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Development and Validation of the Significant Others' Goal-Involving Roles in Sport
Questionnaire

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1 Abstract

2 Three studies were conducted to develop and validate a French questionnaire measuring
3 athletes' perceptions of significant others' task- and ego-involving roles. In Study 1, a
4 preliminary version was constructed by creating or selecting and adapting 30 items from
5 various existing questionnaires which refer to different significant others. In Study 2,
6 exploratory factor analyses with 210 athletes (M age = 17.2) suggested the existence of six
7 scales (PLC: Promotion of Learning by the Coach, PLP: Promotion of Learning by Parents,
8 PLA: Pursuit of Learning by Athletes, PCC: Promotion of Comparison by the Coach, PCP:
9 Promotion of Comparison by Parents, PCA: Pursuit of Comparison by Athletes) with
10 satisfactory internal consistencies, except for the PCP scale. In Study 3, confirmatory factor
11 analyses with 285 athletes (M age = 16.9) supported the preliminary six-factor structure of the
12 instrument as well as a hierarchical structure in which the six factors were distributed into two
13 higher-order factors (TIR: Task-Involving Roles and EIR: Ego-Involving Roles). The
14 theoretical validity of the questionnaire was evidenced by positive correlations between
15 'learning' scales (PLC, PLP, PLA) and task orientation, and between 'comparison' scales (PCC,
16 PCP, PCA) and ego orientation. The test-retest reliability was good over a three-week period
17 and was moderate over a three-month period.

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19 Key words: Achievement goals, motivation, socialization.

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1 Development and Validation of the Significant Others' Goal-Involving Roles in Sport
2 Questionnaire

3 During the last two decades, research on motivation in sport (e.g., Duda, 2001;
4 Roberts, 2001) has extensively borrowed the tenets of Nicholls' (1984, 1989) achievement
5 goal theory. According to Nicholls (1989), goal orientations are individual tendencies to use
6 specific criteria to assess success. Task orientation corresponds to the tendency to use self-
7 referenced criteria such as mastering a task or progressing in it, whereas ego orientation
8 relates to the inclination towards norm-referenced criteria such as demonstrating more
9 competence than others. A systematic review of the correlates of goal orientations in sport
10 reported by Biddle, Wang, Kavussanu, and Spray (2003) revealed that task and ego
11 orientations are respectively related to different achievement patterns. On the one hand, task
12 orientation is associated with motives of skill development and team membership, the belief
13 that effort leads to success, the beliefs that the purposes of sport concern mastery, co-
14 operation, fitness, health, and development of self-esteem, positive affects, adaptive
15 achievement strategies such as practice mastery and persistence in practice, and motivated-
16 related behaviors such as challenging task choices, greater effort, and persistence. On the
17 other hand, ego orientation is linked to motives of status/recognition and competition, the
18 beliefs that ability brings success and that the purpose of sport is to gain social status,
19 unsportspersonlike attitudes and aggressive behaviors.

20 Individual differences in goal orientation are seen as a result of socialization
21 experiences (Nicholls, 1989; Nicholls, Patashnick, & Nolen, 1985). According to White and
22 Duda (1994, p. 13), "socialization or differential experience with social environments which
23 reinforce the demonstration of superior ability or learning and personal mastery would impact
24 a person's degree of ego and task orientation, respectively". Environments with such
25 properties can be provided by social agents of importance, such as teachers, coaches, parents,
26 or peers (Carr, Weigand, & Hussey, 1999; Carr, Weigand, & Jones, 2000). Thus, individuals

1 are able to perceive task- or ego-involving motivational contexts from their interactions with
2 these significant others.

3 Several instruments have been developed to measure the perceptions of goal
4 perspectives of the context in sport and physical activities (see Duda & Whitehead, 1998).
5 These instruments mainly originate from Ames' work on motivational climate in academics
6 (Ames, 1992b; Ames & Archer, 1988) and her suggestions for the sport settings (Ames,
7 1992a). According to Ames and Archer (1988), a mastery-oriented climate places most
8 importance on the process of learning and the attainment of mastery through effort, whereas a
9 performance-oriented climate stresses the importance of being judged able, evidencing
10 success, outperforming others, or achieving success with little effort. Thus, Ames and Archer's
11 definitions of performance- and mastery-oriented climates go beyond the criteria of success
12 which define task- and ego-involving environments, respectively. In other words, the tenets of
13 the motivational climate are broader than those of Nicholls' (1984, 1989) achievement goal
14 theory. Consequently, the questionnaires measuring the motivational climate embrace more
15 than the sole self- or norm-referenced criteria of success.

16 The 'Perceived Motivational Climate in Sport Questionnaire-2' (PMCSQ-2; Newton &
17 Duda, 1993; Newton, Duda, & Yin, 2000) assesses the goal perspective that is emphasized by
18 coaches and athletes. The PMCSQ-2 includes three scales that are assumed to depict some
19 task-involving properties of the practice context (coach's focus on athletes' efforts to progress,
20 important role of each athlete, cooperation among athletes) and three other scales that are seen
21 as reflecting some ego-involving dimensions (intra-team member rivalry, unequal recognition
22 of athletes, punishment for mistakes). Nevertheless, it can be argued that only half of these
23 scales unambiguously refer to the core of the achievement goal theory. The scale 'focus on
24 progress' clearly meets the definition of a task-involving feature of the context (i.e., promoting
25 criteria of success based on progress or mastery). However, it is less clear whether the scales
26 'important role of each athlete' and 'cooperation among athletes' do so. The fact that each

