



Psychology of athletes' dual careers: A state-of-the-art critical review of the European discourse

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ABSTRACT

Objectives: (a) To provide a state-of-the-art critical review of European dual career (DC) research (2015–2018, English language), (b) to position the current DC (psychological) research within the athlete career sport psychology discourse and within the European DC discourse, and (c) to identify research gaps and future challenges. These objectives were formulated after an appraisal of nine existing review-type papers contributed to the European DC discourse.

Methodology: This review has been informed by the Preferred Reporting Items for Systematic Review and Meta Analyses (Moher, Liberati, Tetzlaff, Altman, & The PRISMA group, 2010) and recommendations on presenting results of the state-of-the-art critical review by Grant and Booth (2009).

Results: Following an extensive literature search across several databases, 42 research papers were used for appraisal, synthesis, and critical analysis of the current DC research. Major tenets of the cultural praxis of athletes' careers (Stambulova & Ryba, 2013a,b; 2014) were used as a critical lens in the analysis.

Conclusions: DC research contributes to and connects the European DC discourse and the athlete career sport psychology discourse. DC in sport and work, DC “costs”, DC development environments, DC athletes' mental health and well-being, DC support and training of the support providers constitute the major gaps in current DC research. Filling these gaps presents future challenges for DC research to adequately support practice and policy making within the European DC discourse.

1. Introduction

The 50th anniversary of the European Federation of Sport Psychology (FEPSAC) provides a good rationale for overviewing European sport psychology research in the Special Issue of *Psychology of Sport and Exercise* devoted to this event. We (the authors) feel privileged to be invited to contribute to this Special Issue with a review paper on psychology of athletes' dual careers (DCs) and the related European discourse. Dual career (DC), briefly defined as “a career with major foci on sport and studies or work” (Stambulova & Wylleman, 2015, p.1), is a subject around which European researchers, practitioners, and policy makers have been developing communication and building a discourse. We define this discourse as a historically constructed and shared body of DC knowledge (e.g., common-sense assumptions, values, and belief systems) providing DC stakeholders in Europe with common grounds to understand each other, communicate, and cooperate on different levels. Psychological DC research conducted in Europe is an important part of the European DC discourse (further – the Eu-DC discourse), as well as of

the athlete career sport psychology discourse (further – the Career discourse) (e.g., Stambulova, 2016a, 2016b; Stambulova & Ryba, 2014). The Career discourse in Europe is older, and, therefore, has influenced the path of the newer DC research. Below we will consider the major milestones in developing the Career discourse in Europe, analyze review papers dealing with construction of the Eu-DC discourse, and proceed with defining a scope, type, and aims of this review.

1.1. The Career discourse in Europe

In the recent FEPSAC book “Sport and Exercise Psychology Research: From Theory to Practice” (Raab, Wylleman, Seiler, Elbe, & Hatziageorgiadis, 2016), we had contributed with complementary chapters (Stambulova, 2016a; Wylleman & Rosier, 2016) on evolution, current status and future challenges of the European career research, while acknowledging the contributions of FEPSAC in building and promoting this discourse. The major milestones of early development of the Career discourse in Europe were the formation of the Career

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Transition Special Interest Group (CT-SIG) during the 9th European (FEPSAC) Congress (1995) and cooperation between CT-SIG and the FEPSAC Managing Council on two FEPSAC Position Stands (“Career transitions”, 1995; “Career termination”, 1997) and FEPSAC monograph “Career transitions in competitive sports” (Wylleman, Lavalée, & Alfermann, 1999).

