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UNIVERSIDADE D  
COIMBRA

Ana Rita Dias Fernandes

**IDENTITY, MOTIVATION AND PERCEPTIONS OF  
DUAL CAREER IN PORTUGAL, BRAZIL AND  
EUROPEAN UNION**

**Thesis for the degree of Doctor in Sport Sciences, Sports Management  
supervised by Prof. Doutor Carlos Eduardo Gonçalves and Prof. Doutora  
Liliana Moreira, submitted to the Faculty of Sport Sciences and Physical  
Education of the University of Coimbra.**

November of 2020

Faculdade de Ciências do Desporto e Educação Física

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For my father. Even far away, pushed me to accomplish my dreams and ambitions.

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## **ABSTRACT**

The student-athletes' dual career is a contemporary topic of investigation because of the potential implications on the individual, namely on psychological, and social transitions faced by the athletes.

The present Thesis has been divided into eight chapters, including four scientific articles published or submitted focused on dual career development and its implications for student-athletes'.

The first section of the work (Chapter 1,2,3) represents a extensive literature review to understand the legal status of dual career in Portugal and Europe. This was a fundamental reading to identify the dual career discrepancies across the member states of the European Union.

The Chapter 4 aimed to validate a measure of athletic identity among Portuguese college students and analyze the effects of 3 different types of college policies on identity and motivation. This study used a quantitative design and the findings show that the micro and meso environment of the university seems to shape the perceptions and feelings of the students about their participation in sport. An important practical implication is that the higher expression of satisfaction came from universities where the students had a stronger implication in the activities' organization and management.

Chapter 5 combines the perceptions of academic and sport careers with motivation and cultural identity through Bayesian multilevel modeling with poststratification analysis. Two questionnaires were used: Baller Identity Measurement Scale / BIMS, and Student Athlete Motivation Toward Sports and Academics Questionnaire / SAMSAQ. The results suggest a significant influence of the student-athlete status on all variables related to motivation and identity. Gender and country did not show any effects.

The findings indicate that it is the support system at local level that is perceived by the student-athletes as the most influential in their academic and sport careers.

Chapter 6 estimate the variation of student-athletes' identity and motivation across Portuguese and Brazilian universities, accounting for variation in university type, student-athletes' training hours per week and student-athletes' status within each university.

Two questionnaires were used: Baller Identity Measurement Scale / BIMS, and Student Athlete Motivation Toward Sports and Academics Questionnaire / SAMSAQ. A multilevel regression and post stratification was used to estimate each student-athlete's identity and motivation as a function of their individual and contextual characteristics. The prediction in our model shows that cultural (country), academic (type of university) and athletic (training hours) context play a considerable influence on student-athletes' identity and motivation.

Chapter 7 present a qualitative study, with the aim to identify strategies to apply and develop the dual career through the stakeholders' perspective. The interviews' guide was structured to achieve the aims of the study, based on the dual career issues suggested by previous studies and reports. The interviewees suggested that there is no uniformity in the application and development of the dual career in all member states of the European Union and that some countries are still not interested in the development of the guidelines proposed by the European Commission. The study suggests a political top-down strategy, with rules imposed by the European Commission to indicate the creation and development of dual career programs. The state members should create plans and strategies to apply dual career policies and share good practices between them, harmonizing the dual career in Europe.

The present work reaffirms the dual career importance as a fundamental strategy to help student-athletes in their transitions and highlight the importance of local policies to motivate and support students-athletes to pursue a dual career.

Keywords: dual career, student-athlete, politics, management, Europe, Brazil

## RESUMO

A carreira dual dos estudantes-atletas é um tópico contemporâneo de investigação, devido às potenciais implicações que a mesma tem a nível individual, psicológico e social dos atletas.

A presente tese foi dividida em oito capítulos, incluindo quatro artigos científicos já publicados ou submetidos com ênfase no desenvolvimento da carreira dual e as suas implicações para os estudantes-atletas.

A primeira secção do trabalho (Capítulo 1, 2 e 3) representa uma extensa revisão da literatura com vista a recolher informações sobre a legislação da carreira dual em Portugal e na Europa. Ao longo desta revisão, foram identificadas as discrepâncias da legislação acerca da carreira dual nos vários países da União Europeia.

O Capítulo 4 teve como foco a validação de um instrumento para medir a identidade atlética dos estudantes-atletas portugueses, bem como analisar os efeitos de três diferentes tipos de legislação desportiva universitária, nos níveis de motivação e identidade dos atletas. Este estudo, cujo análise foi quantitativa, sugere que o ambiente universitário local e nacional influencia as percepções e as emoções dos estudantes-atletas acerca da sua participação desportiva. Na prática, o estudo sugere que as universidades em que o desporto é organizado conjuntamente pela instituição e pelos estudantes, são aquelas em que existe um maior nível de satisfação.

O Capítulo 5 combina a percepção da carreira académica e desportiva com a motivação e identidade cultural através de um modelo Bayesiano multinível com análise pos-estratificada. Foram utilizados dois questionários: *Baller Identity Measurement Scale / BIMS* e o *Student Athlete Motivation Toward Sports and Academics Questionnaire / SAMSAQ*. Os resultados sugerem que existe uma influência significativa do estatuto estudante-atleta em todas as variáveis relacionadas com a motivação e identidade. Não se verificaram alterações nas variáveis género e país. Os resultados indicam que o sistema de suporte a nível local é percebido pelos estudantes-atletas como aquilo que mais influencia a sua carreira desportiva e académica.

O Capítulo 6 estimou a variação da motivação e identidade dos estudantes-atletas de universidades portuguesas e brasileiras, considerando o tipo de universidade, o número

de horas de treino por semana e o estatuto estudante-atleta. Foram utilizados dois questionários: *Baller Identity Measurement Scale / BIMS*, and *Student Athlete Motivation Toward Sports and Academics Questionnaire / SAMSAQ*. Recorreu-se a uma análise de regressão multinível pós-estratificada para estimar a identidade e motivação de cada estudante-atleta, considerando as suas características individuais e culturais. A predição do modelo demonstrou que a cultura (país) e o contexto académico (tipo de universidade) e desportivo (número de horas de treino) têm uma influência considerável nos níveis de identidade e motivação dos estudantes-atletas.

O Capítulo 7 trata-se de um estudo qualitativo, tendo o objetivo de identificar estratégias para aplicar e desenvolver a carreira dual através da perspectiva dos stakeholders. As entrevistas foram estruturadas com base nas problemáticas identificadas em estudos e relatórios anteriores. Estas sugerem que não há uniformidade na aplicação e desenvolvimento da carreira dual nos países membros da União Europeia. Verificou-se também a existência de países-membros que não desenvolveram as políticas propostas pela União Europeia para a carreira dual. Os resultados sugerem uma estratégia política top-down, com regras impostas pela Comissão Europeia no sentido de indicar a criação e desenvolvimento de programas para a carreira dual mas deixando à responsabilidade dos estados-membros o desenho dos seus próprios programas e estratégias.

O presente trabalho reafirma não só importância da carreira dual como uma estratégia fundamental para ajudar os estudantes-atletas nas suas transições mas também realça a importância das políticas locais para motivar e suportar os estudantes-atletas a desenvolver uma carreira dual.

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## **ABBREVIATION LIST**

**AM** Academic Motivation

**BIMS** Baller Identity Measurement Scale

**CAM/MS** Career athletic Motivation

**HEI** Higher Education Institutes

**MS** Member States

**PG** Polytechnic of Guarda

**PL** Polytechnic of Leiria

**PP** Polytechnic of Porto

**PS** Polytechnic of Santarém

**SA** Student Association

**SAM/MSA** Student-Athlete motivation

**SAMSAQ** Student Athlete Motivation Toward Sports and Academics Questionnaire

**UA** University of Aveiro

**UBI** University of Beira Interior

**UC** University of Coimbra

**UE** University of Évora

**UIL** University Institute of Lisboa

**UIM** University Institute of Maia

**UL** University of Lisboa

**UM** University of Minho

**UP** University of Porto

## **CHAPTER 1. GENERAL INTRODUCTION**

## **1.1 Background**

The interest in dual career is increasing in both the academic and political fields. Dual career is largely used to designate the conciliation between two different professional pathways. On the sports field, it is often used by academics to designate the conciliation between education and elite sports. However, in the absence of a clear definition of elite, the term is widely applied to indicate the balance between regular sport participation and education. Thus, our enquiry focusses on dual career and student-athletes' motivation and identity.

According to the Academic Sports University Federation (FADU), it is estimated that in Portugal about ten thousand students are engaged in sports at the university. Furthermore, data about organized sports shows a raise of 34,2% per thousand habitants since 1996 to 2017, suggesting a progressive increase of the participation in organized sports (PORDATA, 2020). In Europe the estimation is that 5000 student-athletes participate at a European university level competitions. Considering the universities' organizations and national championships, the participation rate is much higher, although it is not possible to obtain accurate data. The European Commission estimated the existence of 120.000 talented young Europeans, who dedicate several years to achieve elite level in sport. Even the ones that do not achieve elite spend a lot of personal, educational and financial effort to reach the maximum level. A study about the relationship between the educational development and the sport performance in elite athletes demonstrated that, apart from spending 30 hours per week with school work, there is a need to balance this load with 20–30 hours of sports training, a work-schedule characteristic of a senior manager (Aquilina, 2009). Several studies demonstrate a concern with the number of hours needed to have a balanced dual career (Christensen & Sørensen, 2009; Mckenna & Dunstan-Lewis, 2004; Sheehan, Herring, & Campbell, 2018a).

The student-athletes are continuously challenged to make decisions to pursue certain levels of sports participation, and in different phases of life the sports participation can be at risk. Studies suggest that high level education represents a particularly difficult transition. The challenges associated with the conciliation between sports and academics can lead to an excessive time occupation, causing reduced motivation to keep a dual career on track and a lack of time to participate in activities outside the education and/or sport. (Harwood & Knight, 2015a)

Along with the environment change, the student-athletes start to formulate different priorities (i.e. taking up a role in society, ensuring a satisfactory income, developing an identity and a partner relationship) (EU Expert Group "Education & Training in Sport", 2012) which can potentially lead to dropout of sports.

However, the interest of higher education institutions and the scientific discussion around the topic is increasing due to the increment of student-athletes in the Olympic Games (Aquilina, 2013). The scientific community is focused on understanding the main student-athletes' issues along with the HEIs' efforts to embrace the student-athletes as assets, helping them in their dual career development and using sports and education as a tool to attract more students.

It is important to stimulate individuals to practice sport until they reach their maximum sport level in order to maximize the sport performance of the athletes and help them in the next transition: the labor market.

The growing interest in the field demands a careful reflection about the Portuguese and international dual career policies along with the need to identify what are the factors that affect the student-athlete.

The macro aims of the present thesis are (a) to understand which factors influences the identity and motivations levels of the European student-athletes, (b) to identify the challenges of the dual career and (c) how political decisions influence a fully dual career development and his growth in Europe. At micro level, the present research aims to present a dual career and student-athlete's definition and strategies to successfully implement the dual career in higher education institutes, proposing some organizational models.

## **1.2 Overview and research questions**

Dual career is defined as the conciliation between education and sports. Studies report that a well-balanced dual career can help maximize the contribution of athletes to society, building on the capabilities athletes have developed during their careers, and can be seen as good preparation for becoming potential role models in society. (European Commission, 2012; North & Lavalley, 2004; N. B. Stambulova, Engström, Franck, Linnér, & Lindahl, 2015)

The premise is that a balanced dual career provides better opportunities to student-athletes, society, and labor market, giving way to professionals with leadership skills, teamwork ability, work ethic, ability to make decisions, time management, and ability to take responsibility for themselves and others (Ferrera, Watson, & Zizzi, 2017). However, the student-athlete definition is not well consolidated, being differently used between EU countries. The same occurs with the policy and programs for dual career across Europe. Even with the increase of interest around the topic, not all Member States (MSs) have national policies to support dual career. The EU (European Commission, 2016) proposed a Europe-wide framework, but it is unclear which environments are the most effective in supporting individuals in their athletic, academic, and personal development (Morris et al., 2020). Although it is a work in progress, there is "an urgent need for clear terminology and interpretation across Europe for this new policy domain" (European Commission, 2016). The opportunity to combine sports and education increases the motivation to pursue a professional and sports career, facilitates the life transitions and improves the life quality of the athlete. (Aquilina, 2009; European Commission, 2016; Knight, Harwood, & Sellars, 2018).

The literature review about the topic points out a specific interest in higher education (Aquilina & Henry, 2010a; Brown et al., 2015a; Capranica & Guidotti, 2016; Kuettel, Christensen, Zysko, & Hansen, 2018a). The European approaches to educational services for elite athletes in higher education are divided into four typologies (Aquilina, 2009). The differences observed in the European countries are encouraging researchers to be context-sensitive (Aquilina & Henry, 2010). Studies show an impact of the student-athletes' environment and development in their success, which is leading to a new approach. Recently proposed models started to analyze the student-athlete and dual career as a complex and singular topic (De Bosscher, De Knop, Van Bottenburg, & Shibli, 2006; Morris et al., 2020; Paul Wylleman, Reints, & De Knop, 2013).

To a deep understanding of the student-athletes' transitions, challenges and development, this research was based on two frameworks: the holistic career model (Wylleman et al., 2013) and the holistic ecological approach (Henriksen, Stambulova, & Roessler, 2010). According to the author's perception, these frameworks are fundamental to analyze the student-athletes' system.

Firstly, the holistic athletic career model (Wylleman et al., 2013) illustrates the transitions faced by athletes from an athletic, individual, psychosocial and academic/vocational point of view. This model identified the transition to higher education as a crucial phase for the student-athletes, as it becomes more difficult to conciliate education with sports.

Secondly, the holistic ecological approach (Henriksen et al., 2010). changed the student-athletes' perspective to the athletic talent development environment (ATDE) through two complementary models: ATDE and environment success factors (ESF). The ATDE approach considers the student-athletes the center of the process at the macro (i.e. social setting that affects the athlete) and micro (i.e. an environment where the athlete is most of the time). Moreover, it considers the athletic and non-athletic domains. The ESF suggests athletes' pre-conditions (i.e. human, material and financial) and daily process outcomes as factors leading to success. Three outcomes are considered: the athletes' individual development and success; the team/group achievement and the organizational development and culture.

Student-athletes face this enormous change of environment when they transition to higher education, usually coincident with the top of the athletic level {Formatting Citation}. The transition is accompanied by a change of coach, regime, environment, lifestyle pressures, and identity issues (MacNamara & Collins, 2010; N. B. Stambulova & Wylleman, 2019). Student-athletes report academic problems related to their sports involvement (De Knop et al.), namely issues related to scheduling, finances, educational choices and social structure (Cosh & Tully, 2014, 2015; Harwood & Knight, 2015b). Despite the successful instrument validation throughout Europe to measure student-athletes' motivation levels (Lupo, Tessitore, Capranica, Rauter, & Doupona Topic, 2012; Lupo et al., 2015), those studies were conducted to compare the European and the American model, not focusing on the student-athletes' needs. Moreover, previous research is focused on elite student-athlete population (Brown et al., 2015b; Graczyk et al., 2017; N. B. Stambulova et al., 2015) which do not provide a global perspective of dual career, considering the heterogeneity of the student-athlete population (European Commission, 2016; N. B. Stambulova, Ryba, & Henriksen, 2020).

Regardless of the EU efforts to promote research about dual career (Aquilina & Henry, 2010a; European Commission, 2012), the latter is focused on country policies and dual career services outcomes (DC4AC, 2017; European Commission, 2016; Fuchs et al.,

2015; Guidotti, Cortis, & Capranica, 2015; Kuettel, Christensen, Zysko, & Hansen, 2018b), providing a crucial report to understand dual career, but ignoring the context or culture in order to design better strategies and models.

At the national level, there are publications related to psychological factors in student-athletes (Amaral, 2016) and the transition to the labor market (Carapineira, 2019), but no studies report the actual state of the art. FADU monitors student-athlete participation in national and international championship, however it is not possible to access accurate data.

A thorough analysis of the legislation regarding dual career was carried out. The literature and legislation review allowed a deep analysis of the student-athletes' support provided by Portuguese HEIs. Three different HEI typologies were identified, leading to a better knowledge about the student-athletes' satisfaction in higher education concerning their institutional contexts. Study 1 was performed to analyze how the educational institution organization affects the Portuguese student-athletes' identity with their academic and sports role and the motivation to pursue a dual career in higher education.

Considering the *holistic athletic career* and the *holistic ecological approach*, there is an urgency to analyze the student-athletes' identity and motivation towards the context in which they are. Several studies performed in Europe measured student-athletes' identity concerning culture (Aquilina, 2009; Aquilina & Henry, 2010a; Kerstajn, Lupo, Capranica, & Topic, 2018; Kuettel et al., 2018b) and validated questionnaires applied in the American population (Harrison et al., 2014). Besides culture, motivation seems to be affected as well by the identification with academic and sports role. To dig into the effects of identity and motivation, this thesis presents a cross-cultural study (present in Chapter 5 and 6) to identify what influences student-athletes' identity and motivation levels. This is the first approach in the same research which combines student-athletes' motivation and identity as well as the individual, social, organizational, and political factors that can influence them.

This investigation is crucial to identify significant factors for the student-athlete, allowing better institutional decisions. In fact, due to different organizational models and policies, it is difficult to understand what affects the student-athletes in their different institutional and cultural environment. To avoid most of the pitfalls presented by a non-normal distribution of the sample, the methodology was also innovative in the field of sports

science. As presented in study 5 e 6, a multilevel approach with poststratification methodology was performed to refine the data analysis.

In addition, the student-athletes' mobility has been a widespread phenomenon, which led to the increment of concern with the cultural context and the conditions to develop a dual career (Capranica & Guidotti, 2016; N. Stambulova & Ryba, 2013). The recognition that some student-athletes still pursue the American system to obtain support to develop a dual career (Guidotti et al., 2015), emphasizes the need to further investigate the cultural context impact and to publish research beyond Europe. Studies about the student-athletes' motivation using SAMSAQ were performed in Arab Emirates (Fortes, Rodrigues, & Tchanchane, 2010) and Korea (S. Park, Hong, & Lee, 2015), demonstrating differences between models due to cultural differences. These studies reinforce the need to extend the student-athletes' identity and motivation research around the world. Student-athletes' identity research was also performed in American (Harrison, Tranyowicz, Bukstein, McPherson-Botts, & Lawrence, 2014) and Brazilian (Quinaud, Gonçalves, Capranica, & Carvalho, 2020) contexts. A comparative study between Portugal and Brazil was performed.

It is also important to consider the values of stakeholders and policymakers when analyzing the national policies of each MS. There is a need to explore how the individual perceptions of individuals stakeholders affect or not the application of similar dual career approaches, along with their perception of dual career developments (European Commission, 2012; Kuettel et al., 2018a).

The growing acceptance of mixed methods in sports suggests that the use of this approach in social sciences can provide stronger inferences (Sparkes, 2015). The use of quantitative and qualitative data opens a whole new perspective about dual career (N. B. Stambulova & Wylleman, 2019). Mixed methods through quantitative (i.e. questionnaire) and qualitative (i.e. interviews) increases data collection and, therefore, the comprehension at national, European and worldwide levels. This thesis focuses on the identification of the factors affecting the student-athletes' identity and motivation, while considering the cultural and context environments through mixed methods at national, European, and worldwide levels.

### **1.3 Thesis Structure**

To our knowledge, several studies were performed in Europe (Aquilina, 2009; Graczyk et al., 2017; Guidotti et al., 2015; Kuettel et al., 2018b), but there were no studies focused on the political deep analysis of the national contexts. Furthermore, the majority of dual career studies were related with high level athletes (Brown et al., 2015b; North & Lavallee, 2004; van Rens, Ashley, & Steele, 2018), which do not represent the large majority of sports participants.

However, in the contemporary world it is impossible to understand the situation without an international perspective. The mobility of students in Europe and outside Europe, and the global competition among universities for prestige and the best students requires the abandonment of any kind of parochialism, and the use of cross-cultural and comparative studies, in order to reveal the best practices and avoid possible errors.

To reach a deep understanding of the national context, we analyzed the Portuguese national policies and used a quantitative methodology to study the influence of specific legislation on identity and motivation levels. The results presented in Study 1 (Chapter 4) show the influence of different systems in dual career development.

To obtain a deeper knowledge about the European reality, we expanded our enquiry in order to identify the factors related with modifications in terms of motivation and identity. Study 2 (Chapter 5) allows for a global vision of the European context in two different parts. Firstly, it presents the diversity of political conditions and the meaning given to sports by student-athletes. Secondly, through an innovative analysis, it illustrates which factors directly influence the student-athletes' lives.

Despite the existence of studies comparing the higher education systems and dual career policies (Aquilina, 2009; Aquilina & Henry, 2010a; Kerstajn, Lupo, Capranica, & Topic, 2018; Kuettel et al., 2018b), differences between continental models were never explored. Albeit the existing differences between the European and the American models are deep, a comparison with other dual career systems was never done to understand if other organizational models and cultural context changes the student-athletes' perspective. Study 3 (Chapter 4) compares Portugal and Brazil, in order to identify similarities and differences between both countries, and to better understand what it means to be a student-athlete.

Besides the new analytical approach in Study 2, this thesis presents a direct information gathering through dual career stakeholders, considering the direct decision makers and field agents to report their analysis of European dual career situation. Study 4 (Chapter 5) is the result of in-depth one-to-one interviews with six stakeholders, according to the following criteria: being part of meso, macro and policy dimensions of the dual career. Semi structured interviews complement the quantitative studies, expand the plausibility of the results and allow for a thicker approach to the complexity of the theme (Kallio, Pietilä, Johnson, & Kangasniemi, 2016b).

To better understand the object of study - the student-athlete -, the research based itself on the premise that some internal (e.g. satisfaction) and external factors (e.g. politics) influence the motivation to develop a complete dual career. For the development of our study we considered four typologies of approaches to educational services for elite athletes in higher education. To know: state centric regulation; state as sponsor, national sporting federations/institutes as intermediary and no formal structures. (Aquilina, 2009).

The Methods section was organized to answer the need to organize the research in three different levels: national, European and compare those results with a country where the organizational model of the university sport is different from the European, accounting for the socio-cultural context and local conditions of dual career programs (N. B. Stambulova et al., 2015).

To answer the questions related to identity and motivation, we used two questionnaires. The first, the Baller Identity Measurement Scale / BIMS (Harrison, Tranyowicz, Bukstein, McPherson-Botts, & Lawrence, 2014) and the second, the Student-Athletes' Motivation towards Sports and Academic /SAMSAQ (Gaston-Gayles, 2005).

The BIMS, developed and validated by Harrison et al. (2014), is a questionnaire adapted from the AIMS (Athletic Identity Measurement Scale) and SAMSAQ. The questionnaire aims to analyze and understand how sports and academic identities impact on motivation and performance.

In order to understand the purpose of the questionnaire, "sports identity" is defined as the degree to which the individual identifies with the role of an athlete (Brewer et al., 1993), and "academic identity" as the identification of the student role.

One of the major differences of this questionnaire in relation to the SAMSAQ is the inclusion of cultural factors, making a theoretical deepening of the perceived identity of the students.

The Student Athlete Motivation Toward Sports and Academics Questionnaire (SAMSAQ), created by Gaston-Gayles (2005), is a 30-item measurement scale that examines academic and athletic motivation as a determinant variable in predicting student-athlete academic performance. It was originally applied to athletes of 8 sports in the 1st Division of the University of Midwest. It was created to measure the students' academic and sports motivation.

Later, other versions that were applied in a European context demonstrated the validity of a three-factor model (i.e., Student Athletic Motivation (SAM), academic motivation (i.e., AM) and motivation to pursue a professional sport career (CAM) (Corrado et al., 2012; Guidotti et al., 2013; Kerstajn et al., 2018).

Additionally, we used a demographic questionnaire to collect data about the gender, nationality, educational institution, importance of sport, level of sports practice, and familiarity with the student-athlete status.

The final version containing 50 items was validated for the Portuguese student-athletes (Study 1) and posteriorly the English version was applied to a sample of European student-athletes (Study 2). The results of the European population were compared with similar studies in Brazil (Study 3).

In Study 1 the total sample was subjected to an inferential analysis to understand the influence of the independent variable "university type" on the dependent variables represented by the factors that emerged from the questionnaires. For this purpose, an ANOVA technique was used.

In Study 2 and 3, a multilevel regression with poststratification (MRP) was used, allowing partial pooling of information across similar groups and provides aggregated estimates of a target population (Gelman & Hill, 2007) for groups with limited or even nonexistent data (Ghitza & Gelman, 2013). MRP has been used to estimate pre-election polls at state and national levels (Gelman & Little, 1997; Park, Gelman, & Bafumi, 2004). MRP outperformed traditional empirical means and regression models (Lax & Phillips, 2009), and more recently, it has been applied to health science data (Barrington- Leigh &

Millard-Ball, 2017; Downes et al., 2018; Eke et al., 2016; Van der Heyden et al., 2014; Zhang et al., 2015).

In Study 4, a qualitative methodology was used in order to clarify the purpose of the study with a holistic approach.

Semi structured interviews complement the quantitative studies, expanding the plausibility of the results and allowing for a thicker approach to the complexity of the theme (Kallio et al., 2016b).

Study 4 (Chapter 5) is the result of in-depth one-to-one interviews with six stakeholders, according to the following criteria: being part of meso, macro and policy dimensions of the dual career.

## **CHAPTER 2. THE STUDENT-ATHLETE**

## **2.1. Models of student-athlete development and the problematic of dual career conciliation in Higher Education**

The research developed in the thesis is based on the holistic career model (Wylleman et al., 2013) and the holistic ecological approach (Henriksen et al., 2010). These models provide a consistent overview of the student-athlete life transitions and system.

Alfermann and Lavalée (2004) suggested a holistic development model that includes normative transitions (e.g. transitions from junior to senior level) in several dimensions of life (athletic, individual, psychosocial and academic).

The top layer represents the athletic development transitions and the ages at which transitions occur and the second layer represents the normative stages and transitions at psychological and social level considering the development of the athletic family and personal relationships.

The final layer of the model was the transitions at academic and vocational level. However, since 2004, the model was updated and renamed into a *holistic athletic career model* and two new life dimensions were added: the financial and legal dimensions (Wylleman, Reints, Knop, Reints, & Knop, 2013; Wylleman & Rosier, 2016). The model is presented in Figure 2.1.

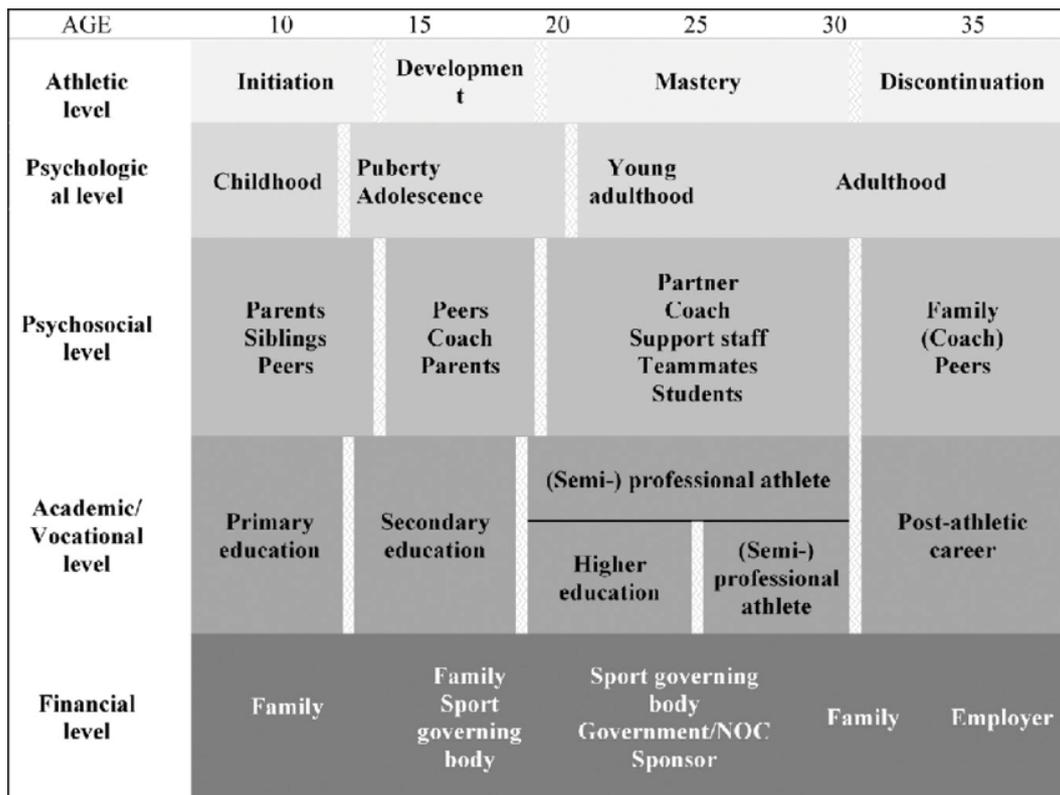


Figure 0.1 The Holistic athletic career model (Wylleman et al., 2013).

