ego orientations and these individuals' dispositions are believed to be shaped through social forms of influence (Nicholls, 1989). The dispositional tendency to believe that ability is reflected through effort and improvement is known as a task orientation while an ego orientation reflects the view that ability is expressed by outperforming others. Research indicates that the motivational climate can influence the development of these orientations (Ames, 1992; Nicholls, 1989). Parents, coaches, teachers and peers can all influence the motivational climate which can also be of two types: a mastery or task-oriented motivational climate and a competitive, or ego-oriented, motivational climate (Ames, 1992). In this sense, if significant others in the social environment promote the idea that winning and the demonstration of physical ability relative to others is what defines success, they will facilitate an ego-oriented climate, whereas, if these significant others promote the idea that the most important indications of ability are effort and improvement, they will promote a task-oriented climate. There are investigations in both sport and educational contexts that indicate relationships between individuals' goal orientation and their perception of the motivational climate (Cervelló & Santos-Rosa, 2001; Ebbeck & Becker, 1994; Escartí, Roberts, Cervelló, & Guzmán, 1999; Pensgaard & Roberts, 2002). In this regard, individuals who have stronger ego goal orientations are more likely to perceive an ego-oriented sport climate whereas those with a dominant task orientation are more prone to perceive a task-oriented motivational climate.

Different studies (e.g., Cury et al., 1996; Ntoumanis & Biddle, 1999) have tried to analyze the relationships between the contextual (e.g., motivational climate) and dispositional (e.g., goal orientations) components of the achievement goal theory and different cognitive, behavioral and affective consequences. One of the consequences that have been analyzed is "flow". When an athlete is in an optimal psychological state and completely immersed in the process of performing sport skills this state is known as "flow" (Jackson & Marsh, 1996). Flow has been characterized as being comprised of nine distinct dimensions relating to the balance between abilities and challenges, merging of action and awareness, clarity of objectives, clear and unambiguous feedback, full concentration on the task at hand, feelings of control, loss of self-awareness and self-consciousness, transformation of the time dimension and autotelic experience (Csikszentmihalyi, 1990, 1993).

Some flow researchers believe that certain individuals

have a greater tendency to experience flow in that they have an *autotelic personality* (Csikszentmihalyi, 1988) and these individuals are characterized by their capacity to enjoy the process of engagement without concern for extrinsic rewards (Mandigo & Thompson, 1998). As has been noted in various studies, the flow state is associated with a higher level of performance (Jackson, Thomas, Marsh, & Smethurst, 2001; Lazarovitz, 2003; Pates, Cummings, & Maynard, 2002; Pates, Oliver, & Maynard, 2001). In addition, athletes in a flow state are known to demonstrate greater commitment to the activity, to be more intrinsically motivated, and to demonstrate greater persistence in their sport practice, each of which reduces the likelihood of sport dropout (Jackson, 1996). For this reason, it is important to identify those factors related to the flow experience and this study intends to do so through the application of achievement goal theory.

Researchers have examined the relationship between flow state and motivation. In the domain of achievement goal theory, Jackson and Roberts (1992) found that the presence of a task orientation and higher levels of perceived ability were associated with a greater likelihood for the appearance of a flow state. Papaioannou and Kouli (1999) found that a task orientation and the perception of a task motivational climate predicted higher levels of concentration, a more autotelic experience for those involved and an absence of self-consciousness. In the same way, the investigation carried out by Kowal and Fortier (2000) revealed that the situational flow state was associated in a positive and significant way with a task-involving motivational climate in both the situational and contextual sense. Following in the same line, Charalambous and Ntoumanis (2000) found in their sample of non-elite female volleyball players that a task orientation was related positively and significantly with various flow dimensions while an ego orientation showed no relationship with the flow state. These results indicated that those athletes who had stronger task orientations realized greater levels of concentration than those who had weaker task orientations.

Kimiecik and Jackson (2002) discovered that the task goal orientation was the best predictor of flow in sport. Recent research has also revealed that the dispositional flow state correlates positively and significantly with self-efficacy, the tendency toward a task orientation, and the perceived value of physical activity (Tipler, Marsh, Martin, Richards, & Williams, 2004). These researchers also found that a disposition toward flow is related to the tendency to be motivated to engage in physical activity, as well as to plan physical activity behaviors and persist in these activities, as well as with actual levels of participation in physical activity.