1 athlete has an important role in the team could reflect equal considerations from the coach,
2 and in a pinch, an absence of social comparison. But this absence does not mean that such an
3 induced climate is task-involving. Because a non-ego-involving climate is not necessarily a
4 task-involving climate, the scale 'important role of each athlete' can hardly be considered as
5 reflecting the latter. Cooperation was sometimes found to be a correlate of task involvement
6 (e.g., Duda & Nicholls, 1992). However, cooperation items are most often double-stem,
7 constructed with the first stem tapping cooperation per se and the second stem indicating the
8 aim of the cooperation, namely learning, working, or improving (e.g., "On this team, players
9 help each other learn"). It can be argued that the task involvement dimension lies more on the
10 latter of the two stems and it is unlikely that cooperation items without the specified goals
11 would unambiguously promote criteria of success based on progress or mastery. The scales
12 'intra-team rivalry' and 'unequal recognition' both evoke social comparison emphases that are
13 typical of an ego-involving climate. However, although 'punishment for mistakes' items
14 appeared to statistically belong to the earliest versions of the PMCSQ (Seifriz, Duda, & Chi,
15 1992, Walling, Duda, & Chi, 1993), the question of whether these items directly reflect a
16 social comparison dimension has never been thoroughly examined. We agree with Newton et
17 al.'s (2000) contention that "We can understand how (...) feeling the looming threat of
18 punishment for undesirable performance (...) may be stressful for high- and low-ability
19 athletes" (p. 279), but we are not inclined to equate stress with social comparison.

20 In order to specifically measure youngsters' perceptions of the motivational climate
21 that is initiated by peer groups in organized sport, Ntoumanis and Vazou (2005) developed the
22 Peer Motivational Climate in Youth Sport Questionnaire (PeerMCYSQ). Based on a prior
23 qualitative investigation (Vazou, Ntoumanis, & Duda, 2005) and on factor analyses,
24 Ntoumanis and Vazou identified three scales relating to task involvement (improvement,
25 relatedness support, effort) and two scales addressing ego involvement (intra-team
26 competition/normative ability, intra-team conflict). Again, it can be argued that these scales

1 lie within a broad definition of the peers-induced motivational climate that goes beyond the
2 strict notion of self- or norm-referenced criteria of competence. The scale 'improvement'
3 reflects the fact that athletes help each other improve and thus clearly taps the task-involving
4 behavior of peers. However, the scales 'relatedness support' and 'effort' are less clearly focused
5 on self-referenced achievement goals such as mastering a given task or progressing in it.
6 Rather, the scale 'relatedness support' reflects more social affiliation because of its reference to
7 peer acceptance and peer consideration. Although parallelism has sometimes been found
8 between some motivational correlates of specific social goals and of specific achievement
9 goals (e.g., Ryan, Hicks, & Midgley, 1997), social affiliation cannot be theoretically equated
10 with achievement motivation. The scale 'effort' addresses encouragements from teammates to
11 try hard. According to achievement goal theorists (e.g., Dweck, 1986; Elliot, 1999; Nicholls,
12 1984, 1989) striving is one of the most important components of adaptive achievement
13 patterns. However, such adaptive patterns can be activated either by aims of mastery or
14 improvement (task-involvement) or by the desire to outperform others (ego involvement),
15 when individuals are confident in their capacity to reach that latter goal. Therefore, teammates
16 can be encouraged to strive to achieve either one or the other goal. Items of the scale 'effort'
17 lack specification about the purpose of effort and thus do not guarantee the reflection of peers'
18 task-involving influence. On the contrary, by focusing on both encouragements to outplay
19 one's teammates and credit given to the most able teammates, the scale 'intra-team
20 competition/normative ability' clearly reflects the social comparison (ego involvement) that is
21 emphasized by peers. The scale 'intra-team conflict' presents behaviors such as blaming and
22 laughing at failing teammates. According to Vazou et al. (2005), these negative behaviors
23 undermine interpersonal relationships and can be associated with athletes' perceptions of an
24 ego-involving climate. However, though the quality of peer relationships and the motivational
25 climate could have links, intra-team conflicts are not necessary related to outperforming others
26 and must be distinguished from ego-involving social situations.

1 The instruments that most distinguish the respective roles of different agents in setting
2 up specific motivational climates have been developed in physical education settings. Most of
3 these instruments originate from the 'Learning and Performance Orientation in Physical
4 Education Classes Questionnaire' (LAPOPECQ; Papaioannou, 1994) which includes five
5 scales. Two of the scales (class learning orientation, teacher's promotion of learning
6 orientation) that Papaioannou found are clearly task-related and focus on pupils and teacher,
7 respectively. The remaining three scales (class competitive orientation, credit given to success
8 without effort, worries about mistakes) were found by the author to reflect the ego orientation
9 of PE classes. But how these three scales relate to ego-involving dimensions of the
10 environment also needs to be further scrutinized in regard to achievement goal theory. The
11 'class competitive orientation' scale does depict the social comparative nature of the
12 relationships between pupils and can thus be clearly identified as reflecting ego involvement.
13 The 'success without effort' scale refers to a differentiated conception of ability. According to
14 Nicholls (1984, 1989), when a differentiated conception of ability is activated (i.e.,
15 distinguishing ability from effort), people feel competent when they outperform others while
16 expending equal or less effort, or when they perform as well as others while expending less
17 effort. Thus, the differentiated conception of ability favors ego involvement by sharpening
18 social comparison processes. On the other hand, when an undifferentiated conception of
19 ability is adopted (i.e., equating ability and effort), ability is associated with achieving through
20 effort and is thus deemed to be using self-referenced criteria. According to Nicholls, this
21 reflects task involvement. However, whether the differentiated conception of ability is
22 inevitably linked to ego involvement has recently been a subject of debate (Harwood & Hardy,
23 2001; Harwood, Hardy, & Swain, 2000; Treasure et al., 2001). According to Harwood and his
24 colleagues, the differentiated conception of ability is just a capability to discriminate the
25 effects of ability from those of effort. This capability, which is developmentally acquired, does
26 not compel a person to appraise his or her ability through social comparison processes. Thus,