Psychology of Sport and Exercise has provided a venue for communication among career researchers on two occasions. First, there was the Special Issue “Career transitions” (Wylleman, Alfermann, & Lavalée, 2004a), with five European research papers and a review (Wylleman, Alfermann, & Lavalée, 2004b), that introduced a holistic lifespan perspective on athletes’ development and proposed that academic/vocational development was a layer to be considered together with athletes’ athletic, psychological and psychosocial development. We can now admit that adoption of the holistic lifespan perspective “planted a seed” for DC sport psychology research in Europe. Second, there was the Special Issue “Dual career development and transitions” (Stambulova & Wylleman, 2015), with eight papers considering different psychological aspects of athletes’ DCs in European countries. In this Special Issue, the DC topic was positioned within *career development* research (e.g., DC pathways and factors involved), *career transition* research (e.g., athletes’ transitions to elite sport schools or to a university), and *career assistance* (e.g., various forms of DC support) – three major layers constituting the “edifice” of current Career discourse (see also Stambulova, 2016b). The holistic athletic career model (Wylleman, Reints, & De Knop, 2013) presenting athletes’ development as multi-dimensional (athletic, psychological, psychosocial, academic/vocational and financial) became the dominant framework to study athletes’ DCs, and was acknowledged as such in the “EU Guidelines on Dual Careers of Athletes” (European Commission, 2012; further – the EU DC Guidelines). Furthermore, the European interest in contextualized and culturally-informed DC research was well served by a recent career research paradigm termed *cultural praxis of athletes’ careers* (Stambulova & Ryba, 2013b, 2014), derived from the analysis of 19 (11 European) chapters of the monograph “Athletes’ careers across cultures” (Stambulova & Ryba, 2013a). This paradigm encourages career scholars “to blend career theorizing, research, practice, and context [in their projects] to better match diversity of athletes’ careers across cultures” (Stambulova, 2016a, pp. 260–261). Major tenets of the *cultural praxis of athletes’ careers* (e.g., combining the holistic lifespan and ecological perspectives, contextualizing all steps in career projects, promoting participatory action research) drive a good part of current career research, and could prove useful when applied to DC research.

Although a number of DC studies have been conducted in North America (Blodgett & Schinke, 2015; Yukhymenko-Lescroart, 2018), Australia and New Zealand (Cosh & Tully, 2015; Ryan, Thorpe, & Pope, 2017), Asia and Africa (Sum et al., 2017; Tshube & Feltz, 2015), the focus of this review is European DC research and its contributions to the Career and Eu-DC discourses. We also recognize existence and development of national DC (academic) discourses in European countries, in which national languages play important roles in DC communication (including publications) and practices. Nevertheless, in this review only relevant English language publications will be covered.

1.2. Existing review papers within the Eu-DC discourse

To overview the Eu-DC discourse, we have identified through a systematic search (see Methodology) nine review-type papers and appraised them in terms of aims, number and characteristics of studies or other documents included, and major contributions. These review papers (see a brief summary in Table 1) suggest that the Eu-DC discourse originated at the level of the European Union (EU) and then grew from top to bottom (see, e.g., Aquilina & Henry, 2010; Henry, 2013) followed by a bottom up approach (e.g., EAS – the European Athlete as Student network; see Capranica et al., 2015), embracing communication among researchers, practitioners, and policy makers within and between the

European countries. The research part of the Eu-DC discourse is multidisciplinary, with major foci on managerial, legal, sociological and psychological aspects of European athletes’ DCs. Through all the review papers (Table 1) it is also obvious that DC research, practice (i.e., different forms of formal and less formal support to DC athletes) and policy making are interrelated in such a way that policies and practice stimulate new research, while research pays back by informing evidence-based practice (e.g., DC support programs) and policies.

Among the nine review papers of a particular interest is a systematic review of European DC research published (in English) between 2007 and 2014 (Guidotti, Cortis, & Capranica, 2015), that is since the time when the term “dual career” was first introduced in the White Paper on Sport (European Commission, 2007). The authors provided a comprehensive description and mapping of European DC research (see Table 1). The studies were categorized as addressing micro- (i.e., individual), meso- (i.e., interpersonal), macro- (i.e., social, organizational), and global (i.e., policy) dimensions. Micro- and macro-dimensions of European athletes’ DCs were covered by 70% of the studies included in the review, while global and especially meso-dimensions were comparatively underrepresented. Guidotti and colleagues concluded that future research should “explore the intertwined relationships between different dimensions of DC” (p.17) by developing new instruments to assess DC pathways and implementing various research methodologies with a preference for longitudinal design. The authors specially promoted the use of “dual career” term to facilitate communication within the Eu-DC discourse.