Nevertheless, different studies have found a positive relationship between ego orientation and flow in the Spanish context. The study of Santos-Rosa (2003) found that greater perceptions of personal ability, a stronger task orientation, and a stronger ego orientation all significantly predicted the likelihood of dispositional flow experiences. In the same

way, the tendency to experience anxiety was negatively associated with dispositional flow. The work of García Calvo (2004) showed that task and ego orientations predicted positively dispositional flow and that ego involvement and task involvement also predicted positively the situational flow. Further research in this area has found that the perception of a task-involving motivational climate in competition predicted positively the concentration and the autotelic experience in competition, whereas the ego orientation and the perception of an ego-involving motivational climate predicted the loss of self-consciousness (Cervelló, Santos-Rosa, García Calvo, Jiménez, & Iglesias, 2007).

Some research conducted from an achievement goal theory perspective has identified clear differences between males and females with regard to goal characteristics. Duda and Whitehead (1998) examined the role of gender in affecting the development of achievement goal dispositions through the socialization process. In general, they found that males tend to be more focused on winning and demonstrating ability to others in achievement contexts than females which, according to these authors, suggests underlying gender differences in goal orientations. In addition, these investigations also reveal that males are more likely to perceive the presence of ego-oriented motivational climates and that females are more likely to perceive the existence of a task-oriented climate than are males (Carr & Weigand, 2001; Ntoumanis & Biddle, 1999). In relation to the flow state, we have only encountered one study that examined differences in relation to gender (Russell, 2001) and no significant differences were identified by this researcher.

Not many studies (García Calvo, 2004; Santos-Rosa, 2003) have analyzed the influence of motivation on the tendency to experience flow (dispositional flow), since the majority of the studies have focused on discovering the level of flow experienced in a specific situation (situational flow). Research results in this regard are somewhat contradictory, since there are studies that have found positive relations between ego dimensions and flow, whilst others have not found these relations. Furthermore, we have not yet come across any published studies examining the direct influence of motivational climates on dispositional flow. There are studies (e.g., Cervelló et al., 2007) which have shown the influence of the situational motivational climate of a competition on the level of flow experienced in that competition. Nevertheless, we have not found any research which analyses the effect of perceived contextual climate in the trainer on the disposition of sportspeople to experience flow. Using this situation as a starting point, the purpose of this study was to perform a detailed analysis of dispositional flow in adolescent athletes (of different individual and collective sports) by means of perceived motivational climates and goal orientations and to try to clarify the results obtained in previous research. Gender differences were also

analyzed in order to further our knowledge of the different components of motivational climate (cooperative learning, effort/improvement, important role, punishment, unequal recognition and rivalry) and dispositional flow, as there are very few studies that have analyzed gender differences in these characteristics.

Similar to previous studies in the Spanish context (García Calvo, 2004; Santos-Rosa, 2003), our hypothesis was that task and ego orientations would positively predict dispositional flow. Furthermore, based on a recent study on situational flow (Cervelló et al., 2007), we hypothesized that both the perception of an ego climate and the perception of a task climate would positively predict dispositional flow.

In relation to gender, it is anticipated that males will be significantly more likely to endorse an ego orientation and that females will be more likely to endorse a task orientation as has been identified in previous studies (Castillo, Balaguer, & Duda, 2000; Duda & Whitehead, 1998; Gano-Overway & Duda, 2001; White, Kavussanu, & Guest, 1998). At the same time, in concordance with other research that has been conducted (Carr & Weigand, 2001; Kavussanu & Roberts, 1996; Ntoumanis & Biddle, 1999; Santos-Rosa, 2003), it is anticipated that males will be more likely to perceive a performance-orientated motivational climate whereas females will be more likely to perceive a task-oriented motivational climate. We do not hypothesize that gender differences will be present between boys and girls in likelihood of dispositional flow (Russell, 2001).