The authors of the model suggest that successful academic transitions are a crucial factor in athletic talent development. This framework explains the stages and transitions in which the student-athlete is engaged. Observing the dimensions that affect the academic and athletic development it is possible to point out the challenges faced by the student-athletes, namely the higher education.

Previous studies demonstrated that the transition to higher education is an enormous challenge for the student-athletes, not only because of the decrease of opportunities to be part of a high sport level, but also because they need to invest more time to attend academic activities (Paul Wylleman & Lavallee, 2004). Moreover, sometimes the transition is accompanied by a change of coach, regime, environment, lifestyle pressures, and identity issues (MacNamara & Collins, 2010; N. B. Stambulova & Wylleman, 2019). Student-athletes identify more with their athletic role at the beginning of the higher education. However, that changed gradually, focusing on the academic and social sphere. (Aquilina, 2009)

The holistic ecological approach (Henriksen et al., 2010) changed the student-athletes' perspective to the athletic talent development environment (ATDE) through two

complementary models: ATDE and environment success factors (ESF). The ATDE approach considers the student-athletes the center of the process at the macro (i.e. social setting who affects the athlete) and micro (i.e. an environment where the athlete is most of the time). Moreover, it considers the athletic and non-athletic domains. The ESF suggests athletes' pre-conditions (i.e. human, material and financial) and daily process outcomes as factors revealing to success. Three outcomes are considered: the athletes' individual development and success; the team/group achievement and the organizational development and culture.

To achieve a satisfactory outcome in academic and sports career, some student-athletes spend 30 hours per week studying, plus 20-30 hours training. This dedication has immediate implications on the lifestyle of the individual, affecting their relationships and well-being. (Aquilina, 2013)

Due to these factors, the major concern is to prevent dropout of one of the careers in higher education, making way to a fully lifelong dual participation. To achieve that goal, student-athletes should be supported by institutional and governmental policies.

## **2.2. Student-athletes' identity**

The perception of each individual about themselves depends of individual characteristics and experiences. Barger & Seward (2018) identified that:

"Some participants clearly described themselves as student-athletes. Other participants saw these as completely separate and sometimes even opposing roles. The motivation of student-athletes is a complex system of interrelated beliefs that deserves to be conceptualized in a complex manner, just as these individuals must navigate the complex environment of collegiate athletics. "(p.90)

The identity of student-athletes is formed and sustained within two primary and dominant social contexts: academics and athletics (Sturm, Feltz, & Gilson, 2011).

This dominant social context is linked to the idea that athletic and academic identities represent the athletes' perceptions about themselves as both athletes and students (Wayment, Huffman, Lane, & Lininger, 2019).

Although there is not much information about student-athletes' academic identity, we define academic identity as the identification with the student role. Miller & Kerr (2003) defined the athletic identity as "consisting of cognitive, affective, behavioral and social concomitants of identifying with the athlete's role".

### **2.3. Student-athletes' motivation**

Weinberg & Gould (2017) refer that motivation is a general term or concept, used to designate the complex process that coordinates and directs the direction (i.e., perform or not perform) and intensity (i.e., level) of individuals' effort.

Literature has been reporting the importance of identity and achievement motivation in academic and sport career (Yukhymenko-Lescroart, 2018). A basic assumption of achievement motivation theory is that motivation toward a given task can be determined by an individual's choice of, persistence on, and amount of effort applied to a task (as cited in Gayles, 1984).

Consequently, SAMSAQ was developed using the expectancy-value model. The theory postulates that achievement-related choices are motivated by a combination of people's expectations for success and subjective task value in particular domains (Eccles & Wigfield, 2002; Wigfield, 1994).

Although this theory is based in two distinct constructs, they are profoundly correlated: the expectancies for success tend to predict individuals' later task value. This theory predicts that student-athletes can achieve better results in academics or sports if they believe previously in their success in the task (Eccles & Wigfield, 2002; Gaston-Gayles, 2005; Wigfield, 1994).

The perception of the individuals about themselves is different, as well as their motivation levels and the factors that shape and develop their motivation, achievement and conduct in the academic and athletic social contexts (Yukhymenko-Lescroart, 2018).

## **CHAPTER 3. DOCUMENT ANALYSIS**

### **3.1. Dual Career in Portugal**

Portugal is considered a state-centered country. According to Aquilina (2009), in this typology, the responsibility is placed on HEIs to provide programs and support to student-athletes through legislation, statutory requirement, or government regulation.

Elite sport participation has been an important commitment for the Portuguese Olympic Committee. Created in 1909, it has participated since 1912 in all Olympic Games editions. Incrementing the athletes in international competitions has been one of the main aims of the institution.

In parallel, the number of athletes increased significantly since 1996 pointing to 624001 sport participants in 2017(PORDATA, 2018). The data suggests that 5000 of those participants are now higher education student-athletes, according with FADU. Although not all of them are Olympic athletes, studies indicate a student-athlete participation raise during the London Olympic Games 2012 by France, Finland, Spain, and the UK (Aquilina, 2013; Barriopedro, López de Subijana, & Muniesa, 2018). This seems to be a natural evolution of the increment of educational and sports quality, along with the social recognition of the sports benefits. It is estimated that sports participation will increase in the next decades.

Governmental efforts are being made to improve the sports and education support since early years. As an example, in 2016, a pilot program called "Support Units to High Level Sport" was created to support student-athletes in basic and higher education, improving the communication between schools and clubs/federations to help the student-athletes in several dimensions of their lives. In 2017, the pilot program expanded to five schools and nowadays the aim is to spread it to 16 different schools. Although this program is focused on basic and higher education, the political importance of this topic is increasing.

In 2019, a national student-athlete status was published, enforcing the creation of student-athlete status in all HEIs, with the aim to support the dual career development in HEIs, promoting the universities and student associations' sports representation (Decree-Law No. 55/2019 April 24<sup>th</sup>). To obtain this student-athlete status, the students have to accomplish one of the following criteria:

- a) Participate in championships organized by FADU/EUSA/IUSF representing the HEI or national/international championships with the aim to obtain

national, European or worldwide titles, provided that national sports federations are integrated.

- b) Registered as athletes in the sports service of the HEI/SA in which they are enrolled and have participated, in the academic year preceding the year in which they request the attribution of the status, in national/international school championships.
- c) Affiliated with a sports federation governed by Decree-Law no. 248-B / 2008, of December 31 (federated athletes).

Moreover, the student-athlete must obtain, in the academic year prior to the one in which they require the attribution of the status, at least 36 credits, or of all credits in which they were enrolled, if their number is less than 36. There is an exception for the student-athletes enrolled for the first time in a given cycle of studies.

The support required by law for student-athletes who meet the requirements above is:

- a) Priority in choosing schedules or classes of which frequency regime best suits their sporting activity, as long as this is duly proven by the applicant.
- b) Relevance of absences motivated by participation in official competitions of the modality they represent.
- c) Possibility of changing dates of formal moments of individual assessment that coincide with the days of championships and competitions.
- d) Possibility of requiring at least two annual examinations or equivalent during a special examination period.

This represents an incentive to sports participation and creates a legal framework to improve participation conditions and to recognize the value of universities competitions.

In 2017, the literature review allowed the identification of policies deficiency in Portuguese HEIs. The present overview identifies the dual career policy in 2017 along with the updates following the legal framework published in 2019. In 2017, it is possible to observe three Portuguese HEIs without any legislation and student-athlete support. For a better understanding of the context situation, three different policy typologies were considered. Firstly, sport is organized exclusively by HEIs (i.e. type 1); secondly, sport

is organized by HEIs and the students' unions (i.e. type 2); and finally, HEIs without status or external sports organizations (i.e. type 3). The first two types were identified as HEIs with legislation, and type 3 was identified as HEIs without legislation.

The report considered the HEIs participants in Study 1. Those HEIs participated at the National Universities Championships in 2017, demonstrating high-level sport performances.

Table 0.1 Portuguese HEI participants in National Universities Championships in 2017 and their typologies

<b>HEI</b>	<b>Type</b>
Lusophone University of Humanities and Technologies	Type 3
NOVA	Type 2
Polytechnic of Guarda	Type 1
Polytechnic of Leiria	Type 1
Polytechnic of Porto	Type 2
Polytechnic of Santarém	Type 1
Portuguese Catholic University	Type 3
University Institute of Lisboa	Type 2
University Institute of Maia	Type 3
University of Aveiro	Type 2
University of Beira Interior	Type 2
University of Coimbra	Type 2
University of Évora	Type 1
University of Lisboa	Type 1
University of Minho	Type 1
University of Porto	Type 2
University of Trás-os-Montes and Alto Douro	Type 3

### **3.2. Report on dual career policies in Portuguese HEIs**

At the time of the questionnaire application, the HEIs participants were divided in three different types: type 1 (n= 6), type 2 (n=7), and type 3 (n=4).

According to the documental analysis, the majority of type 1 HEIs update their student-athletes status between 2018 and 2020, due to the launch of a new national law. The responsible department identified was the social work services department or sports related offices. To obtain the student-athletes status, the majority of the HEIs require

participation at university championships representing the HEI, and accomplishing a percentage of training sessions.

In type 2 HEIs, there was an update in 2019 in the majority of the institutions to fulfill the requirements of the Decree-Law No. 55/2019 April 24<sup>th</sup>. The substantial difference between type 1 and type 2 is the responsible department. The documental analysis demonstrates a control provided by Sports Office in partnership with Student Associations.

Type 3 does not suffer any update since the Decree-Law No. 55/2019 April 24<sup>th</sup>.

The Portuguese legislation differs from HEI to HEI as well as the student-athletes' duties and rights. To illustrate, when analyzing the student-athletes' duties in some institutions, the student who is representing the HEI in university sports events is considered a student-athlete, while others consider only athletes who are competing in federated competitions. Despite those differences, the benefits from being a student-athlete are more equitable from institution to institution. Type 1 and Type 2 HEIs provide, generally, the following rights:

- 1) Priority in choosing schedules and classes.
- 2) Justification for absences from classes, or other teaching activities.
- 3) To require examinations in the special season.
- 4) If the period given to develop a paper or its due date coincides with the day of the sporting event, the postponement of this date.
- 5) Request an exam in two curricular units, at a special time of the academic year in which the right was recognized.

### **3.3. Dual Career in Europe**

The European Commission has been carrying out several programs to support the investigation and development of dual career. Since 2004, the organization financed research and report to propel dual career evolution, through cross-country studies and share experience promotion ("Routledge Handbook of Sport Policy - Google Books," n.d.) (INEUMconsulting / Taj, 2008).

These studies were developed within the scope of response to 2009 Preparatory Action in the field of sport, with the aim to develop guidelines on dual career, which became priority in 2011.

In the same year, Aquilina (2009) developed an academic work which describing types of approaches to educational services for elite athletes in higher education. To our knowledge, this was the first academic describing the European state of art in terms of student-athletes support.

As a result of the European Commission will, in 2011 "Promoting Dual Careers in the EU" (EOC EU Office, "Athletes-To-Business", March 2011) was published and in 2012, the European Commission launched the Guidelines on Dual Career of Athletes (European Commission, 2012). The aim of these publications was to "sensitize governments, sport governing bodies, educational institutes and employers to create the right environment for dual careers of athletes, including an appropriate legal and financial framework and a tailor-made approach respecting differences between sports" (European Commission, 2012).

The document, divided in five different policy areas (i.e. sport, education, employment, health and financial incentives) presented strategies to develop dual career considering the national and local contexts, through examples of good practices and guidelines for action.

This is a pertinent topic since it is estimated that there is 120.000 talented young Europeans practicing sports, who give at least ten – fifteen years of their lives to perform sports at elite level, at high costs and risks. (European Commission, 2016)

Despite the European Commission's efforts to enhance and guide the dual career, three years after the launch of the European Guidelines, it is possible to observe that "in some countries, policies and programs for dual career have yet to be developed." (European Commission, 2016)

Dual career is a tool to reduce the dropout rate, promoting a successful reform of athletes and guiding governments, sport structures and education institutions to make better decisions in the management of sports and education (Guidotti, Cortis & Capranica, 2015).

## **CHAPTER 4. STUDENT-ATHLETES IDENTITY AND MOTIVATION TOWARDS DUAL CAREER: THE CONTEXT MATTERS**

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## **ABSTRACT**

We hypothesized that student-athletes' athletic identity and motivation are influenced by their own institutions' sports policies. The aim of the study is twofold: a) to validate a measure of athletic identity among Portuguese college students; b) to analyze the effects of 3 different types of college policies on identity and motivation. This study used a quantitative design. 201 Portuguese student-athletes answered to two questionnaires, BIMS (Baller Identity Measurement Scale) and SAMSAQ (Student Athletes Motivation towards Sports and Academics Questionnaire). For comparative purposes, three types of universities were considered according to their institutions' sports policies: type 1 (i.e. sport organized exclusively by higher education institutes (HEIs)), type 2 (i.e. organized by HEIs and/or student associations) and type 3 (i.e. organized outside the HEIs).

The CFA showed the adjustment of the model of BIMS with two factors for Portuguese student-athlete (emotions and exclusivity) (CFI: 0.918, RMSEA: 0.123) and the SAMSAQ with three factors (academic motivation, motivation to be a student-athlete, motivation for a sports career) (CFI: 0.933, RMSEA: 0.106). This was the first time that these instruments were combined to analyze the Portuguese reality. The findings show that the micro and meso environment of the university seems to shape the perceptions and feelings of the students about their participation in sport. An important practical implication is that the higher expression of satisfaction came from universities where the students had a stronger implication in the activities' organization and management. For policy makers this is a significant contribution for decision making about dual career.

Keywords: dual career, student-athlete, motivation, policy, sports

## INTRODUCTION

Sport is a growing social and economic phenomenon which strongly contributes to strategical goals defined by the European Union, playing a fundamental role to the personal and individual development, charity, tolerance and fair play of the European citizen (European Commission, 2007).

Although sports participation is strongly encouraged, young athletes have severe difficulties in making sports compatible with educational requirements (Conzelmann & Nagel, 2003; Capranica & Millard-Stafford, 2011).

The literature has shown that the European athletes tend to abandon sport and prioritize education in order to prepare for future job opportunities or, in opposite situations, to abandon academic training because of competition, economic resources or lack of support through the dual career (López de Subijana et al., 2015).

The student-athletes have several dimensions in their academic career and sports career and the lack of dual career definition is a problem that must be investigated to understand what systems should be implemented to improve the satisfaction level of the Portuguese student-athlete.

In Portugal, there is still a very significant number of student-athletes who cannot reconcile a sports and academic career, and end up abandoning one of them.

One of the transitions in which the dropout rate of one of the careers is significant is in the student's entry into higher education. The importance of career transitions has been increasing over the past few years and there are already several programs (Brown et. al, 2015; Mateos, Torregrosa & Cruz, 2004; van Rens, Elling & Reijgersberg, 2015) to support career development and the development of athletes' skills in various government structures, National Olympic Committees, Sports Federations and academic institutions.

The study "An investigation of potential users of career transition services in the United Kingdom" (North & Lavalley, 2004), applied to participants of the ACE UK program – a program established to allow the existence of support structures for the development of the athlete's career, allowing best sport achievements and easier transition to retirement – has shown that athletes spend more time training and competing, but are more motivated when there is a balance between sports and non-sports activities.

These career transition programs have been growing in Europe along with studies of development models such as Wylleman, Alfermann & Lavallee (2004) that have created a development model that includes normative transitions (e.g. transitions from junior to senior level) in several dimensions of life (athletic, individual, psychosocial and academic) with the premise of strong relationships between athletic transitions and academic, psychosocial and professional transitions. In the article "Dual career of European student-athletes: the systematic literature review" (Guidotti, Cortis, & Capranica, 2015), the transitions of the sport career from one stage to the other are considered a process instead of an isolated event. For the athlete, the development of the sports career is a multidimensional, dynamic, multilevel and multifactorial process (athletic, psychological, psychosocial and educational).

To complete this development, it is necessary that support structures prepare athletes for their transitions in sports and academic career. Some studies report that the involvement of athletes in dual career support programs demonstrates better academic results and higher levels of satisfaction.

According to Ābelkalns & Geske (2013), in the university phase, many student-athletes make several mistakes (e.g. time planning, organizing, controlling, and lack of motivation) in the management of their academic career. The strategy of reconciling sport and education for many European athletes has been to move to the United States of America, since there are no support structures in their higher education institutions. The athletes recognize that a dual career is a tool that allows them to transfer skills from one career to another, both for a foremost academic development and a professional sports career. A dialogue between academic structures on the various dimensions of dual careers in European student-athletes is urgent, in order to understand the strategy for dual career development. According to Guidotti, Lupo, Cortis, Di Baldassarre, & Capranica (2015), teachers are available to provide dual career support services through more flexibility in schedules, online support, e-learning and tutorial support. In addition, it is also important to develop a stronger relationship between players and managers based on sporting and educational values, which can help athletes to arrange their daily lives (Henricken, Stambulova, & Roessler 2010) (Larsen, Alfermann, & Christensen, 2013).

Taking the student-athlete as a multidimensional object, programs need to be developed in order to help them plan their career needs in the long term so that they can make better decisions for their life and future.

Guidotti, Cortis, & Capranica (2015) argue that transnational studies and projects can play an important role in identifying the best practices to reduce the dropout rate of academic and sports career, promoting a successful reform of athletes and guiding governments, sport structures and education institutions to make better decisions in the management of sports and education for future European citizens.

They further affirm that future studies should explore the relationships between the different dimensions of the dual career using qualitative and quantitative methodologies and develop scales that will measure the effectiveness of the dual career in student-athlete development.

The dual career system in Portugal is club-based, as the European reality. (Ryba, Stambulova, Ronkainen, Bundgaard, & Harri, 2015)

According to the Academic Sports University Federation (FADU), it is estimated that in Portugal about ten thousand students practice university sports and therefore need to match the requirements of the training with the academic requirements. In order to harmonize the potential conflict between sport and the education of athletes, understanding and defining dual careers becomes an increasingly relevant topic for improving student-athlete training. It is important to understand the characteristics of the student-athletes' motivation in order to allow approaches to the dual career constraints based on the social and cultural structure that surrounds them and the sports and university policies conditioning them.

The literature has been reporting descriptive studies based on instruments used in Europe and the United States of America (e.g., *The Student Athletes' Motivation towards Sports and Academics Questionnaire (SAMSAQ)* (Gaston-Gayles, 2005) and *The Baller Identity Measurement Scale (BIMS)* (Harrison, Transyowick, Bukstein, McPherson-Botts, & Lawrence, 2014), but the information about the student-athletes' identities and their perception of the concept remains scarce.

The BIMS, originally used in the United States of America, was applied to the National Collegiate Athletic Association Division I Football Bowl Subdivision athletes at a

northwestern university. The SAMSAQ has been applied in several European countries. The original version was applied in the United Arab Emirates and in Italy (Fortes, Rodrigues & Tchanchane, 2010; Guidotti, Minganti, Cortis, Piacentini, Tessitore & Capranica, 2013), and the results were significantly different in both.

Therefore, a new adaptation was created, containing 21 items of the original questionnaire and 9 items adapted to the Italian context. (Guidotti, Minganti, Cortis, Piacentini, Tessitore & Capranica, 2013)

Subsequently, Lupo (2012) applied a questionnaire to the Italian-Slovenian student-athlete population that contained the 30 items of the original questionnaire plus 9 items from the Italian version. This version was denominated SAMSAQ-EU.

This version was applied to Portuguese, Brazilian, Spanish, Swiss, and French student-athletes. In the case of Portugal, a state with regulations (Moreira & Gonçalves, 2016), it was found that most of the population practiced sports at a national level and said they had difficulties in reconciling sport and education. In this application, the item that obtained the highest agreement was "studies are important to acquire knowledge and skills", which reveals a greater concern with the academic career.

After consulting the Sports Law and Student-Athlete Statutes published in the *Diário da República* of each higher education institution (HEI), it was verified that in Portugal there are very significant differences between HEIs. In addition to HEIs where there is no student-athlete legislation, there are many different sports policies in which they have their own legislation. One of the major differences is the organization of the sports system. While in some HEIs the sport is coordinated by the student associations, in others the coordination is done within the HEI itself.

In addition, the rights and duties of the student-athletes are quite heterogeneous from institution to institution.

In some HEIs the students receive financial support for their sports practice; in others the students merely have justification of absences or priority in the choice of schedules. Even in what concerns the analysis of student-athlete duties, there are differences depending on the HEI.

There are institutions that assign the status to those who are present in a certain percentage of training time, while others only attribute the status in case of representation of the institution in national championships.

According to Guidotti, Cortis & Capranica (2015), there is little development of the dual career. It is necessary to explore the different political systems, preferably using mixed methodologies, to reveal the factors that favor or constrain the development of dual careers. For this study, the questionnaires referred above will be used, which, having already demonstrated reliability and informative power, require detailed attention with translation and validation, since the study population in BIMS (Harrison et al., 2014) and in the SAMSAQ (Gayles, 2005) is inserted in a university sports reality that is very different from the Portuguese one.

The present research analyses the identity and motivation levels of the Portuguese student-athletes through the inclusion of cultural factors, which has not been made yet in the European context.

Through a quantitative analysis of the variables, it is intended to validate the BIMS and SAMSAQ questionnaires for the Portuguese student-athlete population and to analyze the influence of university regulation on student satisfaction levels and student-athlete identity.

## **MATERIALS AND METHODS**

This study used a quantitative methodology to validate the translation and adaptation of three questionnaires in the Portuguese population of student-athletes.

For comparative purposes, the type of HEI was considered the most important factor for the differentiation of the student-athlete satisfaction levels. All HEI participants in the questionnaire were divided into three types: Type 1 HEIs where sport is organized exclusively by HEIs, Type 2 HEIs where the sport is organized by HEI and/or student associations and Type 3 HEIs where the sport is organized outside the HEI. Types 1 and 2 have legislation for the student-athlete and Type 3 does not have legislation.

In order to select the sample, the probabilistic sampling method was used, allowing the best representation of the population, according to the proportional stratified random technique, given that we want to "divide the target population into homogeneous subgroups called strata and then randomly sample a sample of each stratum" (Fortin, 2003, p.206).

The statistical analysis using Cronbach's Alpha allowed us to precise the internal consistency of the instrument by the estimation of the internal reliability, understood as the possibility of obtaining the same results when the measurement is made with the same instruments in different times (Black, 1999).

A correlation matrix was constructed to assess the existence of collinearity between the dependent variables.

The socio-demographic questionnaire with 10 items collected information about gender, nationality, educational institution, importance of sport, level of sports practice and contact with the student-athlete status.

The BIMS (Harrison et al., 2014) has 10 items and was fundamental in integrating cultural factors.

The BIMS, developed and validated by Harrison et al. (2014) is a questionnaire adapted from the AIMS (Athletic Identity Measurement Scale) and SAMSAQ. The questionnaire aims to analyze and understand how sports and academic identities impact on motivation and performance.

In order to understand the purpose of the questionnaire, "sports identity" is defined as the degree to which the individual identifies with the role of an athlete (Brewer et al., 1993) and "academic identity" as the identification of the student role.

One of the major differences of this questionnaire in relation to the SAMSAQ is the inclusion of cultural factors, making a theoretical deepening on the perceptions of identity that the students have.

The Student Athlete Motivation Toward Sports and Academics Questionnaire (SAMSAQ), created by Gaston-Gayles (2005), is a 30-item measurement scale that examines academic and athletic motivation as a determinant variable in predicting student-athlete academic performance. It was originally applied to athletes of 8 modalities of the 1st Division of the University of Midwest. It was created to measure students' academic and sports motivation. The authors identified three factors validated by the reliability alpha coefficient: dual career motivation (0.86), sports career motivation (0.84), and academic career motivation (0.79).

Later, other versions that were applied in a European context demonstrated the validation of a three-factor model. (Guidotti, Minganti, Cortis, Piacentini, Tessitore & Capranica, 2013)

The questionnaire applied presented 50 items contemplating the individual, cultural and academic dimensions of the student-athlete, through the conjugation of the questionnaires mentioned above.

Participants were asked to respond by indicating the level of agreement with each statement, using a Likert-type scale with six defined levels of "I totally agree" (1) to "I strongly disagree" (6).

The participants were 201 Portuguese female (n = 78) and male (n = 123) student-athletes competing mostly at amateur level in eleven sport modalities (i.e. rugby, basketball, triathlon, athletics, karate, canoeing, handball, futsal, tennis, volleyball and climbing) and coming from 17 higher education institutions in Portugal. This application was carried out in the context of university sports competition, not exclusively to high performance athletes.

The application was made in April 2017 to all participants in the Portuguese National University Championships 2017 through online and paper form, using the electronic tools provided by Google. The answers to the questionnaire were voluntary and anonymous and the application was approved by the Academic Federation of University Sports.

The data was processed anonymously.

The data of the student-athletes to the questionnaire was analyzed through descriptive and inferential statistics. In order to verify the adequacy of the obtained results to the original models, factorial exploratory/AFE and confirmatory/AFC analyses were used. In the inferential statistics, three types of HEI defined above were considered-

Reliability was estimated using the Cronbach's Alpha test, the homogeneity indicator per excellence in tests applied once (Black, 1999; Punch 1998).

According to Hill & Hill (2000) Cronbach's Alpha values above 0.600 can be considered acceptable when there are scales with a low number of items, which is verified in the BIMS (Harrison et al., 2014).

The dependent variables were represented by scores of factors resulting from the AFC. The Kaiser-Meyer-Olkin test (KMO) was used to verify the suitability of the sample.

The fixed factor extraction was considered, starting from the factors of the original scale and the varimax rotation was used. The load factor defined was 0.40, as suggested by Pedhazur & Kerlinger (1982). The software used was the SPSS program, version 24.0.

To confirm the exploratory factorial analysis, a confirmatory factorial analysis was carried out. The maximum likelihood estimation method was used as probabilistic method and the AMOS program (version 24) was used to confirm the model.

The values of Standardized Root Mean Square Residual and Root Mean Square Error of Approximation were set as goodness indexes for adjustment of the models with cutoff values of 0.80 and 0.05, respectively. The results were analyzed to validate the confirmatory factorial analysis.

The Standardized Root Mean Square Residual (SRMS) and Root Mean Square Error of Approximation (RMSEA) values were considered as adequacy indices.

According to Hu & Bentler (1999), an SRMR value of less than 0.08 is generally considered a good model.

Studies have shown that the combination of RMSEA values  $<0.05$  (0.06) and SRMR  $>0.06$  (0.07, 0.08, 0.09, 0.10, or 0.11) result in acceptable type 2 error rates for poorly specified simple and complex models, under conditions of robustness and not sturdiness.

The total sample was subjected to an inferential analysis to understand the influence of the independent variable "university type" on the dependent variables represented by the factors that emerged from the questionnaires. For this purpose, an ANOVA technique was used.

## RESULTS

In a first analysis of the literature the questionnaires used allowed the identification of four factors in the BIMS and three factors in the SAMSAQ. The factors extracted in the BIMS (Harrison et al., 2014) were exclusivity, social identity, negative emotions and positive emotions.

In SAMSAQ (Gaston-Gayles, 2005) three motivation factors were extracted: motivation to be a student-athlete, motivation for an academic career and motivation for a sports career. To describe and synthesize the data by grouping the items that are correlated with each other, an exploratory factorial analysis was performed. The Kaiser-Meyer-Olkin test (KMO) was used to verify the suitability of the sample. In BIMS (Harrison et al., 2014) and SAMSAQ (Gaston-Gayles, 2005) the KMO test values were 0.772 and 0.887, respectively. The sample values were considered significant in both questionnaires, since in the Bartlett's sphericity test the significance value was  $p < 0.001$ . The use of the Bartlett's test showed a suitability of the technique to the initial 10-item BIMS solution. After the varimax rotation analysis, with inclusion of a factorial load  $\geq 0.40$ , and because of the value of the internal reliability (0.713), it was decided to perform the fixation of two factors for the BIMS and three for the SAMSAQ.

After the exploratory factorial analysis two factors were defined for the BIMS and three factors for the SAMSAQ, as demonstrated in Tables 1 and 2.

Table 0.1 Exploratory factorial analysis of the BIMS in the Portuguese population

	Factor Load	Cronbach's Alpha	Eigenvalues	Variance explained
<b>FACTOR 1: Exclusivity</b>		0.750	3.536	35.36%
5- I spend more time thinking about the sport I practice than anything else.	0.813			
9- Competition is the most important thing in my life.	0.801			
2- I have many goals related to my sport improvement.	0,713			
<b>FACTOR 2: Emotions</b>		0.679	1.851	18.51%
6- When I play I feel good about myself.	0.824			
8- I feel bad about myself when I do not achieve my sport goals.	0.815			
10- I would feel very depressed if I was injured and could not play.	0.587			
Total variance				53.87%

Table 0.2 Exploratory factorial analysis of the SAMSAQ in the Portuguese population

	Factor Load	Cronbach's Alpha	Eigenvalues	Variance explained
<b>FACTOR 1: Academic Motivation</b>		0.810	8.188	27.29%
7- I will be able to use what is taught in my courses in different aspects of my life outside of school.	0.804			
3- It is important for me to learn what is taught in my courses.	0.792			
4- I am willing to put in the time to earn excellent grades in my courses.	0.711			
<b>FACTOR 2: Motivation to be Student-Athlete</b>		0.777	4.776	15.92%
27- I am willing to put in the time to be outstanding in my sport.	0.786			
2- Achieving a high level of performance in my sport is an important goal for me this year.	0.778			
19- I am confident that I can be a top level performer on my team/sport this year.	0.760			
<b>FACTOR 3: Motivation for a sports career</b>		0.859	1.572	5.24%
8- I choose to play my sport because it is something that I am interested in as a career.	0.706			
20- My goal is to make it to the professional level or the Olympics in my sport.	0.667			
22- I am confident that I can make it to an elite level in my sport (Professional/Olympics).	0.598			
Total variance				48.45%

Notes: a) Coding: 1- Completely Agree 6- Completely Disagree; b) Extraction Method: Principal Component Analysis. C) Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 7 iterations. d) KMO Measure of Sampling Adequacy=0.887; Bartlett's test of Sphericity:  $\chi^2 = 2808.4$ ,  $df=435$ ,  $p=0.000$

In Table 1 and 2 the variables with more factor load were extracted, analyzing the values obtained with the indication of the factors from the original questionnaires

In the BIMS (Harrison et al., 2014) two factors were extracted: exclusivity and emotions; in SAMSAQ (Gaston-Gayles, 2005) three factors were extracted: motivation to be student-athlete (MSA), motivation for a sports career (MSC) and academic motivation (AM).