1.3. Scope, type, and aims of the current review

In light of Guidotti et al.’s (2015) conclusion of “an emergent academic conversation on several dimensions of DC in Europe” (p. 5) we are going to trace how this conversation continued and what new resources were added to the Eu-DC discourse. Based on the analysis of the existing DC review papers (Table 1), we zeroed in on the scope, type and aims of our review. Following Guidotti and colleagues’ systematic review of the 2007–2014 papers, we are going to focus on the more recent (2015–18) contributions to the Eu-DC discourse. This means we are looking at a state-of-the-art review, which involves a comprehensive search of current/recent literature, provides tabular and/or narrative synthesis, and draws conclusions about the current status of the topic and priorities for the future (Grant & Booth, 2009). To spur on further development of the Eu-DC discourse, we chose to apply a critical lens, attempting to identify the most significant current contributions to the topic, the progress achieved since the previous systematic review, and existing gaps in the knowledge to pave the way for future DC research (Grant & Booth, 2009). Keeping in mind our shared identity as sport psychology researchers, the critical component of this review was mainly applied to psychological research literature within the Eu-DC discourse. To sum up, the aim of this review was threefold: (a) to provide the state-of-the-art critical review of European DC research (2015–2018, English language), (b) to situate current European DC (psychological) research within the Career discourse and within the Eu-DC discourse, and (c) to identify research gaps and future challenges.

2. Methodology

Methodologically, this review is informed by the Preferred Reporting Items for Systematic Review and Meta Analyses (Moher et al., 2010) and recommendations of Grant and Booth (2009) on how to present results of the state-of-the-art critical review (tabular and narrative forms).

2.1. Search strategy and identifying relevant papers

The search strategy consisted of several rounds based on recommendations of Moher et al. (2010). The first round (identification)

Table 1
A Brief Summary of the Identified European Dual Career Review-type Papers (in a chronological order).

Reference	Aim/focus of the review	Amount and characteristics of studies included	Contribution
Aquilina and Henry (2010)	To overview policies existing in EU countries in regard of how higher education systems are adopted to education of elite athletes.	25 qualitative descriptions of policy approaches adopted in relevant EU member states	Four approaches were identified: (a) state-centric regulation, (b) state as sponsor/facilitator, (c) national sporting federations/institutes as intermediary, and (d) no formal structures. Defining roles, rights and responsibilities of the DC stakeholders including the athlete, the university, the professional academy, the member state, and the EU.
Caput-Jogunica, Ćuković, & Bjelic (2012)	To overview conditions for DC across Europe with particular focus on Southeast region	Reports of 5 European DC projects (2003–2011), Croatian project on athletes in education	Situating Southeast European countries in relation to typology of Aquilina and Henry (2010) Adjusting European level recommendations on supporting student-athletes to the contexts of Southeast European countries.
Henry (2013)	To trace the development of policy in the DC domain with an emphasis on the role of the EU.	Several EU documents related to DC (since 2003) and selected findings from several European DC projects	Major milestones of the DC policy development in Europe: 2003 working report and 2004 study on the situation in 39 EU member states in terms of elite athletes' education, employments, financial support, and pensions, the EU White Paper on Sport (2007), the Treaty of Lisbon (in action since 2009), the EU Guidelines on Dual Careers of Athletes (2012), and (f) development of the "second rationale" for protecting athletes' access to education emphasizing DC benefits.
Pavlidis and Gargalianos (2014)	To summarize research on value of education for high performance athletes, DC challenges and barriers	DC studies related to European and North American contexts (details are not reported)	Value of education for athlete is summarized in three themes: "financial maturity", "self-identity" and "preparation for the post-career". Challenges and barriers are classified as related to individual, interpersonal, institutional, community, and policy levels.
Guidotti et al. (2015)	To conduct a systematic review of DC literature relevant to European context	49 papers (43 articles, 2 books, 3 book chapters and 1 report) published 2007–2014	Promoting the term "dual career" (DC) and the DC as multidisciplinary topic. Categorizing studies based on the four dimensions of DC phenomenon: micro- (individual), meso- (interpersonal), macro- (sport and education environments), and global (policies). Mapping studies in terms of methodology, design, samples, and national contexts and content with major DC thematic areas: psychological aspects, athletes' life and transitions, evaluation of DC programs, issues and challenges, political and organizational aspects of sport and education environments, and athletic development practices.
Capranica et al. (2015)	To overview aims, initiatives and activities of the European Athlete as Student Network (EAS)	Different projects EAS initiated or participated in since its establishment in 2004	Promoting an idea of developing a European culture supporting athletes' DCs and "counteracting the marginalization/exclusion of athletes in education". Acknowledging a role of DC research addressing its individual, interpersonal, environmental, and policy dimensions in developing the European DC culture.
Stambulova and Wylleman (2015)	To overview the SI "DC development and transitions" of <i>Psychology of Sport and Exercise</i>	13 articles with 8 related to European context	Defining DC and DC transitions. Promoting a holistic lifespan perspective in DC research
Li and Sum (2017)	To conduct a meta-synthesis of qualitative research on DC experiences of elite athletes	9 peer reviewed articles with 6 related to European context	Encouraging interdisciplinary approach, culturally competent projects, and evidence-based DC support services specified to the different stages in athletes' development.
Kornbeck (2017)	To overview legal and social policy issues in Europe in relation to EU Guidelines on Dual Careers	Bosman case and various legal documents and research papers (details are not reported)	The transition to DC consists of four phases: becoming the athlete with DC; negotiating a new lifestyle; dealing with daily routine; attaining balance/denying to continue. Individual, interpersonal, and external factors interact in influencing athletes' DC experiences.