## Method

### *Participants*

The sample was comprised of 413 athletes (322 boys and 91 girls) between the ages of 12 and 16 years ( $M = 13.74$  yrs.,  $SD = 1.34$  yrs). These participants participated in team (Basketball, Handball, Football, Volleyball) and individual (Athletics, Gymnastics, Wrestling, Taekwondo, Swimming, Canoeing, Tennis) sports and were members of 28 different sport schools that participated in a competition in the Region of Murcia, Spain. From the entire sample, 72.2% practice sport between 2 and 3 days a week and 27.8% more than 3 days a week.

### *Procedure*

The researchers contacted a large number of individuals associated with the various sport schools to inform them of our objectives and to request their participation. These sport schools agreed to participate in the study. The administration of the questionnaires took place in the presence of the principal investigator so that he could provide a brief explanation of the purpose of the study, to inform the participants about the proper way to complete the measures,

to resolve any complications that might arise, and to make sure that the anonymity of the participants was maintained while encouraging the participants to provide their most honest answers to the questions. Previous consent had also been obtained from the coaches as well as from the parents of the youngsters. The survey took approximately 20 minutes to complete although this varied according to the age of the participant.

### Measures

*Perceived Motivational Climate in Sport Questionnaire-2.* The Perceived Motivational Climate in Sport Questionnaire (PMCSQ-2) was used to assess individuals' perceptions of the task and ego orientations present in a given climate. The Spanish language version of this measure was utilized as it has been modified to conform to the original version (Balaguer, Mayo, Atienza, & Duda, 1997; Newton & Duda, 1993; Newton, Duda, & Yin, 2000). This measure consists of two second order dimensions: perceptions of an ego-involved motivational climate and perceptions of a task-involved motivational climate that are each, in themselves, comprised of three factors. The ego-involved motivational climate includes three dimensions consisting of punishment for errors, unequal recognition, and rivalry among the members of the team. The task-involved motivational climate measure consists of subscales for cooperative learning, emphasis upon effort as a means for improvement, and the importance of individual roles. The entire scale is comprised of 29 items, 14 of which measure the perception of an ego-involved climate (e.g., "The coach only encourages his/her athletes when they are better than another mate") while the remaining 15 assess the perception of a task-involved motivational climate (e.g., "The coach encourages us to help each other") that is preceded by the phrase "During our team's practice session..." and utilizes a Likert scale that ranges from 0 (*total disagreement*) to 10 (*total agreement*). This questionnaire had Cronbach alpha levels for internal reliability of .85 for the task-involved motivational climate (.71 for cooperative learning, .73 for emphasis upon effort as a means of improvement, and .68 for role importance). The Cronbach alpha values for the subscale assessing perception of an ego-involving climate was .91 for the entire scale (.79 for punishment for errors, .88 for unequal recognition of team members, and .66 for rivalry among members of the team).

*Perception of Success Questionnaire.* The Spanish version (Cervelló, Escartí, & Balagué, 1999; Martínez Galindo, Alonso, & Moreno, 2006) of the Perception of Success Questionnaire (POSQ) developed by Roberts and colleagues (Roberts & Balagué, 1991; Roberts, Treasure, & Balagué, 1998) was utilized to measure the goal orientations of the young athletes. The inventory consists

of 12 items, six of which correspond to a task orientation toward success (e.g., "I feel I am successful when I demonstrate a clear personal improvement") and six of which correspond to an ego-orientated success orientation in sport (e.g., "I feel I am successful when my performance is better than others"). This is a closed-format Likert-type scale in which 0 corresponds with *total disagreement* and 10 indicates *total agreement*. This questionnaire demonstrated Cronbach alpha values of .84 for the task orientation subscale and .91 for the ego orientation subscale.

