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A taxonomy of dual career development environments in European countries

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ABSTRACT

Research question. The last decade has seen an increase in empirical research associated with dual careers in sport, with a particular focus on understanding and developing individual characteristics which are important to ensure success in sports and education or a vocation. More recent work has, however, also identified the importance of environmental factors in ensuring successful dual career outcomes. The aims of this study, therefore, are to: (a) identify and classify the different types of dual career development environments (DCDEs) and (b) provide outlines of the key features of the environments identified.

Research methods. To achieve these aims, this study adopted the procedure of initial documentary analysis, interviews with knowledgeable stakeholders, cross-case analysis, and researcher discussions across seven countries in Europe (Belgium, Denmark, Finland, Slovenia, Spain, Sweden and the United Kingdom).

Results and findings. Results highlighted that there are eight types of DCDEs – (a) sports-friendly schools, (b) elite sport schools/colleges, (c) professional and/or private club programs, (d) sport-friendly universities, (e) combined dual career systems, (f) national sports programs, (g) defense force programs and (h) players' union programs with a range of approaches to supporting dual careers.

Implications. The research has practical implications in the context of dual career, through providing a possible framework for developing national taxonomies and, therefore, identifying DCDE characteristics and gaps in dual career support.

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The combination of sporting pursuits alongside education or vocational endeavors (i.e. a dual career) has been shown to help in coping with adversity, protecting against poor mental health or burnout, and maintaining perspective for athletes (e.g. Aquilina, 2013; Cecić Erpič, Wylleman, & Zupančič, 2004; Ekengren, Stambulova, Johnson, & Carlsson,

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2018; Pink, Saunders, & Stynes, 2015; Sorkkila, Aunola, & Ryba, 2017). Additionally, athletes who undertake a dual career are often more prepared for athletic retirement and experience a more successful transition out of sport in comparison to retired athletes who followed an exclusively sport pathway (e.g. Knights, Sherry, & Ruddock-Hudson, 2016; Murphy, Petitpas, & Brewer, 1996; Park, Lavallee, & Tod, 2013; Petitpas & France, 2010; Stambulova, Franck, & Weibull, 2012; Torregrossa, Ramis, Pallarés, Azócar, & Selva, 2015). In light of the support for the benefits of undertaking a dual career, within Europe there has been a significant increase in dual career provision, with programs developed to provide an integrated dual career pathway for many athletes.[1]

Considering the potential benefits of a dual career, there has also been an increase in academic literature focused on the individual and environmental factors that facilitate dual careers (see Guidotti, Cortis, & Capranica, 2015; Li & Sum, 2017; Stambulova & Wylleman, 2019). The research findings suggest that the willingness of an environment to accommodate dual career athletes has been identified as a vital facilitator of dual career management by several previous studies. For example, large workloads, set schedules, mandatory class attendance and a reluctance to allow for any alternative focus are all referenced as major barriers for engaging in a dual career (López de Subijana, Barriopedro, & Conde, 2015; Ryan, 2015; Tshube & Feltz, 2015). Whereas rearranging exam dates due to competitions, part-time study and a holistic club culture which is supportive of life outside of sport enables dual career athletes to manage sport and academics (Brown et al., 2015; Tekavc, Wylleman, & Cecić Erpič, 2015; Tshube & Feltz, 2015; López de Subijana et al., 2015).

According to the holistic athletic career model, which outlines the academic, athletic, psychological, psychosocial and financial development across the athletic lifespan (Wylleman, Reints, & De Knop, 2013), dual career athletes will interact with a variety of environments across their lifespan, such as schools, colleges, universities, sport programs and sports clubs (see Debois, Ledon, & Wylleman, 2015). However, the approach to dual careers and the support provided is not always consistent across institutions or even staff members within the same institution (Tshube & Feltz, 2015; Brown et al., 2015; Pink, Lonie, & Saunders, 2018; Pink, Saunders, & Stynes, 2015; Simons, Bosworth, Fujita, & Jensen, 2007). Aquilina and Henry (2010) categorize European countries based on the national approach to supporting athletes in higher education settings. Four approaches are outlined: State-centric regulation, where higher education institutions are regulated by government to provide adapted support to student-athletes (e.g. Spain); State as sponsor/facilitator, where government promotes formal agreements to support dual career athletes but this is not legally regulated (e.g. Belgium, Denmark, Finland and Sweden); National sporting federations/institutes as intermediary, where national sporting organizations act on behalf of student-athletes to arrange support (e.g. the United Kingdom); and laisser faire, where there is no formal structure for arrangements and the individual is required to negotiate these themselves (e.g. Slovenia). This typology illustrates the diversity in approaches across Europe and how higher education and sporting environments might interact to support student-athletes. However, the typology does not consider the variety of environments across the dual career lifespan. For example, it does not explain how schools interact with sporting organizations or governments to support student-athletes.