In SAMSAQ (Gaston-Gayles, 2005) Cronbach's Alpha values are close to or greater than 0.800, which shows good internal consistency.

The theoretical model proposed between the observed variables and the latent variables are presented in Figure 1.

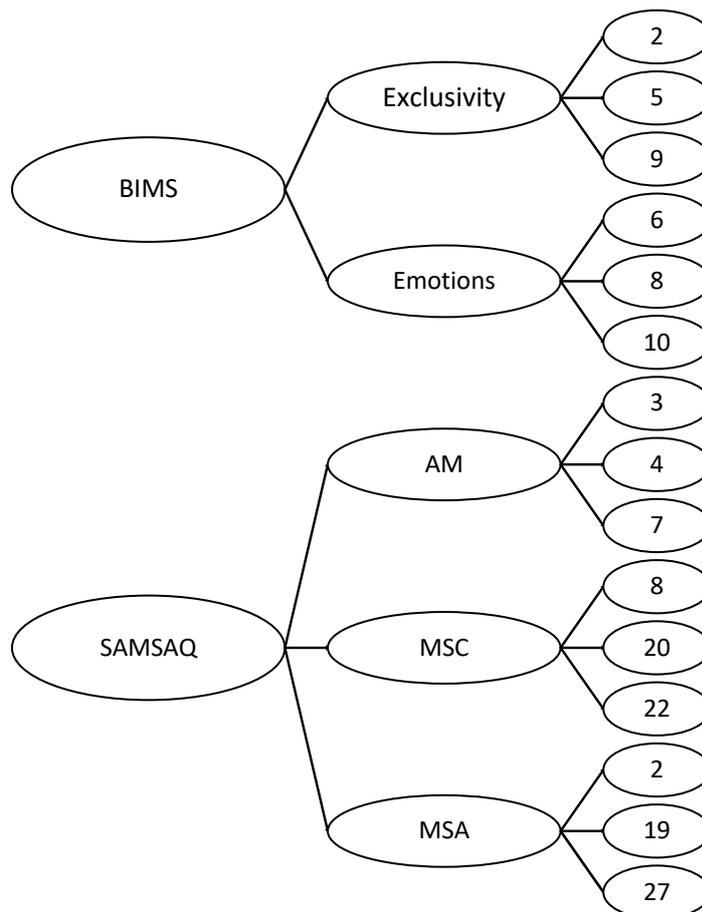


Figure 0.1 Figure 1. Result model from the analysis between observed variables and variables latent  
 Notes: Coding: MA: Academic Motivation; MSC: Motivation for a sports career; MSA: Motivation to be a Student-Athlete

After the exploratory factorial analysis, we proceeded to a confirmatory factorial analysis to confirm the former.

Table 0.3 Questionnaire: Results of Factorial Confirmatory Analysis

Questionnaire	Chi-Square	CFI	RMSEA	SRMR	DF
BIMS	32.294	0.918	0.123	0.0757	8
SAMSAQ	76.961	0.933	0.106	0.0619	24

Notes: Coding: CFI: Comparative Fix Index; RMSEA: Root Mean; Square Error of Approximation; SRMR: Standardized Root Mean Square Residual; DF: Degrees of freedom

After the exploratory and confirmatory factor analysis, the student-athlete satisfaction levels were analyzed according to the different typologies of HEI.

Table 0.4 Levels of motivation in the different typologies of HEI: mean, standard deviation and ANOVA

	<b>Evaluation</b>				
	<b>N= 201</b>	<b>Mean</b>	<b>SD</b>	<b>F.</b>	<b>Sig.</b>
<b>BIMS</b>					
Emotions				0.974	0.379
T1	69	2.86	0.96		
T2	123	2.74	1.18		
T3	9	3.26	1.79		
Exclusivity		1.76	0.89	3.336	0.038
T1	69	1.97	0.99		
T2	123	1.63	0.81		
T3	9	1.78	0.74		
<b>SAMSAQ</b>					
Academic Motivation				2.477	0.087
T1	69	2.23	0.86		
T2	123	1.92	0.97		
T3	9	1.96	0.87		
Motivation to be a student-athlete		2.79	1.20	5.602	0.004
T1	69	2.89	1.09		
T2	123	2.65	1.18		
T3	9	3.96	1.67		
Motivation for a sports career				0.119	0.888
T1	69	3.70	1.57		
T2	123	3.71	1.54		
T3	9	3.96	1.58		

Notes: Coding: a) 1- Completely Agree 6- Completely Disagree; b) T1: Typology 1; T2: Typology 2; T3: Typology 3;  
c)  $p < 0.05$  = there are statistically significant differences

According to Table 4, there are statistically significant differences ( $p < 0.05$ ) in the exclusivity and motivation to be student-athletes when the HEI typology is the comparison variable. Regarding the exclusivity and motivation factors to be student-athlete (MEA), student-athletes present higher levels of satisfaction in Type 2 HEIs. In the case of exclusivity, it is in Type 1 HEIs that student-athletes present lower levels of satisfaction. In relation to the MEA factor it is in Type 3 HEIs that the students present lower levels of satisfaction.

It is verified that there are no statistically significant differences in the factors emotion, motivation for the academic career and motivation for the sports career when the sports

policy is the variable of comparison. Overall, Type 1 universities with a more structured type of government have less motivated athletes, while Type 2 HEIs have the most motivated athletes.

## **DISCUSSION AND CONCLUSIONS**

The exploratory factorial analysis has shown that the BIMS (Harrison et al., 2014), validated on other countries, had different results in the Portuguese population.

Harrison et. al (2014) has demonstrated the existence of four factors in the American population: social identity, exclusivity, positive emotions and negative emotions. When applied exclusively to the Portuguese population, two factors were identified: exclusivity and emotions.

One of the factors extracted in the original questionnaire that could not be extracted in the Portuguese population was the social identity factor. Unlike the sports system of the United States of America, Portugal does not have a system in which sports are widely integrated into the academic structure. Thus, the sports career and the academic career are usually different careers that the athletes must manage under their own responsibility. The social and academic structure does not recognize the student-athlete as a distinctive agent of the academic population, integrating it as a regular student in the education system. The lack of understanding about the needs of the student-athlete conducts the educational system to a devaluation of the student-athletes in the social and cultural system. According to the results, the student-athletes affirm that they do not feel different from their colleagues for practicing sports and a preference for an academic career is evident.

When analyzing the factors using the type of institution as a comparison variable, it was verified that there are statistically significant differences ( $p < 0.05$ ) in the exclusivity factor. The results demonstrate that the emotion does not have variations in student-athlete satisfaction levels when comparing the different types of HEI.

The emotional impact level of sports practice does not have significant variation according to different sports legislations.

When analyzing the means of the two factors (i.e. exclusivity and emotions) it is observed that student-athletes are more motivated in HEIs Type 2. Analyzing the emotions, we found that athletes are less motivated in HEIs Type 3 ( $M = 3.26$ ) and, in exclusivity, they are less motivated in HEIs Type 1 ( $M = 1.97$ ).

Assuming emotions and exclusivity as an important factor to the motivation of the student-athlete, the results suggest that the student-athletes are generally more motivated in university types where they are part of the organization system.

The results of the exploratory and confirmatory factorial analysis shown by the application of the SAMSAQ (Gaston-Gayles, 2005) in the Portuguese population were very similar to the original questionnaire. Three factors were extracted from it: academic motivation (AM), motivation to be a student-athlete (MSA) and motivation for a sports career. (MSC)

The comparative analysis of the different types of HEI showed that the only factor with statistically significant differences ( $p < 0.05$ ) was the motivation to be a student-athlete. When analyzing the results of the means, in general, athletes are more motivated in Type 2 HEIs (MA = 1.92, MSA = 2.65) and less motivated in Type 3 HEIs (MSA = 3.96).

As observed using the BIMS, the results demonstrate higher levels of motivation in structures where the sports organization is shared between HEIs and student associations.

This indicates that students are more motivated when they are themselves part of the organizational system and decision makers in the university sports system. Student associations seem to be very important for the motivation of student-athletes, since these structures are closer to the students and, therefore, able to understand and respond to their needs quickly.

The motivation for the sports career is the factor in which the students have lower levels of motivation ( $M = 3.59$ ). The results from the comparison of student-athlete satisfaction levels using the typology of the institution as the comparative variable seem to demonstrate that students have lower levels of satisfaction in Type 3 HEI and, in general, there is no motivation for a sports career. These results highlight the importance of dual career legislation as an impact factor in the motivation levels of athletes. In Type 3 HEIs, where there is no legislation or sports organization, students are less motivated to embark on a dual career.

In what concerns the motivation for a sports career factor, the lack of motivation to develop a sports career may be related to the sample. This questionnaire was applied in the context of university sports and not in elite competitions, which reflects a population

that, for the most part, practices sports at an amateur level and does not consider sports as a future professional career.

After defining the predominant factors in the student-athletes' motivation, the correlations between the factors defined in the analysis were explored: academic motivation (AM), motivation for the sports career (MSC), motivation to be a student athlete (MSA), exclusivity and emotions.

According to the results, the Portuguese student-athletes are motivated to be student-athletes, although there are great difficulties in reconciling sport and education. However, they still prioritize their academic career over their sports career.

Table 0.5 Correlations between BIMS and SAMSAQ

		AM	MSC	MSA	Emotions	Exclusivity
AM	$\rho$ de Person	1	-0.058	0.193**	0.481**	0.109
	Sig. (2-tailed)		0.414	0.006	0.000	0.124
MSC	$\rho$ de Person	-0.058	1	0.596**	0.023	0.555**
	Sig. (2-tailed)	0.414		0.000	0.743	0.000
MSA	$\rho$ de Person	0.193**	0.596**	1	0.436**	0.643**
	Sig. (2-tailed)	0.006	0.000		0.000	0.000
Emotions	$\rho$ de Person	0.481**	0.023	0.436**	1	0.394**
	Sig. (2-tailed)	0.000	0.743	0.000		0.000
Exclusivity	$\rho$ de Person	0.109	0.555**	0.643**	0.394**	1
	Sig. (2-tailed)	0.124	0.000	0.000	0.000	0.000

Notes: Coding: MA= academic motivation; MSC= motivation to sports career; MSA = motivation to be a student-athlete

As pictured in Table 5, it is possible to verify that there is a very significant relation between student-athletes' motivation and exclusivity (0.643).

There is also a reasonably significant relationship between sports career motivation and exclusivity (0.555) and academic motivation and emotions (0.481), suggesting that the association between motivation and identity represents a pathway to explore in the future.

This study uses exclusively quantitative methodologies, but it is also important to use qualitative methodologies to bring the researcher closer to the social and political context of the dual career. The approach to direct decision-makers and athletes is elementary to understanding the dual career definition in Portugal.

At a European level, there is still a very uneven situation in the development and application of dual careers. Despite the recommendations of the European Commission in the 2012 EU "Guidelines on Dual Careers of Athletes", advances have not developed as expected. There is a need for extensive research into the European situation comprising the dual career development models in different European countries as well as direct contact with European institutions and organizers.

It would be of importance to apply this study in elite competitions in the future, in order to understand the effect of university sports policies on the population of high-performance student-athletes.

After the statistical analysis of the questionnaire translated and adapted, it can be verified that this can be a tool to analyze the Portuguese student-athletes. As mentioned previously, the original questionnaires presented a number of factors slightly different from the results of the Portuguese population. In the BIMS (Harrison et al., 2014), it was possible to extract exclusivity, social identity and negative and positive emotions as factors while in the Portuguese population it was only possible to extract the exclusivity and emotions factors.

In SAMSAQ (Gaston-Gayles, 2005) the extraction of factors in the Portuguese population was identical to the extraction of the original application: motivation to be a student-athlete, motivation for an academic career and motivation for a sports career.

After the analysis of student-athlete satisfaction averages in relation to the type of HEI, it was verified that there are statistically significant differences in exclusivity and

motivation to be a student-athlete factors. In general, students are more motivated in Type 2 HEI and less motivated in Type 3 HEI.

The motivation for a sports career factor is the one in which student-athletes are less motivated, which suggests that, in this population, there is no interest in the development of sports as a professional career.

The innovative aspects of the present study are grounded on the cultural approach to the measurement of the student-athletes' identity and motivation levels and its contribution to a deeper analysis of the Portuguese context, allowing for a global perspective of the Portuguese organizational systems and for future comparative studies.

## REFERENCES

- Ābeļkalns, I. & Geske, A. (2013). High performance athletes' dual career possibilities in Latvian higher educational institutions. *Lase journal of sport science*, 47-60.
- Amara, M., Aquilina, D., & Henry, I. (2004). Education of young sportspersons. Report Finale. Brussels: Directorate-General Education and Culture. Retrieved from [http://ec.europa.eu/assets/eac/sport/library/studies/doc372\\_en.pdf](http://ec.europa.eu/assets/eac/sport/library/studies/doc372_en.pdf)
- Black, T. R. (1999) *Doing quantitative research in the social sciences: in an integrated approach to research design, measurement and statistics*. London: Sage Publications.
- Brewer B., Van Raalte J.L., Linder D.E. (1970). Athletic identity: Hercules' muscles or Achilles heel? *International Journal of Sport Psychology*. 24, 237-254.
- Brown, D., Fletcher, D., Henry, I., Borrie, A., Emmett, J., Buzza, A. and Wombwell, S. (2015). A British university case study of the transitional experiences of student-athletes. *Psychology of Sport and Exercise*, 21, pp.78-90.
- Capranica, L., & Millard-Stafford, M. (2011). Youth Sport Specialization: How to Manage Competition and Training? *International Journal Of Sports Physiology And Performance*, 6(4), 572-579. doi: 10.1123/ijsp.6.4.572
- Commission of the European Communities. (2007). *White Paper*. Brussels. Retrieved from <http://ec.europa.eu/transparency/regdoc/rep/1/2007/EN/1-2007-391-EN-F1-1.Pdf>

Conzelmann, A., & Nagel, S. (2003). Professional Careers of the German Olympic Athletes. *International Review For The Sociology Of Sport*, 38(3), 259-280. doi: 10.1177/10126902030383001

D' Hainaut, L. (1990). *Conceitos e métodos da estatística*. Lisboa: Fundação Calouste Gulbenkian.

Despacho [Dispatch] n.º 9448/2016 de 22 de julho. *Diário da República* n.º 140 – 2ª Série.

Dolan, C., Bechger, T., & Molenaar, P. (1999). Using structural equation modeling to fit models incorporating principal components. *Structural Equation Modeling: A Multidisciplinary Journal*, 6(3), 233-261. doi: 10.1080/10705519909540132

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/assets/eac/sport/library/documents/dual-career-guidelines-final\\_en.pdf](http://ec.europa.eu/assets/eac/sport/library/documents/dual-career-guidelines-final_en.pdf)

FADU – Calendário [Calendar] (2016). Retrieved 17 November 2016, from <http://www.fadu.pt/nacional/competicao/calendario>

Fortes, P., Rodrigues, G. and Tchantchane, A. (2010). Investigation of Academic and Athletic Motivation on Academic Performance Among University Students. *International Journal of Trade, Economics and Finance*, pp.367-372.

Gaston-Gayles, J. (2005). The Factor Structure and Reliability of the Student Athletes' Motivation toward Sports and Academics Questionnaire (SAMSAQ). *Journal Of College Student Development*, 46(3), 317-327. doi: 10.1353/csd.2005.0025

- Guidotti, F., Cortis, C., & Capranica, L. (2015). Dual Career of European Student-Athletes: a Systematic Literature Review. *Kinesiologia Slovenica*, 20, 5–20.
- 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
- Harrison, C., Tranyowicz, L., Bukstein, S., McPherson-Botts, G., & Lawrence, S. (2014). I am what I am? The Baller Identity Measurement Scale (BIMS) with a Division I football team in American higher education. *Sport Sciences For Health*, 10(1), 53-58. doi: 10.1007/s11332-014-0171-3
- Henriksen, K., Stambulova, N., & Roessler, K. (2010). Holistic approach to athletic talent development environments: A successful sailing milieu. *Psychology Of Sport And Exercise*, 11(3), 212-222. doi: 10.1016/j.psychsport.2009.10.005
- Hill, M. & Hill, A. (2000). *Investigação por questionário [Investigation by questionnaire]*. Lisboa: Edições Sílabo.
- Hu, L., & Bentler, P. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6(1), 1-55. doi: 10.1080/10705519909540118
- Larsen, C., Alfermann, D., Henriksen, K., & Christensen, M. (2013). Successful talent development in soccer: The characteristics of the environment. *Sport, Exercise, And Performance Psychology*, 2(3), 190-206. doi: 10.1037/a0031958

- López de Subijana, C., Barriopedro, M. & Sanz, I. (2015). Dual career motivation and athletic identity on elite athletes. *Revista de Psicologia del Deporte*. 24. 55.
- Lupo, C., Guidotti, F., Goncalves, C., Moreira, L., Doupona, M., & Bellardini, H. et al. (2014). Motivation towards dual career of European student-athletes. *European Journal Of Sport Science*, 15(2), 151-160. doi: 10.1080/17461391.2014.940557
- Mateos, M., Torregrosa, M., & Cruz, J. (2010). Evaluation of a career assistance programme for elite athletes: satisfaction levels and exploration of career decision making and athletic-identity. *Kinesiologia Slovenica*, 16 (1-2), 30-43
- Mateos, M., Torregrosa, M., & Cruz, J. (2010). Evaluation of a career assistance programme for elite athletes: satisfaction levels and exploration of career decision making and athletic-identity. *Kinesiología Slovenica*, 16(1), 30–43.
- Moreira, L., & Gonçalves, C. (2016). *Motivações dos estudantes atletas portugueses na sua dupla carreira* [Motivations of Portuguese student athletes in their dual career]. VII Congresso Português de Sociologia, Universidade de Évora.
- North, J., & Lavalley, D. (2004). An investigation of potential users of career transition services in the United Kingdom. *Psychology Of Sport And Exercise*, 5(1), 77-84. doi: 10.1016/s1469-0292(02)00051-1
- Pedhazur, E., & Kerlinger, F. (1982). *Multiple regression in behavioral research*. New York: Holt, Rinehart, and Winston.
- PORDATA. (2018). Praticantes desportivos federados: total e por algumas federações desportivas. [Federated sports practitioners: total and by some sports federations]. *Base de dados Portugal Contemporâneo* Retrieved from

<https://www.pordata.pt/Portugal/Praticantes+desportivos+federados+total+e+por+algumas+federacoes+desportivas-2226>

Punch, K. (1998). *Introduction to social research: quantitative and qualitative approaches*. London: Sage.

Regulamento [Regulation] n.º 904/2016 de 6 de outubro. Diário da República n.º 192 - 2ª Série.

Regulamento [Regulation] n.º 400/2014 de 10 de setembro. Diário da República n.º 174 - 2ª Série

Ryba, T. V., Stambulova, N. B., Ronkainen, N. J., Bundgaard, J., & Selänne, H. (2015). Dual career pathways of transnational athletes. *Psychology of Sport and Exercise*, 21, 125–134. <https://doi.org/10.1016/j.psychsport.2014.06.002>

Universidade de Coimbra (2016). Regulamento do Estudante-A atleta [Student-Athlete Regulation]. *Observatório do Desporto da Universidade de Coimbra*. Retrieved November 8, 2016, from <http://www.uc.pt/governo/reitoria/oduc>

Universidade do Minho (2014). *Regulamento Académico da Universidade do Minho* [Academic Regulations of the University of Minho] (Art. 65º).

van Rens, F. E., Elling, A., & Reijgersberg, N. (2015). Topsport talent schools in the Netherlands: A retrospective analysis of the effect on performance in sport and education. *International Review for the Sociology of Sport*, 50(1), 64–82. <https://doi.org/10.1177/1012690212468585>

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 & Science In Sports*, 20, 88-94. doi: 10.1111/j.1600-0838.2010.01194.x

Wylleman, P., Alfermann, D., & Lavallee, D. (2004). Career transitions in sport: European perspectives. *Psychology Of Sport And Exercise*, 5(1), 7-20. doi: 10.1016/s1469-0292(02)00049-3

**CHAPTER 5. IDENTITY AND MOTIVATION AMONG  
EUROPEAN STUDENT-ATHLETES: A MULTILEVEL  
APPROACH WITH POSTSTRATIFICATION**

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## **ABSTRACT**

The need to develop and implement good practices and good policies to support dual careers in higher education across the world has increased in recent years. This is the first study that combines the perceptions of academic and sport careers with motivation and cultural identity. To understand what motivates student-athletes to pursue a dual career, it is important to identify individual, internal and external influences.

The study aims to analyze the effect of gender, university country, sport meaning and student-athlete status on the motivation and identity' profiles of European student-athletes.

Two questionnaires were used: Baller Identity Measurement Scale / BIMS, and Student Athlete Motivation Toward Sports and Academics Questionnaire / SAMSAQ. The questionnaires were applied to 232 European student-athletes participating in the 4<sup>th</sup> European Universities Games 2018. The statistical analysis used a Bayesian multilevel modeling with poststratification. BIMS two factors, emotions and exclusivity, and SAMSAQ three factors, academic motivation, student-athlete motivation, career athletic motivation were the dependent variables.

The results suggest a significant influence of the student-athlete status on all variables related to motivation and identity. Gender and country did not show any effects.

The findings indicate that it is the support system at local level that is perceived by the student-athletes as the most influential in their academic and sport careers. The practical implications are clear: universities must implement managerial measures that provide the conditions for a balanced development of dual careers.

**Keywords:** student-athletes, dual career, motivation, identity, policy, Europe

## INTRODUCTION

All over the world, thousands of students “initiate, develop and finalize an elite sporting career in combination with the pursuit of education” (EU Expert Group Education & Training in Sport, 2012, p.6) to fulfill all the dimensions of life, (i.e. society role, satisfactory income, identity, and partner relationship).

However, (Aquilina, 2009) in a study about the relationship between the educational development and the sport performance in elite athletes demonstrated that, apart from spending 30 hours per week with school work, there is a need to balance this load with 20–30 hours of sports training, a work-schedule characteristic of a senior manager.

This demonstrates that conciliating both careers is very challenging and sometimes could lead the student-athlete to suffer from social, emotional and psychological stress.

Previous studies (2–4) identified that maintaining both components of the career simultaneously can be extremely time consuming, resulting in a feeling of fatigue and a lack of motivation. Issues related with scheduling, finances, educational choices and social structure support were identified as stressors to maintain a dual career. Furthermore, a study with elite swimmers and basketball players identified the transitions into and out of university as a critical point within the development of a dual career (5).

However, athletes recognize the importance of education (2,6,7) and the possibility to develop academic careers in a high-level sport environment is one of the first factors that athletes consider when choosing a university (8).

For that reason, not only the universities are more aware of the social importance of dual career, but also they are developing support programs for student-athletes (1,9).

Despite the trends, programs are still very dependent of Higher Education Institutions visions and decisions because at least at European level there are different dual career policies in each state member of the European Union. (1) identified four groups of national legislation. First, the State Centric Regulation, where the HEIs comply with the national legislation (e.g. France, Hungary, Luxembourg, Spain, Poland, Portugal). In the second group, the state provides funds and guidance for the HEI to develop mechanisms to implement dual career programs (e.g. Belgium, Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Sweden). In the third group, sport governing bodies negotiate flexible

education provision with the HEI (e.g. Greece, United Kingdom). Lastly, there are countries where does not exist any formal structure related to dual career (e.g. Austria, Cyprus, Czech Republic, The Netherlands, Ireland, Italy, Malta, Slovakia, Slovenia).

Besides national legislation, HEIs can develop and implement their own programs to support student-athletes. Self-legislation is implemented through a student-athletes status. In the present study, student-athletes status is interpreted as HEIs' internal rules to guarantee support and define student-athletes' duties and rights.

However, not only external factors affect the student-athlete but also intrinsic factors interact with the environment. The perception of the individuals about themselves is different, as well their motivation levels and which factors shape and adapt their motives, achievement goals and conduct in academics and athletic social contexts (10).

To better discriminate the student-athletes sports context, we considered the sports meaning as a fundamental factor able to impact student-athletes' motivation and identity. We categorized sports meanings in four different categories (i.e. first employment, second employment, a job with reimbursement of expenses, volunteering and other).

Moreover, motivation of student-athletes is a complex system of interrelated beliefs that demands to be conceptualized in a multidimensional manner, just as these individuals must navigate the challenging environment of collegiate athletics (11). Based on previous studies (12,13), the present research considered also the student-athlete' identity. The student-athletes are a very specific group because their identity is formed and sustained within two primary and dominant social contexts: academics and athletics (14).

This dominant social context is linked to the idea that athletic and academic identities represent the athletes' perceptions of him- or herself as an athlete and student (15). Although there is scarce information about the student-athletes' academic identity, in the present study we define academic identity as the identification with the student role and the athletic identity as the "identity as consisting of cognitive, affective, behavioral and social concomitants of identifying with the athlete's role" (16). Recent studies demonstrated a direct connection between institutional organization and athletic identity. (12,13).

The multiple layers that characterize dual career demand a multidimensional approach and for that reason we considered cultural, academic and athletic variables to understand

how the student-athletes' motivation and identity vary according to specific social contexts (17).

To investigate the cultural and social environments and academic and athletic identity we used the Baller Identity Measurement Scale/BIMS (18) and the Student Athlete Motivation Toward Sports and Academics Questionnaire/SAMSAQ (19). These questionnaires were adapted and applied in Europe (20–23), validating the use of this instruments in European populations.

To our knowledge, this is the first study that combines the perceptions of academic and sports careers with motivation and cultural identity. Furthermore, the present study is innovative because it investigates different political systems aiming to reveal the factors that favor or constrain the development of dual careers. (24) argue that transnational studies and projects can play an important role in identifying the best practices to reduce the dropout rate of academic and sports career, promoting a successful reform of athletes and guiding governments, sport structures, and educational institutions to make better decisions in the management of sports and education for future European citizens.

It is important to stress that in this type of enquiry samples cannot be pre-planned for a normal distribution. Countries have different populations and systems on higher education and the participation in the championships is voluntary and depends of a management decision. Therefore, we were very careful with the statistical techniques in order to avoid biased results and interpretations due to skewed distributions.

The aim of the study is to analyze the effect of gender, university country, sport meaning and student-athlete status in the European student-athletes' motivation and identity' levels using multilevel modeling and poststratification.

## **METHODS**

### *Design of the study, participants and experimental approach to the problem*

The study adopts a cross-sectional quantitative design. Data were collected during the 4<sup>th</sup> European University Sport Association games through an online form, using the electronic tools provided by Google. The answers were voluntary and anonymous and the application was approved by the EUG Organizing Committee.

Participants were asked to respond by indicating the level of agreement with each statement, using a Likert-type scale with six defined levels of "I totally agree" (1) to "I strongly disagree" (6). The data were processed anonymously.

Participants were 232 European female (n = 117) and male (n = 115) student-athletes (age <30) from 16 member state of European Union (i.e. Austria, Croatia, Czech Republic, Estonia, Finland, France, Germany, Hungary, Italy, Lithuania, Netherlands, Poland, Portugal, Slovakia, Spain, UK) from individual and team sports (i.e. handball, basketball, canoe, rowing, soccer, futsal, rugby, table tennis, volleyball, judo, tennis). This is a convenient sample drawn from the participants in the EUSA Games 2018, meaning that the student-athletes participated in an elite level of competition. All participants declared they were fluent speakers in English.

To understand the impact of culture and academic and sport identity in the levels of motivation we used an English adapted version of the questionnaires Baller Identity Measurement Scale/BIMS (18) and Student Athlete Motivation Toward Sports and Academics Questionnaire/SAMSAQ (19) containing 30 items from original SAMSAQ (19), 10 items from BIMS (18) and 10 socio-demographic items. Similar with previous studies (Fernandes, Moreira & Gonçalves, 2019), two factors were extracted in BIMS (i.e. exclusivity and emotions) containing items as "Compete is the most important thing in my life." and "When I play, I feel good about myself.", respectively. In SAMSAQ three factors were extracted: academic motivation (e.g. "It is important for me to learn what is taught in my courses."), student-athlete motivation (e.g. "Participation in my sport interferes with my progress towards earning a college degree." and career athletic motivation (e.g. "I am confident that I can make it to an elite level in my sport").