*Dispositional Flow Scale.* The Spanish version (García Calvo, Cervelló, Jiménez, & Santos-Rosa, 2005) of the Dispositional Flow Scale (DFS) developed by Jackson, Kimiecik, Ford, and Marsh (1998) was used to measure dispositional flow. The inventory consists of 36 items headed by the sentence "When practicing my sport..." (e.g., "Things just seem to happen automatically", "It is no effort to keep my mind on what is happening", "I feel like I can control what I am doing"). The scale utilizes a Likert scale that ranges from 0 (*never*) to 10 (*always*). This scale includes a second level factor (dispositional flow) and nine first order factors (balance between abilities and challenges, merging of action and awareness, clarity of objectives, clear and unambiguous feedback, full concentration of the task at hand, feelings of control, loss of self-awareness and self-consciousness, transformation of the time dimension and autotelic experience). These dimensions reflect the nine characteristics that characterize an optimal performance state (Csikszentmihalyi, 1990, 1993) and each one is measured using four items. This inventory demonstrated Cronbach alpha levels of .91 for the overall scale, with alpha reliability levels for the individual subscales ranging between .58 for loss of self-awareness and self-consciousness to .75 for feelings of control.

Some subscales showed a reliability or alpha value less than the recommended .70 (Nunnally, 1978). Given the small number of items forming the factors, the internal validity observed can be marginally accepted (Hair, Anderson, Tatham, & Black, 1998; Nunnally & Bernstein, 1994). All the instruments we have worked with use a Likert scale ranging from 0 to 10 because in Spain school marks range from 0 to 10 points and as a consequence everybody is used to this scale marks.

### Research Design and Data Analysis

Descriptive statistics, means and standard deviations for all variables were obtained. Simple correlations were calculated to test the relationships among variables. To analyze the effect of gender on goal orientations, perceptions of motivational climate and flow, MANOVA was employed. Finally, to calculate the power of prediction of perceived motivational climate and goal orientations in relation to flow, a hierarchical regression analysis was employed. In

this analysis, flow constituted the dependent variable. The contextual measures (motivational climates) were included at Step 1. To analyze the increment of variance explained by dispositional variables, goal orientations were entered at Step 2. The goal orientations were included at Step 2 due to prior evidence of their possible mediation on the effect of motivational climate on dispositional flow (e.g., García Calvo, 2004). A regression analysis was also performed pursuant to the athletes' gender in an attempt to see whether there were any differences between boys and girls in the prediction of dispositional flow.

## Results

### *Descriptive Statistics and Correlational Analyses*

Descriptive statistics, including means and standard deviations, as well as correlational statistics are reported in Table 1. These descriptive statistics for the entire sample revealed moderately high levels of task orientation for the sample ( $M = 8.67$ ), moderate levels of ego orientation ( $M = 6.72$ ), a moderately high perception of task climate ( $M = 7.78$ ), as much in the cooperative learning dimension ( $M = 7.46$ ) as well as in the effort and improvement dimension ( $M = 8.03$ ) and role importance dimension ( $M = 7.65$ ). In this sample of athletes, lower values were obtained for perception of an ego climate ( $M = 4.32$ ), reflecting low punishment for errors ( $M = 4.14$ ), unequal recognition ( $M = 4.16$ ) and rivalry within the group ( $M = 5.06$ ). Dispositional flow was found to be moderately high in this sample ( $M = 7.19$ ).

Correlational findings revealed some interesting relationships among key variables. Ego orientation showed a positive, significant relationship with task orientation ( $r = .32, p < .01$ ), with the tendency to perceive an ego-oriented motivational climate ( $r = .34, p < .01$ ), as well as with the three unique components of this climate perception, with dispositional flow ( $r = .26, p < .01$ ) and all nine individual components of flow with the exception of autotelic experience.

On the other hand, task orientation was significantly related to the perception of a task-involved motivational climate ( $r = .35, p < .01$ ) and its three components, with general dispositional flow ( $r = .38, p < .01$ ) and all nine dimensions of flow. Task orientation was negatively and significantly related to the perception of an ego-oriented motivational climate ( $r = -.11, p < .05$ ), and specifically to the dimensions of punishment for errors and unequal recognition.

Perception of a task climate was significantly related to dispositional flow ( $r = .43, p < .01$ ) and its nine dimensions. In addition, the perception of an ego-oriented climate was also related to dispositional flow ( $r = .15, p < .01$ ), and to five of the flow dimensions.