With this in mind, the dual career literature could benefit from further consideration of environments and initiatives that support individuals across their dual career lifespan. It would also benefit from understanding the key features of these and how this might impact the dual career experience. When considering the environments that support dual career athletes in practice (i.e. dual career development environments, DCDEs), we can identify institutions such as schools, universities and sports clubs which host dual career athletes. However, the complex nature of dual careers means that some institutions might have multiple, singular or even no dual career support systems in place. For example, a dual career athlete might be embedded within a school, but the school might provide no program for dual career support. Alternatively, it is common to have universities that have sports scholarship programs, as well as dual career support systems and sports clubs all providing support for dual career athletes. For the purpose of this study, the focus lies on the environments that provide support to dual career athletes. DCDEs are defined as purposefully developed systems that aim to facilitate athletes' investment in combining their competitive sporting career with education or work, and, therefore include both (sporting and educational or vocational) career aspects within them.

By outlining DCDEs and the key features they have, this would enable researchers and practitioners in the discipline to identify and explore common characteristics across dual career provisions and would provide a framework for further, more detailed, exploration of specific environments. Further, this can mean that areas for optimization and the promotion of practices that support positive dual career experiences can be identified. In order to do this and provide a comprehensive understanding of DCDEs and their key features, it would first be beneficial to understand what types of DCDEs exist and what the similarities and differences between DCDEs are. The aims of the current study, therefore, are to: (a) identify and classify the different types of DCDEs and (b) provide outlines of the key features of the environment types identified.

Methods

To identify and classify different types of DCDEs and provide an outline of the key features, this study adopted the multiple stage procedure of, first, each country developing an initial national taxonomy of the DCDEs in their context via documentary analysis. This initial taxonomy was then validated via interviews with knowledgeable stakeholders. Second, a cross-case analysis allowed for the development of a taxonomy, which was validated via expert interviews and researcher discussions across seven countries in Europe (Belgium, Denmark, Finland, Slovenia, Spain, Sweden and the United Kingdom).

Sampling strategy

The seven countries that have been included in the current study were used because of their significant experience in both researching dual careers and providing dual career support programs to dual career athletes. Belgium, Denmark, Finland, Slovenia, Spain, Sweden and the United Kingdom all not only have national initiatives for dual career provision and have a large number of dual career programs, they are all active in research within the dual career area. Equally, however, they also have varying approaches to dual careers, with some focused more on state-centric regulation programs, where

higher education institutions are regulated by government to provide adapted support to student-athletes (see Sweden), with others focused more on national sporting federations/institutes programs, where national sporting organizations act on behalf of student-athletes to arrange support (see the United Kingdom). In drawing conclusions from an information-rich and diverse sample, as we have done in the current project, we are able to identify the nature of the different DCDEs that are common across socio-political, cultural contexts within Europe. Purposeful sampling of this kind can facilitate transferability for countries not included in the research (Smith, 2018; Tracy, 2010). This concept of transferability of the research findings to additional contexts occurs when an individual within a setting, outside of that which has been researched, considers the findings to also be applicable to their context (Smith, 2018).

Data collection

Stage 1: National taxonomy. A research team from each country gathered background information regarding the national approach to dual careers. This data was sourced, first, from publicly available documents on websites of national elite sports agencies or environments and/or other relevant sources (e.g. national archives). Second, data were sourced from academic papers that described dual career support programs within that country. The documents were thoroughly read by the researchers to increase familiarity with the environments. A deductive coding approach was then taken – information from the documents was transferred into a qualitative standardized table based on predefined categories (viz., centralized vs. decentralized; age group targeted; educational level targeted; sports included; level of state involvement; support for vocation included; nature and scope of environment; fixed or flexible provision; source of funding and dual career provision provided). These qualitative standardized tables enabled the development of an initial national taxonomy of DCDEs, which was then used to develop further points of discussion for the interviews in stage 2.

Stage 2: National taxonomy validation. Following the development of an initial national taxonomy, each of the seven nations then conducted between 3 and 5 interviews (lasting 20–60 min long) that focused on developing a greater understanding of the DCDEs in their country. Participants for the interviews ($N = 31$), specifically from Belgium, Denmark, Finland, Slovenia, Spain, Sweden and the United Kingdom, were purposefully selected because they held an understanding of one or more DCDE. This understanding came from their practical role within a sports agency or federation, an educational or vocational institution, or a career program designed for dual career athletes. The participants had worked within the dual career area for between 5 and 15 years and all had experience of more than one DCDE. During the interviews, the qualitative standardized table (that was developed in stage 1) became the focus of conversation, with interviewees asked to give their comments, thoughts and critiques of the context provided. They were also asked, at this stage, if they were aware of any additional DCDEs within their context (i.e. their country) which had not been identified in the initial scoping of documentary data and the key features of these environments.