Note: Abbreviation used in Table 1: DC- dual career, EU- European Union, SI- Special Issue.

targeted peer-reviewed journal articles (in English) published between 2007 and 2018 using the following keywords: Dual careers OR Dual career athletes OR student/pupil-athletes OR employee-athletes OR combination of sport and education/studies OR combination of sport and work OR elite sport and education OR elite sport and employment OR dual career competences OR dual career transitions OR athletes' transition to the university OR dual career and athletic retirement OR dual career and athletic identity OR dual career support OR dual career support providers OR dual career assistance programs OR dual career and gender/women/men. Web of Science, SportDiscus, Scopus, Psycinfo, and OneSearch databases were used. This round of search identified 1776 articles, which were reduced to 94 upon removal of

duplicates. In the second round (screening), all retained papers (abstracts) were screened for the European vs. non-European context, given the special focus of this review on European papers (i.e., studies with European participants). As a result, 36 non-European papers were excluded. From the 58 remaining European articles we selected nine review-type papers (see Table 1), and continued screening based on publication year (2015–2018). As a result, 35 research papers remained of which three were excluded as not being related to psychology, leaving 32 papers. Finally, we performed a manual search of the new papers published in 2018 (up to July) and found ten eligible papers to be included. In total, 42 research articles were retained for the state-of-the-art review.

Table 2
A Brief Summary of the Identified European Dual Career Research Articles 2015–(July) 2018 (in a chronological order).