### *Multivariate Analysis of Variance*

A multivariate analysis of variance (MANOVA) was conducted for the purpose of determining if significant differences were present for male and female athletes in relation to goal orientation, perceptions of the motivational climate, and dispositional flow. The obtained results (Table 2) revealed significant differences between males and females (Wilks'  $\lambda = .86, F(17, 395) = 3.53, p < .001$ ), specifically on the variables of ego orientation,  $F(1, 411) = 16.76, p < .001$ , perceived ego-involving motivational climate,  $F(1, 411) = 14.90, p < .001$ , and the three components of this variable, punishment for errors,  $F(1, 411) = 10.62, p < .01$ , unequal recognition,  $F(1, 411) = 9.47, p < .01$  and rivalry among team members,  $F(1, 411) = 19.46, p < .001$ . Differences were also found in perceived task-involving climate,  $F(1, 411) = 10.87, p < .01$  and its two components, cooperative learning,  $F(1, 411) = 12.97, p < .001$ , and effort as an indication of improvement,  $F(1, 411) = 7.65, p < .01$ , and feelings of control,  $F(1, 411) = 5.38, p < .05$ .

In relation to these findings, the males had stronger ego orientations than did the females and were more likely to perceive an ego-oriented motivational climate, specifically involving punishment for errors, unequal treatment of team members and rivalry among team members. To the contrary, the girls were more likely to identify a motivational climate more oriented toward learning ( $M = 8.19$ ) than the boys ( $M = 7.67$ ), and identified greater cooperative learning possibilities ( $M = 8.10$ ) than did the boys ( $M = 7.28$ ), as well as a greater emphasis on effort as an indication of improvement ( $M = 8.38$ ) in comparison to the boys ( $M = 7.92$ ). Furthermore, the boys demonstrated a higher score in sense of control ( $M = 7.53$ ) than the girls ( $M = 7.07$ ).

### *Regression Analysis*

A hierarchical multiple regression analysis was conducted to determine how the motivational climate variables and goal orientation variables affected the likelihood of dispositional flow for the participants. As there was prior evidence (García Calvo, 2004) of the fact that goal orientations could mediate the effect of motivational climate on flow, different regression analyses were performed. In the first of the analyses we considered motivational climate as an independent variable and goal orientation as a dependent variable (potential mediator). The results showed a positive and significant prediction of ego climate on ego orientation ( $\beta = .34, p < .001, \text{Adj. } R^2 = .11$ ). Furthermore, the task climate positively and significantly predicted task orientation, whilst the ego climate did this negatively ( $\beta = .35, p < .001$  and  $\beta = -.10, p < .05$ , respectively, and  $\text{Adj. } R^2 = .13$ ).

In the second of the analyses, we considered motivational climates and goal orientations as independent variables and



Table 1  
Means, Standard Deviations, Alpha Coefficients, and Correlations among Variables