Stage 3: Cross-case analysis and DCDE taxonomy development. The results of the documentary analysis and interviews (stages 1 and 2) were transferred into the qualitative standardized table that helped to facilitate the comprehension of each environment and

enabled comparisons between environments. From these two sources of data, the research team initially identified a total of 57 different DCDEs across the seven countries. These data subsequently underwent a thematic analysis (see Braun & Clarke, 2006) by the first and second authors, this time using a deductive coding process to identify patterns and cross-environment features. Nine characteristics including whether or not the DCDE was centralized versus decentralized, the age group targeted, the educational level targeted, the sports included, level of state involvement, support for vocation included, nature and scope of environment, fixed or flexible provision, source of funding and dual career provision provided, were used to cluster DCDEs and distinguish categories. A category was formed if one or more environment held a shared characteristic with another environment. An initial classification system of eight DCDE types was then developed according to these characteristics, with detailed explanations of the key features provided. Each of the DCDE types identified was then positioned along a timeline according to the holistic athletic career stage, estimated age markers, and educational/vocational level (Wylleman, Reints, & De Knop, 2013) they primarily targeted. This resulted in an initial cross-case DCDE taxonomy of dual career provision.

Stage 4: DCDE taxonomy validation. The developed classification system and DCDE taxonomy then underwent validation via two phases, an expert discussion and individual interviews with dual career experts, to determine comprehensiveness and relevance. The expert discussion involved between two and three individuals from the seven countries included in this study. The expert discussion participants included practitioners ($N = 4$) and researchers ($N = 13$) who had significant experience within the area of dual careers, in some cases over 20 years' experience (summarized in Table 1), and had been involved in stages 1 and 2. The purpose of the discussion group was to confirm the comprehensiveness of the DCDE taxonomy based upon the seven countries represented, with specific focus on DCDE types and the key features of each. This stage was important to ensure that the detail and comprehension of the national context had not been lost in developing a classification system and taxonomy that extends across the seven contexts. The individual interviewees ($N = 4$) in this instance were, additional experts in dual career provision, with significant experience (5+ years) within sports agencies or federations, educational or vocational institutions, and/or career programs designed for dual career athletes (summarized in Table 1). These validation interviews were carried out with the focus of the interviews being the DCDE taxonomy, the overarching DCDE characteristics identified and the career stages that the DCDEs target. Since the members of the discussion group had been part of stages 1 and 2, the purpose of the individual interviews was confirming the comprehension of the taxonomy outside of the research group. Minor adjustments that arose from these discussions and interviews were then made (e.g. adjustments to the career stages that an environment may target), before a final taxonomy was created.

Research quality

The process that this study followed ensures that the taxonomy created has been through a comprehensive stage-wise development where a number of sources of data were obtained and methodological, source and investigator triangulation could occur (Patton, 2002). The use of multiple sources of evidence, such as documentation (e.g. publicly available documents), interviews and discussions, as in this case, may be integrated to analyze particular

Table 1. Stage 4 participant characteristics.

Number	Participant role	Dual career experience
Participants of expert discussion		
1	Coordinator of dual career service	10 years in the role
2	Professor (dual career related) and head of dual career service	10+ years in these roles
3	Researcher in dual career and coordinator of dual career service	Personal experience of dual career and 6 years in current role
4	Associate professor (dual career related)	15+ years experience in research
5	Coordinator of dual career service	5 years in the role
6	Senior researcher (dual career related)	3 years experience in this role
7	Researcher (dual career related)	Personal experience of dual career
8	Senior researcher (dual career related)	20+ years in this role
9	Senior researcher (dual career related)	20+ years in this role
10	Senior researcher (dual career related)	15+ years in this role
11	Senior researcher (dual career related)	10+ years in this role
12	Professor (dual career related)	20+ years in this role
13	Researcher (dual career related)	5 years in the role
14	Manager of sports federation	10 years in the role
15	Senior researcher (dual career related)	5 years experience in this role
16	Researcher (dual career related) and dual career service provider	5 years in the role
17	Coordinator of dual career service	5+ years in the role
Participants of individual interviews		
1	Coordinator of dual career service and involvement in 5 European projects	15 years in the role
2	Coordinator of dual career service and involvement in 3 European projects	5+ years in the role
3	Coordinator of dual career service and involvement in 1 European project	10 years in the role
4	Senior researcher (dual career related) and involvement in 1 European project	5 years experience in this role

contexts and create a more comprehensive understanding of a situation in comparison to if one source of data collection was used (Patton, 2002; Yin, 2009). Multiple researchers were involved in stage 1 and the findings were then shared with a wider research group during stage 2 to manage researchers' perspectives and ensure findings were coherent across national cultural contexts (Levitt et al., 2018). This investigator triangulation also occurred for stage 3 and stage 4. Methodological, source and investigator triangulation, as carried out in the current study, is also recognized as a legitimate technique for enhancing the credibility and trustworthiness of qualitative research in sport (Denzin, 1978; Tracy, 2010).

