European Journal of Sport Science
Publication details, including instructions for authors and subscription information:
http://www.tandfonline.com/loi/tejs20

Motivation towards dual career of European student-athletes

Corrado Lupo[ab], Flavia Guidotti[a], Carlos E. Goncalves[c], Liliana Moreira[c], Mojca Doupona Topic[d], Helena Bellardini[e], Michail Tonkonogi[e], Allen Colin[f] & Laura Capranica[a]

[a] Department of Movement, Human and Health Sciences, University of Rome Foro Italico, Rome, Italy

[b] Motor Science Research Center, S.U.I.S.M. Centro Servizi, Department of Medical Sciences, University of Turin, Turin, Italy

[c] Faculty of Sport Sciences, University of Coimbra, Coimbra, Portugal

[d] Department of Sociology and History of Sport, Faculty of Sport, University of Ljubljana, Ljubljana, Slovenia

[e] Department of Health- and Social Sciences, Dalarna University, Falun, Sweden

[f] Department of Sport and Exercise Sciences, University of Northumbria, Newcastle, UK

Published online: 22 Aug 2014.

To cite this article: Corrado Lupo, Flavia Guidotti, Carlos E. Goncalves, Liliana Moreira, Mojca Doupona Topic, Helena Bellardini, Michail Tonkonogi, Allen Colin & Laura Capranica (2014): Motivation towards dual career of European student-athletes, European Journal of Sport Science, DOI: 10.1080/17461391.2014.940557

To link to this article: http://dx.doi.org/10.1080/17461391.2014.940557

European Journal of Sport Science, 2014
http://dx.doi.org/10.1080/17461391.2014.940557

Routledge
Taylor & Francis Group

ORIGINAL ARTICLE

Motivation towards dual career of European student-athletes

CORRADO LUPO[1,2], FLAVIA GUIDOTTI[1], CARLOS E. GONCALVES[3], LILIANA MOREIRA[3], MOJCA DOUPONA TOPIC[4], HELENA BELLARDINI[5], MICHAIL TONKONOGI[5], ALLEN COLIN[6], & LAURA CAPRANICA[1]

[1]*Department of Movement, Human and Health Sciences, University of Rome Foro Italico, Rome, Italy,* [2]*Motor Science Research Center, S.U.I.S.M. Centro Servizi, Department of Medical Sciences, University of Turin, Turin, Italy,* [3]*Faculty of Sport Sciences, University of Coimbra, Coimbra, Portugal,* [4]*Department of Sociology and History of Sport, Faculty of Sport, University of Ljubljana, Ljubljana, Slovenia,* [5]*Department of Health- and Social Sciences, Dalarna University, Falun, Sweden,* [6]*Department of Sport and Exercise Sciences, University of Northumbria, Newcastle, UK*

Abstract
The present study aimed to investigate motivations for the dual career of European student-athletes living in countries providing different educational services for elite athletes: State-centric regulation–State as sponsor/facilitator (State), National Sporting Federations/Institutes as intermediary (Federation) and Laisser Faire, no formal structures (No Structure). Therefore, the European Student-athletes' Motivation towards Sports and Academics Questionnaire (SAMSAQ-EU) was administered to 524 European student-athletes. Exploratory Factor Analysis, and Confirmatory Factor Analysis were applied to test the factor structure, and the reliability and validity of the SAMSAQ-EU, respectively. A multivariate approach was applied to verify subgroup effects ($P \leq 0.05$) according to gender (i.e., female and male), age (i.e., ≤24 years, >24 years), type of sport (i.e., individual sport and team sport) and competition level (i.e., national and international). Insufficient confirmatory indexes were reported for the whole European student-athlete group, whereas distinct three factor models [i.e., Student Athletic Motivation (SAM); Academic Motivation (AM); Career Athletic Motivation (CAM)] emerged, with acceptable reliability estimates, for State (SAM = 0.82; AM = 0.75; and CAM = 0.75), Federation (SAM = 0.82; AM = 0.66; and CAM = 0.87) and No Structure (SAM = 0.78; AM = 0.74; and CAM = 0.79) subgroups. Differences between subgroups were found only for competition level ($P < 0.001$) in relation to SAM ($P = 0.001$) and CAM ($P < 0.001$). For SAM, the highest and lowest values emerged for Federation (national, 5.1 ± 0.5; international, 5.4 ± 0.5) and State (national, 4.5 ± 0.9; international, 4.8 ± 0.7). The opposite picture emerged for CAM (Federation: national, 3.3 ± 0.7; international, 3.5 ± 0.9; State: national, 5.0 ± 0.8; international, 5.0 ± 0.9). Therefore, despite SAMSAQ-EU demonstrated to be a useful tool, results showed that European student-athletes' motivation for dual career has to be specifically investigated according to social contexts.

Keywords: *SAMSAQ-EU, validity, athletic career*

Introduction

Athletic career relates to different competitive sport levels (i.e., local, regional, national or international), with sport typology influencing different career trajectories (Stambulova & Alfermann, 2009; Stambulova, Alfermann, Statler, & Côté, 2009). In general, youth athletes involved in sport academies start competing around 8 years of age and a 10-year experience is required to achieve elite performance, with additional 5–10 years to compete at the highest level (Wylleman & Reints, 2010). Thus, talent selection, detection and development overlap primary to higher education (Wylleman & Reints, 2010). Despite sport participation is strongly encouraged, youth elite athletes encounter several difficulties in combining their sport and educational commitments (Capranica & Millard-Stafford, 2011; Conzelmann & Nagel, 2003). In fact, to achieve athletic excellence 20–30 $h \cdot week^{-1}$ for training and competitions are

Correspondence: Corrado Lupo, Motor Science Research Center, S.U.I.S.M. Centro Servizi, Department of Medical Sciences, University of Turin, Piazza Bernini, 12, 10143 Turin, Italy. E-mail: corrado.lupo@unito.it

required, whereas students spend around 30 h·week^{-1} to attain a satisfactory academic career (Aquilina, 2013). Furthermore, competition schedules spread over several months (i.e., team sports) or packed periods (i.e., individual sports) could affect the student-athlete's capability to successfully organise his/her athletic and educational commitments.