Bibliography code and reference	Major foci	Framework	Participants and contexts	Methodology	Major findings/contributions
1. Baron-Thiene and Alfermann (2015)	Personal characteristics predicting DC dropout	Not specified	125 German sport school students (57f); age 15–18; different sports	Quantitative longitudinal; one year T1–T2	29.6% dropouts (more females, individual and winter sports athletes); they were higher in physical complaints and lower in win-orientation and self-optimization than DC athletes. Psychological training with foci on volitional and motivational competencies is recommended to prevent sport dropout.
2. Brown et al. (2015)	Athletes' transition to one particular British University with established DC support	HACM, ACTM	9 British current and graduated students (4f); age 18–26; different sports. 17 staff members	Case study; qualitative post-positivist. Interviews with student-athletes, focus groups with the staff members	Transitioning to the university was associated with demands in the athletes' athletic, academic, psychological, and psychosocial development. Personal resources (e.g., self-discipline), external support (e.g., academic flexibility) and relevant coping strategies (e.g., communicating with the staff) helped to deal with the demands and external barriers; personal barriers were not reported.
3. Debois, Ledon, and Wylleman (2015)	Athletic career, DC pathways and transitions of elite male athletes; factors involved	HACM	9 French elite males athletes; M age = 37	Multiple case study, qualitative, post-positivist. Interviews and individual grids	Staff members advocated for a balance between student-athletes' protection and self-responsibility. DC in sport and education was relevant to 7 participants on the stage of elite level competitions; and DC in sport and work was reported by 2 participants.
4. Geranosova and Ronkainen (2015)	DC experiences of elite athletes	Not specified	5 Slovak elite athletes (3f); age is not reported; different sports	Qualitative phenomenological study based on the interviews	Education was perceived as increasingly facilitating factor during the athletic career progression. DC in sport and work was perceived as more difficult (e.g., less flexibility) than in sport and education.
5. Gledhill and Harwood (2015)	The junior-to-senior transition and DC of British female youth soccer players	HACM	13 British female players who dropped out from sport; M age = 19.6; friends (n = 13), coaches (n = 4), teachers (n = 8)	Grounded theory (interpretivist) qualitative study, negative case analysis.	The state-hired professional athletes were satisfied with the support provided, while others experienced a lack of flexibility, financial and professional DC support. At the university all experienced teachers' and other students' negative prejudices against athletes and sport science students.
6. López de Subijana, Barriopedro, and Conde (2015)	Elite athletes' barriers to study and evaluation of the Career Assistance Program (PROAD)	HACM	575 Spanish elite athletes (243f), M age = 23.8; different sports	Quantitative survey study; comparison of two groups: PROAD (n = 278) and non-PROAD	The study demonstrated a key role of environmental factors in the players' withdrawal from sport and DC; role strain is revealed as a threat.
7. López de Subijana, Barriopedro, and Sanz (2015)	Gender and sport differences on athletic identity and DC motivation	Not specified	63 Spanish elite athletes (36f), M age = 21.8; individual and team sports	Quantitative study: AIMS, SAMSAQ-IT	The grounded theory emphasized personal abilities and competencies (e.g., social, self-regulation/reflection skills), optimal interactions with significant others, and supportive developmental context/talent development environment as major factors leading to players' benefits related to wellbeing, personal, and athletic development.
8. Lupo et al. (2015)	DC motivation of EU athletes	Not specified	524 university level athletes (237f); different sports; France, Italy, Portugal, Slovenia, Sweden and UK	SAMSAQ-EU	Major perceived DC barriers for both groups were: lack of time and financial support, inflexible schedules, and fatigue. The support programs should help athletes to develop resources and strategies to overcome the barriers.
9. Ryba, Ronkainen, et al. (2015)	Athletes' subjective careers (including DC)	Career construction theory (e.g., Savickas, 2005)	One male professional ice hockey player (age 29) and one female orienteer (age 27); of European origin	Narrative case study using in-depth narrative type interviews	The PROAD athletes were better informed about their rights, restrictions and opportunities, more proactive in asking for help, and able to create closer relationships with stakeholders.
10. Ryba, Stambulova, et al. (2015)	Transnational athletes' DC pathways with the transition to higher education in focus	HATM, typology of sport migrants (Maguire, 2004)	6 transnational athletes (3f) of European origin, M age = 26; various sports, professional or semi-professional	Qualitative social constructionist study using life story narrative interviews	Male athletes showed higher athletic identity than female athletes. No gender differences were found in terms of DC motivation. Individual sport athletes showed higher DC motivation than team sport athletes.
11. Stambulova, Engström, Franck, Linnér, and Lindahl (2015)	The transition to, and adaptation at, the national elite sport school	HACM, ACTM	261 Swedish athletes; age 16; various sports; took part in quantitative measurements at T1 and T2; 10 participants (5f) took part in interviews at T1 and T2	Mixed-methods longitudinal study with 6 months between T1 and T2. DCS, AIMS, SIMS, and interviews	Three factors were confirmed: Student Athletic Motivation, Academic Motivation and Career Athletic Motivation. No age, gender, and sport event differences were found. International level athletes scored higher on sport related motivation than national level athletes. Three discourses were identified based on which the participants constructed their career stories: a performance-driven exemplary career (the dominant one), a dual career in sport and education, and a transnational career. The professional hockey player sacrificed education, while the orienteer had to combine sport, studies, and work to support herself. Empirical typology of DC pathways (based on the direction of geographic mobility and motivation) included: (a) within EU mobility: the sport exile DC pathway (i.e., migration for sport; education at home); (b) mobility to the U.S., the sport mercenary DC pathway (i.e., athletic scholarship at the university, opportunities for professional sport), (c) mobility to the U.S., the nomadic cosmopolitan DC pathway (i.e., migration to get new experiences). Student-athletes perceived their transition demands (e.g., exams) as increasing during the educational year. Their personal resources found to be key factors in their adjustment at national elite sport schools. Athletic identity was significantly higher than the student identity both at the beginning and in the end of the educational year, but interviews revealed inter- and intra-individual differences. Student-athletes reported that it was impossible to always give 100% in sport and studies and therefore, they needed to find an optimal DC balance (definition provided). "Winning in the long-run philosophy" (i.e., preparing for athletic retirement) was complemented by a concept "winning in the short-run" (i.e., using the sport school environment as a resource for DC)