1 it can be argued that the 'success without effort' scale is not in fact a systematic reflection of
2 ego orientation. Papaioannou (1994) found the 'worries about mistakes' scale to be a
3 dimension of the ego orientation of PE classes. This scale includes some items addressing the
4 fear of being disapproved of by other students or the teacher because of mistakes. However,
5 the perspective of being judged by others does not necessarily imply success being assessed
6 through norms-referenced criteria. In other words, pupils can be afraid of being seen as failing
7 in the mastery of a task, regardless of any comparison to others. Other items from the 'worries
8 about mistakes' scale address worry about practicing skills one is not good at, or fear of trying
9 new skills. Again, nothing indicates what criteria are used to consider oneself as potentially
10 not good at a known or unknown task. Thus, it can be concluded that the relation between the
11 'worries about mistakes' scale to ego involvement remains questionable.

12 In an attempt to improve the theoretical validity of the LAPOPECQ, Goudas and
13 Biddle (1994) created the Physical Education Class Climate Scale (PECCS) by discarding the
14 'success without effort' scale and adding two new scales that address students' perception of
15 teachers' support and students' perception of choice. Although these new scales were both
16 designed to reflect some task-oriented features of PE classes, none of them specifically taps
17 the self-referenced criteria of competence that are promoted in task-involving climates. The
18 'perceived teacher's support' scale addresses some teacher-pupils interactions and the 'students'
19 perception of choice' scale measures the pupils' perception of autonomy that is allowed by
20 teachers, thus clearly referring to Deci and Ryan's (1985) self-determination theory. Both the
21 LAPOPECQ and the PECCS include a 'teacher's promotion of learning orientation' scale, but
22 no counterpart scale of 'teacher's promotion of social comparison orientation'. However, Ames
23 (1992b) underlines that there are numerous examples such as public announcement of scores
24 and ranking, display of selected achievements, ability grouping, etc., in which social
25 comparison is imposed by the teacher. Given the importance of this possible ego-involving
26 role of the teacher, a 'teacher's promotion of social comparison orientation' scale has been

1 added in a French version of the PECCS that was developed by Biddle et al. (1995) and Cury
2 et al. (1996).

3 While the LAPOPECQ and the PECCS both address the roles of significant others
4 such as teachers and students, these questionnaires do not account for the important
5 socializing role of parents. To overcome this deficiency, White, Duda, and Hart (1992)
6 adapted the LAPOPECQ to create the Parent-Initiated Motivational Climate Questionnaire
7 (PIMCQ) which is assumed to measure the task- or ego-involving influences of young
8 athletes' fathers and mothers. The PIMCQ includes three scales relating to children's
9 perceptions of their fathers' and mothers' (separate) promotion of a learning-oriented climate,
10 credit given to success without effort, and reactions to failing and mistakes. Again, the
11 'learning-oriented climate' scale clearly reflects task orientation, whereas the 'success without
12 effort' and the 'worry conducive climate' scales are subject to the criticisms that have
13 previously been expressed for the LAPOPECQ and cannot thus be considered as a direct
14 reflection of ego orientation.

15 To date, it can be argued that there exists no instrument grounded in achievement goal
16 theory by specifically assessing the task- and ego-involving roles of significant others, such as
17 coaches, parents, and peers. Moreover, concern has been expressed by Duda (Duda, 2001;
18 Duda & Whitehead, 1998) about the proliferation of climate questionnaires that precludes any
19 comparison of results across studies. Indeed, the use of different instruments makes it difficult
20 to distinguish the effects of these instruments from the effects of the goal structure promoted
21 by significant others. As a result, research in sport into task- or ego-involving roles of
22 different significant others is in need of a single instrument which clearly taps the goal
23 perspective that these socializing agents promote.

24 The purpose of the present three studies was to develop and validate a French
25 questionnaire measuring how coaches, parents, and peers are perceived by athletes to
26 emphasize task or ego goal perspectives in sport: The Significant Others' Goal-Involving

1 Roles in Sport Questionnaire (SOGIRSQ). Because the potential influence of athletes' parents
2 was of interest, this questionnaire was intended to address populations who are likely to still
3 be sensitive to this influence, namely adolescents and young adults. The first study was
4 devoted to the construction of a preliminary version of the instrument. The second study
5 aimed to explore the factorial structure of the SOGIRSQ and to test the internal consistencies
6 of its scales. The purposes of the third study were to confirm this factorial structure on a new
7 population and to test the theoretical validity of the SOGIRSQ by examining the relationships
8 between the perceived task- and ego-involving roles of significant others and participants' goal
9 orientations. The stability of the questionnaire over periods of different length was also tested
10 in studies 2 and 3.

11 Study 1

12 A preliminary version of the SOGIRSQ was constructed by adapting items from
13 various existing questionnaires referring to different significant others, or by creating new
14 items when necessary. The clarity of the resulting items was then assessed.

15 Item Construction

16 Eighteen items explicitly referring to teachers' and students' goal-involving roles were
17 developed out from Cury et al.'s (1996) French version of the PECCS (Goudas & Biddle,
18 1994). These items were adapted by changing the words *teacher* and *students* to the words
19 *coach* and *athletes*, respectively, or by changing the word *teacher* to the word *parents*. Two
20 items were selected from White et al.'s (1992) PIMCQ because of their reference to parents'
21 goal-involving roles. Seven items that directly addressed the goal-involving roles of the coach
22 or athletes were borrowed to Newton et al.'s (2000) PMCSQ-2. Additionally, some of these
23 items were modified by changing the word *coach* to the word *parents*. Items in English (i.e.,
24 stemming from the PIMCQ and the PMCSQ-2) underwent a back-translation procedure
25 (Brislin, Lonner, & Thorndike, 1973) which consisted of first translating the items from
26 English to French by a bilingual researcher, and then translating the French back to English by

1 an independent bilingual translator. The English version thus obtained was then submitted to
 2 an English sport psychologist who acknowledged its conformity to the original. Three items
 3 were created based on interviews with athletes. Two of these items concerned the goal-
 4 involving roles of parents: "My parents follow closely my technical and tactical improvement"
 5 and "My parents often praise my most gifted teammates". The third item concerned the roles
 6 of peers: "The athletes try everything to avoid showing they are weaker than their training
 7 partners".