In Northern America, sport and educational systems are linked to support student-athletes in achieving both academic and sport requirements. However, American student-athletes frequently struggle to meet academic eligibility (Aries, McCarthy, Salovey, & Banaji, 2004; Gatmen, 2012), being mostly motivated towards athletic success (Gaston-Gayles, 2005; Simons, Van Rheenen, & Covington, 1999). Conversely, in Europe sport is usually organised at club level, with no or limited relationship with the educational system. Therefore, European talented athletes tend to drop out sport and prioritise education to prepare for future job opportunities (Amara, Aquilina, & Henry, 2004; Istituto Nazionale di Statistica-ISTAT, 2007) or postpone (i.e., >24 years of age) the achievement of a degree. Despite sport should be an important cultural component independently of gender, women have fewer opportunities to pursue professional athletic careers compared to men (Guidotti & Capranica, 2013a; International Olympic Committee, 2004, 2012; International Working Group on Women and Sport, 2012; Pfister, 2010). In general, women seem to have a higher academic motivation (AM) and a lower career athletic motivation (CAM) than men (Doupona Topic, 2005). However, gender differences should be further examined.

Recently, sport practice has been included in the strategic agenda of the EU to promote integration among nations and cultures (European Commission, 2007a, 2007b, 2011, 2012). In particular, the European parliament has embraced several actions to promote the dialogue between sport and educational bodies to establish 'dual career' (i.e., the combination of elite sport and education) pathways for student-athletes (European Commission, 2007a, 2007b, 2011, 2012), and consequently to promote the transition from sport into the labour market. Actually, member states present relevant differences in dual career policies (Aquilina, 2013; Aquilina & Henry, 2010; Henry, 2013), including State-centric regulations (i.e., France, Hungary, Luxemburg, Poland, Portugal and Spain), State as a sponsor/facilitator (i.e., Belgium-Flanders, Denmark, Estonia, Finland, Germany, Latvia, Lithuania and Sweden), National Sporting Federations/Institutes as intermediary (i.e., Greece and United Kingdom) and Laisser Faire/no formal structures (i.e., Malta, Austria, Cyprus, Czech Republic, Ireland, Italy, the Netherlands, Malta, Slovakia and Slovenia). Whilst some European elite athletes could benefit from their governments as guarantors for maintaining athletes' rights in accessing education and work at the end of their sport career (i.e., State-centric regulations and State as sponsor), those living in countries with the Laisser Faire approach have to succeed in personally negotiating with the teaching staff a flexible attendance to courses and evaluation schedules. To safeguard the development of young athletes, European Guidelines on Dual careers of Athletes have been recently adopted (European Commission, 2012), in which research for monitoring and evaluating the European dimension of dual career is strongly encouraged.

To understand academic and athletic motivations of American student-athletes, the 30-item Student-athletes' Motivation toward Sports and Academics Questionnaire (SAMSAQ) has been validated in American Division I NCAA student-athletes (Gaston-Gayles, 2005). The instrument consists of a three-factor structure, representing motivation towards elite sport [i.e., Student Athletic Motivation (SAM)], motivation towards academic-related tasks (i.e., AM) and motivation to pursue a professional sport career (i.e., CAM). In particular, the SAM and CAM factors refer to motivations towards the desire to fulfil the current and perspective sport carriers, respectively. Conversely, AM refers to motivations to accomplish an academic degree (Gaston-Gayles, 2005). For the three subscales, the author reported Cronbach's alpha coefficients ranging from 0.79 to 0.86.

In 2010, Fortes and colleagues harmonised the original SAMSAQ to investigate the motivation towards academics and sport of United Arab Emirates students (i.e., athletes and non-athletes belonging to several ethnic groups) enrolled in business/management degrees. The questionnaire included literally translated items from the SAMSAQ and modified items introduced prominently for the motivation towards an outstanding academic career leading to a good job salary. Thus, relevant discrepancies with respect to the original American model emerged. Nevertheless, the authors reported reliability estimates for the three subscales ranging from 0.70 to 0.84. When the validity of the original instrument has been tested in a sample of Italian student-athletes of several competition levels (i.e., county, regional and national) enrolled in Sport Science degree courses (Guidotti et al., 2013), the model maintained a three-factor structure (i.e., Cronbach's alpha coefficients ranging from 0.70 to 0.84) but the factor loadings of each subscale diverged from the American version. Furthermore, nine items were removed due to low item-to-total correlations, low reliability and low factor loading. These findings

indicate the potential impact of significant cultural differences on the factor structure of this psychometric tool. For this reason, a harmonised Italian version of the SAMSAQ (i.e., SAMSAQ-IT/A) has been provided (Guidotti & Capranica, 2013b), including 21 items maintained from the SAMSAQ and 9 rephrased items (i.e., Cronbach's alpha coefficients ranging from 0.75 to 0.84), which were inserted to substitute those considered not suitable for the Italian context.

At European level, pioneering research on cross-national comparisons of student-athletes' motivation towards the dual career in relation to gender, age and type of sport, Lupo and colleagues (Lupo, Tessitore, Capranica, Rauter, & Doupona Topic, 2012) administered to Italian and Slovenian student-athletes a questionnaire including the 30 items of the SAMSAQ in addition to the 9 items of the Italian harmonised version (SAMSAQ-EU). This tool (Table I) maintained a three-factor structure of the original model (Cronbach's alpha coefficients ranging from 0.78 to 0.85) and has proven to be useful for ascertaining European student-athletes' motivation for a dual career in countries with No Structured sport-education measures in place. Furthermore, differences between countries in motivation for academic-related tasks and in motivation to pursue a professional sport career called for further cross-national studies on the motivation of European student-athletes living in countries with State-centric regulations/State as sponsor and National Sporting Federations/Institutes as intermediary policies (Lupo et al., 2012).

Although the European Commission respects the autonomy of sport-governing structures of member states, it calls for action to develop the European dimension in sport by promoting trans-national dialogue to improve employability and mobility through education and training (European Commission, 2011). To understand the career development of athletes and to monitor student-athletes' adherence to both sport and academic programmes, there is a need of a valid and reliable quantitative approach to evaluate sport and academic orientations from a psychological perspective (Stambulova, Stephan, & Japhag, 2007). In fact, the knowledge of the student-athletes' motivation in relation to different educational and sport systems in Europe could promote a better understanding of their sport and academic expectations, providing useful information for sport and academic decision-makers. In this vein, cross-national comparisons related to the motivations of the student-athlete toward a dual career could contribute to develop appropriate strategies for a sustainable combination of academic and sport programmes.