	M	SD	$\alpha$	2	3	3.1	3.2	3.3	4	4.1	4.2	4.3	5	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9
1. Ego orientation	6.72	2.72	.91	.32**	.00	-.09*	.08	-.00	.34**	.25**	.32**	.33**	.26**	.27**	.26**	.16**	.23**	.13**	.18**	.11*	.22**	.08
2. Task orientation	8.67	1.48	.84	—	.35**	.18**	.43**	.21**	-.11*	-.10*	-.10*	-.09	.38**	.40**	.14**	.35**	.29**	.34**	.32**	.22**	.11*	.37**
3. Task-involving climate	7.78	1.34	.85	—	—	.78**	.88**	.82**	-.05	-.00	-.13**	.07	.43**	.43**	.24**	.36**	.32**	.39**	.32**	.21**	.14**	.44**
3.1. Cooperative learning	7.46	1.94	.71	—	—	—	.53**	.50**	-.04	-.02	-.11*	.08	.29**	.28**	.18**	.20**	.23**	.23**	.21**	.16**	.14**	.31**
3.2. Effort/improvement	8.03	1.39	.73	—	—	—	—	.58**	-.01	.02	-.08	.09*	.41**	.43**	.23**	.37**	.31**	.37**	.29**	.20**	.11*	.43**
3.3. Important role	7.65	1.68	.68	—	—	—	—	—	-.08	-.03	-.14**	.01	.35**	.35**	.18**	.31**	.25**	.35**	.29**	.16**	.09	.35**
4. Ego-involving climate	4.32	2.32	.91	—	—	—	—	—	—	.88**	.92**	.77**	.15**	.11*	.22**	.01	.11*	.03	.08	.13**	.25**	-.07
4.1. Punishment	4.14	2.46	.79	—	—	—	—	—	—	—	.68**	.60**	.13**	.09	.22**	-.01	.09	.04	.06	.11*	.25**	-.06
4.2. Unequal recognition	4.16	2.75	.88	—	—	—	—	—	—	—	—	.60**	.11*	.08	.17**	.02	.07	.01	.07	.10*	.20**	-.08
4.3. Rivalry	5.06	2.69	.66	—	—	—	—	—	—	—	—	—	.18**	.14**	.21**	.06	.14**	.06	.09	.15**	.23**	.01
5. Dispositional flow	7.19	1.28	.91	—	—	—	—	—	—	—	—	—	—	.77**	.62**	.73**	.80**	.76**	.81**	.67**	.60**	.73**
5.1. Challenge-skills balance	7.21	1.55	.59	—	—	—	—	—	—	—	—	—	—	—	.37**	.60**	.64**	.55**	.60**	.41**	.34**	.62**
5.2. Action-awareness	6.32	2.05	.70	—	—	—	—	—	—	—	—	—	—	—	—	.31**	.45**	.30**	.33**	.33**	.46**	.33**
5.3. Clear goals	7.69	1.60	.70	—	—	—	—	—	—	—	—	—	—	—	—	.58**	.63**	.64**	.64**	.36**	.21**	.59**
5.4. Feedback	7.39	1.71	.72	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.62**	.67**	.45**	.33**	.54**
5.5. Concentration	7.48	1.70	.70	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.70**	.42**	.28**	.61**
5.6. Sense of control	7.43	1.70	.75	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.49**	.34**	.58**
5.7. Loss of self-consciousness	6.78	1.98	.58	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.42**	.37**
5.8. Time	6.38	2.20	.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.29**
5.9. Autotelic experience	8.01	1.56	.66	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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

Table 2  
*Differences between Boys and Girls on Goal Orientation, Perceived Motivational Climate and Dispositional Flow*

Factors	<i>F</i>	<i>p</i>	Boys	Girls
Ego orientation	16.76	.000	7.01	5.71
Task orientation	.62	.431	8.64	8.78
Ego-involving climate	14.90	.000	4.55	3.50
Punishment	10.62	.001	4.35	3.40
Unequal recognition	9.47	.002	4.38	3.38
Rivalry	19.46	.000	5.36	3.98
Task-involving climate	10.87	.001	7.67	8.19
Cooperative learning	12.97	.000	7.28	8.10
Effort/improvement	7.65	.006	7.92	8.38
Important role	3.78	.052	7.56	7.95
Dispositional flow	2.59	.108	7.24	7.00
Challenge-skills balance	.22	.634	7.23	7.14
Action-awareness	3.30	.070	6.42	5.98
Clear goals	.43	.510	7.72	7.59
Feedback	2.08	.149	7.45	7.16
Concentration	.00	.946	7.48	7.47
Sense of control	5.38	.021	7.53	7.07
Loss of self-consciousness	2.80	.095	6.87	6.48
Time	2.26	.133	6.46	6.07
Autotelic experience	.002	.964	8.01	8.01

dispositional flow as a dependent variable (Table 3). The contextual variables (ego and task climate) were entered into the equation at Step 1. To analyze the increment of variance explained by dispositional variables, goal orientations were entered at Step 2.

At Step 1 of the regression analysis, ego-involving and task-involving motivational climates explained 21% of the variance in dispositional flow. The task-involving climate ( $\beta = .44$ ) was more important for explaining the variance among individuals in dispositional flow than the ego-involving climate ( $\beta = .17$ ), although each explained a significant amount of variance in dispositional flow.

At Step 2 of the regression equation, task and ego orientations were also included. The combination of goal orientation and motivational climate variables accounted for 29% of the variance in dispositional flow,  $F(4, 408) = 44.05$ ,  $p < .001$ . The task-involving motivational climate ( $\beta = .35$ ) and task orientation ( $\beta = .22$ ) were most strongly associated with variance in dispositional flow. The decrease in  $\beta$  values of motivational climates between Step 1 and Step 2 is an indication of the mediation of goal orientations on the effect of motivational climate on dispositional flow.