Results

The results of this study are presented in Table 2, which summarizes the classification system of DCDE types and their key characteristics that were identified, and in Figure 1, which schematically represents these DCDE types according to the holistic athletic career stage they primarily target (Wylleman et al., 2013). In total, eight types of DCDE were identified in the seven countries: (a) sports-friendly schools, (b) elite sport schools/colleges, (c) professional and/or private clubs, (d) sport-friendly universities, (e) combined dual career systems, (f) national sports programs, (g) defense forces programs and (h) players' union programs. Some of these DCDEs are stand-alone environments in their own right (e.g. elite sports schools, where the student-athlete is supported by the

Table 2. Dual career development environment categorization type results.

DCSI type	DCSI definition	European examples
Sports-friendly schools	• These regional educational institutions, who permit elite sport or align themselves with elite sport to provide academic flexibility for athletes to train and compete in their own sporting environment. • They are situated in upper general and vocational secondary education (ISCED level 2–5). • The support provisions between institutions in the same country are not standardized because each is able to decide the provision of support they give to each athlete for themselves – they can, however, include similar features (e.g. sports facilities and sport science provision). • Although academic flexibility is provided, there are unlikely to be any formal arrangements (and therefore, little to no communication) between the school and sporting federations (e.g. Swedish NIUs communicate with sports clubs but not directly with sport federations).	• United Kingdom – Millfield School and Hartpury College, Talented Athlete Scholarship Scheme Accredited Schools and Colleges including Loughborough College and Stoke-on-Trent College • Sweden – Sandagymnasiet • Finland – Hämeenlinnan Lyseon Lukio, Jyväskylän Normaalikoulu, Pihtiputaan Lukio
Elite sports schools/colleges	• These educational institutions are purposefully developed for elite athletes who wish to combine their athletic and academic careers – they do this by providing a combination of sport and academic support (e.g. elite coaching and an adapted timetable for studies). • They are situated in upper and lower general and vocational secondary education (ISCED level 2–5). • The support provisions between institutions in the same country are not standardized, but can include similar features (e.g. sports facilities and sport science provision). • Elite sports schools/colleges have formal communication with sport federations (e.g. both bodies will have input into the selection of athletes who will attend the school/college) and the school will often receive funding from the body they link with.	• United Kingdom – Scottish Football Association Performance Schools • Belgium – Stedelijk Lyceum Topsport • Sweden – Gudlav Bilderskolan • Denmark – Marseiliesborg School • Finland – Kilpisen Koulu, Sotkamon Lukio, Jyväskylän Koulutuskuntayhtymä Gradia
Professional and/or private clubs	• These professional and/or private sports clubs, who support for educational and/or vocational pursuits by providing academic flexibility and study support within a sporting environment. • These programs are often situated in upper and lower school level education and junior/youth level sport (ISCED level 2–5). • The support provisions between institutions in the same country are not standardized, but can include similar features (e.g. sports facilities and sport science provision). • The links to education institutions may vary from country to country and within a country (e.g. Villarreal works in partnership with educational institutions to receive educational support, but Club Natació Sabadell provides education on site through their own School).	• United Kingdom – Derby County and Everton Football Clubs, Sale Sharks Rugby Football Club • Spain – Villareal and Barcelona Football Clubs

(*Continued*)

Table 2. Continued.

DCSI type	DCSI definition	European examples
	• The links to governing bodies may also vary from country to country and within a country (e.g. United Kingdom football clubs are not necessarily part of the talent pathway for football, but the sporting federation still holds them to an expected minimum standard).	
Sport-friendly universities	• These regional educational institutions permit elite sport or align themselves with elite sport to provide academic flexibility for athletes to train and compete in their own sporting environment. • They are situated in higher education, often at degree or master's level (ISCED level 6–7). • The support provisions between institutions in the same country are not standardized because each is able to decide the provision of support they give to each athlete – they can, however, include similar features (e.g. sports facilities and sport science provision). • Although academic flexibility is provided, there are unlikely to be any formal arrangements (and therefore, little to no communication) between the university and sporting federations (e.g. Team Denmark is not involved in facilitating links between education and sporting environments).	• Belgium – Vrije Universiteit Brussel and Ghent University • United Kingdom – Team Bath and Loughborough University, Winning Students Program • Sweden – Karlstad University • Spain – TutorEsport Universitat, Autonoma de Barcelona, and Universitat Oberta de Catalunya
Combined dual career systems	• These purposefully developed organizations work in tandem with both sport and education/vocational providers to deliver an all-round support package to the individual undertaking the dual career. • These systems cover all levels of education (ISCED level 2-7) across Europe. • The support provisions between organizations in the same country are standardized or there is a minimum level of support provided across institutions and for all athletes (e.g. The Talented Athlete Scholarship Scheme has a base level of support each university has to meet). • There are formal arrangements and communication between education and sport (e.g. the Finnish National Olympic Committee oversees communication between education and sport bodies, ensuring appropriate support and flexibility is provided to athletes).	• United Kingdom – The Talented Athlete Scholarship Scheme • Denmark – Team Denmark Universities • Finland – National Olympic Committee Schools, Universities, Polytechnics, and Sport Institutions • Sweden – National Sport Universities • Spain – Public Sport Systems, Sport Technification Centre, and High-Performance Centre
National sports programs	• These national sport federation-based systems provide support for educational and/or vocational pursuits, by providing support for academic flexibility and study within a sporting environment. • These systems often cover all levels of education (ISCED level 2–7) across Europe. • The support provisions between national sport programs in the same country are not standardized, but can include similar features (e.g. performance lifestyle support) – within the individual national sports programs themselves, however, provision is	• United Kingdom – Sport Scotland Institute of Sport, English Institute of Sport, and Sport Wales • Finland – Jyväskylän Urheiluakatemia, Pääkaupunkiseudun Urheiluakatemia Urhea, Vuokatti-Ruka Urheiluakatemia