Thus, the aim of the present study was two-fold: (1) to validate a psychometric instrument (i.e., the SAMSAQ-EU) in relation to State-centric regulation and State as sponsor/facilitator (i.e., State), National Sporting Federations/Institutes as intermediary (i.e., Federation) and Laisser Faire, no formal structures (i.e., No Structure) European policies (Aquilina & Henry, 2010); (2) according to the distinct European policies on dual career (i.e., State, Federation and No Structure), to verify differences between European student-athletes in relation to their gender, age, type of sport and competition level. In particular, it has been hypothesised that: (1) the SAMSAQ-EU would show a single model with questionable validity for the whole European student-athletes sample, with more suitable distinct models for the educational services for elite athletes (i.e., State, Federation and No Structure); (2) motivation levels toward dual career would vary in relation to the typology of educational services provided for elite athletes, and the athlete's gender, age, type of sport and competition level.

Methods

Subjects

The local Institutional Review Board approved this cross-national study including European student-athletes from six member states, classified according to three dual career policy subgroups: (1) State, (2) Federation and (3) No Structure. Out of the 25 countries included in the Aquilina and Henry (2010) analysis, only six countries (24%) responded to the invitation to participate in the study: France, Portugal, Sweden (i.e., State, 21%), United Kingdom (i.e., Federation, 50%), Italy and Slovenia (i.e., No Structure, 22%).

To participate in the study, the following inclusion criteria for student-athletes were considered: (1) being enrolled in a university course and (2) competing in organised sport for at least 10 years at national or international competition levels. Given the profound differences within and between countries in their sport and educational organisation, the recruitment of athletes was specific for each country (Table II). Five-hundred-twenty-four European collegiate student-athletes met the inclusion criteria and volunteered for the study (Table II).

Instrumentation and procedure

The SAMSAQ-EU (Lupo et al., 2012; Table I), which is a harmonised psychometric instrument including the 30-item SAMSAQ (Gaston-Gayles, 2005) and 9 rephrased items for Italian student-athletes (SAMSAQ-IT/A; Guidotti & Capranica,

Table I. The items of the SAMSAQ-EU instrument

Item/Tool	Text
1/SAMSAQ	I am confident that I can achieve a high grade point average this year (3.0 or above).
2/SAMSAQ	Achieving an high level of performance in my sport is an important goal for me this year.
3/SAMSAQ	It is important to me to learn what is taught in my courses.
4/SAMSAQ	I am willing to put in the time to earn excellent grades in my courses.
5/SAMSAQ[b]	The most important reason why I am in school is to play my sport.
6/SAMSAQ[b]	The amount of work required in my courses interferes with my athletic goals.
7/SAMSAQ	I will be able to use what is taught in my courses in different aspects of my life outside of school.
8/SAMSAQ	I chose to play my sport because it's something I'm interested in as a career.
9/SAMSAQ[b]	I have some doubt about my ability to be a star athlete on my team.
10/SAMSAQ	I chose (or will choose) my major because it is something I am interested in as a career.
11/SAMSAQ	Earning a high grade point average (3.0 or above) is not an important goal for me this year.
12/SAMSAQ	It is important to me to learn the skills and strategies taught by my coaches.
13/SAMSAQ	It is important for me to do better than other athletes in my sport.
14/SAMSAQ	The time I spend engaged in my sport is enjoyable to me.
15/SAMSAQ	It is worth the effort to be an exceptional athlete in my sport.
16/SAMSAQ[b]	Participation in my sport interferes with my progress towards earning a college degree.
17/SAMSAQ[a,b]	I get more satisfaction from earning an "A" in a course toward my major than winning a game in my sport.
18/SAMSAQ	During the years I compete in my sport, completing a college degree is not a goal for me.
19/SAMSAQ	I am confident I can be a star performer on my team this year.
20/SAMSAQ	My goal is to make it to the professional level or the Olympics in my sport.
21/SAMSAQ[b]	I have some doubt about my ability to earn high grades in my courses.
22/SAMSAQ	I am confident that I can make it to an elite level in my sport (Professional/Olympics).
23/SAMSAQ	I am confident that I can earn a college degree.
24/SAMSAQ	I will be able to use the skills I learn in my sport in other areas of my life outside of sports.
25/SAMSAQ[b]	I get more satisfaction from winning a game in my sport than from getting an "A" in a course toward my major.
26/SAMSAQ[a,b]	It is not important for me to perform better than other students in my courses.
27/SAMSAQ	I am willing to put in the time to be outstanding in my sport.
28/SAMSAQ	The content of most of my courses is interesting to me.
29/SAMSAQ[b]	The most important reason why I am in school is to earn a degree.
30/SAMSAQ	It is not worth the effort to earn excellent grades in my courses.
31/SAMSAQ-IT/A	Within an academia environment, I find it more challenging to face difficult tasks.
32/SAMSAQ-IT/A	For me studies are important to achieve knowledge and skills.
33/SAMSAQ-IT/A	For me, it is important to train seriously to improve my performance.
34/SAMSAQ-IT/A	The achievement of a degree is important to enrich my knowledge.
35/SAMSAQ-IT/A	In sport, I find stimulating those situations requiring high performances and being difficult to perform.
36/SAMSAQ-IT/A	Situations that allow me to test my capacities stimulate me.
37/SAMSAQ-IT/A	Difficult situations bother me.
38/SAMSAQ-IT/A	For me it's important not to make mistakes.
39/SAMSAQ-IT/A	It's important for me to obtain a degree because it will help me to find a job.

[a]absent in SAMSAQ (Gaston-Gayles, 2005).
[b]absent in SAMSAQ-IT/A (Guidotti and Capranica, 2013b).

2013b), was used in this study. To ascertain equivalence in meaning of the SAMSAQ-EU, the back translation method was used for different national languages in which the tool was applied (Su & Parham, 2002).