### *Data analysis*

We used Bayesian multilevel regression and post-stratification (25,26) to measure student-athletes' motivation toward sports and academics, and identity. Multilevel regression and poststratification allow to model individual responses as a function of group or context characteristics, partially pooling individuals responses towards the group mean (27), and avoids the potential pitfalls in the data distribution.

We estimated each student-athlete's motivation toward sports and academics, and identity as a function of his or her individual characteristics and university country (for individual  $i$ , with indexes  $j$ ,  $k$ ,  $l$  and  $c$  for gender, sport meaning, student-athlete status and university country, respectively):

The terms after the intercept are the modeled as group effects (also referred as random effects) drawn from normal distributions with variances to be estimated from the data:

$$\begin{aligned} &), \text{ for } j = 1, 2 \\ &), \text{ for } k = 1, \dots, 5 \\ &), \text{ for } l = 1, 2 \\ &), \text{ for } c = 1, \dots, 17 \end{aligned}$$

We regularized the estimates using weakly informative prior distributions, normal prior (0, 10) for population-level effect (intercept) and normal priors (0,1) for group-level effects, i.e., the standard deviations of varying intercepts. We run two chains for 4,000 iterations with a warm-up length of 1,000 iterations to ensure convergence of the Markov chain. We inspected the trace plots to examine the convergence of Markov chains, and used posterior predictive checks to confirm that we did not omitted relevant interactions (28). The models were estimated by using Bayesian methods implemented via Markov Chain Monte Carlo (MCMC) simulation and using Hamiltonian Monte Carlo and its extension, the No-U-Turn Sampler using Stan (29), obtained using brms package (30), available as a package in the R statistical language.

The fixed factor extraction was considered, starting from the factors of the original scale and the varimax rotation was used. The load factor defined was 0.40, as suggested by (31). The software used was the SPSS (Statistical Package for Social Science) program, version 24.0.

## RESULTS

The results show no effects of university country on all the dependent variables (Fig. 1 and 2).

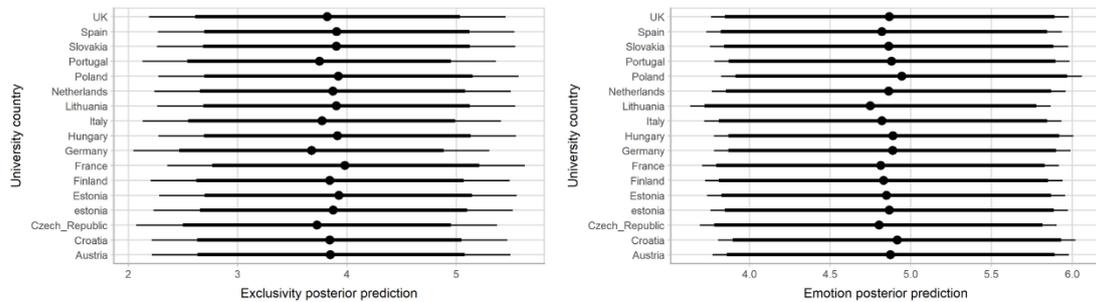


Figure 0.1 Posterior predictions of BIMS factors in relation to university country.

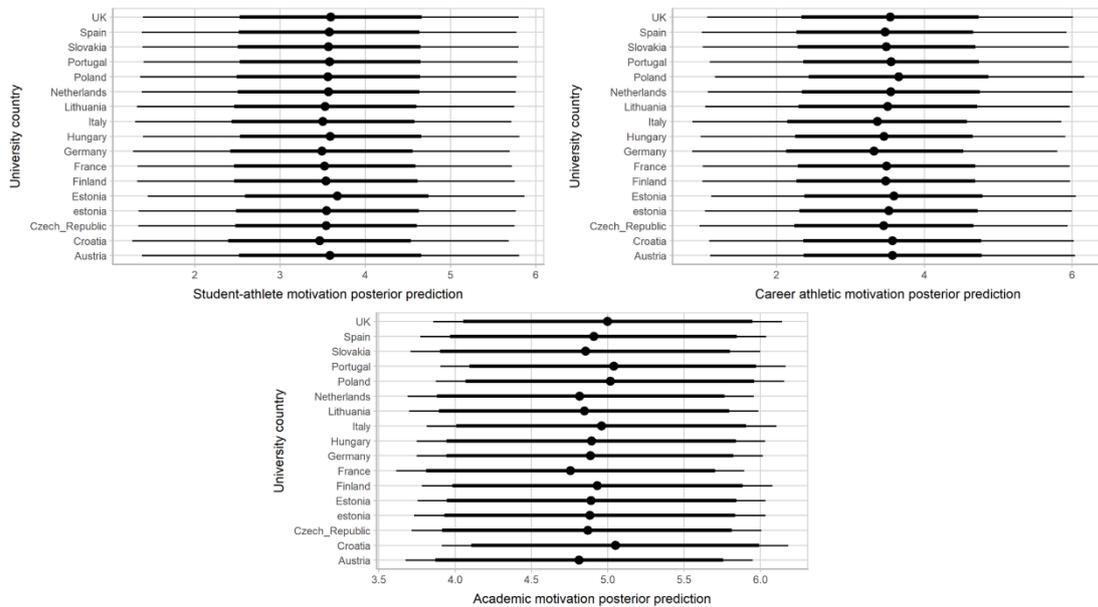


Figure 0.2 Posterior predictions of SAMSAQ factors in relation to university country.

When we introduce sport meaning as independent variable, no effects are apparent, although regarding academic motivation and exclusivity, those who participate in sport as volunteers exhibit mild differences from those who consider sports their first job; volunteers seem more motivated to academics and less oriented to exclusivity (Fig. 3 and 4).

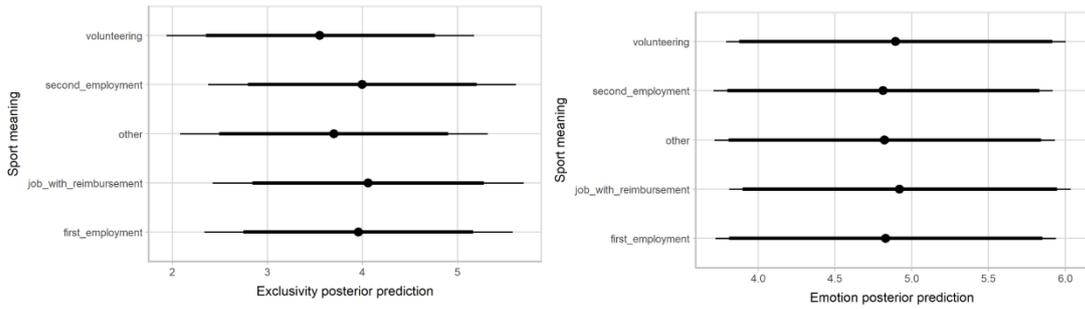


Figure 0.3 Posterior predictions of BIMS factors in relation to sport meaning.

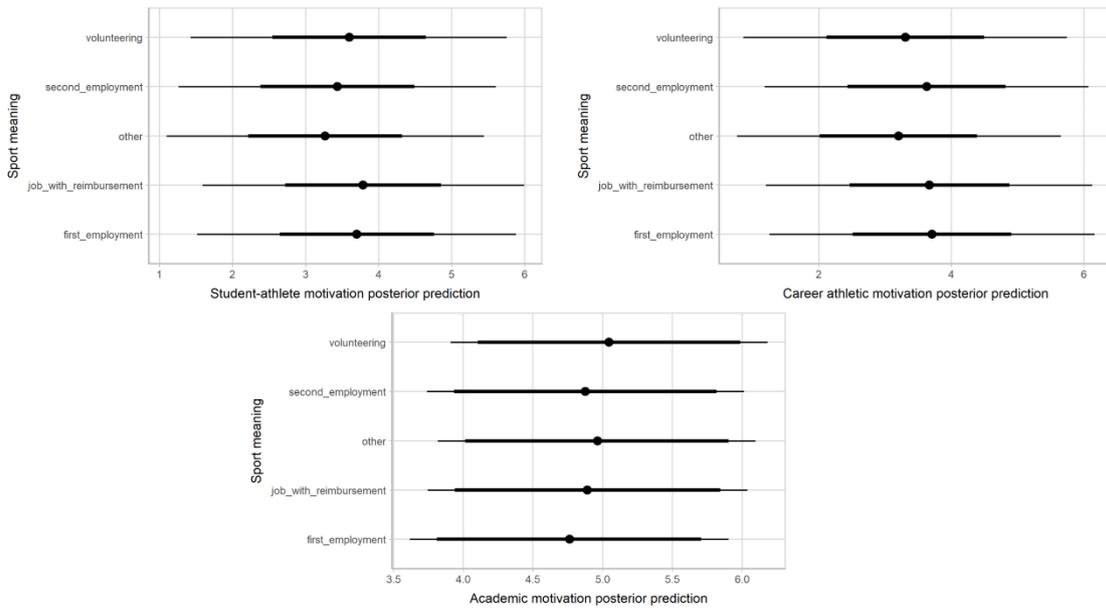


Figure 0.4 Posterior predictions of SAMSAQ factors in relation to sport meaning.

Similarly, gender is not a factor of differentiation in all the BIMS and SAMSAQ variables (Fig. 5 and 6).

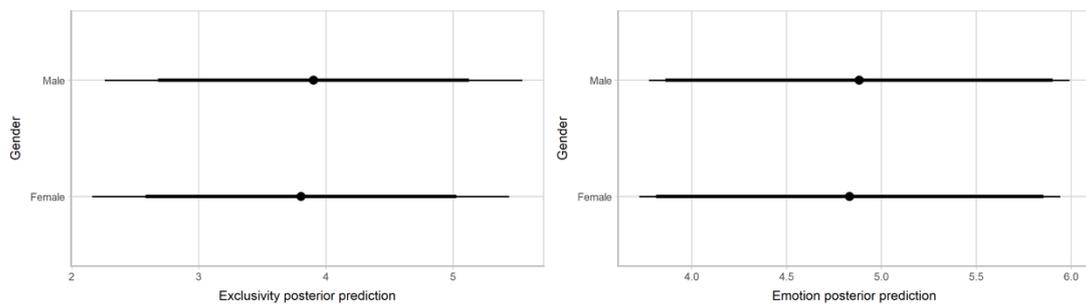


Figure 0.5 Posterior predictions of BIMS factors in relation to gender.

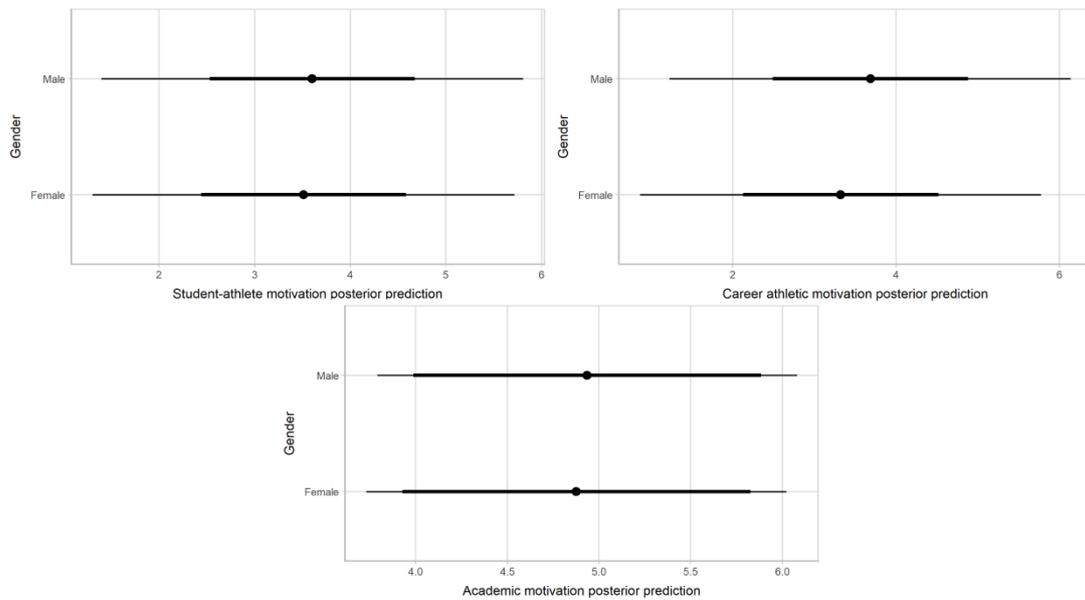


Figure 0.6 Posterior predictions of SAMSAQ factors in relation to gender.

It is the student-athlete status that appears to have major effects on identity and motivation. Student-athletes who participate for universities with a specific status are more motivated to an athletic career (Fig. 7) and show higher scores in emotions (Fig. 8) and exclusivity (Fig.9).

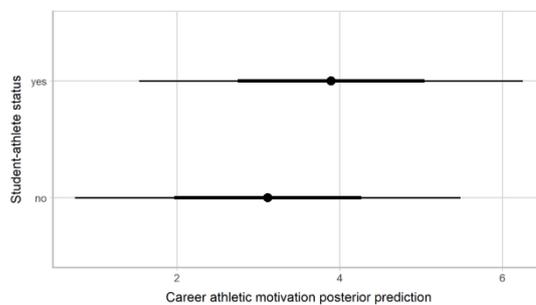


Figure 0.7 Posterior predictions of career athletic motivation factor in relation to student-athlete status.

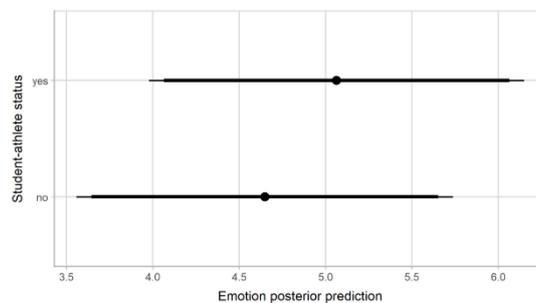


Figure 0.8 Posterior predictions of emotion factor in relation to student-athlete status.

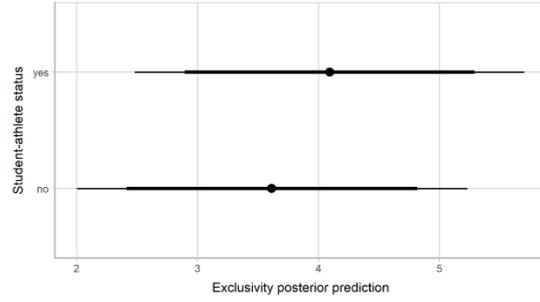


Figure 0.9 Posterior predictions of exclusivity factor in relation to student-athlete status.

Student-athlete status seems to have no effects on academic motivation (Fig. 10) and a moderate effect on student-athlete motivation (Fig.11).

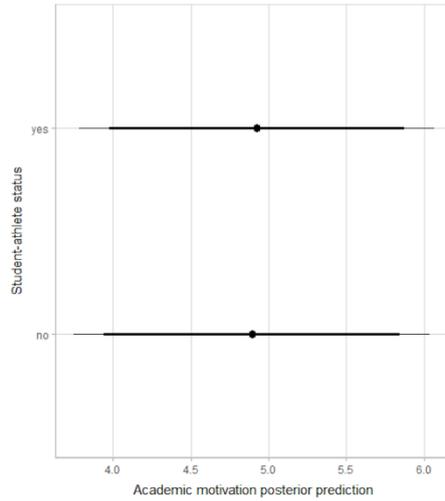


Figure 0.10 Posterior predictions of academic motivation factor in relation to student-athlete status.

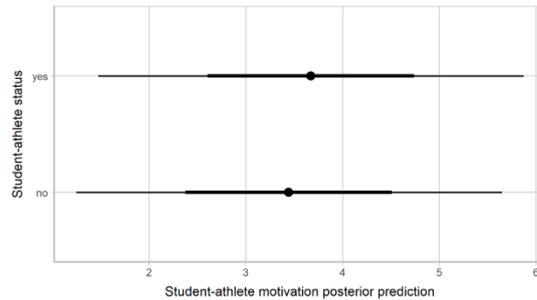


Figure 0.11 Posterior predictions of student-athlete motivation factor in relation to student-athlete status.

## **DISCUSSION**

This study looks at academic and athletic identity, cultural factors and motivation as elements of the same ecological dynamics. The combination of these variables is innovative in the field of sport sciences because it analyzes all student-athlete life's dimensions.

It is important to note that the present study postulates a two-factor model for BIMS (18) different from the four-factor model in the original version, designed in USA collegiate environment. One of the factors not extracted from BIMS in the European population was Social Identity. These results are consistent with those obtained with a Portuguese sample (13). It seems that European student-athletes do not recognize themselves only as athletes. Similar results were found in a qualitative study developed by (7), suggesting that Australian student-athletes perceived academic and athletic identities as independent.

Considering that sport European reality is club-based (32,33) and that there is a significant difference between the educational and sport system when compared to USA, the inexistence of the social identity factor can be explained by the independence of both careers and the absence of a mediatic exposure of university sports in Europe.

Moreover, the findings show that student-athletes agree with the statements related to the satisfaction provided by sport participation. At the same time, they do not agree with an over evaluation of the sports career in opposition to the academic career. The European student-athletes prioritize clearly the academic career. The findings suggest that for student-athletes, a professional future and financial security represent major goals. In Europe, most athletes enroll in higher education not to develop a sport career but to get an education in order to access a better job in the future, because they believe that is not possible to reach financial independence through sport (2,6,7). In the present study it is possible to observe that global levels of AM are higher than CAM, SAM, emotions, and exclusivity, revealing a mitigated interest in developing a sports career.

The purpose of the study looked to identify the effects of the university country of the student-athlete, the sport meaning, the gender, and the student-athlete status on the BIMS and SAMSAQ factors. Although there are important differences among states regarding national legislations and policy recommendations about dual career, student-athletes seem or to ignore them or to perceive laws and rules as too distant in order to have a real

influence in their lives and sport careers. It would be plausible that student-athletes from countries that centralize all the political decisions about university sports would exhibit higher levels of sport and academic motivation in comparison to other organizational models (34,35). The present international sample shows other perceptions about the implemented policies, stressing the important of more comparative and less parochial studies. At the same time, communication with national governing bodies, clubs and universities should be orientated improved in order to disseminate knowledge about the existing policies and support systems (36).

Student-athletes can assume their participation in university sports under diversified roles or legal status: they can be purely amateurs or receive various forms of compensations for their engagement (grants, subsidies or even salaries). It would be expected that sports meaning would influence the levels of motivation or the perceived identity, differentiating amateurs from professional athletes. Although some trends can be observed related to academic motivation and exclusivity the posterior predictions do not reveal important effects of sports meaning (Fig. 3 and 4). A possible explanation is the fact that all the subjects in the study participated in the highest level sport event in Europe, meaning that all the athletes were selected to make the competition and the groups were rather homogeneous in motivation, despite the eventual discrepancies in financial rewards (37).

Gender did not appear as an influence in the variables under scrutiny, even if males seemed more oriented to an athletic career (Fig. 6). (14) suggested that female student-athletes are more identified with the academic career, but in the present context, there was no evidence of that trend. Again, this was a selected international sample of athletes, participating in a European championship, with high levels of motivation and assuming their roles as representatives of their universities.

It is the student-athlete status that presents a major effect on athletic motivation, emotions and exclusivity (Fig. 7, 8 and 9). In all the cases it is the student-athletes competing for universities that have an explicit support system that show higher scores. Significantly, the factor that was less affected by the existence or absence of a student-athlete status was in academic motivation. Considering that a majority of student-athletes enroll in higher education to increase their chances to attain better professional opportunities after

university, this is a possible explanation to the fact academic motivation is not influenced by a student-athlete status.

The findings show the perceived relevance of the student-athlete status in the various aspects of motivation and identity and possibly in the desire and ability to develop a dual career. In the present study, student-athletes value their institution rules before the national legislation and policies, stressing the importance of identifying the individual needs in terms of competitive level, sports season, academic and sports goals and emotional factors.

Proximity of the decision makers, e.g., university management is a key to monitorize those needs and to provide strategies, rules and organizational measures able to be easily perceived and understood by student-athletes. Open channels of communication between managers and student-athletes seems to be the best way to create and nurture a positive environment in university sports.

The findings also suggest that the identity with the student-athletes' role and the motivation to pursue a dual career are intrinsically connected with the individual conditions provided by the universities. Existing evidences about the importance of dual career support programs (8,38) and the results of this study agree on the importance of implementing policies focused on the student-athletes' needs.

According to (10), the perception of the individuals about themselves is different, as well their motivation levels and what shape and develop their motivation, achievement and conduct are the academics and athletics social contexts. The present study represents an important insight about the factors that are perceived by student-athletes as having a real impact in their academic and sport lives. The findings raise credible doubts about the present push of the European Commission to create a common policy for all member states regarding dual career.

As referred by (39), there is not an ideal strategy to promote and implement a balanced dual career for student-athletes, but our results suggest that the cultural, social and political context affects directly the motivation to pursue a dual career. Clearly, the universities' local policies are the factor with major impact for their own student-athletes.

Having or not having a student-athlete status changed the motivation level of the student-athletes' which shows that, even with the need of having global guidelines and policies,

the rules that affect the student-athlete are the rules related with themselves. As referred by (33) the vast majority of athletes face similar challenges, but how these challenges are perceived and addressed depends on the context in which the athlete is embedded.

The study presents the limitations of its cross-sectional design. Although the analytical approach was able to overcome the composition of the sample, more athletes from more countries need to be questioned. It is also desirable to perform more comparative studies, especially in a time where the international mobility of students is sharply increasing. The recent study comparing student-athletes from Portugal and Brazil is a promising step (12).

Case studies about good practices and successful interventions to improve the quality of dual career services are also a promising research avenue.

## **CONCLUSION**

To our knowledge, this is the first study that combines the perceptions of academic and sports careers with motivation and cultural identity using a multilevel approach with poststratification methodology. Analyzing the results, several practical implications emerged from the present investigation. The findings indicate a need to hold responsible the HEI's to support their student-athletes based on the needs of each individual. It is fundamental to understand that the main difference in terms of motivation to develop a dual career is related to the context where the student-athlete study and practice. This investigation suggests a new approach to student-athlete development, with a focus on the student-athlete status and with the identification of the factors responsible for the student-athletes' motivation.

## REFERENCES

1. Aquilina D. Degrees of success : in elite sport and university. Loughborough University; 2009.
2. Harwood CG, Knight CJ. Parenting in youth sport: A position paper on parenting expertise. *Psychol Sport Exerc.* 2015;16(P1):24–35.
3. Cosh S, Tully PJ. Stressors, coping, and support mechanisms for student athletes combining elite sport and tertiary education: Implications for practice. *Sport Psychol.* 2015;29(2):120–33.
4. Cosh S, Tully PJ. “All I have to do is pass”: A discursive analysis of student athletes’ talk about prioritising sport to the detriment of education to overcome stressors encountered in combining elite sport and tertiary education. *Psychol Sport Exerc* [Internet]. 2014;15(2):180–9. Available from: <http://dx.doi.org/10.1016/j.psychsport.2013.10.015>
5. Tekavc J, Wylleman P, Cecić Erpič S. Perceptions of dual career development among elite level swimmers and basketball players. *Psychol Sport Exerc* [Internet]. 2015 Nov 1 [cited 2019 May 21];21:27–41. Available from: <https://www.sciencedirect.com/science/article/pii/S1469029215000254>
6. Knight CJ, Harwood CG, Sellars PA. Supporting adolescent athletes’ dual careers: The role of an athlete’s social support network. *Psychol Sport Exerc* [Internet]. 2018 Sep 1 [cited 2019 May 21];38:137–47. Available from: <https://www.sciencedirect.com/science/article/pii/S1469029217304697>
7. van Rens FECA, Ashley RA, Steele AR. Well-Being and Performance in Dual Careers: The Role of Academic and Athletic Identities. *Sport Psychol.* 2018;33(1):42–51.
8. MacNamara Á, Collins D. The role of psychological characteristics in managing

- the transition to university. *Psychol Sport Exerc* [Internet]. 2010;11(5):353–62. Available from: <http://dx.doi.org/10.1016/j.psychsport.2010.04.003>
9. European Commission. EU Guidelines on Dual Careers of Athletes. European Commission. 2012. 37 p.
  10. Yukhymenko-Lescroart MA. On identity and sport conduct of student-athletes: Considering athletic and academic contexts. *Psychol Sport Exerc* [Internet]. 2018;34:10–9. Available from: <https://doi.org/10.1016/j.psychsport.2017.09.006>
  11. Barger MM, Seward MD. Merged identity of student-athletes and achievement goals across school and sport. *J Study Sport Athletes Educ*. 2018;12(2):75–93.
  12. Quinaud RT, Fernandes A, Gonçalves CE, Carvalho HM. Student-Athletes' Motivation and Identity: Variation Among Brazilian and Portuguese University Student-Athletes. *Psychol Rep* [Internet]. 2019 Dec 6 [cited 2020 Mar 22]; Available from: <http://www.ncbi.nlm.nih.gov/pubmed/31810407>
  13. Fernandes A, Moreira L, Gonçalves C. Student-athletes identity and motivation towards dual career. *Kinesiol Slov*. 2019;29:15–29.
  14. Sturm JE, Feltz DL, Gilson TA. A Comparison of Athlete and Student Identity for Division I and Division III Athletes. *J Sport Behav* [Internet]. 2011;34(3):295–306. Available from: <http://search.ebscohost.com/login.aspx?direct=true&db=s3h&AN=64875656&lang=pt-br&site=ehost-live>
  15. Wayment HA, Huffman AH, Lane TS, Lininger MR. Relationship of athletic and academic identity to concussion reporting intentions. *Musculoskelet Sci Pract* [Internet]. 2019 [cited 2019 May 19]; Available from: [www.elsevier.com/locate/mksp](http://www.elsevier.com/locate/mksp)
  16. Miller PS, Kerr GA. The role experimentation of intercollegiate student athletes.

- Sport Psychol. 2003 Jun 1;17(2):196–219.
17. Lupo C, Guidotti F, Goncalves CE, Moreira L, Doupona Topic M, Bellardini H, et al. Motivation towards dual career of European student-athletes. *Eur J Sport Sci*. 2015 Feb 17;15(2):151–60.
  18. Harrison CK, Tranyowicz L, Bukstein S, McPherson-Botts G, Lawrence SM. I am what I am? The Baller Identity Measurement Scale (BIMS) with a Division I football team in American higher education. *Sport Sci Health*. 2014;10(1):53–8.
  19. Gaston-Gayles JL. The factor structure and reliability of the Student Athletes' Motivation toward Sports and Academics Questionnaire (SAMSAQ). Vol. 46, *Journal of College Student Development*. Johns Hopkins University Press; 2005. p. 317–27.
  20. Fortes P, Rodrigues G, Tchantchane A. Investigation of academic and athletic motivation on academic performance among university students. *Univ Wollongong Dubai - Pap* [Internet]. 2010 Jan 1 [cited 2020 Mar 22]; Available from: <https://ro.uow.edu.au/dubaipapers/233>
  21. Guidotti F, Minganti C, Cortis C, Piacentini MF, Tessitore A, Capranica L. Validation of the Italian version of the Student Athletes' Motivation toward Sport and Academics Questionnaire. *Sport Sci Health*. 2013 Aug;9(2):51–8.
  22. Corrado L, Tessitore A, Capranica L, Rauter S, Doupona Topic M. Motivation for a dual-career: Italian and Slovenian student-athletes. *Kinesiol Slov* [Internet]. 2012 [cited 2020 Mar 22];18(3):47. Available from: [https://www.researchgate.net/publication/261731322\\_Motivation\\_for\\_a\\_dual-career\\_Italian\\_and\\_Slovenian\\_student-athletes](https://www.researchgate.net/publication/261731322_Motivation_for_a_dual-career_Italian_and_Slovenian_student-athletes)
  23. Park S, Hong S, Lee M. Validation of the student athletes' motivation towards sports and academics questionnaire to Korean student-athletes. *J Exerc Rehabil*.

- 2015 Aug 24;11(4):220–7.
24. Guidotti F, Cortis C, Capranica L. Dual Career of European Student- Athletes : a Systematic Literature Review. *Kinesiol Slov.* 2015;20:5–20.
  25. Park DK, Gelman A, Bafumi J. Bayesian Multilevel Estimation with Poststratification: State-Level Estimates from National Polls. *Polit Anal.* 2004;12:375–85.
  26. Gelman A, Little TC. Poststratification into many categories using hierarchical logistic regression. *Surv Methodol.* 1997;1997:1–17.
  27. Gelman A, Hill J. Data Analysis Using Regression and Multilevel/Hierarchical Models. *Data Analysis Using Regression and Multilevel/Hierarchical Models.* Cambridge University Press; 2006.
  28. Gelman A, Carlin JB, Stern HS, Dunson DB, Vehtari A, Rubin DB. *Bayesian Data Analysis, Third Edition (Texts in Statistical Science).* Book. 2013. 675 p.
  29. Gelman A, Lee D, Guo J. *Stan. J Educ Behav Stat* [Internet]. 2015 Oct 1 [cited 2020 Mar 22];40(5):530–43. Available from: <http://journals.sagepub.com/doi/10.3102/1076998615606113>
  30. Bürkner PC. brms: An R package for Bayesian multilevel models using Stan. *J Stat Softw.* 2017 Aug 29;80(1):1–28.
  31. Pedhazur EJ, Kerlinger FN (Fred N. *Multiple regression in behavioral research : explanation and prediction.* 2nd ed. New York : Holt, Rinehart, and Winston; 1982. 822 p.
  32. Lupo C, Mosso CO, Guidotti F, Cugliari G, Pizzigalli L, Rainoldi A. The adapted Italian version of the baller identity measurement scale to evaluate the student-Athletes' identity in relation to gender, age, type of sport, and competition level. *PLoS One.* 2017;12(1):1–12.