8 The resulting pool of 30 items was retained to represent the following six scales:

9 Promotion of Learning by the Coach (PLC), Promotion of Learning by Parents (PLP), Pursuit
 10 of Learning by Athletes (PLA), Promotion of Comparison by the Coach (PCC), Promotion of
 11 Comparison by Parents (PCP), and Pursuit of Comparison by Athletes (PCA). The first three
 12 scales reflect the perceived task-involving behaviors of coaches, parents, and peers, while the
 13 last three reflect the perceived ego-involving behaviors of these significant others. Below are
 14 examples of items of these scales:

15 PLC: "The coach encourages the athletes to work on their weak areas."

16 PLP: "My parents are very satisfied when my skills or my tactics improve."

17 PLA: "Athletes feel very satisfied when they learn new technical or tactical solutions."

18 PCC: "The coach only looks after those who obtain good results in competition."

19 PCP: "My parents attach great importance to how I place in competition."

20 PCA: "Athletes are very satisfied when they do better than their training partners."

21 Item Clarity Check

22 Twenty-three athletes specialists of judo (18 males, 5 females) whose average age was
 23 15.5 years ($SD = 1.5$) voluntarily participated in the procedure to assess the clarity of the
 24 items. These judokas were competitors who were used to participate in regional
 25 championships. They were asked to indicate whether each item was clear and easily
 26 understandable at the first reading on a specific 7-point Likert-type scale (1 = not at all, 4 =

1 fairly, 7 = perfectly). The degrees of clarity of the items ranged from 5.13 to 6.83 ($M = 6.28$,
2 $SD = 0.65$), thus revealing that all the items of the preliminary version of the questionnaire
3 were comprehensible.

4 All 30 items were retained for the next stage of validation. Therefore, any redundancy
5 among these items still needs to be eliminated by determining the factorial structure of the
6 SOGIRSQ.

7 Study 2

8 The purpose of this second study was to explore the factorial structure of the
9 preliminary version of the SOGIRSQ. The internal consistencies of the scales as well as the
10 test-retest reliability over a three-week period were also tested.

11 Method

12 *Participants.* A sample of 210 national level athletes (113 males, 97 females) whose
13 average age was 17.2 years ($SD = 1.9$) voluntarily participated in this study. They were
14 predominantly Caucasian. These athletes were specialists of various dual or team sports such
15 as badminton ($n = 29$), table tennis ($n = 26$), judo ($n = 58$), basketball ($n = 32$), handball ($n =$
16 36), or volleyball ($n = 29$). Such activities have been chosen because they extensively require
17 technical and tactical skills and thus fit well with some task involvement items which
18 explicitly refer to these kinds of skills. The athletes had been practicing in their respective
19 teams for 6 to 11 years ($M = 8.7$; $SD = 1.9$).

20 *Procedure.* The participants were solicited on site, in the middle of the sport season
21 and just before training sessions. They were informed that they were free to participate or not,
22 and that they could end their participation at any time, if they wished. They were also assured
23 of the confidentiality of their responses. After signing an informed consent form, each
24 participant had to fill in the preliminary version of the SOGIRSQ. Each item was answered on
25 a 5-point Likert-type scale ranging from strongly disagree (1) to strongly agree (5). The score
26 of each of the scales was the mean of the scores of its corresponding items. A randomly

1 selected sample of participants (60 males, 43 females) completed the questionnaire three
2 weeks after the initial data collection.

3 Results

4 *Exploratory Factor Analysis.* Maximum likelihood exploratory factor analysis with
5 varimax rotation was employed in order to determine the most parsimonious conceptual
6 understanding of the 30-item set. Exploratory factor analysis was chosen because, unlike
7 principal components analysis, it enables the identification of a set of latent constructs
8 underlying a battery of measured variables, and thereby the distinction between common and
9 error variance in the items (Fabrigar, Wegener, MacCallum, & Strahan, 1999). The Kayser-
10 Meyer-Olkin (KMO) measure of sampling adequacy and the Bartlett Test of Sphericity were
11 conducted on the data prior to factor extraction to ensure that the characteristics of the data
12 were suitable for the exploratory factor analysis to be conducted. The results from these
13 preliminary analyses were highly satisfactory and indicated that the Maximum Likelihood
14 extraction factor analyses could be performed. The exploratory factor analysis revealed six
15 factors with eigenvalues greater than one. Items with no loading greater than .35 on particular
16 factors or with several loadings greater than .35 were deleted (Gorsuch, 1983). The
17 subsequent iterations of the analysis that were processed on the remaining items revealed a
18 six-factor solution that accounted for 48.7% of the variance. The first factor included five
19 items reflecting the PLP scale. The second factor included four items corresponding to the
20 PCC scale. Each of the third, fourth, and fifth factors included three items that were initially
21 devoted to the PLC, PCA, and PLA scales, respectively. The last factor included only two
22 items that reflected the PCP scale. For each of these scales, the coefficients alpha were .80
23 (PLP), .79 (PCC), .77 (PLC), .64 (PCA), .61 (PLA), and .43 (PCP). Thus, the internal
24 consistencies of the scales were good for PLP, PCC, and PLC. They were deemed acceptable
25 for PCA and PLA since each of these scales includes three items only. According to Nunnally
26 and Bernstein (1994), coefficients alpha can be affected by underestimates of scale item

1 intercorrelations due to a small number of items per scale. So, marginally acceptable internal
2 consistencies with coefficients alpha exceeding .60 can be tolerated for questionnaires with a
3 limited number of items per scale. On the other hand, the low internal consistency of the PCP
4 scale was unacceptable. The items of the six scales are displayed in the Appendix.