According to the literature (Fortes, Rodrigues, & Tchantchane, 2010; Gaston-Gayles, 2005; Guidotti et al., 2013; Lupo et al., 2012), participants were required to indicate their level of agreement (i.e., from a minimum of 1 – very strongly disagree to a maximum of 6 – very strongly agree) to each SAMSAQ-EU item. Assessments took place individually under the supervision of an investigator. Participants were ensured that there were no right or wrong answers, and were assured the confidentiality of the responses. In addition to the 39-item SAMSAQ-EU, participants were also administered demographic questions (i.e., age, gender, type of sport and competition level).

Data analysis

To verify the applicability of the three-factor model, an Exploratory Factor Analysis (EFA; Principal Component Extraction; Varimax Rotation with Kaiser's normalisation) was applied. Coherently to the literature (Costello & Osborne, 2005), the following criteria were adopted: (1) the minimum presence of five items for each factor; (2) if an item loaded on a single factor, only values ≥ 0.40 were taken into account; and (3) if an item loaded on two factors, a 0.32 threshold of acceptability was set for both values.

Table II. Demographic characteristics and recruitment modalities of the European student-athletes sample

Variable		Country						
		France	Italy	Portugal	Slovenia	Sweden	United Kingdom
Recruitment modality		Database	Personally in the sport environment	Database	Database	Personally in the academic institution	Database
Bodies involved in recruitment procedures		Institut National du Sport, de l'Expertise et de la Performance (INSEP)	Sport clubs (n = 85)	Observatory of Sport in Universities (ODU)	University sport offices of three Slovenian Universities (i.e., Ljubljana, Maribor, and Primorska	Dalarna University	Talented Athlete Scholarship Scheme (TASS)
Subjects (n)		44	113	31	216	33	88
Gender (n)	Female	17	28	13	103	20	56
	Male	27	85	18	113	13	31
Age	≤ 24 years	82%	71%	90%	90%	64%	95%
	> 24 years	18%	29%	10%	10%	36%	5%
Type of sport	Team	10%	63%	78%	28%	3%	38%
	Individual	90%	37%	22%	72%	97%	62%
Competition level	National	16%	87%	16%	36%	52%	8%
	International	84%	13%	84%	64%	48%	92%

To evaluate the internal consistency of items on each SAMSAQ-EU subscale, reliability estimates (Cronbach's alpha coefficients) were computed, considering a Cronbach's alpha coefficient of ≥0.7 acceptable for internal consistency (O'Donoghue, 2012). Items loading on two factors were used in computing composite scores for both factors (Gaston-Gayles, 2005).

To verify the accuracy of the factor structure, a Confirmatory Factor Analysis (CFA; Maximum Likelihood) was performed, taking into account several fit indices (Jackson, Gillaspy, & Purc-Stephenson, 2009): chi-square (χ^2), chi-square ratio (χ^2/df), comparative fit index (CFI), goodness of fit index (GFI), normed fit index (NFI), Tucker–Lewis index (TLI), Root Mean Square Error of Approximation (RMSEA) and p of close fit (PCLOSE). Cut-off values for good fit were considered: ≤0.06 for RMSEA with no significant PCLOSE ($P > 0.05$), ≥0.90 for incremental indices (CFI, NFI and TLI), ≥0.91for GFI, ≥2 for chi-square ratio. According to the literature (Hu & Bentler, 1999; Netemeyer, Bearden, & Sharma, 2003), CFI and TLI values ≥0.95 and an RMSEA value ≤0.05 could be preferred.

Gender (i.e., female vs. male), age (i.e., ≤24 years vs. >24 years), type of sport (i.e., individual sport vs. team sport) and competition levels (i.e., national vs. international) were considered independent variables to promote a specific scenario of the motivations of the European student-athletes in countries providing different educational services for elite athletes. A chi-square test verified unequal sample sizes ($P \leq 0.05$) between groups relatively to the frequency of occurrence of student-athletes' gender, age, type of sport and competition level.

To evaluate differences ($P \leq 0.05$) between countries with different dual career policies, a multivariate analysis of variance (MANOVA) was applied considering gender, age, type of sport and competition level for each factor. Then, separate analyses of variance (ANOVAs) were performed for each variable and factor to show univariate effects, if any. When significant differences emerged, Bonferroni's post hoc test was applied. Because a large sample size can lead to significant results for marginal differences, effect sizes (ESs) were calculated (Cohen, 1988), considering ≤0.2, 0.6 and 1.2, and >1.2 trivial, small, moderate and large ES, respectively (Hopkins, 2008).

Statistical analyses were conducted in SPSS (19.0; SPSS, Inc., Chicago, IL) and AMOS™ 19.0. First, statistical procedures were applied for the whole European sample, then separately for the dual career policy subgroups. Due to difficulties in combining elite sport and study commitments, the student-athlete population resulted very limited. Therefore,

when subgroups were analysed separately a subject to item ratio ≥10:1 considered for EFA interpretation (Costello & Osborne, 2005) was not applicable.

Results

Overall, participants were mainly <24 years of age (85%), and competing in individual sports (63%). Males were more frequently represented in the State (59%) and No Structure (60%) groups with respect to their female counterparts, whereas the opposite picture emerged for Federation (females = 64%, males = 36%). Regarding the competition level, a large proportion of student-athletes competing at international level was found for State (54%) and Federation (80%) groups, whereas a balanced distribution occurred for the No Structure counterparts (national = 52%, international = 48%). Frequency of occurrence (*n*) between groups showed no difference for type of sport only. However, when relative proportions (%) were considered no difference was found between groups.

For the whole sample of European student-athletes, the SAMSAQ-EU (explained variance = 35%; subject to item ratio = 13.4) showed a three-factor model (SAM = 8 items; AM = 9 items; and CAM = 11 items), with acceptable Cronbach's alpha coefficients for the three subscales (SAM = 0.76; AM = 0.76; and CAM = 0.77). However, 11 items (i.e., 3, 4, 6, 9, 13, 16, 17, 25, 28, 29 and 37) were removed because of low threshold of acceptability, and the model showed insufficient CFA values for the requested fit indices. Therefore, subgroups analysis was deemed necessary.