33. Stambulova N, Ryba T V. Setting the bar : Towards cultural praxis of athletes ' careers. In: Athletes ' careers across cultures. 2013. p. 235–54.
34. Aquilina D, Henry I. Elite athletes and university education in Europe: A review of policy and practice in higher education in the European Union Member States. Vol. 2, International Journal of Sport Policy. 2010. p. 25–47.
35. Kuettel A, Christensen MK, Zysko J, Hansen J. A cross-cultural comparison of dual career environments for elite athletes in Switzerland, Denmark, and Poland. Int J Sport Exerc Psychol. 2018;
36. De Bosscher V, De Knop P, van Bottenburg M, Shibli S, Bingham J. Explaining international sporting success: An international comparison of elite sport systems and policies in six countries. Sport Manag Rev. 2009 Aug 1;12(3):113–36.
37. Wylleman P, Reints A, De Knop P. A developmental and holistic perspective on athletic career development. In: Foundations of sport management Managing high performance sport. Routledge; 2013. p. 159–82.
38. North J, Lavalley D. An investigation of potential users of career transition services in the United Kingdom. Psychol Sport Exerc. 2004;5(1):77–84.
39. Aquilina D. A study of the relationship between elite athletes' educational development and sporting performance. Int J Hist Sport. 2013;30(4):374–92.

**CHAPTER 6. STUDENT-ATHLETES' MOTIVATION AND  
IDENTITY: VARIATION AMONG BRAZILIAN AND  
PORTUGUESE UNIVERSITY STUDENT-ATHLETES**

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## **ABSTRACT**

Recent studies analyzed the identity and motivation level of the student-athlete considering the roles of academic, athletic and cultural context within an isolated environment (e.g. institution). Hence, it would be insightful to consider comprehensive dual career across more diverse cultural contexts. The aim of the present study is to estimate the variation of student-athletes' identity and motivation across Portuguese and Brazilian universities, accounting for variation in university type, student-athletes' training hours per week and student-athletes' status within each university. It is to assure the appropriateness of the Baller Identity Measurement Scale (BIMS) questionnaire and the Student-Athletes' Motivation toward Sports and Academics Questionnaire (SAMSAQ) to a sub-sample of Brazilian and Portuguese student-athletes. We translated and validated a cross-cultural Portuguese version. We considered 765 student-athletes from Brazil (n= 568) and Portugal (n=197) in relation to individual (hours of training and student-athlete status) and contextual characteristics (university type and country). We used multilevel regression and post stratification to estimate each student-athlete's identity and motivation as a function of their individual and contextual characteristics. Overall, the prediction in our model shows that cultural (country), academic (type of university) and athletic (training hours) context play a considerable influence on student-athletes' identity and motivation. It is important to understand that the local impact of the legislation in the student-athlete is the dimension with major impact in the decisions and lifestyle of the student-athlete. Our investigation highlight the need of cross-cultural studies of different contexts as well as in different populations (e.g. high-school).

**Keywords:** Sports; Multilevel regression and poststratification; University; Questionnaires; Psychometric

## INTRODUCTION

The student-athletes dual career is a research topic of interest worldwide (Guidotti, Cortis, & Capranica, 2015), especially due to its cultural praxis (Stambulova & Ryba, 2014) and the interest of its development by government agencies (European Commission, 2012; European Parliament, 2015, 2017). Two main psychological attributes to balance athletic commitments with the academic duties (Aquilina, 2013; Debois, Ledon, & Wylleman, 2015), or vice versa, are how student-athletes identify themselves (e.g. student, athlete or both) (Lally & Kerr, 2005) and how motivated they are in both contexts to keep in the activities (Lupo et al., 2017b), which both challenges (identity and motivation) are related to each other (Pilarska, 2017).

To measure the academic and athlete's identity, the Baller Identity Measurement Scale (BIMS) has been proposed and validity with student-athletes from the United States (Harrison et al., 2010). The scale consists in 10 items with a four factors structure (social identity, exclusivity, positive affectivity and negative affectivity). An Italian BIMS' version was validated recently (Lupo et al., 2017a), but with a two factor structure (e.g., Social Identity and Identity Gain/Loss). To measure student-athletes' motivation toward sports and academics it was proposed and validated a questionnaire (Student-Athletes' Motivation toward Sports and Academics Questionnaire, SAMSAQ). The questionnaire is composed by 30-item with a three factor structure (Student Athletic Motivation, Academic Motivation and Career Athletic Motivation). Other versions of the SAMSAQ versions have been validated in different contexts, such as the United Arab Emirates version (Fortes, Rodrigues, & Tchantchane, 2010), the Italian version (Guidotti et al., 2013), the Italian harmonized version (Guidotti & Capranica, 2013), the Slovenia version (Lupo, Tessitore, Capranica, Rauter, & Mojca, 2012) and the South Korean version (Park, Hong, & Lee, 2015).

The adapted versions factor structures varied substantially from the original version, likely based on cultural differences between samples.

The international students mobility triggered mainly by The EU Erasmus Programme benefited also athletes that look for opportunities to develop abroad their skills and contacts with other training methods. In fact, the number of student-athletes moving around the world is increasing (Ryba, Stambulova, Ronkainen, Bundgaard & Selänne, 2015) and the topic drew the attention from European scholars, practitioners and political

institutions and ignited an on-going debate. In 2012, the EU Guidelines on dual career of athletes expressed the need of develop policies to increase the student-athlete mobility, and efforts are being made to increase the mobility conditions of the student-athlete through scholarships and special programs. However, student-athletes are a global population and, in this particular field, it is important for sport sciences to attain a true international communication. Furthermore, it seems crucial to break out with the parochialism and ethnocentrism that characterizes part of sport research.

From this point of view, comparative studies are imperative in order to identify similarities and differences across cultures and enhance a better understanding of the perceptions, beliefs and aspirations that shape the experience of being an athlete and a student. It is also necessary to move on from an ethnographic stance and assume methodological sophistication as a way to assimilate a body of knowledge that can subject of comparison and interpretation.

Brazil and Portugal represent optimal contexts for a comparative empirical study. Portugal represents a paradigmatic case, belonging to the group of EU countries that have a comprehensive legislation about school sport. The Higher Education Institutes (HEIs) are responsible to provide opportunities for student-athletes through self-policies orientated by the government (Aquilina, 2009). Brazil has a more liberal and laissez-faire stance regarding sport in the universities. According to Brettschneider and Brandl-Bredenbeck (2007), functional, conceptual, linguistic and sample equivalences are essential categories for cross-cultural comparative studies. In the present study, all the above conditions are respected. Constructs like university sport, motivation or identity are functionally and conceptually equivalent in both countries and map the reality appropriately. We were especially careful about linguistic equivalence because, although the Portuguese language is common, the wording and significance can be different and we adapted the questionnaires to the specific populations and performed separated analysis. In any case, we avoided the dichotomy between cultural relativism and universalism because it has no sense, as we looked at the data without a priori interpretations.

Considering that the student-athletes' identity and motivation are influenced by individual characteristics and social context (Guidotti et al., 2015), these pertain to different data levels, i.e., a hierarchical data structure. Often, single level analysis (e.g. analysis of

variance) are used to deal with hierarchical data, albeit inappropriately. Multilevel modelling framework gives a flexible, robust, deep and trustable interpretation about the hierarchical data structure (Gelman & Hill, 2007). In particular, Multilevel Regression and Poststratification (MRP) allows for improved estimates of small group data, and consequently predict a target population (Gelman & Hill, 2007). MPR was used mainly to estimate the pre-election polls (Gelman & Little, 1997; Park, Gelman, & Bafumi, 2004) and recently to health science (Barrington-Leigh & Millard-Ball, 2017; Downes et al., 2018; Eke et al., 2016; Van der Heyden et al., 2014; Zhang et al., 2015), and there is no available illustration in sports science surveys, to our best knowledge.

In the present study we considered MRP to estimate variation between Brazilian and Portuguese university student-athletes' motivation toward sports and academics, and identity, accounting for individual (hours of training and student-athlete status) and contextual characteristics (university type and country). Given the context of the observations, we initially explored the validity of a Portuguese translated version of the BIMS and SAMSAQ-IT/H in both Brazilian and Portuguese contexts.

## **MATERIALS AND METHODS**

### ***Experimental approach to the problem***

The sample comprised 765 student-athletes from Brazil (n= 568) and Portugal (n=197). Also, the sample included both female (n=400) and male (n=365) student-athletes. The study adopts a cross-sectional design. Participants considered in this study were student-athletes enrolled in higher education degree, and engaged in formal sports activities only within the universities or competing organized sports competition (regulated by national sports federations). The study was approved by the Research Ethics Committee of the Federal University of Santa Catarina. Participation in the study was voluntary; all student-athletes were 18 years old or older, and provided informed consent.

### ***Validity of the factor structures of the Portuguese versions of the BIMS and SAMSAQ***

In this study, we examined the reliability and validity of the factor structure of the Portuguese version for Brazilian and Portuguese student-athletes.

The factor analysis was estimated using lavaan package, available as a package in the R statistical language (R Core Team, 2018).

We adopted the criteria of values  $\geq 0.40$  for the exploratory factor analysis (EFA; Principal Axis Factor; Direct Oblimin Rotation with Kaiser Normalization) for an item loading on factor and no less than three items in a factor (Hair, Black, Babin, & Anderson, 2009). To examine the internal consistency of each factor, the Cronbach alpha coefficients  $>70$  were considered acceptable. Furthermore, a confirmatory factor analysis (CFA) was applied to examine the factorial structure of the model adopting factor loadings cutoff point of 0.7 (Hair, et al., 2009) and following the indexes and their respective cutoff points according to the specialized literature (Jackson, Gillaspay Jr, & Purc-Stephenson, 2009).

### ***Portuguese version of the Baller Identity Measurement Scale***

The Portuguese version of the BIMS was translated in a previous study (Quinaud et al, unpublished data). The Portuguese version for Brazilian and Portuguese student-athletes questionnaire is composed by 8-items and two factors structure (Affectivity and Social Identity), where participants state their level of agreement with the statements on a 6-point Likert scale, ranging from 1 (strongly disagree), to 6 (strongly agree). In the exploratory factor analysis (Kaiser normalization = 0.86) five items were grouped in factor Affectivity ( $\alpha = 0.92$ ) and five items in factor Social Identity ( $\alpha = 0.73$ ). Based on the BIMS-PT's CFA, we found in the initial model (model 1) that eight items loaded into their factors with magnitude greater than 0.70. Thus, two items were excluded (1 and 3) and the final model (model 2) obtained acceptable fit (Chi-square = 155.53; DF = 13; TLI = 0.91; AIC = 18787.15; NFI = 0.96; RMSEA = 0.125; ECVI = 0.287; CFI = 0.96; and GFI = 0.95). RMSEA value suggests a poor fit; however, other absolute fit measures were satisfactory as well as incremental fit measures, supporting with credibility the acceptance of model 2.

### ***Portuguese version of the Student-athletes' Motivation toward Sports and Academics Questionnaire***

The Portuguese version of the SAMSAQ-IT/H was translated in a previous analysis (Quinaud et al, unpublished data). The Portuguese version for Brazilian and Portuguese student-athletes questionnaire is composed by 29-items and a three factor structure (Student Motivation, SM; Athletic Motivation, AM; and Career Motivation, CM) where participants state their level of agreement with the statements on a 6-point Likert scale, ranging from 1 (strongly disagree), to 6 (strongly agree). The exploratory factor analysis (Kaiser normalization = 0.98) showed that 17 items grouped in factor Athletic Motivation, nine in factor Student Motivation and three in factor Career Motivation. An item was excluded (25) due its low value. SAMSAQ-PT's CFA indices also showed to be acceptable (Chi-square = 2192.43; DF = 336; TLI = 0.90; AIC = 66548.131; NFI = 0.90; RMSEA = 0.08; ECVI = 3.061; CFI = 0.96; and GFI = 0.87) as well as all factor loadings greater than 0.70.

### ***Multilevel regression and poststratification***

The first step used with Bayesian MPR was to model individual scores as function of group or context characteristics, partially pooling individuals' responses towards the group mean (Gelman & Hill, 2007).

Hence, we estimated each student-athlete's motivation toward sports and academics, and identity as a function of their individual characteristics and university country (for individual  $i$ , with indexes  $g, h, s, t, u$  and  $c$  for gender, hours of training per week, student-athlete status, type of sport, university type and university country, respectively).

The terms after the intercept are the modelled as group effects (also referred as random effects) drawn from normal distributions with variances to be estimated from the data:

$$\begin{aligned} &), \text{ for } g = 1, 2 \\ &), \text{ for } h = 1, 2, 3. ), \text{ for } s = 1, 2 \\ &), \text{ for } t = 1, 2 \\ &), \text{ for } k = 1, 2. ), \text{ for } c = 1, 2. \end{aligned}$$

In the final step, we used the model estimates to predict the student-athletes' motivation toward sports and academics, and identity variables for groups defined in a poststratification dataset (i.e. hours of training, student-athlete status, university type and country). The poststratification dataset had an observation corresponding to each group defined for all combinations of the variables included in the model.

Estimations were made using Bayesian methods. Hence, we regularized the estimates using weakly informative prior distributions, normal prior (0, 10) for population-level effect (intercept) and normal priors (0,1) for group-level effects, i.e., the standard deviations of varying intercepts. We run two chains for 4,000 iterations with a warm-up length of 1,000 iterations to ensure convergence of the Markov chain. We inspected the trace plots to examine the convergence of Markov chains, and used posterior predictive checks to validate our models (Gelman et al., 2013). Bayesian estimations were performed using the No-U-Turn Hamiltonian Monte Carlo sampler in Stan (Carpenter et al., 2017), obtained using brms package (Bürkner, 2017), available as a package in the R statistical language (R Core Team, 2018).

## **RESULTS**

Firstly, we plotted the general estimates of student-athletes' identity (Figure 1) and motivation (Figure 2). Conditional on the data, the simulations based on our models indicate a substantial probability that student-athletes from Brazil present higher values of identity and motivation compared to Portuguese student-athletes. Furthermore, predictions suggest that the student-athletes from private universities and with more training hours per week have higher values of identity and motivation. There was no substantial variation in both identity and motivation indicators when considering student-athletes' status.

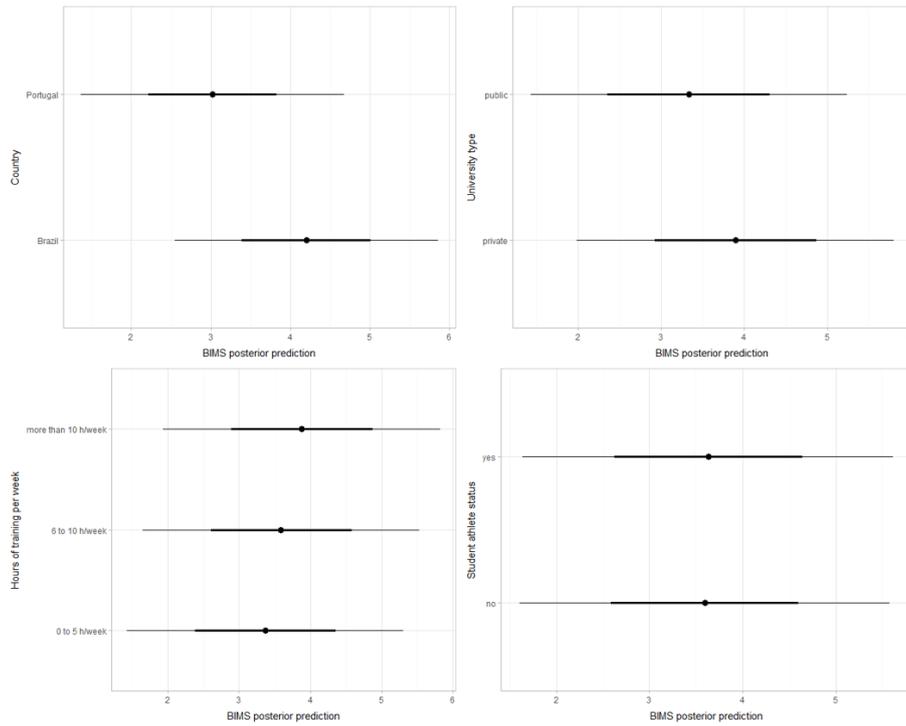


Figure 0.1 Posterior predictions of BIMS in relation to country, university type, training hours per week and student-athlete status

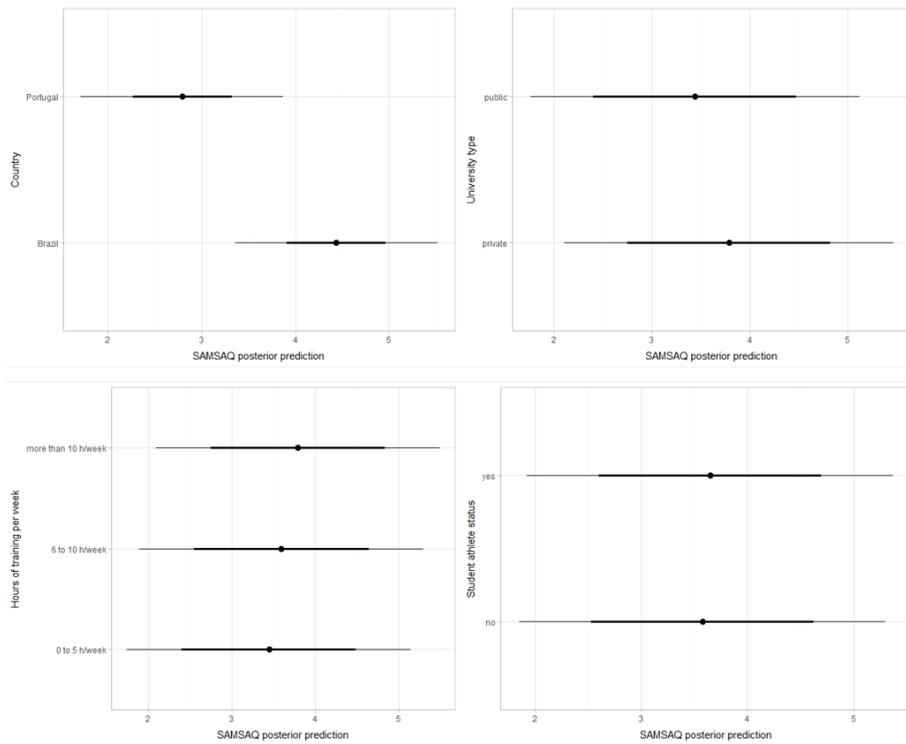


Figure 0.2 Posterior predictions of SAMSQA in relation to country, university type, training hours per week and student-athlete status.

Considering student-athletes' identity dimensions (Figures 3 and 4), data simulations suggest a substantial probability that student-athletes from Brazil present a higher value for affectivity and student-athletes from private universities higher values of social identity. Student-athletes training

more than 10 hours per week had higher values in both identity dimensions, but there was no variation when considering the student-athlete' status.

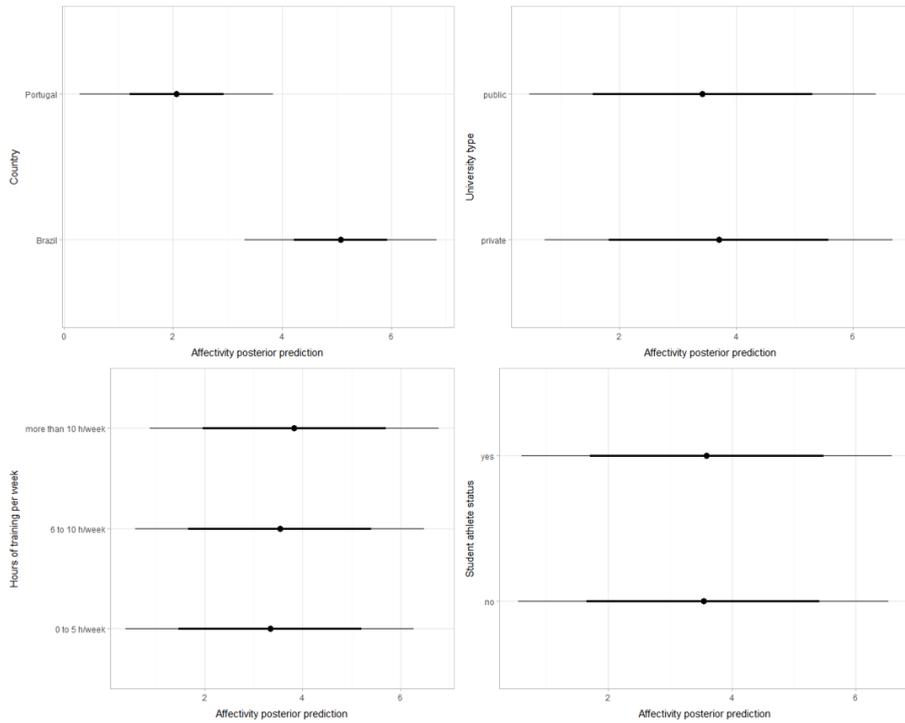


Figure 0.3 Posterior predictions of affectivity dimension of BIMS in relation to country, university type, training hours per week and student-athlete status.

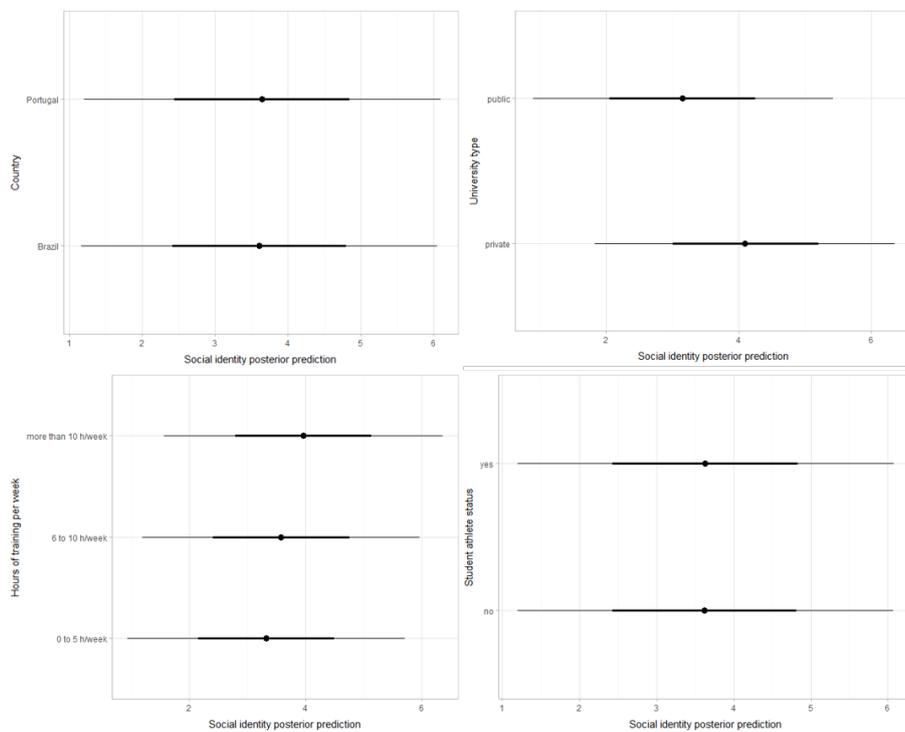


Figure 0.4 Posterior predictions of social identity dimension of BIMS in relation to country, university type, training hours per week and student-athlete status.

Data predictions about student-athletes' motivation dimensions (Figures 5, 6 and 7) indicate that Brazilian student-athletes presented higher scores for athletic motivation. On the other hand, predictions suggest that Portuguese student-athletes showed higher values for student and career motivation. In addition, student-athletes enrolled in private universities presented higher values of student motivation, and student-athletes enrolled in public universities had higher values of career motivation. Student-athletes training more than 10 hours per week had substantial higher score for student motivation and career motivation than those training zero to five hours per week. There was no variation in the motivation indicators when considering student-athletes' status.

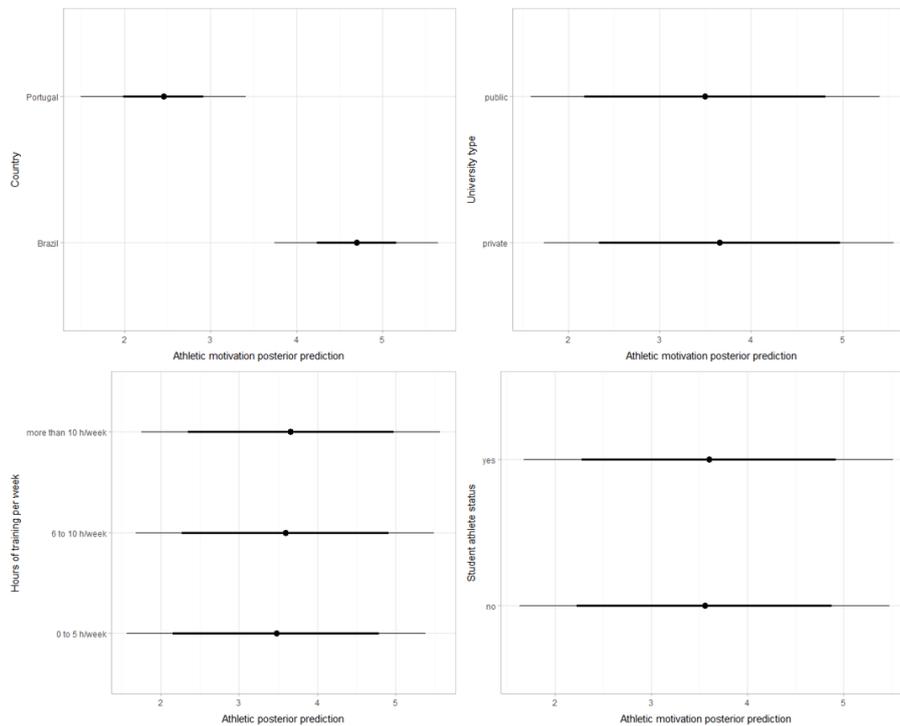


Figure 0.5 Posterior predictions of athletic motivation dimension of SAMSAQ in relation to country, university type, training hours per week and student-athlete status.

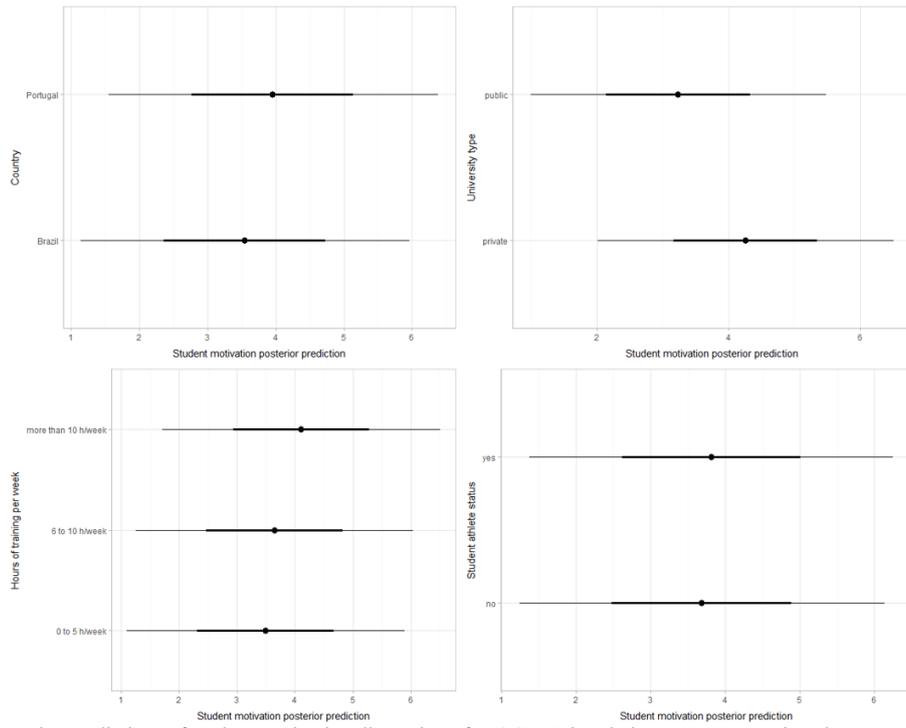


Figure 0.6 Posterior predictions of student motivation dimension of SAMSQAQ in relation to country, university type, training hours per week and student-athlete status.