5 *Correlational Analyses.* Significant moderate positive correlations were found
6 between the scales PLC and PLP, PLC and PLA, PLP and PLA, and PCC and PCA.
7 Moreover, PLC and PCC scales showed a significant moderate negative correlation. All the
8 other correlations were close to zero and/or non significant. The test-retest correlations that
9 were processed on the selected sample were significant for all the scales. All the Pearson's
10 correlation coefficients are displayed Table 1.

11 Discussion

12 The exploratory factor analysis of the preliminary version of the SOGIRSQ yielded a
13 factorial structure that fits the expected six scales of the questionnaire well. The resulting
14 questionnaire includes 20 items which are distributed across six scales that are assumed to
15 measure coaches', parents', and peers' task-involving roles (i.e., PLC, PLP, and PLA scales,
16 respectively), and coaches', parents', and peers' ego-involving roles (i.e., PCC, PCP, and PCA
17 scales, respectively). However, the PCP scale included only two items and displayed a low
18 internal consistency. Although scales most often include at least three items, several authors
19 have shown that two variables per factor can lead to more appropriate models than three or
20 more variables per factor do (e.g., Anderson & Gerbing, 1984; Ding, Velicer, & Harlow,
21 1995; Kenny & McCoach, 2003). Nevertheless, having two items in a scale severely affects
22 the internal consistency of the scale in question. In the present study, this could have been the
23 case for the PCP scale. Another reason could be that the PCP items addressed parents' roles
24 without specifying whether they concern the father or the mother. This lack of precision,
25 which did not exist in White et al.'s (1992) PIMCQ, could have affected the homogeneity of
26 the participants' responses to these items.

1 The positive correlation that was found between PLC and PLA might suggest that the
2 task-involving role of the coach could have favored some task-involving behaviors among the
3 athletes or vice versa. On the contrary, regarding the positive relationships that were found
4 between PLP and PLC, and between PLP and PLA, it cannot be argued that the task-involving
5 behaviors of parents could have fostered – or been fostered by – the task-involving behaviors
6 of coaches and peers. Indeed, parents and peers, as well as parents and coaches, belong to
7 different environments so that it is unlikely that any influence can be exerted between each
8 participant's parents and his or her peers, or between parents and coaches. More likely, it can
9 be speculated that the set of correlations between PLP, PLC, and PLA could be interpreted in
10 terms of participant's proneness to perceive the environment according to his or her own goal
11 orientation. Such an argument has already been expressed by Ntoumanis and Biddle (1998)
12 and supported by previous correlational studies (e.g., Treasure & Standage, 1999).

13 Like the PLC – PLA relationship, the positive low correlation that was found between
14 PCC and PCA might be explained either by the influence of the ego-involving role of the
15 coach on the ego-involving behaviors of the athletes (or vice versa) or by a possible proneness
16 (i.e., ego-orientation) to perceive all environments as ego-involving.

17 Specifically regarding the goal orientation that is promoted by coaches, the negative
18 low correlation that was found between PLC and PCC suggests that the perceptions of task-
19 versus ego-involving climates are weakly opposite. Moreover, no significant correlations
20 between task- and ego-related scales were found for parents- or peers-induced climates. These
21 findings suggest that task- and ego-involving dimensions of the context are not incompatible.
22 This conclusion is consistent with previous findings from Goudas and Biddle (1994) who
23 found that children perceiving PE classes to be high in both task- and ego-involving climates
24 were those who reported the most enjoyment and perceived competence.

25 The positive test-retest correlations that were found were almost all above the value of
26 .60 advocated by Nunnally and Bernstein (1994). Therefore, except the PLC scale whose test-

1 retest correlation was just below .60, the scales of the SOGIRSQ have a good stability over a
2 three-week period. The scarcely sufficient stability of the PLC scale could be due to the
3 variations of coaches' behaviors according to the imminence, or not, of a competition. For
4 instance, the fact that Williams (1998) found athletes' goal involvement to vary according to
5 time (pre-practice vs. pre-game) could support this hypothesis.

6 Study 3

7 The purposes of the third study were to test the reliability of the structure of the
8 SOGIRSQ through confirmatory factorial analyses conducted on a new population and to
9 examine its concurrent validity based on its relationships with goal orientation measures. The
10 test-retest reliability of the questionnaire was also examined over a three-month period.

11 The six-factor structure that was revealed in the previous study served as the
12 hypothetical model to be supported. However, given that some motivational climate
13 questionnaires were sometimes found to be hierarchically organized (Newton et al., 2000;
14 Ntoumanis & Vazou, 2005), a second model was also hypothesized. This model included two
15 higher-order scales which were each underpinned by three lower-order scales. The higher-
16 order scales were Task-Involving Roles (TIR) and Ego-Involving Roles (EIR). Their
17 respective lower-order scales were the scales of the six-factor model (TIR: PLC, PLP, PLA;
18 EIR: PCC, PCP, PCA).