The models (with the related item scores and the Cronbach's alpha coefficients) of each subgroup are reported in Table III. In general, EFA and reliability estimates met the relative criteria, whereas CFA indices approached the cut-off criteria for the preferred CFI, TLI and RMSEA only. For the State subgroup, the SAMSAQ-EU (explained variance = 34%; subject to item ratio = 2.7) showed a three-factor model (SAM = 12 items; AM = 8 items; and CAM = 5 items), with acceptable Cronbach's alpha coefficients for the three subscales (Table III). In particular, 16 items (i.e., 1, 4, 5, 6, 7, 9, 12, 17, 23, 24, 28, 31, 35, 36, 37 and 38) were removed because of low threshold of acceptability, and two items loaded on two factors (i.e., SAM and AM: items 11 and 25). CFA showed a limited fit (GFI = 0.847, NFI = 0.755, TLI = 0.926, CFI = 0.940, RMSEA = 0.046, PCLOSE = 0.615), with a significant chi-square value (229.302; $P = 0.019$) and a ratio value of 1.2 between the hypothesised model and the sample data. For the Federation subgroup, the SAMSAQ-EU (explained variance = 38%; subject to item ratio = 2.2) showed a three-factor model (SAM = 12 items; AM = 13 items; and CAM = 5 items), with sufficient Cronbach's alpha coefficients for two subscales (Table III). Eleven items (i.e., 5, 8, 9, 17, 25, 26, 30, 31, 35, 37 and 38) were removed because of low threshold of acceptability, and two items loaded on two factors (i.e., SAM and CAM: items 24 and 36). CFA showed a limited fit (GFI = 0.772, NFI = 0.673, TLI = 0.892, CFI = 0.908, RMSEA = 0.053 and PCLOSE = 0.375), with a significant chi-square value (429.686; $P = 0.001$) and the ratio value of 1.24 between the hypothesised model and the sample data. For the No Structures subgroup, the SAMSAQ-EU (explained variance = 35%; subject to item ratio = 8.4) showed a three-factor model (SAM = 11 items; AM = 9 items; and CAM = 10 items), with satisfactory Cronbach's alpha coefficients for the three subscales (Table III). Sixteen items (i.e., 5, 7, 9, 10, 11, 12, 14, 16, 17, 18, 21, 26, 29, 30, 37 and 39) were removed because of low threshold of acceptability, and seven items loaded on two factors (i.e., SAM and AM: items 35 and 36; SAM and CAM: items 20, 27 and 33; AM and CAM: item 32). Also for this subgroup CFA showed a limited fit (GFI = 0.908, NFI = 0.846, TLI = 0.902, CFI = 0.925, RMSEA=0.049 and PCLOSE = 0.538), with a significant chi-square value (373.909; $P \leq 0.001$) and a ratio value of 1.8 between the hypothesised model and the sample data.

For the dual career subgroups, Table IV shows mean and standard deviation scores, and effects, for each factor, and in relation to gender, age, type of sport, and competition level. MANOVA showed a main effect only for competition level ($P < 0.001$), with univariate effects for SAM ($P = 0.001$, ES = 0.2–0.4) and CAM ($P < 0.001$, ES = 0.2–0.8). Regarding SAM of national competition level, the post hoc analysis maintained differences ($P = 0.046$, ES = 0.4) only between student-athletes of Federation (5.1 ± 0.5) and State (4.5 ± 0.9) subgroups. Moreover, for international competition level, State student-athletes showed lower SAM scores (4.8 ± 0.7) with respect to Federation (5.4 ± 0.5, $P < 0.001$; ES = 0.4) and No Structure (5.1 ± 0.6, $P = 0.031$; ES = 0.2) counterparts. Concerning CAM of national competition level, higher values were observed for State (5.0±0.8) with respect to their No Structure (3.7 ± 0.8, $P < 0.001$; ES = 0.2) and Federation (3.3 ± 0.7, $P < 0.001$; ES = 0.8) counterparts. Furthermore, differences between the three subgroups were maintained for CAM of international competition level ($P < 0.05$; ES = 0.3–0.7), with the highest values for State (5.0 ± 0.9), intermediate for No Structure (4.6 ± 0.8) and the lowest for Federation (3.5 ± 0.9) student-athletes. Finally, only national and international student-athletes of No Structure subgroup showed

Table III. Factor loadings for Exploratory Factor Analysis and reliability estimates of the SAMSAQ-EU relatively to the State, Federation, and No Structure groups

	State			Federation			No structure		
Item/tool	SAM-EU	AM-EU	CAM-EU	SAM-EU	AM-EU	CAM-EU	SAM-EU	AM-EU	CAM-EU
1/SAMSAQ					0.548			0.520	
2/SAMSAQ	0.544			0.660			0.418		
3/SAMSAQ			0.400		0.561			0.685	
4/SAMSAQ					0.753			0.634	
5/SAMSAQ									
6/SAMSAQ						0.402			0.425
7/SAMSAQ					0.577				
8/SAMSAQ	0.505						0.635		
9/SAMSAQ									
10/SAMSAQ		0.539			0.560				
11/SAMSAQ	0.327	−0.571				0.544			
12/SAMSAQ				0.559			0.579		
13/SAMSAQ	0.459			0.640			0.578		
14/SAMSAQ	0.411			0.624					
15/SAMSAQ	0.658			0.575			0.599		
16/SAMSAQ		−0.444				0.505			
17/SAMSAQ									
18/SAMSAQ		−0.485				607			
19/SAMSAQ	0.479			0.625					0.645
20/SAMSAQ	0.694			0.588			0.658		0.355
21/SAMSAQ		−0.512				0.550			
22/SAMSAQ	0.785			0.729					0.728
23/SAMSAQ					0.535				0.599
24/SAMSAQ				0.396	0.476			0.457	
25/SAMSAQ	0.508	−0.451					0.591		
26/SAMSAQ		−0.434							
27/SAMSAQ	0.704			0.743			0.338		0.630
28/SAMSAQ					0.687			0.593	
29/SAMSAQ			0.809		0.657				
30/SAMSAQ		−0.526							
31/SAMSAQ-IT/A									0.517
32/SAMSAQ-IT/A			0.486		0.722			0.504	0.383
33/SAMSAQ-IT/A	0.533			0.633			0.438		0.389
34/SAMSAQ-IT/A			0.400		0.727			0.610	
35/SAMSAQ-IT/A							0.442	0.385	
36/SAMSAQ-IT/A				0.421	0.401		0.556	0.397	
37/SAMSAQ-IT/A									
38/SAMSAQ-IT/A									0.506
39/SAMSAQ-IT/A			0.650		0.529				
Cronbach's alpha	0.82	0.75	0.75	0.82	0.66	0.87	0.78	0.74	0.79

SAM-EU, Student Athletic Motivation; AM-EU, Academic Motivation; CAM-EU, Career Athletic Motivation.

differences for both SAM ($P < 0.001$, ES = 0.3) and CAM ($P < 0.001$, ES = 0.3) scores.