A linear regression analysis by gender was also performed (Table 4) due to the differences found between

Table 3  
*Hierarchical Multiple Regression Analysis Summary for Predictor Variables of Contextual and Dispositional Factors Related with Dispositional Flow in Sport*

Steps	<i>B</i>	<i>SEB</i>	$\beta$	Adj. <i>R</i> <sup>2</sup>
<i>Step 1</i>	34.90	3.50		.21**
Ego-involving motivational climate	.09	.02	.17**	
Task-involving motivational climate	.42	.04	.44**	
<i>Step 2</i>	20.19	4.03		.29**
Ego-involving motivational climate	.08	.02	.15*	
Task-involving motivational climate	.34	.04	.35**	
Ego orientation	.06	.02	.13*	
Task orientation	.19	.04	.22**	

\* $p < .05$ . \*\* $p < .001$ .

Table 4  
*Predictive Analysis of Dispositional Flow by Gender*

	<i>B</i>	<i>SEB</i>	$\beta$	Adj. $R^2$
Boys	34.90	3.50		.21**
Ego-involving motivational climate	.06	.02	.12*	
Task-involving motivational climate	.30	.04	.35**	
Ego orientation	.04	.02	.10	
Task orientation	.21	.04	.25**	
Girls	-6.91	12.09		.30**
Ego-involving motivational climate	.13	.06	.20*	
Task-involving motivational climate	.61	.12	.44**	
Ego orientation	.07	.04	.14	
Task orientation	.20	.09	.21*	

\*  $p < .05$ . \*\* $p < .001$ .

boys and girls in the predictor variables of dispositional flow. The results of the analysis showed that the task-involving climate ( $\beta = .35$ ), ego-involving climate ( $\beta = .12$ ) and task orientation ( $\beta = .25$ ) predicted dispositional flow positively and significantly in the boys. In the girls, the results of the analysis showed the same dispositional flow prediction variables as in the case of the boys, although with different regression weights.

### Discussion

The purpose of this study was to improve our understanding of the predictors of dispositional flow, particularly as dispositional flow may relate to individuals' personal goal orientations and perceptions of the motivational climate from the framework of achievement goal theory. In addition, possible gender differences in these relationships were explored.

This examination yielded important findings, since there are not many previous published studies that have analyzed the influence of perceived motivational climates on dispositional flow in sport. Furthermore, research on dispositional flow in adolescent athletes has mainly used samples of footballers and tennis players, and in this study we have examined a wider variety of sports. We found that dispositional flow was related significantly and positively to both the perception of ego-oriented motivational climates and task-oriented motivational climates. Since the relationship between the perception of an ego-involving motivational climate with dispositional flow was relatively low, this relationship needs to be interpreted with caution. In relation to the specific components of the motivational climates with flow, there was a stronger relationship between the components of the task-involving motivational climate and flow than with the components of the ego-involving motivational climate and flow. In this sense, it is worthwhile to emphasize that a task-involving motivational climate

appears to be more strongly linked to flow, as found previously by Papaioannou and Kouli (1999).

These findings suggest that it is worthwhile for coaches to attempt to introduce a task-oriented motivational climate, or to strengthen such a climate, to increase the likelihood that athletes will experience a flow state. The realization of such a state should positively influence motivation, persistence and performance (Jackson, 1996; Jackson et al., 2001; Lazarovitz, 2003).

We have also found that dispositional flow was positively related to both task and ego motivational orientations, which is consistent with previous research using Spanish athletes (García Calvo, 2004). Though previous works had reflected the positive influence of task orientation on flow, the results of our study indicate that probably in the sports area and due that sport is a competitive context, also it is a necessary certain ego orientation to be more inclined to experiment flow. Nevertheless the relation of the dispositional flow with the task orientation is stronger. Therefore, it seems that a motivational profile that combines high task orientation with high ego orientation leads to more dispositional flow. It would be interesting for future studies to analyze the mediation of the perceived competence variable in the relation between ego orientation and dispositional flow, since, according to the theoretical framework of achievement goals, a sportsperson with high ego orientation, but who does not perceive himself as competent, will be less likely to experience flow.