(*Continued*)

Table 2. Continued.

DCSI type	DCSI definition	European examples
	standardized. • Although support for the dual career is provided, the focus of the delivery in the environment is primarily on sporting pursuits (e.g. The English Institute of Sport will assist athletes in their pursuit of academic flexibility and support them by providing performance lifestyle advice but will not formally deliver education programs).	
Defense forces programs	• These work-based defense force programs provide support for athletes combining vocation and sporting excellence by offering vocational flexibility to pursue sport opportunities. • These systems are in place at vocational levels. • The support provisions in the same country are not standardized, but can include similar features (e.g. performance lifestyle support, physiological support, and nutritional support). • Unlikely to have formal arrangements (and therefore, little to no communication) between the work environment and sporting federations (e.g. the Finnish defense force program is not necessarily part of the sporting talent pathway but does provide flexibility to allow the athlete to pursue elite sport performance).	• United Kingdom – The Talented Athlete Scholarship Scheme Army Elite Sports Program • Finland – The Finnish Defense Forces
Players union programs	• These organizations (which exist to protect the working rights of athletes within their sport) offer guidance about educational provision and vocational courses for registered members. • These systems are in place at all educational and vocational levels. • The support provisions between unions in the same country are not standardized because they are able to decide the provision of support they give to each athlete – they can, however, include similar features (e.g. advice and support for determining suitable education opportunities). • Unlikely to have formal arrangements (and therefore, little to no communication) between the work environment and sporting federations (e.g. the Professional Footballers Association is completely independent from the professional football governing bodies in the United Kingdom).	• United Kingdom – The Professional Footballers Association and The Rugby Players Association • Finland – Jalkapallon Pelaajayhdistys, Study4Player, Job4Player, Suomen Jääkiekkoilijat Ry

*For information on International Standard Classification of Education (ISCED) levels across Europe, please refer to European Commission/EACEA/Eurydice (2016). *The Structure of the European Education Systems 2016/17: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

school in their sport and education), whereas some of the systems would be required to coordinate their support with other institutions or organizations (e.g. student-athletes in a university might be supported by both a sport-friendly university program and a sport club program). Furthermore, some environments might also engage with a combined dual career system to facilitate the coordination between sport and study. The

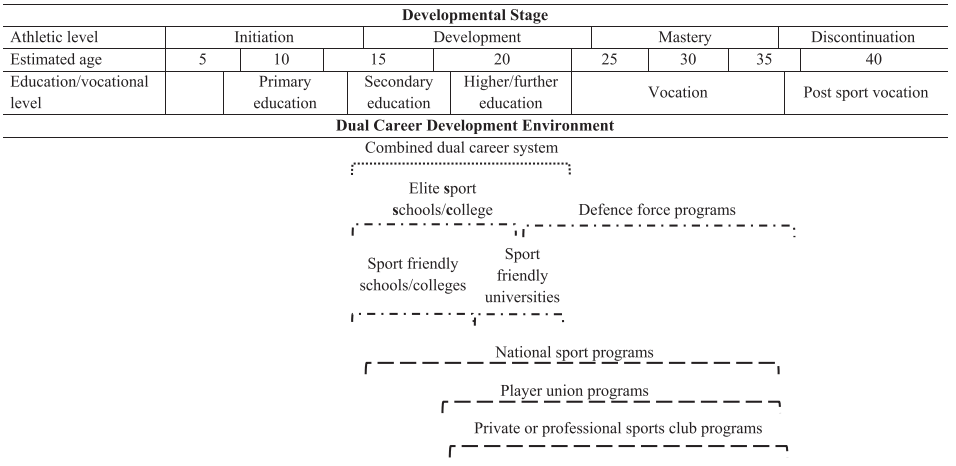

Figure 1. A taxonomy of dual career development environments in European Countries. N.B. Dotted line = Combined dual career systems; Dash-dot = Education/vocation-led systems; and Dashed line = Sport-led systems.

eight types of DCDEs were found in each country to different proportions: sports-friendly schools and elite sport schools/colleges were found in all seven countries; sport-friendly universities were found in six of the seven countries; professional and/or private club programs, combined dual career systems, and national sports programs were found in three countries, whereas defense forces programs and players' union programs were found in just two countries.