Discussion

This study represents the first approach to investigate the motivation towards dual career in European student-athletes living in countries with different sport and education policies. However, when structuring international studies several caveats have to be considered: (1) local cooperation is crucial for the recruitment process. In fact, diversification in national sport organisation could result in different opportunities to recruit athletes eligible for the study, and (2) different national sport traditions could determine several differences among countries in terms of sport participation (i.e., individual and team sports) and sport achievement at national and international competition levels. The present study presented several limitations due to a low response (6 out of 25) of countries included in the Aquilina and Henry (2010) analysis, an unbalanced recruitment of athletes competing at national (prevalence in the Italian sample) and international (prevalence in the French, Portuguese, Slovenian and English samples) competition levels and a different distribution among countries in the proportion of athletes competing in individual (prevalence in the French,

Table IV. Means, standard deviations, and effects ($P \leq 0.05$) between different groups (State, Federation, No Structure) of the SAMSAQ-EU scores, in relation to Gender, Age (≤ 24 years, > 24 years), Type of Sport (Individual sport, Team sport), and Competition Level (National, International) of each considered factor

	SAM-EU			AM-EU			CAM-EU		
	State	Federation	No structure	State	Federation	No structure	State	Federation	No structure
Gender									
Female	4.5 ± 0.8	5.3 ± 0.5	4.9 ± 0.8	3.4 ± 0.7	5.0 ± 0.6	4.9 ± 0.6	5.1 ± 0.8	3.5 ± 0.8	4.2 ± 0.9
Male	4.8 ± 0.8	5.4 ± 0.5	4.9 ± 0.8	3.3 ± 0.9	5.0 ± 0.6	4.7 ± 0.6	5.0 ± 0.8	3.4 ± 0.9	4.0 ± 1.0
Age									
≤ 24 years	4.6 ± 0.8	5.4 ± 0.5	4.9 ± 0.8	3.3 ± 0.8	5.0 ± 0.6	4.7 ± 0.7	5.1 ± 0.8	3.5 ± 0.8	4.1 ± 0.9
> 24 years	4.8 ± 0.7	5.5 ± 0.6	5.0 ± 0.5	3.6 ± 0.9	5.3 ± 0.2	4.8 ± 0.5	4.7 ± 1.0	3.5 ± 0.5	3.9 ± 1.0
Type of sport									
Individual sport	4.8 ± 0.8	5.4 ± 0.5	5.0 ± 0.8	3.4 ± 0.8	5.0 ± 0.7	4.8 ± 0.7	5.0 ± 0.9	3.5 ± 0.8	4.3 ± 0.9
Team sport	4.4 ± 0.8	5.3 ± 0.5	4.8 ± 0.7	3.1 ± 0.8	5.0 ± 0.5	4.7 ± 0.6	5.2 ± 0.6	3.3 ± 0.8	3.7 ± 0.9
Competition level									
National	4.5 ± 0.9*	5.1 ± 0.5	4.6 ± 0.8***	3.2 ± 0.8	5.0 ± 0.5	4.7 ± 0.6	5.0 ± 0.8*,**	3.3 ± 0.7	3.7 ± 0.8***
International	4.8 ± 0.7*,**	5.4 ± 0.5	5.1 ± 0.6	3.4 ± 0.9	5.0 ± 0.6	4.8 ± 0.6	5.0 ± 0.9*,**	3.5 ± 0.9**	4.6 ± 0.8

*Difference ($P \leq 0.05$) with respect to their Federation counterparts; **Difference ($P \leq 0.05$) with respect to their No Structure counterparts; ***Difference ($P \leq 0.05$) with respect to their International counterparts.
In particular Student Athletic Motivation (SAM-EU) included 12, 12, and 11 items for State, Federation, and No Structure groups, respectively; Academic Motivation (AM-EU) included 8, 13, and 9 items for State, Federation, and No Structure groups, respectively; and Career Athletic Motivation (CAM-EU) included 5, 5, and 10 items for State, Federation, and No Structure groups, respectively.

Slovenian, Swedish, and English samples) and team sports (prevalence in the Italian and Portuguese samples). In general, these limitations strongly influenced the validity and reliability of a common model of the instrument. In particular, low subject to item ratios emerged for the three SAMSAQ-EU models (ratio: 4.4 ± 3.4, range: 2.2–8.4), thus affecting EFA interpretation and increasing the risk of item misclassification and errors in both eigenvalues and factor loadings (Costello & Osborne, 2005). Furthermore for CFA analyses, the optimal fit thresholds observed only for CFI, TLI and RMSEA could have influenced the factor model interpretation and comparability (Jackson et al., 2009). Therefore, it is strongly recommended that future cross-national studies include more European student-athletes to substantiate the psychometric properties of the instrument. Nonetheless, in analysing the motivations towards dual career of student-athletes from European countries with heterogeneous dual career policies (Aquilina & Henry, 2010), this study represents a starting point for initial tentative speculations and future research in this area, in line with the recommendations of the EU Guidelines on Dual careers (European Commission, 2012).

Although each considered educational system (i.e., State, Federation and No Structure) showed distinct three-factor models (i.e., SAM, AM and CAM), significant differences arose in terms of items included in each factor. These findings substantiate previous differences with respect to the original model (Fortes et al., 2010; Guidotti et al., 2013; Lupo et al., 2012) due to specific policies in combining education and sport. Despite structural differences between models, the SAMSAQ-EU demonstrated to be a useful tool for a preliminary evaluation of European student-athletes' dual career motivation, which could help educational and sports bodies in providing effective supports and encouragements to student-athletes and in promoting their personal development (European Commission, 2007a, 2007b, 2011, 2012). In considering the heterogeneous and limited sample deriving from six European countries, the present findings highlighted the need of further research to develop a valid and reliable instrument for the evaluation and monitoring of the student-athlete's motivations towards a dual career in international contexts.