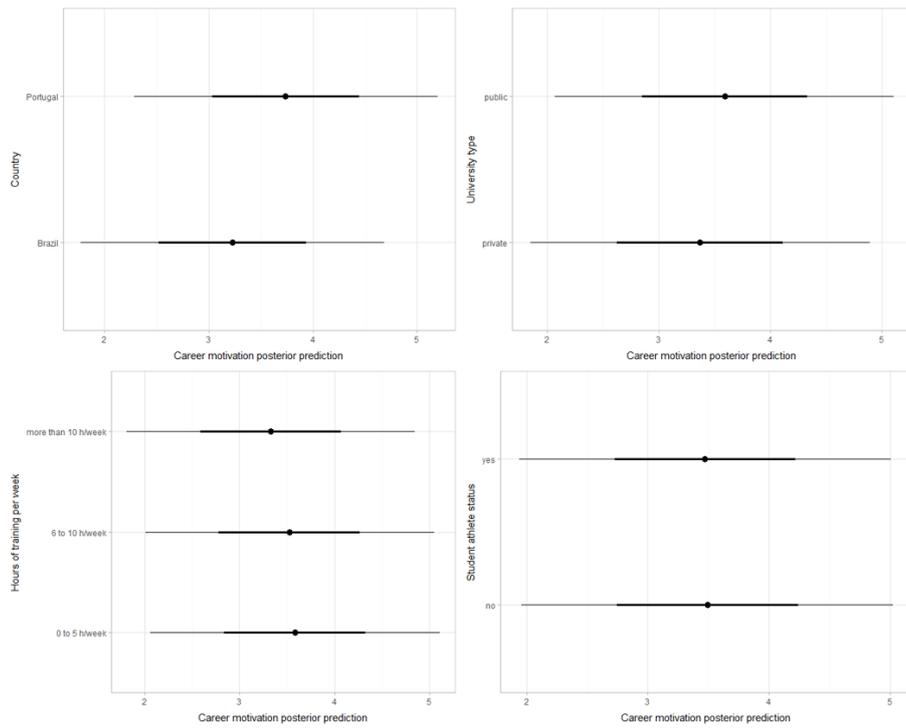


Figure 0.7 Posterior predictions of career motivation dimension of SAMSQAQ in relation to country, university type, training hours per week and student-athlete status.

## DISCUSSION

Comparative study about student-athletes' dual career between Brazil and Portugal had been not performed yet, to our best knowledge. Additionally, MRP seems to be a new analysis in the area of sports science. In this study we estimated the variation of the student-athletes' identity and motivation between Brazilian and Portuguese student-athletes, accounting for university type, training hours per week and student-athlete's status. We argue that in cross-cultural studies it is crucial to avoid a priori assumptions, and to debate the topic a posteriori, with an adequate analysis of the results. To assure the validity of our observations, we initially determined a cross-cultural validation of the BIMS-PT and SAMSAQ-PT questionnaires. Overall, identity and motivation varied substantially between Brazilian and Portuguese student-athletes. Also, accounting for country-level variation, there was a substantial influence of student-athletes' training hours per week and university type on student-athletes' identity and motivation. There was no influence of student-athlete's status on between-individual variation on the scores of identity and motivation.

The cross-cultural BIMS-PT presented a two-factor "Affectivity" and "Social Identity" structure, which is consistent with the BIMS' Italian version (Lupo, et al., 2017), but inconsistent with the four-factor BIMS' original version (Harrison, et al., 2010). Comparing the SAMSAQ-PT factorial structure with previous SAMSAQ-IT/A (Guidotti & Capranica, 2013; Lupo et al., 2017), there was an almost full correspondence between items. However, differently from the four-factor model of the SAMSAQ-IT/A (Guidotti & Capranica, 2013), the SAMSAQ-PT presented a three-factor structure (i.e. Student Athletic Motivation, Academic Motivation and Career Athletic Motivation), which was consistent the factorial structure observed by Lupo et. al. (2017).

Our model predictions indicated a high probability of Brazilian student-athletes having higher values for affectivity and similar social identity compared to Portuguese student-athletes. Youth sports programs tend to be less structured in Brazil, as well as university sports in Brazilian universities are still in development (Starepravo, Reis, Mezzadri & Marchi Junior, 2010). In Portugal, young athletes' development is deeply connected with the clubs and less school-based (Stambulova & Ryba, 2013) which can explain why the Portuguese population has lower levels of affectivity. Overall, Brazilian university contexts may provide more opportunities for sport participation, particularly allowing for students with different sport experience levels to be engaged in sports. Although the university organization models are different across countries, the student athletes from both Brazilian and Portuguese universities has similar trend of moderate to high values of social identity. These results suggest that student-athletes have a high sense of who they are grounded on their sport participation, even within different university organizational models.

Our model predictions showed a trend of higher athletic motivation for Brazilian student-athletes, but higher student motivation and career motivation among Portuguese student-athletes. In the Portuguese population, the athletic motivation factor was where student-athletes appear to be less motivated, suggesting limited or even no interest in the development of sports as a professional career. Generally, athletes tend to abandon sport training because of competition, economic resources or lack of support through the dual career (López de Subijana, Barriopedro & Sanz, 2015) and the dropout rate is higher at university level. Overall these results may reflect the trend for European athletes to abandon sport and prioritize education in order to prepare for future job opportunities (Amara, Aquilina & Henry, 2004). Also, it is worth noting that the competition level at Portuguese university championships is often lower than sports federations' competitions, including mostly athletes at amateur level. Portuguese elite athletes enrolled in universities tend to have a limited participation in those sport events, in order to prevent injuries and not interfere with the elite sport performance. Brazilian state and national federation competitions have a different structure, which likely allow for athletes with higher level of performance to compete in university competitions, particularly those enrolled in private universities.

In Portugal, the university sport system is coordinated by the Academic Sports University Federation (FADU). Hence, it is responsible by the organization of the annual university championships, alongside the student associations at each university or higher education institutes. Being part of that organization is a social stand and having an organized sport system is also part of a political strategy. In fact, the Portuguese student-athlete is likely motivated when is part of the organization, implying that the Portuguese student-athlete values the organization of the sport and the participation, and not necessarily at high competitive level. This may partially explain the lower athletic motivation within the Portuguese student-athletes. As for Brazil, the National Federation of University Sports organizes the university championships; however, the organization does not promote sports policies and its activity is detached from the higher education system. This disconnection between academic and sport system, along with the ongoing development of the university system, both public and private, likely contributes to the student-athletes being significantly influenced the sport context outside the university.

University contexts, private and public systems, are more diverse in Brazil than in Portugal. Nevertheless, public universities in Portugal have different policies and student-athlete status. It seems reasonable to assume that private universities are more likely to use sport as a self-promotion strategy (Teixeira, 2010) to increase their attraction profile and media attention, aiming to bring profits to the university (Harrison et al., 2010) through the number of student-athletes enrolled in the university to get more attention from potential sponsors(Harrison et al., 2010).

Furthermore, private and public universities likely provide different facilities and support policies that may reflect on student-athletes' identity and motivation (Aquilina & Henry, 2010). Our predictions confirmed that student-athletes' identity and motivation towards sports and academics are influenced by university type. In particular, student-athletes from private universities tend to have higher values for affectivity, social identity and student motivation. On the other hand, if public university student-athletes presented higher values for career motivation, there was no variation by university type for student motivation.

Conditional on the data, when considering training hours' predictions, student-athletes more committed with sport, i.e., with more than 10 hours of training per week presented higher values for affectivity, social identity and student motivation. On the other hand, predictions suggested that student-athletes less committed with sport participation, i.e., with training zero to five hours per week, presented higher career motivation and similar values for athletic motivation independent the number of training hours. Student-athletes may present higher values for affectivity and social identity due their intense dedication and time spend on an activity (Coker-Cranney, Watson, Bernstein, Voelker & Coakley, 2018) and their sense of belonging to a certain type of community (Culver & Trudel, 2008). Although their student motivation is higher, the career and athletic motivation are not, which indicates that the time of dedication on training might not keep those student-athletes more time in the sport and may also contribute to dropout from sport (Cresswell & Eklund, 2005). Motivation is not the only variable effectively influencing dropout, but it is a relevant indicator (Soares, et. al., 2019).

Lastly, our model predictions showed no variation in both identity and motivation of Brazilian and Portuguese student-athletes when grouped by their student-athletes' status at each university. These results may reflect the lack of adequate support policies (national/government policies), and/or student-athlete's status does not represent the truly student-athletes' necessities. Although it has been highlighted the need and importance of student-athletes' support policies (Aquilina & Henry, 2010; European Commission, 2012; European Parliament, 2015, 2017), current available forms of national policies and local rules, that vary by country and institution, may not be sufficient to support a dual career.

The local impact of the student-athletes' legislation is a dimension with a major influence in the decisions and lifestyle of the student-athlete. The cultural context is intrinsically linked with the individuals' identity, and can explain the variation of the identity and motivation levels. When analyzing the Brazilian and Portuguese universities context, it is possible to recognize how the local legislation affects the student-athlete. Regardless of the legislation, the way how the Higher Education Institutions apply the legislation and how the sport is organized has an impact in the

daily life of the student-athlete and can affect their decisions and their choices when they need to move or to access education.

Not only it is important for the athletes to have the possibility to develop academic careers in a high-level sport environment, but it is also one of the prime factors that athletes have in mind when choosing a university (MacNamara & Collins, 2010). At a global level, athletes face similar challenges, but understanding how the student-athletes identify with their own reality, how they face these challenges and conciliate the demands between sports and education involves an analysis in the context where the athlete is inserted (Stambulova & Ryba, 2013; Aquilina, 2013; Stambulova, Engström, Franck, Linnér & Lindahl, 2015). Hence, new approaches to the context where the athletes develop their trainings (i.e. academic and athletic) are needed. Moreover, it is recognized that transnational studies and projects can play an important role in identifying the best practices to reduce the dropout rate of academic and sports career, promoting a successful reform of athletes and guiding governments, sport structures and education institutions to make better decisions in the management of sports and education (Guidotti, Cortis & Capranica, 2015). We emphasize that the empirical nature of our research does not underestimate the complicated way that affects sport perceptions across states.

The importance of cross-cultural studies is recognized, but the empirical effort to perform them is scarce. Our findings highlight the diverse ways in which student-athletes perceive their reality in function of the cultural context, national policies or their university rules. The local ecologies seem to be more powerful than general legislation, and the generalization of specific good practices is always mediated by the institutions with their idiosyncrasies. It is crucial to compare the contexts and search for the decisive factors that shape the perceptions, beliefs and expectations of student-athletes. That is the only way to design customized policies, rules and other support decisions. Scholars, managers and coaches should be aware of that.

## **CONCLUSION**

To our knowledge, this is the first attempt to perform a comparative study about student-athletes' dual career between Brazil and Portugal as well as the first study in the sports science to use the MRP. We established the reliability and validity of a cross-cultural Portuguese BIMS and SAMSAQ version, which provides a valuable instrument to understand student-athletes living in Portuguese-speaking countries. Therefore, we were able to estimate the variation among Brazilian and Portuguese university student-athletes' identity and motivation, also considering the influence of type of university, training hours and student-athlete's status. Overall, our model predictions show that cultural (country), academic (type of university) and athletic (training hours) contexts play a considerable influence on student-athletes' identity and motivation. The present results highlight the need to consider the influence of individual-level and contextual-level influences on identity and motivation of the student-athlete, regardless the student-athlete status. Hence, we illustrated in this study the use of multilevel modelling and poststratification as a flexible and robust framework to deal with different sources and levels of variation on the outcomes related to student-athletes. Our results highlight the need for caution when designing and applying policies at country level and at local levels they may have a major impact on the identity and motivation of the student-athlete. Cross-cultural studies of different contexts as well as in different populations (e.g. high-school) will be relevant to provide a baseline for policy improvements and allow the monitoring of their impact on both the institution and the student-athlete's career.

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## REFERENCES

- Amara, M., Aquilina, D., & Henry, I. (2004). Education of young sportspersons. Report Finale. Brussels: Directorate-General Education and Culture. Retrieved from [http://ec.europa.eu/assets/eac/sport/library/studies/doc372\\_en.pdf](http://ec.europa.eu/assets/eac/sport/library/studies/doc372_en.pdf)
- Aquilina, D. (2013). A Study of the Relationship Between Elite Athletes' Educational Development and Sporting Performance. *The International Journal of the History of Sport*, 30(4), 374-392. doi: 10.1080/09523367.2013.765723
- Aquilina, D. (2013). A study of the relationship between elite athletes' educational development and sporting performance. *International Journal of the History of Sport*, 30(4), 374–392. <https://doi.org/10.1080/09523367.2013.765723>
- Aquilina. (2009). *Degrees of success : in elite sport and university*.
- Barrington-Leigh, C., & Millard-Ball, A. (2017). The world's user-generated road map is more than 80% complete. *PLoS One*, 12(8), e0180698. doi: 10.1371/journal.pone.0180698
- Brettschneider, W.D. & Brandl-Bredenbeck, H. (2007). Youth and sport in the USA and Germany: a cross-cultural comparative study. In Carlos E. Gonçalves, Sean Cumming, Manuel C. Silva, Robert Malina (Eds.), *Sport and Education* (pp. 35-56). Coimbra, Imprensa da Universidade.
- Bürkner, P.-C. (2017). brms: An R Package for Bayesian Multilevel Models using Stan. *Journal of Statistical Software*, 80, pp. 1-28.
- Carpenter, B., Gelman, A., Hoffman, M. D., Lee, D., Goodrich, B., Betancourt, M., . . . Riddell, A. (2017). Stan: A Probabilistic Programming Language. [probabilistic programming; Bayesian inference; algorithmic differentiation; Stan]. 2017, 76(1), p 32. doi:10.18637/jss.v076.i01 Retrieved from <https://www.jstatsoft.org/v076/i01>
- Coker-Cranney, A., Watson, J., Bernstein, M., Voelker, D. K. & Coakley, J. (2018). How far is too far? Understanding identity and overconformity in collegiate wrestlers. *Qualitative Research in Sport, Exercise and Health*, 10(1), pp. 92-116. doi:10.1080/2159676X.2017.1372798

- Cresswell, S. L., Eklund, R. C. (2005). Changes in Athlete Burnout and Motivation over a 12-Week League Tournament. *Medicine & Science in Sports & Exercise*, 37(11), 1957–1966. doi:10.1249/01.mss.0000176304.14675
- Culver, D., & Trudel, P. (2008). Clarifying the concept of communities of practice in sport. *International Journal of Sports Science & Coaching*, 3(1), 1-10.
- Culver, D., Trudel, P. (2008). Clarifying the Concept of Communities of Practice in Sport: A Response to Commentaries. *International Journal of Sports Science & Coaching*, 3(1), pp. 29-32. .
- Debois, N., Ledon, A., & Wylleman, P. (2015). A lifespan perspective on the dual career of elite male athletes. *Psychology of Sport and Exercise*, 21, 15-26. doi: 10.1016/j.psychsport.2014.07.011
- Downes, M., Gurrin, L. C., English, D. R., Pirkis, J., Currier, D., Spittal, M. J., & Carlin, J. B. (2018). Multilevel Regression and Poststratification: A Modeling Approach to Estimating Population Quantities From Highly Selected Survey Samples. *Am J Epidemiol*, 187(8), 1780-1790. doi: 10.1093/aje/kwy070
- Eke, P. I., Zhang, X., Lu, H., Wei, L., Thornton-Evans, G., Greenlund, K. J., Holt, J. B., & Croft, J. B. (2016). Predicting Periodontitis at State and Local Levels in the United States. *J Dent Res*, 95(5), 515-522. doi: 10.1177/0022034516629112
- European Commission. (2012). *Guidelines on Dual Careers of Athletes: Recommended Policy Actions in Support of Dual Careers in High-Performance Sport*.
- European Parliament. (2015). *EU sport policy. An overview*. . Brussels: European Parliamentary Research Service. Available at: [http://www.europarl.europa.eu/RegData/etudes/IDAN/2015/565908/EPRS\\_IDA\(2015\)565908\\_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/IDAN/2015/565908/EPRS_IDA(2015)565908_EN.pdf).
- European Parliament. (2017). *European Parliament Resolution of 2 February 2017 on an Integrated Approach to Sport Policy: Good Governance, Accessibility and Integrity*. Available at <http://www.europarl.europa.eu/sides/getDoc.do?type=TA&reference=P8-TA-2017-0012&language=EN&ring=A8-2016-0381>.

- FADU – Calendário [Calendar] (2016). Retrieved 17 November 2016, from <http://www.fadu.pt/nacional/competicao/calendario>
- Fortes, P. C., Rodrigues, G., & Tehantchane, A. (2010). Investigation of academic and athletic motivation on academic performance among university students. *International Journal of Trade, Economics and Finance*, 1(4), 367-372.
- Gelman, A., & Hill, J. (2007). *Data analysis using regression and multilevel/hierarchical models* Cambridge: Cambridge University Press.
- Gelman, A., & Hill, J. (2007). *Data analysis using regression and multilevel/hierarchical models* Cambridge: Cambridge University Press.
- Gelman, A., & Little, T. C. (1997). Poststratification into many categories using hierarchical logistic regression. *Survey Methodology*, 23(2), 127-135.
- Gelman, A., Carlin, J. B., Stern, H. S., Dunson, D. B., Vehtari, A., & Rubin, D. B. (2013). *Bayesian Data Analysis, Third Edition* Boca Raton, FL: Chapman & Hall/CRC Press.
- Guidotti, F., & Capranica, L. (2013). Le motivazioni verso sport, istruzione e carriera sportiva degli studenti-atleti italiani. In A. M. Pioletti & N. Porro (Eds.), *Lo sport degli europei: cittadinanza, attività, motivazioni*. Milano: Franco Angeli.
- Guidotti, F., Cortis, C., & Capranica, L. (2015). Dual Career of European student-athletes: a systematic literature review. *Kinesiologia Slovenica*, 21(3), 5-20.
- 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
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2009). *Multivariate Data Analysis* (7 ed.): Prentice Hall.
- Harrison, K., Rasmussen, J., Connolly, C., Janson, N., Bukstein, S., & Parks, C. (2010). Diggin' Deeper into the Culture of Revenue Sports. *Journal for the Study of Sports and Athletes in Education*, 4(3), 325-332. doi: 10.1179/ssa.2010.4.3.325

- Jackson, D., Gillaspay Jr, J. A., & Purc-Stephenson, R. (2009). Reporting practices in confirmatory factor analysis: An overview and some recommendations. *Psychological methods, 14*(1), 6. doi: 10.1037/a0014694
- Lally, P., & Kerr, G. A. (2005). The career planning, athletic identity, and student role identity of intercollegiate student athletes. *Res Q Exerc Sport, 76*(3), 275-285. doi: 10.1080/02701367.2005.10599299
- López de Subijana, C., Barriopedro, M. & Sanz, I. (2015). Dual career motivation and athletic identity on elite athletes. *Revista de Psicología del Deporte. 24. 55.*
- Lupo, C., Mosso, C. O., Guidotti, F., Cugliari, G., Pizzigalli, L., & Rainoldi, A. (2017a). The adapted Italian version of the Baller identity measurement scale to evaluate the student-athletes' identity in relation to gender, age, type of sport, and competition level. *PloS one, 12*(1), 1-11. doi: 10.1371/journal.pone.0169278
- Lupo, C., Mosso, C. O., Guidotti, F., Cugliari, G., Pizzigalli, L., & Rainoldi, A. (2017b). Motivation toward dual career of Italian student-athletes enrolled in different university paths. *Sport Sciences for Health, 13*(3), 485-494. doi: 10.1007/s11332-016-0327-4
- Lupo, C., Tessitore, A., Capranica, L., Rauter, S., & Mojca, D. (2012). Motivation for a dual-career: Italian and Slovenian student-athletes. *Kinesiology Slovenica, 18*(3), 47-56.
- MacNamara, Á., & Collins, D. (2010). The role of psychological characteristics in managing the transition to university. *Psychology of Sport and Exercise, 11*(5), 353–362. <http://doi.org/10.1016/j.psychsport.2010.04.003>
- Mckenna, J., & Dunstan-Lewis, N. (2004). An Action Research Approach to Supporting Elite Student-Athletes in Higher Education. *European Physical Education Review, 10*(2), 179–198. <https://doi.org/10.1177/1356336X04044070>
- Park, D. K., Gelman, A., & Bafumi, J. (2004). Bayesian Multilevel Estimation with Poststratification: State-Level Estimates from National Polls. *Political Analysis, 12*(4), pp. 375-385. doi:10.1093/pan/mp024 Retrieved from <https://www.cambridge.org/core/article/bayesian-multilevel-estimation-with->

poststratification-statelevel-estimates-from-national-  
polls/22A5EF78D027E76C782B3280D400FCC9

- Park, S., Hong, S., & Lee, M. (2015). Validation of the student athletes' motivation towards sports and academics questionnaire to Korean student-athletes. *Journal of exercise rehabilitation, 11*(4), 220. doi: 10.12965/jer.150202
- Pilarska, A. (2017). Contributions of Cognitive-Motivational Factors to the Sense of Identity. *Curr Psychol, 36*(3), 468-482. doi: 10.1007/s12144-016-9435-1
- R Core Team. (2018). R: A Language and Environment for Statistical Computing. Retrieved from <http://www.R-project.org/>
- Ryba, T. V., Stambulova, N. B., Ronkainen, N. J., Bundgaard, J., & Selänne, H. (2015). Dual career pathways of transnational athletes. *Psychology of Sport and Exercise, 21*, 125–134. <https://doi.org/10.1016/j.psychsport.2014.06.002>
- Soares, A. L. A., et al. (2019). Determinants of drop-out in youth basketball: an interdisciplinary approach. doi.org/10.1080/15438627.2019.1586708
- Stambulova, N. B., & Ryba, T. V. (2014). A critical review of career research and assistance through the cultural lens: towards cultural praxis of athletes' careers. *International Review of Sport and Exercise Psychology, 7*(1), 1-17. doi: 10.1080/1750984X.2013.851727
- Stambulova, N. B., & Ryba, T. V. (Eds.). (2013). Athletes' careers across cultures. London and New York, NY: Routledge.
- Stambulova, N. B., Engström, C., Franck, A., Linnér, L., & Lindahl, K. (2015). Searching for an optimal balance: Dual career experiences of Swedish adolescent athletes. *Psychology of Sport and Exercise, 21*, 4–14. <https://doi.org/10.1016/j.psychsport.2014.08.009>
- Starepravo, F. A., Reais, L. J. A., Mezzadri, F. M. & Marchi Júnior, W. (2010). Esporte universitário brasileiro: uma leitura a partir de suas relações com o Estado. *Revista Brasileira de Ciências do Esporte, 31*(3), pp. 131-148.

- Teixeira, M. (2010). *Influência dos eventos esportivos no posicionamento competitivo de uma universidade particular: estudo de caso UNISANTA*. (Mestrado), Universidade Católica de Santos, Santos.
- Van der Heyden, J., Demarest, S., Van Herck, K., De Bacquer, D., Tafforeau, J., & Van Oyen, H. (2014). Association between variables used in the field substitution and post-stratification adjustment in the Belgian health interview survey and non-response. *Int J Public Health*, 59(1), 197-206. doi: 10.1007/s00038-013-0460-7
- Zhang, X., Holt, J. B., Yun, S., Lu, H., Greenlund, K. J., & Croft, J. B. (2015). Validation of multilevel regression and poststratification methodology for small area estimation of health indicators from the behavioral risk factor surveillance system. *Am J Epidemiol*, 182(2), 127-137. doi: 10.1093/aje/kwv002

**CHAPTER 7. EUROPEAN STUDENT-ATHLETES AND  
DUAL CAREER POLICIES: A STAKEHOLDERS'  
PERSPECTIVE**

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## **ABSTRACT**

For the past few years, an effort to develop dual career has been made to improve a well-balanced life. After the publication of European guidelines to improve student-athletes' condition, educational and sports institutions are working to provide more support programs and policies. However, it is observed that the legislation's system is very different from country to country and from institution to institution. Moreover, there are state members who do not have dual career policies.

The study aims to identify strategies to apply and develop the dual career and define the term "dual career" itself through the stakeholders' perspective using a qualitative methodology. Semi-structured interviews were applied to six stakeholders with the following criteria: being part of the meso, macro and policy dimensions of the dual career. The codes defined by the analysis of the interviews were inserted in three dimensions: policy, institutional organization, and social environment.

This investigation is innovative, because it uses a qualitative methodology focused on policymakers, bringing the analysis closer to their context and vision.

The findings show that there is no uniformity in the application and development of the dual career, and suggest the development of dual career focused on national programs applied in the higher education system, with the student-athletes at the center of the process.

Further studies are needed to understand local models and to understand cultural and social differences among state members, along with the understanding of public and private contexts.

**Keywords:** Dual-career, Student-athlete, Policy, Institutions, Europe, Stakeholders

## INTRODUCTION

Dual career has been the subject of increasing interest from sports scientists and political decision-makers. As Aquilina (2013) puts it, student-athletes need a contingency plan in case their athletic career does not develop in the way they expected. The topic crossed the national borders and became an international one, as the mobility of students, fostered by specific programs as Erasmus Plus, reaches tens of thousands of individuals every year. In this context, the European Union acted to promote new policies for dual career and share knowledge among the higher education institutions (HEIs). However, national legislation systems are very diversified from country to country, with some state members lacking any dual career rules or public policies (Aquilina, 2009; European, Commission, 2016).

This persistent unequal sport system among European HEIs continues to force elite student-athletes to enroll in the American college system in order to find support to develop a dual career (Guidotti, Cortis, and Capranica, 2015).

The fact that some HEIs have different rules or no rules at all, reveals that the perception of the student-athletes' importance and the definition of dual career are still unclear. The European Commission (2012) considers dual career as the conciliation between an elite sports career and academic career, but a study with participants in the European University Championships 2018 showed that student-athletes compete at very different competitive levels (Fernandes, Moreira, and Gonçalves, 2019). For instance, France legislators link university sports to elite levels of participation, while in Portugal the rules are more open and include lower levels of performance in the definition of dual career.

Regardless of the prevalence of quantitative methods in recent literature (Barger and Seward 2018; Yukhymenko-Lescroart, 2018; Brustio et al. 2020), qualitative studies were previously performed to research academic and athletic identities and the contemporary realities of dual career (van Rens, Ashley, and Steele 2018; DC4AC 2017). The qualitative approach presents the advantage of an in-depth contribution to the objectivity and plausibility of the aims and results through the interpretation of the open responses of those implicated in the activity (Kallio et al. 2016).

Existing literature approached the theme through the student-athletes' perspectives. To our knowledge, there are no studies deeply discussing the situation of dual career in

Europe considering the decision-makers stakeholders' opinions. Being a political, social, and management problem, dual career implicates various layers of public administration, alongside with private entities and non-governmental organizations (NGOs), at international and national levels.

Given the ambiguity and lack of consensus about dual career in Europe, we found it imperative to question the opinions, beliefs, and perspectives of managers in optimal positions to express a holistic political and intellectual stance about the topic. Accordingly, we used a one-to-one interview with six stakeholders in different positions in the sport, academic, and political systems.

The main challenges and constraints regarding the implementation of a theoretically coherent framework for dual career relate with specific policies and rules at the international, national and institutional level and their dynamic interaction with HEIs and sport governing bodies internal organization (DC4AC 2017; Aquilina, 2009; Morris et al. 2020; Kuettel et al. 2018).

Aquilina (2009) categorized national dual career policies in four groups: (1) a state-centric regulation (2) the state as a facilitator, (3) National Federations/Sports Institutes as a facilitator, (4) no formal structures. The categorization was based on the developmental perspective on transitions faced by the athletes' model, which was later updated twice into a "holistic athletic career model" (Wylleman, 2019). Other models were proposed for the study of dual career and athletes: the athletic career transition model (N. Stambulova, 2003) and the ecological perspective (Henriksen, Stambulova, and Roessler, 2010). Recent studies are proposing a different dual career taxonomy, providing new dual student-athletes' approaches (Morris et al. 2020). However, the present models are focused on the athlete and the literature review identified a lack of analysis of the management/decision system. To fully understand the dual career development, a deep knowledge of how decisions and programs are implemented is fundamental. In 2012, The EU Guidelines on Dual Career of Athletes presented several action guidelines to implement dual career in educational and sports institutions to improve the dual career standard and provide specific arrangements to the student-athletes (e.g. flexibility, adapted curriculum, e-learning). Subsequently, a new paradigm emerged in 2013, highlighting the heterogeneous definition of concepts related to dual career, and identified the junior-to-senior transitions as a critical period in career

development. Furthermore, it suggested that dual career programs are influenced by sports systems organization and cultural factors (N. Stambulova and Ryba, 2013). Considering the European heterogeneous system, the authors identified a need to investigate which conditions are provided to the student-athlete, what is the actual status of dual career, and collect dual career strategies and good practices.

This study aims to provide information about the dual career situation, collect strategies and good practices to implement dual career policies, and define the term “dual career” by the stakeholders’ perspective.

## **METHODS**

### ***Design and participants***

The study adopted a qualitative approach, adopting an interpretive epistemology, exploring the knowledge, beliefs, empirical experience, and ideologies of key stakeholders in the field of university sports at a European level. Based on the maximum variation sampling strategy recommendation (Patton, 2015), our recruiting criteria were the following: being decision-makers related to the elaboration and implementation of dual career policies at the meso- and macro-levels at national or international levels. Meso-level is represented by sport managers, sports clubs/federations, and educational institutions, whether macro-level includes the European governing bodies and international NGOs (Capranica and Guidotti, 2016). Our 6 interviewees were 2 executives from the European Commission department in charge with sport and education, a university athletic director, an executive from a national governing body in charge of university sports, and members of the board of 2 European NGOs in charge of university sports and dual career respectively. To guarantee the confidentiality and anonymity of the interviewees, all of them are identified with a number.