Collectively, the environments that were identified cover a range of dual careers and have a range of overarching features. What distinguishes one category from another are the decisions which have been made regarding the specific features of the provision they provide. Specifically, decisions that have been made about: (a) the athletic career stage the support is intended for, (b) the nature and scope of the environment, (c) the sports they support, (d) the educational level or vocation targeted, (e) the support provided, (f) whether or not the environment is part of a centralized or decentralized system and (g) whether or not there is state involvement in the system.

Athletic career stage

Figure 1 identifies the career stage that DCDEs provide support for, based upon Wylleman et al., 2013 model of career development. Data highlights that the majority of programs support athletes through development and mastery phases of their athletic development. Some programs do provide support at the latter end of the initiation stage, but the formal support for a dual career via elite sport schools/colleges or sport-friendly schools/colleges, even at this stage, is often reserved for athletes who have been identified as talented and with the potential to be successful at the elite level in the future. Although DCDEs do not provide specific support at the discontinuation/post-sport stage, many do provide support to athletes to prepare them for this phase via appropriate education and signposting of athletes to suitable opportunities.

Nature and scope of the environment

Figure 1 also highlights the nature and scope of the environment. As identified environments were either (a) a sport-led system (i.e. the athlete is based in a sport environment that offers education or support for an education/vocation; e.g. professional and/or private clubs, national sports programs and players' union programs), (b) an education-led or vocation-led system (i.e. the athlete is based in an education/vocation environment which offers support for sport and performance; e.g. sports-friendly schools, sport-friendly universities and defense forces programs) or (c) a combined dual career development environment (i.e. an organization or institution that works in tandem with both sport and education/vocational providers to deliver an all-round support package to the individual undertaking the dual career; e.g. elite sports schools/colleges, and combined dual career systems). Combined dual career programs can ensure that the support being provided does envelop all elements of the dual career process. Contrastingly, a sport-, education- or vocation-led system often relies upon the understanding and empathy to dual careers by the other institution (i.e. an education institution in the case of a sport-led program and vice versa). For example, in a sport-led system, if there is a lack of awareness of athletes undertaking dual careers by academic staff, support provided may be less effective. Communication channels between sporting, educational and vocational institutions, therefore, are crucial.

Sports supported

From the classification system, it has been identified that DCDEs support anywhere between one sport and multiple sports (e.g. one environment supported 73 different sports). Programs which support one sport are usually designed as specialized centers, typically with specialized coaching, sport science and other provisions given to athletes, in addition to education or vocational support, in their pursuit of excellence. DCDEs with multiple sports may or may not have specialized coaching available on site. There is often the sharing of other resources including sport science support (e.g. performance lifestyle advisors may work with athletes across multiple sports). Multiple sport-based programs do, however, also give athletes opportunities to interact and learn from each other about the development of excellence in respective sports.

Education or vocation targeted

The classification system, Table 2, identified that a vast majority of DCDEs are designed to support individuals as they embark on a dual career in sport and education. The support for dual careers in sport and education is provided from International Standard Classification of Education (ISCED) level 2–7 (primary school to higher degree, e.g. PhD level). At vocational levels, the majority of support provided to athletes, through professional and/or private club programs, national sports programs or players' union programs, is in the form of education about the possibilities and opportunities for vocational pursuits. To a lesser extent, flexibility is provided by some organizations to support vocation and sport pursuits in tandem, but there is often no interaction between the environments concerned, meaning the athlete is still responsible for many elements of their dual career. Specific

vocations which have supported dual careers include the armed forces (e.g. combat roles, engineering roles, medical roles, and human resources or finance roles).

Support provided

Across environments, the support provided varied from basic financial or sport science support through to full support, including financial, academic and sport flexibility, and sport science support. Even within environments, support for athletes could be either fixed (i.e. all athletes received the same support) or flexible (i.e. individual athletes receive different levels of funding, coaching support and academic flexibility depending on their situation and context). Decisions about what support to provide were usually dependent upon the amount of funding available, strategic priorities and athlete potential. For example, in some sport-friendly universities there is significant funding invested by the university due to dual careers being a strategic priority. This means they are able to provide greater and more diverse support to dual career athletes in comparison to other universities which may not see this as a priority.

Centralized versus decentralized

Across the taxonomy, DCDEs were identified as being either centralized (i.e. all support for dual career was provided on site at the same place) or decentralized (i.e. support may be provided across multiple facilities, with expert support for a particular area of athletes' dual careers in each). Centralized systems ensure that the dual career athletes do not have to travel between sport and education or vocational environments, meaning they have more time to dedicate to their endeavors. However, in some instances, it also meant that the support being provided was not as appropriate as it might be if individuals are involved in a decentralized system (e.g. coaching provision at the centralized environment may not be as high-quality as at venues which provide specific support from elite coaches). With decentralized systems, although there may be difficulties with traveling between environments (it was identified that athletes can travel over 2 h daily in some instances), the support for education and sport development may be more appropriate and individualized, with specialists in each domain providing the required support for athletes.