European student-athletes showed high motivations for both sport and education, similarly to American (Gaston-Gayles, 2005) and United Arab Emirates student-athletes (Fortes et al., 2010). Interestingly, only competition level succeeded in discriminating between subgroups and within the No Structure subgroup for SAM and CAM subscales. The lack of differences between national and international athletes supported by State and Federation dual career policies indicates that a social support allows elite athletes to commit to sport independently from outstanding athletic achievements. In particular, the highest SAM and AM scores emerged for student-athletes supported by their National Federations. This might mirror an effective capability of sport organisations to negotiate with educational bodies their admission procedures, examination schedules and tutoring, which could

promote academic success of elite athletes (Aquilina & Henry, 2010; Henry, 2013). This subgroup also showed the lowest CAM scores, indicating that transition from sport to labour market might be perceived as not occurring in a close future. Student-athletes living in countries with dual career policies based on State-centric regulation–State as sponsor/facilitator showed the highest motivation towards their future career, indicating their expectations for smooth career transitions at the end of the competitive phase of their life. Conversely, student-athletes competing at national level in countries with a Laisser Faire approach perceived their athletic commitment and career expectations less motivating. These findings indicate that athletes involved at national level might have a weaker athletic identity (Sturm, Feltz, & Gilson, 2011; Yukhymenko-Lescroart, 2014), probably foreseeing difficulties in career transitions when terminating their sport life. Thus, policies combining education and training (e.g. France) could represent a valuable model for the development of dual career policies in other European countries not supporting student-athletes. In fact, this is a challenge of the European initiatives in the field of sport and higher education, especially when considering that the new European Erasmus+ programme 2014–2020 is specifically dedicated to Education, Training, Youth and Sport.

In considering the reduced opportunities to pursue professional athletic careers (Guidotti & Capranica, 2013a; International Olympic Committee, 2004, 2012; International Working Group on Women and Sport, 2012; Pfister, 2010), female student-athletes were expected to have higher AM and lower CAM scores (Gaston-Gayles, 2005). Conversely, the lack of gender differences suggests that the general development of women's sport in European countries could minimise this effect, therefore maintaining the relevant necessity to largely examine issues about the relationship between motivation and student-athletes.

In the present study, no difference emerged for age and type of sport, probably due to a general trend towards increasing length in athletic career. Although only involvement in professional sports might provide sound financial support for future years, these findings indicate that student-athletes might perceive education as important to support future engagement in professional positions. In fact, outstanding athletic achievements could be a facilitator for some sport-related careers as sport managers, coaches, physical trainers and sport commentators (Capranica et al., 2008; Guidotti & Capranica, 2013a), especially when former athletes can rely on a solid educational background.

Conclusions

Sport is a global phenomenon, also related to local resonance and cultural practice. Thus, a universal knowledge about 'athletes in general' has to be considered inappropriate, especially in Europe where differences in sport systems, societal norms and cultural traditions exist. Although the SAMSAQ-EU has demonstrated to be an interesting preliminary tool to investigate European student-athletes' motivation for a dual career, its high sensitivity to specific social contexts underlines the need for further research in this area (European Commission, 2012). This study highlighted the relevance of a research line on understanding the motivation of European student-athletes towards academic and athletic careers. In considering the limited and very heterogeneous sample included in this study, further investigation is strongly needed to implement the SAMSAQ-EU instrument. In fact, according to the recommendations of the European Guidelines on Dual careers of Athletes (European Commission, 2012), qualitative and quantitative cross-national studies are deemed necessary for providing valuable information to guide multi-sector (i.e., governments, sport organisations and education bodies) efforts in managing sport and education for future European citizens, making it easier for athletes to combine sports training with study or work.

Acknowledgements

The authors would like to express their gratitude to the Dual Career Network (European athlete as student, EAS) Board for the "Special Jury Prize of the Benght Nybelius Scolarship 2013" recognised in the 10th Annual EAS Conference (September 19–21, 2013, Trondheim, Norway). In addition, a special acknowledgement has to be addressed to Veronique Laseur and Patricia Vandewalle for their precious support.

References

Amara, M., Aquilina, D., & Henry, I. (2004). *Education of young sportspersons* (lot 1). Report Finale. Brussels: Directorate-General Education and Culture. Retrieved from http://ec.europa.eu/sport/library/documents/c3/pmp-study-dual-career_en.pdf

Aquilina, D. (2013). A study of the relationship between elite athletes' educational development and sporting performance. *International Journal of the History of Sport*, *30*, 374–392. doi:10.1080/09523367.2013.765723

Aquilina, D., & Henry, I. (2010). Elite athletes and university education in Europe: A review of policy and practice in higher education in the European Union Member States. *International Journal of Sport Policy*, *1*, 25–47. doi:10.1080/19406941003634024

Aries, E., McCarthy, D., Salovey, P., & Banaji, M. R. (2004). A comparison of athletes and non-athletes at highly selective colleges: Academic performance and personal development.

Research in Higher Education, *45*, 577–602. doi:10.1023/B:RIHE.0000040264.76846.e9

Capranica, L., & Millard-Stafford, M. L. (2011). Youth sport specialization: How to manage competition and training? *International Journal of Sports Physiology and Performance*, *6*, 572–579.

Capranica, L., Tessitore, A., D'Artibale, E., Cortis, C., Casella, R., Camilleri, E., & Pesce, C. (2008). Italian women's television coverage and audience during the 2004 Athens Olympic Games. *Research Quarterly for Exercise and Sport*, *79* (1), 101–115. doi:10.1080/02701367.2008.10599465

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Mahwah, NJ: Lawrence, Erlbaum.

Conzelmann, A., & Nagel, S. (2003). Professional careers of the German Olympic athletes. *International Review for the Sociology of Sport*, *38*, 259–280. doi:10.1177/10126902030383001

Costello, A. B., & Osborne, J. W. (2005). Exploratory factor analysis: Four recommendations for getting the most from your analysis. *Practical Assessment, Research, and Evaluation*, *10*, 1–9.

Doupona Topič, M. (2005). Sport, gender and the issues of life. In Keith D. Gilbert (Ed.), *Sexuality, sport and the culture of risk* (pp. 103–118; *Sport, Culture & Society*, *6*). Oxford: Meyer & Meyer Sport.