### ***Instrument***

The interviews' guide was structured to achieve the aims of the study, based on the dual career issues suggested by previous studies and reports (European Commission, 2012; Stambulova & Ryba, 2013). The questions were developed to allow a discussion between the interviewer and the interviewee, in order to obtain the maximum information about their dual career context.

The questions explored the respondents' opinions about the conditions provided to the student-athlete, what is the actual status of the dual career, and about the desirable dual career strategies and existent good practices. Specifically, the analysis of dual career application, the identification of policies to develop dual career, identifying the actual dual career situation at a national and European level, data collection about university dual career national policies, correlate sports impact in student attraction, collecting strategies and good practices to implement dual career policies, and identifying student-

athletes' support structures were the object of questioning. Table 1 summarizes the interview structure.

Table 0.1 Stakeholders' interview structure: aims, factors and questions

<i>Aims</i>	<i>Factors</i>	<i>Questions</i>
Analysis of Dual career application	Student-athletes status at a national level; Identifying dual career responsible institutions; Student-athletes' rights (schedule flexibility, exams requirement in special season, the relevance of absence, educational tutor); Student-athletes' duties (participation in training and competitions, high academic grades, federated participation).	1. Is the student-athletes status recognized in all Portuguese HEIs? 2. At a European level, do the dual career policies contemplate equal rights and duties for student-athletes?
Identifying policies to develop dual career	Sport infrastructures and material investment; Student-athletes' rules; Increment sports activities; Differences between national and European HEIs.	3. Are HEIs prepared to receive competitive sports?
Situation point at a national and European level	Institutions responsible for dual career; Workgroup focused on dual career and university sports.	6. What has been developed in dual career policies at a national and European level?
Data collection about university dual career national policies	Formation of academic services about the student-athletes' status; E-learning programs for student-athletes; HEIs organizational models.	4. How are HEIs prepared to receive the student-athletes and how have they adapted the organization in terms of schedule and content to them?
Sports impact on student attraction	Use of sports to attract new students.	5. How is it possible to attract students and investigators through dual career policies?
Strategies and good practices to implement dual career policies	Mandatory student-athletes' status; Equal rights and duties in HEIs; Governmental financial raise; Interaction models between schools, HEIs, and clubs.	8. Do you know any good practice between club and school/university?
Identifying student-athletes' support structures	Student-athletes' Office; Specific formation for student-athletes; Student-athletes' psychological and emotional support.	9. How are HEIs prepared to support the student-athletes?

## **PROCEDURES**

The first contacts were made by the first author, who presented the aims of the study and ensured the confidentiality of the data. Three semi-structured interviews were conducted face to face in a calm environment, and three were conducted by telephone. The interviews lasted on average 30 minutes and each one produced approximately seven pages of transcription.

### ***Data Analysis***

The six phases of thematic analysis as described by (Braun and Clarke, 2006) were followed. Phase 1 (i.e. data familiarization) was conducted by the first author, who reviewed the transcription. Participants' responses to each question were transcribed verbatim using the online software Happy Scribe. In Phase 2 (transcripts segmentation) and Phase 3, the first and second authors used MAXQDA software to organize data in codes and themes. A refinement using the same software was made, using the literature to simplify the codes and topics, concluding Phase 4. In Phase 5 and 6, the final analysis of the content of the interviews was organized through dimensions and topics to a deep understanding of the data. After the first codification was performed by the first author, the second and the third authors, who have extensive experience in qualitative research, reviewed the data and made their comments. When a disagreement emerged, the authors discussed the topic until an agreement was reached.

## **RESULTS**

The codes defined in Phase 3 were inserted in three higher order dimensions: policy, institutional organization, and social environment.

In the first dimension (policy), 8 lower order identified codes were: university, human rights, relevance, mismatch, the government, European parliament, transnational political pressure, term undefinition, and formation/workshops for parents, coaches, and athletes.

In the second dimension (institutional organization), university type, new university organization, minimum level of quality, lack of support, and allocation of human resources were identified.

In the third (social environment), the codes identified were student-athletes' needs, relevance, and cultural factors.

## **DISCUSSION**

The study aims to collect information about the dual career situation in the European higher education system, to explore viable strategies and existing good practices in the implementation of dual career policies, and to contribute to defining the term dual career through the stakeholders' perspective.

The codes defined by the analysis of the interviews were inserted in three dimensions: policy, institutional organization, and social environment.

In the first dimension (policy), 8 lower order identified codes were: university, human rights, relevance, mismatch, the government, European parliament, transnational political pressure, term undefinition, and formation/workshops for parents, coaches, and athletes.

In the second dimension (institutional organization), university type, new university organization, minimum level of quality, lack of support, and allocation of human resources were identified.

In the third (social environment) the codes identified were student-athletes' needs, relevance, and cultural factors.

### ***Policy Dimension***

Stambulova, Engström, Franck, Linnér, & Lindahl (2015) defined the simultaneous pursuit of achievements in sport and education as the fulfillment of a dual career. Although this is true, there is not a fixed definition for the term dual career, and the HEIs and government bodies do not have the same vision of what it should be.

Moreover, to define dual career it is necessary to define who the student-athletes are. One of the main issues identified in the interviews, more than the undefinition of the term "dual career", was the term "student-athlete". Some stakeholders recognize that it is necessary to define the criteria to label someone as a student-athlete. For instance, as reported by Participant 6, there are no strict requirements to define an athlete. The same occurs when analyzing the European dual career policy. A report identified that the definitions for dual career and student-athletes are not well defined and differ between EU countries. Some programs only contemplate the elite student-athletes (e.g., France),

while others consider the talented athletes as well as the elite athletes for the dual career programs (e.g., Portugal).

This situation demands an “urgent need for clear terminology and interpretation across Europe ” (European Commission, 2016).

The categorization of athlete achievement is different. [Participant 1, NGO]

You need to have the requirements to be an athlete. If I am studying and participating at an international level, maybe I can be called a professional athlete. But if I endorse it on the national level, is it enough or not? [Participant 6, EU]

This should be at the beginning of the debate around dual career. It is not possible to establish equal conditions when the member states have different political positions. Those differences are reported in several studies (Aquilina and Henry, 2010; Aquilina, 2009; Capranica and Guidotti, 2016), which can explain why the importance of the policy in the development of the dual career was one of the main quoted indicators in the interviews’ analysis.

Another indicator mentioned with high frequency was the university. All the stakeholders state that the interest in dual career in higher education is based on a vision of using it to enrich the institution and showing to society that having education combined with sport is a developmental factor for their students.

[The dual career] is seen as a differential factor and that can help to recruit [more students] and increase the value of the institution. [Participant 3, EU]

[The HEIs] use athletes to promote first of all their program, to promote what they represent, to create visibility, to create marketing content. That is why promoting through an athlete brings bigger visibility. [Participant 1, NGO]

Although there is clear evidence of the importance of dual career inside the HEIs, the student-athletes' legislation inside each university is still dependent on the decision-makers' opinions.

The presidents of the universities, if they are able to adapt or if they think they don't need to adapt. [Participant 4, Government]

This demonstrates that it is not possible to ensure that each university provides equal support for dual career. It seems that sports and dual career are being used as marketing tools to promote the institutions, similarly to the North American model.

The university policy is still very dependent on the relationships that exist between sports federations/clubs or sports centers rather than an obligation to provide minimum standards for their student-athletes.

At a macro level, some state members of the European Union (i.e., Italy, Ireland, Bulgaria) are still not developing dual career policies, nor fulfilling the guidelines proposed by the European Commission (European Commission, 2012, 2016).

Even the ones implementing the guidelines, sometimes have some disparities between what is the legislation and what happens in the reality of the field. To illustrate, there are educational institutions not following the national and European recommendations (Fernandes, Moreira, and Gonçalves, 2019), and countries with no formal structures, not following the European Union guidelines to achieve minimum standards (European Commission, 2016; Capranica and Guidotti, 2016).

Rules and students' rights exist, but sometimes there is no wherewithal or knowledge by the institution or by the athletes for things to work as they should. [Participant 2, University]

The report "Study on the minimum quality requirements for dual career services", resulting of five months of research carried out in partnership between the European Commission and Birch Consultants (Birch), the Talented Athlete Scholarship Scheme (TASS), the Vrije Universiteit Brussel (VUB), and the European Student as Athlete (EAS)-network analyzed the 28 member states. The main barriers identified for dual career programs were related to lack of policy implementation, lack of dual career organizations, and lack of monitoring. In the report, it is very clear that each of the member states have their specificities and individual barriers.

Member States ranged from negligible provision to established structures backed by legislation (Aquilina, 2009). Besides the European Commission's effort to create directions and guidelines, it is mandatory to analyze dual career at several hierarchical levels.

It is necessary to have a dialogue at local, national, and international European levels. [Participant 5, NGO]

For the European Commission, the responsibility to comply with the guidelines lies at the national level, and the countries should share good practices and see the student-athletes as an investment for the future.

In the context of the dual career and universities, at the political level and the expert level, it really has been done and now it is more the responsibility on the role at the national level. [Participant 6, EU]

Some member states are already creating new policies and new networks to develop dual career. For instance, Portugal has created a national student-athlete status, and France is building a network of people engaged in the enforcement of the French law on dual career.

The European Commission has done and is still doing efforts to finance the development of the dual career promotion through funded projects on dual career for athletes (Capranica and Guidotti, 2016).

Along with the need for more research on the topic (Aquilina, 2009; Lupo et al. 2017), the financial support seems to be an efficient strategy to motivate the countries to develop the dual career.

As for the financial part, I think it should continue so that the member states can learn from each other. [Participant 6, EU]

The value of dual career has increased over the past few years (Guidotti, Cortis, and Capranica, 2015). Along with this evidence, the interviewees maintain that the dual career is gaining political relevance for the HEIs, as well as for the government bodies. These start to recognize the importance of dual career not only because that helps them to obtain more financial support by the European Commission, but also because dual career can be a tool to have better athletes and better students, which brings a long-term recognition.

More than that, dual career should be seen as fundamental for the complete development of the citizen, creating a role model for society.

A human right to pursue a holistic development as a talented person in sports, and not only sports. [Participant 5, NGO]

Several studies showed that students have better academic and sports results when they conciliate sport and education (North and Lavallee, 2004; van Rens, Ashley, and Steele, 2018). In addition, student-athletes acknowledged that having some flexibility facilitated their commitment to their sports practice (MacNamara and Collins, 2010). In Portugal, a recent study showed a strong connection between motivation, identity, and political factors, which suggests that national bodies should use the implementation of dual career in order to have better academic and sports generations (Fernandes, Moreira, and Gonçalves, 2019).

Recognizing that each country has specificities and concerns, the definition of equal conditions for the development of the dual career is urgent.

If we want to speed up, the European Commission and the European Parliament should stress. [Participant 5, NGO]

It is not possible to harmonize anything in the context of sport at the EU level. [Participant 6, EU]

Efforts should be made by the European Union to motivate the member states to promote the communication of good practices between countries, for them to learn with each other. National government bodies have the tools to implement dual career and can learn with good practices across Europe, including by comparing national legislation. Even if it is not possible to obligate them, it is important to recognize that member states that are applying dual career policies are increasing the benefits for themselves and for the European Union.

It is necessary to assume that every student-athlete should have the conditions to develop an academic and sports career. In Europe, where people's free mobility is a main goal, it is necessary to create conditions for all students to develop their activity in any European university. We have to balance the chances offered in every country and create a system where a student-athlete can have the same opportunities that a regular one has.

As expressed in the document "Education, training, youth, and sport" (European Commission, 2014), a strong coordination among the EU countries is necessary to facilitate exchange opportunities and international cooperation in sport, higher education, and vocational training. Consequently, it is necessary to focus on strategies to recognize and certificate the best prepared institutions to host and nurture foreign student-athletes.

Try to create recognition or a kind of certification of higher education institutes as "dual career friendly". [Participant 6, EU]

This could help student-athletes to participate in European mobility, helping the HEIs to host students and guarantee the same rights for every individual. At the local level, it is suggested to create strategies and programs to educate the student-athletes' support structures.

It is important to create strategies to bring awareness to the support structure of the student-athletes, considering the coaches, parents, and athletes as the most important target, from the bottom. [Participant 5, NGO]

### ***Institutional Organization***

In this dimension, some issues and strategies related to the university's organization were identified. Firstly, besides the different models in each university and the different policy in each country, other main difference was identified, namely between the public and private HEIs, that needs to be added in the debate.

Some of the universities are exclusively (in some countries) funded by the government, therefore it makes sense that it is governmental and it is respected. However, in some cases, universities are completely independent, and they depend on their funds, from their assets, from the revenues that they create themselves. And if you are a private university, then you have absolutely no obligation to respect any governmental categorization because you depend economically completely on yourself and it all depends on how good you are in promoting and creating revenues. [Participant 1, NGO]

This is part of a bigger discussion and is necessary to analyze in which path we should engage. It is important to understand how the private HEIs manage the student-athlete status and if there are differences between these institutions and the public ones. In future studies, it is necessary to investigate which are the main differences between the public and private education institutes, as well as the management of the financial, human, and infrastructural resources of both.

Some of the challenges related to the application of the dual career were identified in this dimension. The report "Study on the minimum quality requirements for dual career

services” (European Commission, 2016) identified that the main problems were related to the lack of dual career organizations, lack of support for student-athlete, lack of communication between sports and education and lack of infrastructures and human resources.

The majority of HEIs does not have infrastructures or human resources to do the framework of high-level athletes or student-athletes. [Participant 2, University]

Universities do not have a mechanism, a structure, or a system in place to support athletes. [Participant 1, NGO]

Stakeholders suggested that educational institutions continue to work apart from sports institutions, not providing all the conditions for sports development.

Education sector is still not open enough to help. [Participant 6, EU]

For the HEIs, education and sports were always different areas with different bodies of responsibility. This is evident in the reality of sport in Europe, where the sports system is organized by the clubs and the federations, completely apart from the HEIs (Stambulova & Ryba, 2013).

One recommended strategy to solve policy problems is related to the organization of the HEIs. At the majority of the HEIs, the sports and academics are completely apart, which leads to a lack of communication. It is necessary to improve the communication, in order to learn from each other and to put the student-athletes in the center of the discussion, promoting what they need the most. The prime concern is to focus on the needs of the student-athletes and to understand what they want to do during their careers, as pointed out in previous reports (European Commission, 2016).

Different approaches are working well and promoting a balanced life for the student-athletes. The aim is to create several different strategies to allow the member states to adapt and harmonize what should be a dual career in Europe. As mentioned by Participant 5, some higher education institutions should try new organizational models, approximating sport to academia.

University [seen] as sports federation. [Participant 5, NGO]

The institution should adapt to the reality of its facilities, and the governmental bodies should provide the guidelines and support structures for the development of dual career.

For this to be possible, it is necessary to increase the number of human resources dedicated to dual career, not only in the HEIs, but also in the national governmental bodies.

It is fundamental to have someone inside the university that leads the student-athlete and does the connection between the club, the federation, and the HEI. [Participant 3, EU]

Even in each member state, it is fundamental to allocate experts to organizations, not only to promote the communications between federations and HEIs, but also to improve communication with the EU.

Have a leading organization regarding dual career. [Participant 6, EU]

At the institutional level, the European Commission aims to guarantee a minimum level of quality in each state member. To our understanding through the interviews and previous reports (European Commission, 2016; DC4AC 2017; Aquilina and Henry, 2010a), the minimum level of quality is promoting dual career policies, programs, and services in each state member.

The strategy for the European Commission is to achieve at least the minimum level of implementation of the dual career policies in each country. ([Participant 6, EU]

The ultimate goal of the European Union is to have a minimum standard requirement. [Participant 5, NGO]

For this, each member state should define their strategies for the implementation of the dual career, taking into account their realities and their athletes' needs. Every student should have the opportunity to follow their goal and to move through Europe and have conditions to develop in the better way possible. The European Union should ensure that there is a minimum quality for each student-athlete, alongside with the local or national policy.

### ***Social environment***

Although focused on the athletes' needs, this dimension illustrates the development of the dual career in terms of its social relevance and points out the main challenges for its development.

The indicator referred more often in the interviews was the athletes' needs (f=15). This shows that the student-athletes' needs have to be in the center of the dual career discussion, and that each legislation should be centered on the student-athletes' well-being and mental health. Each athlete is different, and the needs are different depending on the sport, level of competition, and the sports season organization.

The athlete that is six months out of the town (e.g. snow sports) has completely different needs from the one that plays soccer at a local level. [Participant 3, EU]

It is necessary to take into account each athlete and the requirements of each sport. This reinforces the strategy referred above: it is very important to have human resources in the institution responsible for accompanying the sport and academic structure, working in the management of dual careers.

Besides, the provision of conditions for the athlete to develop their academic career, it is very important to look for the conditions to develop the sports career, especially when the student-athletes do not live in their city. The institutions should be ready to receive mobility and non-mobility students and provide them with information besides the academic dimension.

They need specific information, more specific than the general mobility for students, because they need residences, structure, facilities, and services as athletes. [Participant 5, NGO]

An increase in the importance of dual career at a social level was observed through the present study, not only as a premise to promote a balanced life, but also as a strategy to reduce the academics and sports' dropout rates. One of the concerns for the European Commission is the premature dropout of education and/or sports and one of the transition moments where it is important to take action is the one from the secondary school to higher education (European Commission, 2012).

For the European Commission, dual career is becoming important for the social environment. Moreover, the interest in creating role models for the athletes is high, in order to fight the negative social, psychological and mental effects of sport (Sheehan, Herring, and Campbell, 2018).

The HEIs and the Sports Federations are creating more national and international programs to support dual career, and are more aware of the importance of these programs to help their student-athletes to pursue a positive development.

One example of that, at the national level, is the Portuguese Football Federation, which launched a program in 2015 to certificate the clubs as formative entities to improve the education of their athletes. For a club to be certified it needs to provide education courses for club managers about several topics, with dual career and the social and psychological support being part of the curriculum.

One of the nine topics of that formation is about dual career and the social and psychological support that the club should guarantee to their student-athletes. [Participant 3, EU]

In countries where sport and education still remain very apart, these approaches are very important for the increment of the importance of combining education and sport. Recently, young generations are also focused on the academic career because they perceive the academic career as fundamental to have security after sports (Fernandes, Moreira, and Gonçalves, 2019; van Rens, Ashley, and Steele, 2018). Usually, they have to choose one because it is very difficult to combine both, but with the increase of these programs and continuous improvement of education and training, talented athletes and amateur athletes could be able to combine careers and have the best development.

The big challenge for the dual career is a cultural one. The HEIs and the sports clubs, along with national and international government bodies are responsible to educate public opinion on the importance of the dual career, and its impact in the long-term.

There is a need for cultural change and it is a long process. [Participant 5, NGO]

The strategy should be focused on the athlete and in educating the HEIs and the clubs for the need of giving student-athletes better conditions, in order to obtain more and better results in the academic and sports field.

From all the indicators (f=121), university (f=13), athletes' needs (f=15), and national (f=10) were the more frequent ones, along with the interviews. This evidences the need to approach higher education institutions about national policies with a focus on the athletes' needs.

## CONCLUSIONS

The interviewees suggested that there is no uniformity in the application and development of the dual career in all member states of the European Union and that some countries are still not interested in the development of the guidelines proposed by the European Commission.

Along with the content analysis, the focus of the development of dual career should be placed on the national programs applied in higher education institutions with student-athletes at the center of the process. The study suggests a political top-down strategy, with rules imposed by the European Commission to indicate the creation and development of dual career programs. The state members should create plans and strategies to apply dual career policies and share good practices between them, harmonizing the dual career in Europe.

To apply for those programs and develop equal contexts of dual career development it is necessary to increase the human resources, allocating dual career experts in the higher education institutes, to provide close contact with the student-athletes, and orientating the education institution to connect with the sport, social and familiar context. At the same time, it is necessary to deeply investigate the models at the local level, in order to understand the differences in terms of financial, human and political dimensions, as well as the context of private higher education institutes to understand how the European guidelines are being applied and conducted by the national government and HEIs' boards.

Moreover, a report identified that the definitions for dual career and student-athletes are not well defined and differ between EU countries, identifying an “urgent need for clear terminology and interpretation across Europe” (European Commission, 2016). The present study confirmed the statement, with evidence of important differences between participants. To some of them, the problematic around dual career focused on elite student-athletes, while others considered that the definition extends to those who practice several hours per week and conciliate the competition with the studies. In the same report, it was possible to identify that European level policies are focused on the medal winner, discarding student-athletes who train several hours to achieve optimal results and face the same conciliation problems (European Commission, 2016).

A dual career focused on the needs of the student-athlete, promoting the communication between academic and sport structures, and providing programs for student-athlete development is the minimum standard requirement that national and European decision-makers should be working on to achieve the European level. The findings suggest that the strategy to a European global model of dual career that works at national and local levels is reached through new organization models, increment in the support to academic and sport structures, allocation of human resources to the dual career in educational, sports and political institutions, without forgetting the academic and social support structure (i.e. parents, coaches, and teachers).

## REFERENCES

- Aquilina, Dawn. 2009. "Degrees of Success: In Elite Sport and University." Loughborough University.
- . 2013. "A Study of the Relationship between Elite Athletes' Educational Development and Sporting Performance." *International Journal of the History of Sport* 30 (4): 374–92. <https://doi.org/10.1080/09523367.2013.765723>.
- Aquilina, Dawn, and Ian Henry. 2010a. "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* 2 (1): 25–47. <https://doi.org/10.1080/19406941003634024>.
- . 2010b. "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*. <https://doi.org/10.1080/19406941003634024>.
- Barger, Michael M., and Miray D. Seward. 2018. "Merged Identity of Student-Athletes and Achievement Goals across School and Sport." *Journal for the Study of Sports and Athletes in Education* 12 (2): 75–93. <https://doi.org/10.1080/19357397.2018.1476005>.
- Braun, Virginia, and Victoria Clarke. 2006. "Using Thematic Analysis in Psychology." *Qualitative Research in Psychology* 3 (2): 77–101. <https://doi.org/10.1191/1478088706qp063oa>.
- Brustio, Paolo Riccardo, Alberto Rainoldi, Cristina Onesta Mosso, Cristina López de Subijana, and Corrado Lupo. 2020. "Actual and Wished Supports to Promote a Successful Dual Career According to Italian Student-Athletes' Point of View." *Sport Sciences for Health*, March. <https://doi.org/10.1007/s11332-020-00635-5>.
- Capranica, Laura, and Flavia Guidotti. 2016. "Directorate-General For Internal Policies Policy Department B: Structural And Cohesion Policies Culture And Education Internationalisation Of Higher Education Study." <https://doi.org/10.2861/6854>.
- DC4AC. 2017. "Actual Status of Dual Career of Athletes in DC4AC Countries-National Reports." <http://ec.europa.eu/assets/eac/sport/library/documents/dual-career->

- European Commission. 2012. *EU Guidelines on Dual Careers of Athletes*. European Commission. <https://doi.org/10.2766/52683>.
- . 2014. “Education, Training, Youth and Sport,” 16. <https://doi.org/10.2775/5364>.
- . 2016. “Study on the Minimum Quality Requirements for Dual Career Services.” <https://doi.org/10.2766/567357>.
- Fernandes, Ana, Liliana Moreira, and Carlos Gonçalves. 2019. “Student-Athletes Identity and Motivation towards Dual Career.” *Kinesiologia Slovenica* 29: 15–29.
- Guidotti, Flavia, Cristina Cortis, and Laura Capranica. 2015. “Dual Career of European Student- Athletes : A Systematic Literature Review.” *Kinesiologia Slovenica* 20: 5–20.
- Henriksen, Kristoffer, Natalia Stambulova, and Kirsten Kaya Roessler. 2010. “Holistic Approach to Athletic Talent Development Environments: A Successful Sailing Milieu.” *Psychology of Sport and Exercise*. <https://doi.org/10.1016/j.psychsport.2009.10.005>.
- Kallio, Hanna, Anna Maija Pietilä, Martin Johnson, and Mari Kangasniemi. 2016. “Systematic Methodological Review: Developing a Framework for a Qualitative Semi-Structured Interview Guide.” *Journal of Advanced Nursing*. <https://doi.org/10.1111/jan.13031>.
- Kuettel, A., M. K. Christensen, J. Zysko, and J. Hansen. 2018. “A Cross-Cultural Comparison of Dual Career Environments for Elite Athletes in Switzerland, Denmark, and Poland.” *International Journal of Sport and Exercise Psychology*. <https://doi.org/10.1080/1612197X.2018.1553889>.
- Lupo, Corrado, Cristina Onesta Mosso, Flavia Guidotti, Giovanni Cugliari, Luisa Pizzigalli, and Alberto Rainoldi. 2017. “The Adapted Italian Version of the Baller Identity Measurement Scale to Evaluate the Student-Athletes’ Identity in Relation to Gender, Age, Type of Sport, and Competition Level.” *PLoS ONE* 12 (1): 1–12. <https://doi.org/10.1371/journal.pone.0169278>.
- MacNamara, Áine, and Dave Collins. 2010. “The Role of Psychological Characteristics in Managing the Transition to University.” *Psychology of Sport and Exercise* 11 (5):

353–62. <https://doi.org/10.1016/j.psychsport.2010.04.003>.

Morris, Robert, Emily Cartigny, Tatiana V. Ryba, Paul Wylleman, Kristoffer Henriksen, Miquel Torregrossa, Kent Lindahl, and Sasa Cecić Erpič. 2020. “A Taxonomy of Dual Career Development Environments in European Countries.” *European Sport Management Quarterly* 0 (0): 1–18. <https://doi.org/10.1080/16184742.2020.1725778>.

North, J., and David Lavalley. 2004. “An Investigation of Potential Users of Career Transition Services in the United Kingdom.” *Psychology of Sport and Exercise* 5 (1): 77–84. [https://doi.org/10.1016/S1469-0292\(02\)00051-1](https://doi.org/10.1016/S1469-0292(02)00051-1).

Patton, Michael Quinn. 2015. *Qualitative Research & Evaluation Methods: Integrating Theory and Practice*. 4th ed. Sage Publications.

Rens, Fleur E.C.A. van, Rebecca A. Ashley, and Andrea R. Steele. 2018. “Well-Being and Performance in Dual Careers: The Role of Academic and Athletic Identities.” *The Sport Psychologist* 33 (1): 42–51. <https://doi.org/10.1123/tsp.2018-0026>.

Sheehan, Rachel B., Matthew P. Herring, and Mark J. Campbell. 2018. “Longitudinal Relations of Mental Health and Motivation among Elite Student-Athletes across a Condensed Season: Plausible Influence of Academic and Athletic Schedule.” *Psychology of Sport and Exercise* 37 (July): 146–52. <https://doi.org/10.1016/j.psychsport.2018.03.005>.

Stambulova, Natalia. 2003. “Symptoms of a Crisis-Transition: A Grounded Theory Study,” 97–109.

Stambulova, Natalia B., Cecilia Engström, Alina Franck, Lukas Linnér, and Kent Lindahl. 2015. “Searching for an Optimal Balance: Dual Career Experiences of Swedish Adolescent Athletes.” *Psychology of Sport and Exercise* 21: 4–14. <https://doi.org/10.1016/j.psychsport.2014.08.009>.

Stambulova, Natalia, and Tatiana V. Ryba. 2013. “Setting the Bar: Towards Cultural Praxis of Athletes’ Careers.” In *Athletes’ Careers across Cultures*, 235–54.

Wylleman, Paul. 2019. “A Developmental and Holistic Perspective on Transiting out of Elite Sport.” In *APA Handbook of Sport and Exercise Psychology, Volume 1: Sport*

*Psychology* (Vol. 1), 201–16. American Psychological Association.  
<https://doi.org/10.1037/0000123-011>.

Yukhymenko-Lescroart, Mariya A. 2018. “On Identity and Sport Conduct of Student-Athletes: Considering Athletic and Academic Contexts.” *Psychology of Sport and Exercise* 34: 10–19. <https://doi.org/10.1016/j.psychsport.2017.09.006>.

## **CHAPTER 8. GENERAL DISCUSSION AND CONCLUSION**

## **8.1 Discussion and conclusions**

The macro aims of the present thesis are to understand which factors influence the identity and motivation levels of the European student-athletes, identify the challenges of the dual career and how political decisions influence fully dual career development and his growth in Europe. At a micro level, this research aims to present dual career and student-athletes' definitions and strategies to implement successfully the dual career in higher education institutes, debating possible organizational models.

As shown in previous studies (European Commission, 2016), the perception of dual career definition stills very dependent of the context and the institutional political visions. It is possible to observe this problematic when analyzing the academic publications related to the topic and the European national legislations. For instance, the majority of studies are related to high level sports participation (Aquilina, 2013; Kuettel et al., 2018a; van Rens et al., 2018), but national policies still contemplate diversified typologies of athletes (Fernandes et al., 2019).