A secondary objective was to determine if there was a relationship between individual goal orientation characteristics and perceptions of the motivational climate. Such a relationship was found in that a positive and significant relationship between ego orientation and perception of an ego climate, as well as between a task orientation and perceptions of a task climate. These results are consistent with previous research in both educational contexts (Ames & Archer, 1988; Cury et al. 1996; Goudas & Biddle, 1994; Papaioannou & Theodorakis, 1996) and



sport contexts (Cervelló & Santos-Rosa, 2001; Ebbeck & Becker, 1994; Pensgaard & Roberts, 2002; Santos-Rosa, 2003).

These findings suggest that the climate established by the coach can have a profound effect upon young athletes' goal orientations. In this regard, if the coach favors certain players over others, solely emphasizes the competitive results and being the best, this approach can contribute greatly to the tendency for individuals to adopt an ego goal orientation. On the other hand, if the most important emphasis for the coach is upon daily improvement and personal effort, there is a much greater probability that the athlete will adopt a task orientation.

A significant, negative relationship was identified between an ego-involved motivational climate and task orientation, specifically with regard to punishment for errors and unequal recognition. Therefore, to obtain a stronger task orientation and a major trend to experiment flow, it seems to be necessary that the trainer gives priority to the effort and the personal improvement (task-involving climate).

As the results show, there has been a decrease in the beta values of motivational climates by including dispositional orientations in the second step of the regression analysis. These results end up confirming that the effect of the motivational climate on dispositional flow is mediated by the athlete's goal orientations.

With respect to differences present according to gender, it was found that the males had a stronger ego orientation than did the females and also were more likely to perceive that their participation took place in an ego-oriented motivational climate. Furthermore, the male athletes differed from the female athletes across each of the components of the ego-oriented motivational climate in reference to punishment for errors, unequal treatment and rivalry among team members. To the contrary, the females perceived a more dominant task-oriented motivational climate and one that emphasized greater cooperative learning and emphasis upon improvement and learning than did the males. The gender differences that were encountered in this study were expected (Carr & Weigand, 2001; Castillo et al., 2000; White et al., 1998), although it was also anticipated that a stronger task orientation would be found for the females than for the males, as indicated by previous studies, but no significant differences were found in this regard. These results can be due to the low number of girls who took part in the study.

It would therefore appear that aspects related to competition and normative ability have been reinforced socially more in boys than in girls (Weiss & Ferrer-Caja, 2002). The results of this study complement those already obtained by prior research, since we have analyzed the different components of motivational climates, trying to contribute more detailed information on gender differences.

With regard to dispositional flow, and similar to the work developed by Russell (2001), we also found no significant gender differences in the general dispositional flow. We only found significant differences in the "sense of control"

dimension in favor of the boys. This is perhaps due to the fact that boys usually demonstrate more perceived competence than girls (e.g., Moreno & Cervelló, 2005), which would lead them to believe that they are more likely to control the sport situation. Moreover, there were no differences between girls and boys in the prediction of dispositional flow. However, the regression weight of the perception of a task climate was higher in the case of the girls. The results, therefore, show that the same variables predict flow for girls and boys and there are only differences in the prediction weight of them. Future studies should continue to analyze gender differences in flow in depth to try to clarify these results.

In summary, in this study we have attempted to examine the relationships present between motivational climate, goal orientations and flow in relation to gender. The results revealed a positive relationship between dispositional flow and motivational climate, as well as between dispositional flow and personal goal orientations. In addition, relationships existed between goal orientations and perceptions of the motivational climate. Gender differences were identified in goal orientations and in the perception of the motivational climate but not in dispositional flow. As such, it seems important to transmit a task-oriented motivational climate to facilitate the likelihood that individuals will adopt personal task-oriented goal orientations and have a greater likelihood of experiencing dispositional flow. At the same time we cannot forget the limitations of the study, specifically the use of a correlational design. As such, future researchers would be wise to use experimental and longitudinal designs to better identify causal relationships.

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