European Commission. (2007a). *Commission staff document: Action plan 'Pierre de Coubertin', accompanying document to the white paper on sport*. Brussels: Directorate-General Education and Culture.

European Commission. (2007b). *White paper on sport*. Brussels: Directorate-General Education and Culture.

European Commission. (2011). *Developing the European dimension in sport*. Brussels: Directorate-General Education and Culture.

European Commission. (2012). *Guidelines on dual careers of athletes recommended policy actions in support of dual careers in high-performance sport*. Retrieved from http://ec.europa.eu/sport/news/20130123-eu-guidelines-dualcareers_en.htm

Fortes, P. C., Rodrigues, G., & Tchantchane, A. (2010). Investigation of academic and athletic motivation on academic performance among university students. *International Journal of Trade Economics and Finance*, *1*, 367–372. doi:10.7763/IJTEF.2010.V1.65

Gaston-Gayles, J. L. (2005). The factor structure and reliability of the student athletes' motivation toward sports and academics questionnaire (SAMSAQ). *Journal of College Student Development*, *46*, 317–327. doi:10.1353/csd.2005.0025

Gatmen, E. J. P. (2012). Academic exploitation: The adverse impact of college athletics on the educational success of minority student-athletes. *Seattle Journal for Social Justice*, *10*, 509–583.

Guidotti, F., & Capranica, L. (2013a). Management sportivo femminile e carriera universitaria nelle scienze motorie: la condizione attuale, le opinioni delle manager e delle docenti universitarie e le nuove proposte [Female sport management and academic career in sport sciences: Present condition, women sport managers' and university professors' opinions and perspectives]. *Rivista Trimestrale di Scienza dell'Amministrazione*, *1*, 85–104.

Guidotti, F., & Capranica, L. (2013b). Le motivazioni verso sport, istruzione e carriera sportiva degli studenti-atleti italiani. In A. M. Pioletti & N. Porro (Eds.), *Lo sport degli Europei* (pp. 104–120). Milan: Edizioni Franco Angeli.

Guidotti, F., Minganti, C., Cortis, C., Piacentini, M. F., Tessitore, A., & Capranica, L. (2013). Validation of the Italian version of the student athletes' motivation toward sport and academics questionnaire. *Sport Sciences for Health*, *9*(2), 51–58. doi:10.1007/s11332-013-0145-x

Henry, I. (2013). Athlete development, athlete rights and athlete welfare: A European union perspective. *International Journal of the History of Sport*, *30*, 356–373. doi:10.1080/09523367.2013.765721

Hopkins, W. G. (2008). *A scale of magnitudes for effect statistics*. Retrieved from www.sportsci.org/resource/stats/effectmag.htlm

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, *6*(1), 1–55. doi:10.1080/10705519909540118

International Olympic Committee. (2004). *Women and sport progress report: A review of the IOC policy and activities to promote women in and through sport*. Marrakech: Third World Conference on Women and Sport.

International Olympic Committee. (2012). *The Los Angeles declaration*. Retrieved from http://www.olympic.org/Documents/Commissions_PDFfiles/women_and_sport/Los-Angeles-Declaration-2012.pdf

International Working Group on Women and Sport. (2012). *The Sydney scoreboard*. Retrieved from http://www.sydneyscoreboard.com/

Istituto Nazionale di Statistica-ISTAT. (2007). *La pratica sportiva in Italia*. Retrieved from http://www3.istat.it/salastampa/comunicati/non_calendario/20070620_00

Jackson, D. L., Gillaspy, J. A., Jr, & Purc-Stephenson, R. (2009). Reporting practices in confirmatory factor analysis: An overview and some recommendations. *Psychological Methods*, *14*(1), 6–23. doi:10.1037/a0014694

Lupo, C., Tessitore, A., Capranica, L., Rauter, S., & Doupona Topic, M. (2012). Motivation for a dual career: Italian and Slovenian student-athletes. *Kinesiologia Slovenica*, *18*, 47–56.

Netemeyer, R. G., Bearden, W. O., & Sharma, S. (2003). *Scaling procedures: Issues and applications*. Thousand Oaks, CA: Sage.

O'Donoghue, P. (2012). *Statistics for sport and exercise studies: An introduction*. Abingdon: Routledge.

Pfister, G. (2010). Women in sport – Gender relations and future perspectives. *Sport in Society*, *13*, 234–248. doi:10.1080/17430430903522954

Simons, H. D., Van Rheenen, D., & Covington, M. V. (1999). Academic motivation and the student athlete. *Journal of College Student Development*, *40*, 151–162.

Stambulova, N., & Alfermann, D. (2009). Putting culture into context: Cultural and cross-cultural perspectives in career development and transition research and practice. *International Journal of Sport and Exercise Psychology*, *7*, 292–308. doi:10.1080/1612197X.2009.9671911

Stambulova, N., Stephan, Y., & Japhag, U. (2007). Athletic retirement: A crossnational comparison of elite French and Swedish athletes. *Psychology of Sport and Exercise*, *8*, 101–118. doi:10.1016/j.psychsport.2006.05.002

Stambulova, N., Alfermann, D., Statler, T., & Côté, J. (2009). ISSP position stand: Career development and transitions of athletes. *International Journal of Sport and Exercise Psychology*, *7*, 395–412. doi:10.1080/1612197X.2009.9671916

Sturm, J. E., Feltz, D. L., & Gilson, T. A. (2011). A comparison of athlete and student identity for Division I and Division III athletes. *Journal of Sport Behavior*, *34*, 295–306.

Su, C.-T., & Parham, L. D. (2002). Case report – Generating a valid questionnaire translation for cross-cultural use. *American Journal of Occupational Therapy*, *56*, 581–585. doi:10.5014/ajot.56.5.581

Wylleman, P., & Reints, A. (2010). A lifespan perspective on the career of talented and elite athletes: perspectives on high-intensity sports. *Scandinavian Journal of Medicine and Science in Sports*, *20* (Suppl. 2), 88–94. doi:10.1111/j.1600-0838.2010.01194.x

Yukhymenko-Lescroart, M. A. (2014). Students and athletes? Development of the academic and athletic identity scale (AAIS). *Sport, Exercise, and Performance Psychology*, *3*(2), 89–101. doi:10.1037/spy0000009.