In Study 4, stakeholders from different dimensions (i.e. meso, macro and educational) identified a lack of definition, affecting the orientation to clear strategies and policies. Although it is known that each country has their own culture and traditions, it is urgent to clarify the dual career' subjects in order to frame coherent guidelines. Persisting in approaching the topic with ill-defined concepts, may cause deviations of the purpose and heterogeneous systems. Although it is fundamental to consider the local and national cultures and social, financial, political, and historical contexts, it is important to objectify the student-athlete career on an international and cross-cultural basis.

Governments, sports, and educational institutions should define their interventions in accordance with the European Commission's strategy to sport and education.

To create a similar system around Europe, it is important to reflect on the effects of being a European student-athlete and to understand how the socio-cultural context affects the student-athletes' identity. (Lupo et al., 2017)

In reference to Studies 1 and 2, it was not possible in any of them to extract the social identity factor. In comparison with previous studies using BIMS ( Harrison et al., 2014) the present research demonstrates the impact of the socio-cultural effects. When comparing the American model to the European model using BIMS, the authors unveiled

a lack of identification with the role of being an athlete, even with athletes competing at the European University level. This evidence, along with the fact that sport is considered a non-paid activity for the majority of the participants (Study 2), reflects a significant population that has not been studied when it comes to dual career.

In fact, this was already highlighted in a research report published in 2016, where it was possible to identify that European level policies are focused on the "medal winner", discarding the student-athletes who train several hours to achieve optimal results and face the same conciliation problems (European Commission, 2016).

Moreover, both studies highlight the preference to develop an academic career instead of a sports career. This evidence is a cause of concern because those student-athletes are competing at medium-high level of competition and the majority of them do not have a student-athletes status. It is important to understand if student-athletes are opting for an academic career due to the challenges of combining sports and education (Aquilina, 2013; MacNamara & Collins, 2010; Ryba, Stambulova, Ronkainen, Bundgaard, & Selänne, 2015).

As observed in Studies 1 and 2, there is less motivation to develop a sports career in HEI without rules or systems to protect the student-athlete. In opposite, the results demonstrated a clear increase in motivation among institutions Type 1 and 2 and countries with state-centric rules. According to Kuettel, Christensen, Zysko & Hansen (2018), the countries that increase the communication between education and sports institutions present higher levels of motivation, which combines with the results obtained in this research.

In study 2, the factor with major impact in the student-athletes' motivation and identity levels was the student-athlete status, in line with the results observed with the Portuguese population (Study 1). According to the results, there is a deep influence of HEIs politics and organizational models. As observed in the Portuguese population, the Type 3 HEI where the institutions with lower motivation levels, which is replicated in the study conducted with the European athletes. The existence or not of a student-athlete status is deeply connected with the predisposition of the student-athlete to pursue a full dual career. The student-athlete status affects student-athletes' motivation, athletic career motivation, exclusivity, and emotions. The main significant differences were observed in the career athletic motivation, which demonstrates a high correlation between student-

athlete status and the development of a sports career. The student-athletes status does not present significant differences in terms of academic motivation.

To our perception and according with the results obtained through the interviews with the stakeholders, there is a clear need to reinforce the communication between the institutions. As referred in Study 4, it is necessary to improve the communication to learn from each other and to put the student-athletes in the center of the discussion, promoting what they need the most.

The most important goal is to focus on the needs of the student-athletes and understand what they want to do during their careers, as identified in previous reports (European Commission, 2016).

The present study focuses on the individual needs of the student-athletes, following the development model proposed by Wylleman, Reints & De Knop (2013). In line with this, a new financial dimension was added to the original proposal. This new item attracts the attention of the community to the importance of ensuring income or support for an optimal dual career. Study 2 suggests more motivation and identification with the student-athlete role when sport is considered a first job or a job with reimbursement of expenses. It is very clear that the meaning of sports affects the student-athletes' motivation and identity levels and it is urgent to considerer the issue in order to develop a consistent discussion around the topic.

The present study is innovative because it investigates a population not studied before in dual career aspects. Moreover, it brings a new possibility of methodology for the Sports Science field. Using MRP is possible to allow partial pooling of information across similar groups and provides aggregated estimates of a target population. In addition, the use of mixed methods through quantitative and qualitative data combined allowed a global vision of the European dual career situation not only though the student-athletes' perspective, but also from the stakeholders' perspective.

According to the results of Studies 1, 2 and 4 it is possible to suggest that dual career development should be focused on the student-athletes' needs. However, this cannot be discussed until a global definition of what means to be a student-athlete. It is fundamental to ensure that the existing legislation reaches all the target population, otherwise, it will be impossible to establish equality around Europe. As an analogy, it is possible to use the

Portuguese HEI case. In 2017 the differences between HEI were much more significant than in 2020.

This happens because HEI are doing an effort to create or update their student-athletes status according to legal constraints and considering the HEI specific environment. The study suggests a similar political top-down strategy with rules imposed by the European Commission to promote the creation and development of dual career programs.

In this case, the state members should create and implement strategies to apply dual career policies and share good practices between them.

Study 4 highlights the influence of individual-level and contextual-level characteristics on identity and motivation of the student-athlete. The observation of higher values in institutions with dual career support policies (i.e. student-athlete status) evidences the student-athletes status as the factor that affects the student-athletes' identity and motivation level.

Consistent with those studies, the results suggest that the student-athletes value the individual rules besides the university country, gender or sports meaning. This suggests the importance of identifying the individual needs in terms of the type of sport, sports season, academic and sports goal and emotional factors. The path to identifying those needs is providing rules or organizational systems to develop strategies close to the student-athletes, as the results suggest that the identity with the student-athletes' role and the motivation to pursue a dual career is intrinsically connected with the individual conditions provided by the HEI's. Study 3 findings highlight the need for caution when designing and applying policies at country level and at local levels they may have a major impact on the identity and motivation of the student-athlete. This conclusion is in line with recommendations to take into account the athletic and non-athletic context, embracing the whole person and environment perspectives. (N. B. Stambulova et al., 2020)

Based on our findings we present the following suggestions and strategies:

- a) Define the student-athlete subject;
- b) Responsibility the HEI for dual career development, encouraging them to increase the human resources allocated to the management of dual career in HEI;

- c) Promote communication between academic and sport structures through the creation of models who engage the sport, social and familiar context;
- d) The European Union must create global guidelines for HEI for them to develop and/or change its dual career program so that it is focused on the needs of the student-athlete.

In conclusion, the student-athlete status is undoubtedly the factor that most influences student-athletes' identity and motivation levels. This factor represents the importance of acting locally and in the context in which the student-athlete is. However, it brings a new problematic. As observed by the range of definitions, the biggest problem for dual career development is the inequality of the understanding of who is the student-athlete. It is not possible to move forward to a dual career focused on the student-athletes' need if it is not possible to define who the status should be. Considering the development models and the reality of the European sport, it is urgent to clarify the student-athlete definition. A better understanding of this individual will allow better guidelines to fulfill the need of it.

## **8.2. Limitations of the studies**

The studies carry out some limitations. Firstly, the Portuguese sample does not assure representation from all Portuguese HEIs. Secondly, the data collected at the European University Championship 2018 does not allow a stratification of the sample through dual career educational policies. Moreover, the sample does not represent all MSs, minimizing the comparative purpose of the study.

Study 4 does not consider the student-athletes for the interviews, leading to a lack of information about the student-athletes' perspective. Further information about the support structure would have been important for a better understanding of other dual career models.

### **8.3 Suggestions for future studies**

Longitudinal future studies in dual career are needed, in order to follow the student-athletes' developmental process. The transitions to HE and to the labor market are important topics for the future, as the end of the academic term is a potential source of stress and personally and financially problematic.

There is also a need for further studies focused on the local conditions, to allow a clear comparison between HEI models. Sound comparative studies are scarce, especially in an era of fully internationalization, mobility and competition for human resources and prestige. This includes an exhaustive comparative study about national legislation, in order to clarify the conditions provided for the student-athlete in each country.

Case studies are also needed to highlight the good practices and the factors that contribute to dual career success in different cultural and organizational ecologies.

## 8.4 References

- Amaral, M. M. da S. D. (2016). *Processos cognitivos, motivacionais e afetivos associados ao sucesso e à excelência no desporto e na universidade: Estudo com estudantes-atletas universitários*. Universidade do Minho.
- Aquilina, D. (2009). *Degrees of success : in elite sport and university*. Loughborough University.
- Aquilina, D. (2013). A study of the relationship between elite athletes' educational development and sporting performance. *International Journal of the History of Sport*, 30(4), 374–392. <https://doi.org/10.1080/09523367.2013.765723>
- Aquilina, D., & Henry, I. (2010a). 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*, 2(1), 25–47. <https://doi.org/10.1080/19406941003634024>
- Aquilina, D., & Henry, I. (2010b, March). 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*, Vol. 2, pp. 25–47. <https://doi.org/10.1080/19406941003634024>
- Barger, M. M., & Seward, M. D. (2018). Merged identity of student-athletes and achievement goals across school and sport. *Journal for the Study of Sports and Athletes in Education*, 12(2), 75–93. <https://doi.org/10.1080/19357397.2018.1476005>
- Barriopedro, M., López de Subijana, C., & Muniesa, C. (2018). Insights into life after sport for Spanish Olympians: Gender and career path perspectives. *PLOS ONE*, 13(12), e0209433. <https://doi.org/10.1371/journal.pone.0209433>
- Brown, D. J., Fletcher, D., Henry, I., Borrie, A., Emmett, J., Buzza, A., & Wombwell, S. (2015a). A British university case study of the transitional experiences of student-athletes. *Psychology of Sport & Exercise*, 21, 78–90. <https://doi.org/10.1016/j.psychsport.2015.04.002>
- Brown, D. J., Fletcher, D., Henry, I., Borrie, A., Emmett, J., Buzza, A., & Wombwell, S. (2015b). A British university case study of the transitional experiences of student-

athletes. *Psychology of Sport and Exercise*.  
<https://doi.org/10.1016/j.psychsport.2015.04.002>

Brustio, P. R., Rainoldi, A., Mosso, C. O., de Subijana, C. L., & Lupo, C. (2020). Actual and wished supports to promote a successful dual career according to Italian student-athletes' point of view. *Sport Sciences for Health*. <https://doi.org/10.1007/s11332-020-00635-5>

Bürkner, P. C. (2017). brms: An R package for Bayesian multilevel models using Stan. *Journal of Statistical Software*, *80*(1), 1–28. <https://doi.org/10.18637/jss.v080.i01>

Capranica, L., & Guidotti, F. (2016). *DIRECTORATE-GENERAL FOR INTERNAL POLICIES POLICY DEPARTMENT B: STRUCTURAL AND COHESION POLICIES CULTURE AND EDUCATION INTERNATIONALISATION OF HIGHER EDUCATION STUDY*. <https://doi.org/10.2861/6854>

Carapinheira, A. M. M. (2019). *Abandono de carreira desportiva de jogadores profissionais de futebol em Portugal*. Universidade da Beira Interior.

Christensen, M. K., & Sørensen, J. K. (2009). Sport or school? Dreams and dilemmas for talented young Danish football players. *European Physical Education Review*, *15*(1), 115–133. <https://doi.org/10.1177/1356336X09105214>

Corrado, L., Tessitore, A., Capranica, L., Rauter, S., & Doupona Topic, M. (2012). Motivation for a dual-career: Italian and Slovenian student-athletes. *Kinesiology Slovenica*, *18*(3), 47. Retrieved from [https://www.researchgate.net/publication/261731322\\_Motivation\\_for\\_a\\_dual-career\\_Italian\\_and\\_Slovenian\\_student-athletes](https://www.researchgate.net/publication/261731322_Motivation_for_a_dual-career_Italian_and_Slovenian_student-athletes)

Cosh, S., & Tully, P. J. (2014). "All I have to do is pass": A discursive analysis of student athletes' talk about prioritising sport to the detriment of education to overcome stressors encountered in combining elite sport and tertiary education. *Psychology of Sport and Exercise*, *15*(2), 180–189. <https://doi.org/10.1016/j.psychsport.2013.10.015>

Cosh, S., & Tully, P. J. (2015). Stressors, coping, and support mechanisms for student athletes combining elite sport and tertiary education: Implications for practice. *Sport Psychologist*, *29*(2), 120–133. <https://doi.org/10.1123/tsp.2014-0102>

- DC4AC. (2017). *Actual status of Dual Career of Athletes in DC4AC Countries-National Reports*. Retrieved from <http://ec.europa.eu/assets/eac/sport/library/documents/dual-career->
- De Bosscher, V., De Knop, P., Van Bottenburg, M., & Shibli, S. (2006). A Conceptual Framework for Analysing Sports Policy Factors Leading to International Sporting Success. *European Sport Management Quarterly*, 6(2), 185–215. <https://doi.org/10.1080/16184740600955087>
- De Bosscher, V., De Knop, P., van Bottenburg, M., Shibli, S., & Bingham, J. (2009). Explaining international sporting success: An international comparison of elite sport systems and policies in six countries. *Sport Management Review*, 12(3), 113–136. <https://doi.org/10.1016/j.smr.2009.01.001>
- Eccles, J. S., & Wigfield, A. (2002). Motivational Beliefs, Values, and Goals. *Annual Review of Psychology*, 53(1), 109–132. <https://doi.org/10.1146/annurev.psych.53.100901.135153>
- European Commission. (2012). EU Guidelines on Dual Careers of Athletes. In *European Commission*. <https://doi.org/10.2766/52683>
- European Commission. (2016). *Study on the minimum quality requirements for dual career services*. <https://doi.org/10.2766/567357>
- Fernandes, A., Moreira, L., & Gonçalves, C. (2019). Student-athletes identity and motivation towards dual career. *Kinesiologia Slovenica*, 29, 15–29.
- Ferrera, A. J., Watson, J. C., & Zizzi, S. (2017). Division I college student-athlete attitudes toward career counseling. *Journal for the Study of Sports and Athletes in Education*, 11(3), 175–192. <https://doi.org/10.1080/19357397.2017.1346740>
- Fortes, P., Rodrigues, G., & Tchanchane, A. (2010). Investigation of academic and athletic motivation on academic performance among university students. *University of Wollongong in Dubai - Papers*. Retrieved from <https://ro.uow.edu.au/dubaipapers/233>
- Fuchs, P., Wagner, H., H, H., N, N., Pehme, A., Puhke, R., ... Guidotti, F. (2015). *European student-athletes' perceptions on dual career outcomes and services:*

*Insights from the "Facilitating Higher Education for Athletes – WINNER Education Model" LLP project.*

Gaston-Gayles, J. L. (2005, May). The factor structure and reliability of the Student Athletes' Motivation toward Sports and Academics Questionnaire (SAMSAQ). *Journal of College Student Development*, Vol. 46, pp. 317–327. <https://doi.org/10.1353/csd.2005.0025>

Gelman, A., Carlin, J. B., Stern, H. S., Dunson, D. B., Vehtari, A., & Rubin, D. B. (2013). Bayesian Data Analysis, Third Edition (Texts in Statistical Science). In *Book*. <https://doi.org/10.1007/s13398-014-0173-7.2>

Gelman, A., & Hill, J. (2006). Data Analysis Using Regression and Multilevel/Hierarchical Models. In *Data Analysis Using Regression and Multilevel/Hierarchical Models*. <https://doi.org/10.1017/cbo9780511790942>

Gelman, A., Lee, D., & Guo, J. (2015). Stan. *Journal of Educational and Behavioral Statistics*, 40(5), 530–543. <https://doi.org/10.3102/1076998615606113>

Gelman, A., & Little, T. C. (1997). Poststratification into many categories using hierarchical logistic regression. *Survey Methodology*, 1997, 1–17.

Graczyk, M., Wylleman, P. I., Nawrocka, A., Atroszko, P. A., Moska, W., Tomiak, T., & Krysztofiak, H. (2017). The importance of the type of sport and life experience in the dual career in elite sport based on the analysis of Poland. *Baltic Journal of Health and Physical Activity*, 9(4), 135–146. <https://doi.org/10.29359/BJHPA.09.4.11>

Guidotti, F., Cortis, C., & Capranica, L. (2015). Dual Career of European Student-Athletes : a Systematic Literature Review. *Kinesiologia Slovenica*, 20, 5–20.

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. <https://doi.org/10.1007/s11332-013-0145-x>

Harrison, C. K., Tranyowicz, L., Bukstein, S., McPherson-Botts, G., & Lawrence, S. M. (2014). I am what I am? The Baller Identity Measurement Scale (BIMS) with a Division I football team in American higher education. *Sport Sciences for Health*,

10(1), 53–58. <https://doi.org/10.1007/s11332-014-0171-3>

Harwood, C. G., & Knight, C. J. (2015a). Parenting in youth sport: A position paper on parenting expertise. *Psychology of Sport and Exercise*, 16(P1), 24–35. <https://doi.org/10.1016/j.psychsport.2014.03.001>

Harwood, C. G., & Knight, C. J. (2015b). Parenting in youth sport: A position paper on parenting expertise. *Psychology of Sport and Exercise*, 16(P1), 24–35. <https://doi.org/10.1016/j.psychsport.2014.03.001>

Henriksen, K., Stambulova, N., & Roessler, K. K. (2010). Holistic approach to athletic talent development environments: A successful sailing milieu. *Psychology of Sport and Exercise*. <https://doi.org/10.1016/j.psychsport.2009.10.005>

INEUMconsulting / Taj. (2008). *European Commission: Study on training of young sportsmen/women in Europe*. (June).

Kallio, H., Pietilä, A. M., Johnson, M., & Kangasniemi, M. (2016a, December). Systematic methodological review: developing a framework for a qualitative semi-structured interview guide. *Journal of Advanced Nursing*, Vol. 72, pp. 2954–2965. <https://doi.org/10.1111/jan.13031>

Kallio, H., Pietilä, A. M., Johnson, M., & Kangasniemi, M. (2016b, December 1). Systematic methodological review: developing a framework for a qualitative semi-structured interview guide. *Journal of Advanced Nursing*, Vol. 72, pp. 2954–2965. <https://doi.org/10.1111/jan.13031>

Kerstajn, R., Lupo, C., Capranica, L., & Topic, M. D. (2018). Motivation towards sports and academics careers in elite winter sport Slovenian and Italian athletes: The role of internal and external factors. *Ido Movement for Culture*, 18(2), 29–37. <https://doi.org/10.14589/ido.18.2.4>

Knight, C. J., Harwood, C. G., & Sellars, P. A. (2018). Supporting adolescent athletes' dual careers: The role of an athlete's social support network. *Psychology of Sport and Exercise*, 38, 137–147. <https://doi.org/10.1016/j.psychsport.2018.06.007>

Kuettel, A., Christensen, M. K., Zysko, J., & Hansen, J. (2018a). A cross-cultural comparison of dual career environments for elite athletes in Switzerland, Denmark,

- and Poland. *International Journal of Sport and Exercise Psychology*.  
<https://doi.org/10.1080/1612197X.2018.1553889>
- Kuettel, A., Christensen, M. K., Zysko, J., & Hansen, J. (2018b). A cross-cultural comparison of dual career environments for elite athletes in Switzerland, Denmark, and Poland. *International Journal of Sport and Exercise Psychology*, *0*(0), 1–18.  
<https://doi.org/10.1080/1612197X.2018.1553889>
- Lupo, C., Guidotti, F., Goncalves, C. E., Moreira, L., Doupona Topic, M., Bellardini, H., ... Capranica, L. (2015). Motivation towards dual career of European student-athletes. *European Journal of Sport Science*, *15*(2), 151–160.  
<https://doi.org/10.1080/17461391.2014.940557>
- Lupo, C., Mosso, C. O., Guidotti, F., Cugliari, G., Pizzigalli, L., & Rainoldi, A. (2017). The adapted Italian version of the baller identity measurement scale to evaluate the student-Athletes' identity in relation to gender, age, type of sport, and competition level. *PLoS ONE*, *12*(1), 1–12. <https://doi.org/10.1371/journal.pone.0169278>
- MacNamara, Á., & Collins, D. (2010). The role of psychological characteristics in managing the transition to university. *Psychology of Sport and Exercise*, *11*(5), 353–362. <https://doi.org/10.1016/j.psychsport.2010.04.003>
- Mckenna, J., & Dunstan-Lewis, N. (2004). An Action Research Approach to Supporting Elite Student-Athletes in Higher Education. *European Physical Education Review*, *10*(2), 179–198. <https://doi.org/10.1177/1356336X04044070>
- Miller, P. S., & Kerr, G. A. (2003). The role experimentation of intercollegiate student athletes. *Sport Psychologist*, *17*(2), 196–219. <https://doi.org/10.1123/tsp.17.2.196>
- Morris, R., Cartigny, E., Ryba, T. V., Wylleman, P., Henriksen, K., Torregrossa, M., ... Erpič, S. C. (2020). A taxonomy of dual career development environments in European countries. *European Sport Management Quarterly*, *0*(0), 1–18.  
<https://doi.org/10.1080/16184742.2020.1725778>
- North, J., & Lavalley, D. (2004). An investigation of potential users of career transition services in the United Kingdom. *Psychology of Sport and Exercise*, *5*(1), 77–84.  
[https://doi.org/10.1016/S1469-0292\(02\)00051-1](https://doi.org/10.1016/S1469-0292(02)00051-1)

- Park, D. K., Gelman, A., & Bafumi, J. (2004). Bayesian Multilevel Estimation with Poststratification: State-Level Estimates from National Polls. *Political Analysis*, 12, 375–385. <https://doi.org/10.1093/pan/mph024>
- Park, S., Hong, S., & Lee, M. (2015). Validation of the student athletes' motivation towards sports and academics questionnaire to Korean student-athletes. *Journal of Exercise Rehabilitation*, 11(4), 220–227. <https://doi.org/10.12965/jer.150202>
- Pedhazur, E. J., & Kerlinger, F. N. (Fred N. (1982). *Multiple regression in behavioral research : explanation and prediction* (2nd ed.). New York : Holt, Rinehart, and Winston.
- PORDATA. (2018). Praticantes desportivos federados: total e por algumas federações desportivas.
- PORDATA. (2020). Praticantes desportivos federados por mil habitantes. Retrieved February 6, 2020, from <https://www.pordata.pt/Portugal/Praticantes+desportivos+federados+por+mil+habitantes-2237>
- Quinaud, R. T., Fernandes, A., Gonçalves, C. E., & Carvalho, H. M. (2019). Student-Athletes' Motivation and Identity: Variation Among Brazilian and Portuguese University Student-Athletes. *Psychological Reports*. <https://doi.org/10.1177/0033294119892885>
- Quinaud, R. T., Gonçalves, C. E., Capranica, L., & Carvalho, H. M. (2020). Factors Influencing Student-Athletes' Identity: A Multilevel Regression and Poststratification Approach. *Perceptual and Motor Skills*, 127(2), 432–447. <https://doi.org/10.1177/0031512519899751>
- Routledge Handbook of Sport Policy - Google Books. (n.d.). Retrieved February 6, 2020, from [https://books.google.pt/books?id=3eopAAAAQBAJ&pg=PT431&lpg=PT431&dq=Amara,+M.,+Aquilina,+D.,+Henry,+I.,+%26+PMP.+\(2004\).+Education+of+young+sportspersons&source=bl&ots=z9EhYsID4W&sig=ACfU3U0PXs7OFNzfFh2BrVJfU4b5D6SBHA&hl=en&sa=X&ved=2ahUKEwj4kLSSrr3nAhUOdxoKHbzSDVsQ6AEwAHoECAyQAQ#v=onepage&q=Amara%2C M.%2C Aquilina%2C](https://books.google.pt/books?id=3eopAAAAQBAJ&pg=PT431&lpg=PT431&dq=Amara,+M.,+Aquilina,+D.,+Henry,+I.,+%26+PMP.+(2004).+Education+of+young+sportspersons&source=bl&ots=z9EhYsID4W&sig=ACfU3U0PXs7OFNzfFh2BrVJfU4b5D6SBHA&hl=en&sa=X&ved=2ahUKEwj4kLSSrr3nAhUOdxoKHbzSDVsQ6AEwAHoECAyQAQ#v=onepage&q=Amara%2C M.%2C Aquilina%2C)

- D.%2C Henry%2C I.%2C %26 PMP. (2004). Education of young sportspersons&f=false
- Ryba, T. V., Stambulova, N. B., Ronkainen, N. J., Bundgaard, J., & Selänne, H. (2015). Dual career pathways of transnational athletes. *Psychology of Sport and Exercise*, *21*, 125–134. <https://doi.org/10.1016/j.psychsport.2014.06.002>
- Sheehan, R. B., Herring, M. P., & Campbell, M. J. (2018a). Longitudinal relations of mental health and motivation among elite student-athletes across a condensed season: Plausible influence of academic and athletic schedule. *Psychology of Sport and Exercise*, *37*(September 2017), 146–152. <https://doi.org/10.1016/j.psychsport.2018.03.005>
- Sheehan, R. B., Herring, M. P., & Campbell, M. J. (2018b). Longitudinal relations of mental health and motivation among elite student-athletes across a condensed season: Plausible influence of academic and athletic schedule. *Psychology of Sport and Exercise*, *37*, 146–152. <https://doi.org/10.1016/j.psychsport.2018.03.005>
- Sparkes, A. C. (2015). Developing mixed methods research in sport and exercise psychology: Critical reflections on five points of controversy. *Psychology of Sport and Exercise*. <https://doi.org/10.1016/j.psychsport.2014.08.014>
- Stambulova, N. B., Engström, C., Franck, A., Linnér, L., & Lindahl, K. (2015). Searching for an optimal balance: Dual career experiences of Swedish adolescent athletes. *Psychology of Sport and Exercise*, *21*, 4–14. <https://doi.org/10.1016/j.psychsport.2014.08.009>
- Stambulova, N. B., Ryba, T. V., & Henriksen, K. (2020). Career development and transitions of athletes : the International Society of Sport Psychology Position Stand Revisited. *International Journal of Sport and Exercise Psychology*, *0*(0), 1–27. <https://doi.org/10.1080/1612197X.2020.1737836>
- Stambulova, N. B., & Wylleman, P. (2019, May 1). Psychology of athletes' dual careers: A state-of-the-art critical review of the European discourse. *Psychology of Sport and Exercise*, Vol. 42, pp. 74–88. <https://doi.org/10.1016/j.psychsport.2018.11.013>
- Stambulova, N., & Ryba, T. V. (2013). Setting the bar : Towards cultural praxis of athletes ' careers. In *Athletes ' careers across cultures* (pp. 235–254).

- Sturm, J. E., Feltz, D. L., & Gilson, T. A. (2011a). A Comparison of Athlete and Student Identity for Division I and Division III Athletes. *Journal of Sport Behavior*.
- Sturm, J. E., Feltz, D. L., & Gilson, T. A. (2011b). A Comparison of Athlete and Student Identity for Division I and Division III Athletes. *Journal of Sport Behavior*, 34(3), 295–306. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=s3h&AN=64875656&lang=pt-br&site=ehost-live>
- Tekavc, J., Wylleman, P., & Cecić Erpič, S. (2015). Perceptions of dual career development among elite level swimmers and basketball players. *Psychology of Sport and Exercise*, 21, 27–41. <https://doi.org/10.1016/j.psychsport.2015.03.002>
- van Rens, F. E. C. A., Ashley, R. A., & Steele, A. R. (2018). Well-Being and Performance in Dual Careers: The Role of Academic and Athletic Identities. *The Sport Psychologist*, 33(1), 42–51. <https://doi.org/10.1123/tsp.2018-0026>
- Wayment, H. A., Huffman, A. H., Lane, T. S., & Lininger, M. R. (2019). Relationship of athletic and academic identity to concussion reporting intentions. *Musculoskeletal Science and Practice*. <https://doi.org/10.1016/j.msksp.2019.04.003>
- Weinberg, R. S., & Gould, D. (2017). *Fundamentos da Psicologia do Esporte e do Exercício* (6th ed.). Artmed Editora.
- Wigfield, A. (1994). Expectancy-value theory of achievement motivation: A developmental perspective. *Educational Psychology Review*, 6(1), 49–78. <https://doi.org/10.1007/BF02209024>
- Wylleman, P., Reints, A., Knop, P. De, Reints, A., & Knop, P. De. (2013). *A developmental and holistic perspective on athletic career development*. 191–214. <https://doi.org/10.4324/9780203132388-20>
- Wylleman, Paul, & Lavalley, D. (2004). A developmental perspective on transitions faced by athletes. *Developmental Sport and Exercise Psychology: A Lifespan Perspective*, 507–527. <https://doi.org/10.1037/spy0000022>

- Wylleman, Paul, Reints, A., & De Knop, P. (2013). A developmental and holistic perspective on athletic career development. In *Foundations of sport management. Managing high performance sport* (Vol. 53, pp. 159–182). <https://doi.org/10.1017/CBO9781107415324.004>
- Wylleman, Paul, & Rosier, N. (2016). Holistic Perspective on the Development of Elite Athletes. In *Sport and Exercise Psychology Research: From Theory to Practice* (pp. 269–288). <https://doi.org/10.1016/B978-0-12-803634-1.00013-3>
- Yukhymenko-Lescroart, M. A. (2018). On identity and sport conduct of student-athletes: Considering athletic and academic contexts. *Psychology of Sport and Exercise, 34*, 10–19. <https://doi.org/10.1016/j.psychsport.2017.09.006>