19 Concerning the examination of the concurrent validity of the questionnaire, previous
20 research has shown links between task orientation and the perception of a task-involving
21 climate, and between ego orientation and the perception of an ego-involving climate,
22 respectively (e.g., Ntoumanis & Biddle, 1998; Seifriz et al., 1992; Treasure & Standage,
23 1999). Three interpretations have been put forward to explain the relationships found between
24 the perceived motivational climate and goal orientations. First, according to Ames' (1992a)
25 suggestions, a specific motivational climate would promote the corresponding goal orientation
26 for individuals who are immersed in this context. Second, Treasure and Standage (1999)

1 suggested that the perception of a given motivational climate could also be influenced by
2 individuals' goal orientations. Those who are task-oriented would be prone to perceiving the
3 climate as task-involving, whereas those who are ego-oriented would more likely perceive the
4 climate as ego-involving. A third hypothesis is that athletes would persist in belonging to
5 teams (Ntoumanis & Biddle, 1998) or in practicing given sport activities (Gernigon & Le Bars,
6 2000) if the perspective that is emphasized by these teams or activities is compatible with
7 their own goal orientation. Conversely, athletes who perceive an environment as being
8 discordant with their goal orientation would drop out. As a result, researchers who conduct
9 investigations among populations of athletes selected as such would have a greater chance of
10 observing person-environment consistencies regarding goal perspectives.

11 Each of these hypotheses may be correct and we agree with Duda (2001) and
12 Ntoumanis and Biddle (1998) when they state that the relationship between goal orientations
13 and perceived motivational climate is probably dynamic and reciprocal. This suggests that this
14 relationship at least exists, regardless of its direction. Therefore, in the present study, positive
15 correlations were expected between the perceived task- and ego-involving roles of significant
16 others concerned by the SOGIRSQ (i.e., coaches, parents, peers) and participants' task and ego
17 orientations, respectively.

18 Method

19 *Participants.* A sample of 285 regional and national level athletes (172 males, 113
20 females) whose average age was 16.9 years ($SD = 1.8$) voluntarily participated in this study.
21 They were predominantly Caucasian. These athletes were specialists of judo¹, a dual combat
22 sport that extensively requests technical and tactical skills. Although the time athletes had
23 been doing judo ranged from 6 to 10 years, they had been practicing in selective regional or
24 national training centers for about one year ($M = 1.08$; $SD = 0.34$).

25 *Procedure.* The participants were solicited in their training centers, in the middle of the
26 sport season and just before training sessions. The data collection procedures and instructions

1 for completing the questionnaires were similar to those used in the previous study. The
2 participants were asked to complete the SOGIRSQ and the French version (Durand, Cury,
3 Sarrazin, & Famose, 1996) of Roberts and Balague's (1991) Perception of Success
4 Questionnaire (POSQ). The POSQ measures goal orientations (task and ego) in sports. It
5 contains 12 items, half of which deal with task orientation, while half correspond to ego
6 orientation. After reading the phrase: "I feel most successful in sport when ...", the participants
7 responded to situations characterized by one or the other of the two orientations. They rated
8 each item on a 5-point Likert-type scale (from strongly disagree to strongly agree). Each goal
9 orientation was measured by calculating the mean of the scores of its corresponding items.

10 A majority of the participants (155 males, 101 females) completed the questionnaire
11 three months after the initial data collection.

12 Results

13 *Confirmatory Factor Analyses.* Both the six-factor model and the hierarchical two plus
14 six-factor model were tested by structural equation modeling analyses using AMOS 4
15 program (Arbuckle, 1999). Given that the data exhibited substantial multivariate kurtosis for
16 the two models (Mardia's normalized estimate > 45), the analyses were conducted using the
17 bootstrap maximum likelihood estimates of AMOS 4 program. This procedure efficiently
18 manages the multivariate nonnormality by computing a chi-square statistic (χ^2) and standard
19 errors scaled to approximate the referenced χ^2 distribution (e.g., Curran, West, & Finch, 1996;
20 Fouladi, 2000). The bootstrapped fit indexes for the two models were the χ^2 statistic, the χ^2/df
21 ratio, the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI), and the Root Mean
22 Square Error of Approximation (RMSEA). These overall fit indexes are presented in Table 2.

23 The six-factor model was tested using the 20 items that were retained from the
24 previous study. The analysis revealed a significant χ^2 statistic. However, such a finding does
25 not indicate that the null hypothesis should be systematically rejected, since the χ^2 statistic is

1 highly sensitive to sample size (Loehlin, 1992). The χ^2/df ratio, which neutralizes the
2 influence of the sample size, was below 2, thus indicating that the data fit the model well
3 (Byrne, 2001). The CFI and the TLI were above the criterion of acceptability of .90 (Hu &
4 Bentler, 1999), whereas the RMSEA just reached the criterion .05 below which the fit of the
5 data is deemed very good (Steiger, 1990).

6 The examination of fits for individual variables (i.e., items) revealed that only item 26
7 had an insufficient factor loading (.29), the other items having loadings above .35. Moreover,
8 some large modification indices (MI) indicated that the measurement error for item 26 should
9 be allowed to covary with PCA factor (MI = 16.4) and with the measurement error for item 25
10 (MI = 23.0). Other large MIs also suggested to assign item 26 to the PCA scale (MI = 15), to
11 allow item 25 to predict item 26 (MI = 31.3) and vice versa (MI = 19.9), and to allow item 10
12 to predict item 26 (MI = 12.4).

13 Given that all the inadequacies that were found involve item 26, the six-factor
14 confirmatory analysis was recomputed without that item. The χ^2 statistic was significant, but
15 the χ^2/df ratio still was good (< 2). The CFI became good (> .95). The TLI improved but did
16 not switch from acceptable to good (>.90 and < .95) and the RMSEA became very good (<
17 .05). All the factor loadings were satisfactory (> .35) and no large MIs were found. The
18 hierarchical factor model was tested using the 19 remaining items (i.e., item 26 dropped).
19 Again, the χ^2 statistic was significant, but the χ^2/df ratio was good (< 2). The CFI and the TLI
20 were acceptable (> .90) whereas the RMSEA was good (= .05). All the factor loadings were
21 satisfactory (> .35) and no large MIs were found. Factors loadings for these two 19-item
22 models are presented in Table 3.