State involvement

As categorized by Aquilina and Henry (2010), national approaches to dual career included: (a) state-centric provision, backed by legislation (e.g. Spain), (b) the state as a facilitator, fostering formal agreements between educational and sporting bodies (e.g. Belgium, Denmark, Finland or Sweden), (c) national federations/sports institutes as facilitator/mediator, engaging directly in negotiation with educational bodies on behalf of the individual athlete (e.g. the United Kingdom) and (d) a 'laissez faire' approach, where there are no formal structures in place (e.g. Slovenia). The level of state involvement impacts how the environment functions. To expand, some programs that are state funded have clear metrics by which the environment (and consequently athletes) are judged (e.g. medal tallies at international competitions) and, which, impacts the support provided to dual career athletes. Contrastingly, programs that were able to make their own decisions

around their measures for success may be able to fund support provision which align to their values and beliefs (e.g. reaching potential in academics).

Discussion

This study increases the research knowledge of dual career environments and achieved the aims of: (a) identify and classify the different types of DCDEs by providing a taxonomy of DCDEs across seven countries in Europe and providing real-world examples; and (b) outlining the key features of these DCDEs. Results highlighted that there are eight types of DCDEs found in different proportions across the seven countries. Some types (e.g. sports-friendly schools and elite sport schools) were found in all seven countries, whereas other types (e.g. combined dual career systems and defense force programs) were only found in two countries. Results also indicated that, within each DCDE, decisions have been made about: (a) the career stage the support is intended for, (b) the nature and scope of the environment, (c) the sports they support, (d) the educational level or vocation targeted, (e) the support provided, (f) whether or not the environment is part of a centralized or decentralized system and (g) whether or not there is state involvement in the system. Collectively, these results provide a more in-depth understanding of the diverse environments that support dual career athletes' development and provide a meaningful framework for identifying and comparing environments.

Previous work (e.g. Aquilina & Henry, 2010; Henry, 2013) has identified different national approaches taken to supporting dual careers in higher education. This study, through the lens of the holistic athletic career model (Wylleman et al., 2013), extends this work by providing an overview of the current types of DCDEs present across seven countries in Europe, focusing on the entire dual career pathway (from school age to vocation), the specific features of each environment, and the key decisions which have been made when the environments have been developed. For example, this work highlights different approaches to funding the programs via state/sport federation involvement and the level of support provided to dual career athletes. Further, this study illustrated not only the variations between nations but also the variations in approaches within nations. For example, depending on the sporting and educational stage of the athlete, different DCDE types might support the needs of different dual career athletes.

As highlighted, the results of this study enable researchers and practitioners to gain a clearer understanding of the current support gaps in the dual career lifespan. To illustrate, there exists a limited number of environments that target three areas of the dual career lifespan: the early initiation stage of the sporting career, the vocational level and the post-sport career or discontinuation stage. Specifically, the results have highlighted that support for dual career athletes is most commonly instigated from ISCED level 2 onwards. From this age, elite sport schools and sports-friendly schools provide support for athletes deemed talented and as having potential to be successful elite athletes. Some early specialization sports (e.g. gymnastics), however, may promote the pursuit of sport from the age of 3–5, which overlaps with early school age (i.e. ISCED level 1). The European Guidelines for dual careers (European Commission, 2012) states the importance of 'setting up specific opportunities for early specialization sports in the school education system' (p. 22). This study highlights a lack of movement on this guideline from the seven countries sampled in this study. In light of the current findings and considering the

risks of early specialization sports, it is crucial that young individuals are still supported in their sport, academic and psychological development, and this is an area for consideration in future research and applied work.

Further, results identified that there is a lack of environments which target dual careers at the vocational level, with the only examples of vocation-led programs, in this study, being defense forces programs. A number of sport-led environments supported athletes in a vocation, but there tended not to be communication or formal arrangements with the vocational organizations and, therefore, the dual career athlete was left to manage the demands of their vocational domain. Ultimately these barriers could mean that aspiring athletes are forced to make a decision about whether or not to carry on competing (perhaps full-time) or move into a full-time job. The lack of environments is also mirrored by the lack of research on the combination of sport and a vocation (Stambulova & Wylleman, 2019). Hence, the expansion of vocational environments that provide support for athletes, and the understanding of the factors that impact the effectiveness of these from a research perspective, will help ensure that more athletes are supported more effectively to pursue this type of dual career moving forward.

Additionally, although some programs do support athletes' retirement, the support often ceased soon after the end of an athletic career (i.e. 6 months to 2 years after). The transition out of sport and into a post-sport career is commonly problematic for athletes (see Park et al., 2013; Wylleman, 2019) and, although taking part in a dual career is designed to support this, by providing additional skills that athletes can use in retirement, there can still be a series of emotional and psychological challenges which can create difficult processes (Park et al., 2013). Research has associated several mental health concerns with poor athletic retirement (Cecić Erpič et al., 2004; Knights et al., 2016; Torregrossa et al., 2015). Therefore, the extension of appropriate support (e.g. sport psychology and performance lifestyle) into the discontinuation stage to support and protect athletes from these mental health concerns is an area DCDEs could target to ensure continued support for athletes.

Results of this study further extend previous understanding of environments that support dual careers by also highlighting the need to consider whether the DCDE is an education-, vocation-, sport-based or combined program and the ways this may influence the support provided. If the program is a sport-, education- or vocation-based system, this taxonomy highlights the need to ensure that all key stakeholders are informed about the provisions and how this may influence their education or sport respectively. In combined systems, although this need is reduced, there is still a need to ensure that all stakeholders are engaged and supportive of the environment being created. As has been highlighted in previous work (e.g. Aquilina, 2013; Brown et al., 2015; Debois et al., 2015; Wylleman et al., 2013), continual and effective support is crucial for athlete development – in the current context, this also extends to ensuring roles within the DCDE are clear.

From an applied perspective, the implications of the current work gives private and public organizations responsible for sport, education, or vocation an overview of a number of areas which need to be considered when developing DCDEs. Specifically, it gives a framework whereby management and practitioners can consider the features they wish to include in their environment (see Table 2). This work also allows sport governing bodies (and other organizations) a basis upon which to understand their current context and identify areas for development in relation to dual careers. For example, governing

bodies can use this framework to develop a national, sport-specific framework as a way to evaluate the types and numbers of appropriate (to their sport) environments which currently support their talent pathway. In doing so, they may identify areas and types of environments which are lacking or could be introduced in their current talent development systems, giving a greater number of athletes better support in their pursuit of excellence in sport and education or vocation. In doing this, organizations may also evaluate and identify current practice and where this may need to be adapted – for instance where there are a plethora of sport-friendly schools supporting athletes, but no sport (or dual) based programs which more readily combine sport and education/vocational pursuits.

To extend this work, there are a number of areas which future research may wish to focus on which will help to extend knowledge and understanding of dual career environments, their key features and their effectiveness. First, this study is limited to a sample of seven countries. While these countries were purposively sampled to provide a diverse sample of approaches, investigation of contexts outside of this, e.g. other European countries and countries throughout the world, could expand our understanding further. Although this study gives an overall understanding of the European context, a number of countries across the world (e.g. America and Australia) are facilitative of dual careers and a taxonomy of these countries could identify further environments not highlighted in this study, advancing knowledge. Additionally, although the taxonomy gives a general understanding of the state of DCDEs, not all categories or types of DCDEs are present in every country investigated and, therefore, the taxonomy is not specific to all national contexts. It is suggested that future research to develop national taxonomies following the same model and classification system would provide a clearer understanding of national contexts and allow relevant stakeholders to understand the context within which they are working.

Further, detailed (longitudinal) descriptions of each of the different types of DCDEs, exploring the key features of environments, will also help expand knowledge in the area and allow practitioners and researchers to extrapolate and transfer knowledge to their own contexts. Specifically, while this research increases the awareness of the multiple types of environments that exist to support dual careers, it is unclear which environments are the most effective in supporting individuals in their athletic, academic, and personal development. To understand this, further research is required that establishes key criteria or features that deem environments as effective (or ineffective) in supporting athletes and allows meaningful comparisons between environments. Future research may also wish to, when considering specific sports, research the impact of athletic development stages in early or late specialization sports (i.e. early specialization sports commence at age 3, whereas late specialization sports can commence as late as age 19) and the influence this can have on the types of DCDE needed to support the talent pathway. Finally, a measurement or monitoring tool to evaluate environments' effectiveness and provide guidelines to improve provisions could improve dual career support in practice.

Conclusion

In conclusion, this study built upon the previous literature by highlighting the main types of DCDEs present across Europe, establishing a system for classifying DCDEs and identifying the key decisions that are made in this context. This study advances research through considering the variety of environments that support dual career athletes. Results highlighted

that there are a number of different considerations for DCDEs when supporting athletes, and that there are a number of different approaches to providing dual career support. This work is an important basis for future research, with in-depth studies of environments and the development of monitoring tools or guidelines for DCDEs identified as important next steps. The research has practical implications in the context of dual career, through providing a possible framework for developing national taxonomies and, therefore, identifying DCDE characteristics and gaps in dual career support.

Note

1. The increased dual career provision has also resulted in this becoming a key focus at a political level, with the European Commission supporting the development and optimization of such delivery via practice guidelines in the area (e.g. European Commission, 2012) and research projects such as, *Be a winner in elite sport and employment before and after athletic retirement* (B-Wiser Consortium, 2019) and *Gold in Education and Elite Sport* (GEES Consortium, 2016).

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