23 *Correlational Analyses.* A significant negative correlation was found between the two
24 higher-order scales of the hierarchical model [$r(284) = -.53, p < .001$]. The test-retest
25 correlations that were processed on the selected sample were significant for all the scales. The

1 correlational analyses that were processed between the French version of the POSQ and the
2 SOGIRSQ revealed that task orientation was positively related to TIR, PLC, PLP, and PLA.
3 Very low negative relationships were also found between task orientation and EIR, and
4 between task orientation and PCP. Ego orientation was positively related to EIR, PCC, PCP,
5 and PCA. All the other correlations were non significant. The Pearson's correlation
6 coefficients are displayed Table 4.

7 Discussion

8 The confirmatory factor analyses revealed that two 19-item models of the SOGIRSQ
9 showed acceptable or good fit indexes. The first model was comprised of the six factors that
10 emerged from the exploratory analyses of Study 2 (i.e., PLC, PLP, PLA, PCC, PCP, and
11 PCA). The second model was comprised of eight factors which were hierarchically organized.
12 In this latter model, the first half of the previous six factors (i.e., PLC, PLP, and PLA)
13 belonged to a higher-order factor (TIR) and the second half (i.e., PCC, PCP, and PCA)
14 belonged to a different higher-order factor (EIR). The interest of a hierarchical model lies in
15 the possibility of collecting either data specific to the task- or ego- involving roles of different
16 significant others or data on the goal-involving properties of the athletes' general environment.
17 The collection of both types of data allows for comparisons between the specific influences of
18 different significant others on athletes' perceptions of the general environment.

19 As hypothesized, positive relationships were found between the scales tapping the
20 perceived task-involving roles of significant others (i.e., PLC, PLA, and PLP) and
21 participants' task orientation measures, and between the scales tapping the perceived ego-
22 involving roles of significant others (i.e., PCC and PCA) and participants' ego orientation
23 measures. These findings are consistent with those from previous research that showed
24 positive links between goal orientations and the corresponding perceived motivational
25 climates (e.g., Ntoumanis & Biddle, 1998; Seifriz et al., 1992; Treasure & Standage, 1999).
26 This consistency offers a primary support to the theoretical validity of the SOGIRSQ.

1 accompanied by the perception of a task-involving climate, future investigations should
2 precise the motivational impact of each combination of the task- and ego-involving
3 dimensions of the climate.

4 The present state of development of the SOGIRSQ presents a number of limitations.
5 First, the questionnaire addressed a limited age range population. On the top of the range, it
6 was not possible to include adult athletes who are completely independent of their parents
7 because of the purpose of tapping parental influences. At the bottom of the range, avoiding
8 ages too close to 12 years guaranteed that the participants had reached the stage of a
9 differentiated conception of ability which enables a person to appraise his or her ability
10 through sharp social comparison processes involving separate evaluations of ability and effort
11 (Nicholls, 1984, 1989). As a result, it can be argued that the generalizability of the instrument
12 has the same limits as its theoretical purpose. Future research that would extend the use of the
13 SOGIRSQ to older or younger samples should ensure that studying parental influences on
14 adults is of interest or that children have access to a differentiated conception of ability.
15 Second, the scale addressing the perception of promotion of comparison by parents could not
16 be retained due to its number of items that was limited to two, and consequently to its
17 insufficient internal consistency. To improve this inadequacy, future refinements of the
18 questionnaire should yield a greater number of items whose meanings would be univocally
19 directed toward the ego-involving roles of parents. Another perspective might be to make
20 these items more precise by separately addressing the father's and the mother's roles.
21 However, this would present a drawback by creating two distinct scales for parents, thus
22 unbalancing the respective weights of the different significant others within the questionnaire.
23 Third, the theoretical validity of the SOGIRSQ has only been asserted through its congruence
24 with measures of goal orientations. Future theoretical support for this questionnaire should be
25 provided, particularly by examining its sensitivity to experimental conditions.

1 In spite of these limitations, the relative roles of the various agents likely to promote
2 particular types of goal perspectives in sport can be studied by using the SOGIRSQ. Although
3 the measures provided by this instrument appeared stable over short periods of three weeks,
4 their decreasing stability over longer periods (e.g., three months) attests to the sensitivity of
5 the questionnaire to contextual variations. Thus, the SOGIRSQ is appropriate to longitudinal
6 studies intended to track changes over time in the perception of significant others' goal
7 involving roles.

8

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1

Footnotes

2 ¹ Judo was chosen because this research belonged to a series of studies that were ordered by
3 the Judo French Federation.

4

1 Appendix
 2 Items of the Significant Others' Goal-Involving Roles in Sport Questionnaire
 3 (English translations are in italics)

Promotion of Learning by the Coach

1. L'entraîneur est content quand chacun progresse au plan technique ou tactique.
The coach is satisfied when everybody improves technically or tactically.
14. L'entraîneur est content quand tout le monde s'améliore.
The coach is satisfied when everybody improves.
22. L'entraîneur est très satisfait quand tous les athlètes progressent, suite à leurs efforts.
The coach is very satisfied when all the athletes improve after putting in some effort.

Promotion of Learning by Parents

4. Mes parents sont très satisfaits quand j'apprends quelque chose de nouveau.
My parents are very satisfied when I learn something new.
9. Mes parents sont très satisfaits quand je progresse suite à mes efforts.
My parents are very satisfied when I am improving after my effort.
19. Mes parents sont très satisfaits quand j'améliore mes techniques ou ma tactique.
My parents are very satisfied when my skills or my tactics improve.
23. Mes parents m'encouragent à travailler mes points faibles.
My parents encourage me to work on my weak areas.
27. Mes parents suivent de près mes progrès techniques et tactiques.
My parents follow closely my technical and tactical improvement.

Pursuit of Learning by Athletes

3. Ce que les athlètes apprennent leur donne envie de s'entraîner davantage.
What athletes learn, motivates them to train ever more.

12. Les athlètes sont très contents quand ils apprennent de nouvelles solutions techniques ou tactiques.

Athletes feel very satisfied when they learn new technical or tactical solutions.

24. Les athlètes sont très satisfaits quand ils ont consacré beaucoup d'efforts au travail technique ou tactique.

Athletes are very satisfied when they have spent a lot of effort on technical or tactical work.

Promotion of Comparison by the Coach

5. L'entraîneur apprécie plus particulièrement ceux qui gagnent.

The coach prefers those who win.

20. L'entraîneur ne s'occupe que de ceux qui ont de bons résultats en compétition.

The coach only looks after those who obtain good results in competition.

- 26*. L'entraîneur fait l'éloge des athlètes lorsqu'ils se montrent meilleurs que leurs partenaires.

The coach praises athletes when they outperform their teammates.

30. L'entraîneur encourage surtout les plus doués.

The coach encourages, above all, the most skillful.

Promotion of Comparison by Parents

16. Mes parents accordent énormément d'importance à la place que j'obtiens en compétition.

My parents attach great importance to how I place in competition.

21. Mes parents s'intéressent davantage à moi quand j'ai eu de bons résultats en compétition.

My parents are more interested in me when I have got good results in competition.

Pursuit of Comparison by Athletes

10. Les athlètes sont très satisfaits quand ils réussissent mieux que leurs partenaires d'entraînement.

Athletes are very satisfied when they do better than their training partners.

13. C'est quand ils font mieux que tout le monde que les athlètes sont le plus content.

It's when the athletes do better than everybody else, that they are most happy.

25. Les athlètes font tout pour éviter de se montrer plus faibles que leurs partenaires d'entraînement.

The athletes try everything to avoid showing they are weaker than their training partners.

* Item 26 was dropped in the final model.

1

2

1 Table 1

2 *Correlations Between the Scales of the SOGIRSQ (n = 210) and Test-Retest Correlations over*3 *a Three-Week Period (n = 103)*

Scales	1	2	3	4	5	6
1. Promotion of Learning by the Coach						
2. Promotion of Learning by Parents	.26***					
3. Pursuit of Learning by Athletes	.29***	.32***				
4. Promotion of Comparison by the Coach	-.32***	-.09	-.13			
5. Promotion of Comparison by Parents	-.09	.01	.05	.15*		
6. Pursuit of Comparison by Athletes	-.07	.01	-.04	.23***	.07	
Test-retest correlations (3 weeks)	.58***	.85***	.66***	.82***	.62***	.72***

4 *Note.* * = $p < .05$, ** = $p < .01$, *** = $p < .001$.

5

1 Table 2

2 *Bootstrapped Fit Indexes for the Confirmatory Factor Analyses Models (n = 285)*

Models	χ^2	df	χ^2/df	CFI	TLI	RMSEA
6-factor model (20 items)	171.62	155	1.11	.92	.91	.05
6-factor model (19 items)	150.53	137	1.10	.96	.94	.04
Hierarchical 8-factor model (19 items)	158.69	145	1.09	.94	.93	.05

3 *Note.* CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; RMSEA = Root Mean Square

4 Error of Approximation.

5 For all χ^2 values, $p < .05$

6

- 1 Table 3
- 2 *Factor Loadings Yielded by the Final Confirmatory Factor Analyses: Factors of the 6-Factor*
- 3 *Model/Lower-Order factors of the Hierarchical Model (n = 285)*

Scales	PLC	PLP	PLA	PCC	PCP	PCA
Item 1	.56/.56					
Item 14	.72/.73					
Item 22	.75/.74					
Item 4		.69/.68				
Item 9		.64/.65				
Item 19		.74/.75				
Item 23		.69/.68				
Item 27		.66/.66				
Item 3			.55/.54			
Item 12			.62/.64			
Item 24			.53/.52			
Item 5				.75/.74		
Item 20				.85/.85		
Item 30				.84/.85		
Item 16					.36/.33	
Item 21					.61/.67	
Item 10						.63/.62
Item 13						.78/.79
Item 25						.40/.39

- 4 *Note.* PLC = Promotion of Learning by the Coach; PLP = Promotion of Learning by Parents;
- 5 PLA = Pursuit of Learning by Athletes; PCC = Promotion of Comparison by the Coach; PCP
- 6 = Promotion of Comparison by Parents; PCA = Pursuit of Comparison by Athletes.

1 Table 4

2 *Correlations Between the Scales of the POSQ and the Scales of the SOGIRSQ (n = 285) and*3 *Test-Retest Correlations over a Three-Month Period (n = 256)*

Scales	TIR	PLC	PLP	PLA	EIR	PCC	PCP	PCA
Task orientation	.44***	.27***	.33***	.40***	-.13*	-.11	-.14*	.02
Ego orientation	.02	.07	.02	.06	.40***	.26***	.20***	.43***
Test-retest correlations (3 months)	.62***	.31***	.71***	.44***	.65***	.63***	.49***	.58***

4 *Note.* TIR = Task-Involving Roles; PLC = Promotion of Learning by the Coach; PLP =

5 Promotion of Learning by Parents; PLA = Pursuit of Learning by Athletes; EIR = Ego-

6 Involving Roles; PCC = Promotion of Comparison by the Coach; PCP = Promotion of

7 Comparison by Parents; PCA = Pursuit of Comparison by Athletes.

8 * = $p < .05$, ** = $p < .01$, *** = $p < .001$.