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Table 2 (continued)

Bibliography code and reference	Major foci	Framework	Participants and contexts	Methodology	Major findings/contributions
12. Tekavc, Wylleman, and Cencić Erpič (2015)	DC development in elite swimmers and basketball players	HACM	12 retired elite Slovene swimmers (n = 6; 3f) and basketball players (n = 6; 3f); age 29–37	Qualitative post-positivist; retrospective interviews.	The transition to the university and the university graduation were perceived as the key DC transitions. DC development was found to be closely related to athletes' psychological, psychosocial and financial development with dynamic "themes" across the career stages. Swimmers were oriented to the university education right after school and selected sport related educational programs. Basketball players continued in professional sport (males) or entered university programs unrelated to sport (females) that facilitated their later employment.
13. Torregrosa, Ramis, Pallarés, Azócar, and Selva (2015)	Prospective and retrospective views of athletic retirement depending on career/DC trajectory in Olympic athletes	Tenets of the ISSP PS on career transitions (Stambulova, Alfermann, Statler, & Côté, 2009)	15 Spanish former Olympic athletes who participated in the background study (Torregrosa, Boixadós, Valiente, & Cruz, 2004); age 32–50; different sports	Qualitative post-positivist; Retrospective interviews	Athletes were classified according to three career trajectories: linear (i.e., focus exclusively on sport), convergent (i.e., prioritizing sport but maintaining education), and parallel (i.e., sport and education are equally important). Athletes who followed DC trajectories were well prepared for athletic retirement and experienced successful transition to the post-career. Athletes who followed the linear trajectory experienced adaptation problems in retirement and the post-athletic career.
14. Chamorro, Torregrosa, Sánchez Oliva, García Calvo, and León (2016)	Empirical typology of football players depending on importance attached to sport, studies, and private life.	HACM, DMP, SDT	478 Spanish elite youth football players	Quantitative study using a combined survey	The empirical typology consisted of: a sport oriented group (aimed at becoming professional players), a life spheres balance group (aimed at balancing achievement in sport, studies and private life), and a private life group. The life spheres balance group showed higher levels of harmonious passion, autonomous motivation, and basic needs satisfaction than the other groups; this group also has appeared to be the most resourceful for the junior-to-senior transition.
15. De Boscher, De Knop, and Vertonghen (2016)	Comparison of young athletes attending elite sport and regular schools in terms of their perception of their environments	Multi-dimensional approach to evaluate elite sport schools (De Boscher, Shilbury, Theeboom, Van Hoecke, & De Knop, 2011)	408 Belgium student-athletes from elite sport schools and 341 from regular schools; both genders; different sports	Quantitative study using online survey based on the framework (De Boscher et al., 2011)	The multidimensional approach to evaluate effectiveness of elite sport schools consists of: input (i.e., financial resources), throughput (academic support and sporting support systems), and output (improved performance, decreased DC dropout). Athletes from regular schools received less support services but evaluated the support as useful. Both groups were satisfied with quality of coaching. Sport facilities were evaluated higher at sport schools.
16. Healy, Ntoumanis, and Duda (2016)	Goals and related motives for sport and education	SDT and self-concordance model (Sheldon & Elliot, 1999)	204 British university student-athletes; M age = 21; different sports	Quantitative study using survey (about goals and motives) and the IRQ	Three profiles were revealed: mixed motive strivers (diverse types of motives both for sport and education), intrinsic-identified motive strivers (high intrinsic for sport and high identified for education), and dual-identified motive strivers (high identified motives for both). High identified motives for both sport and education goals were associated with greater inter-goal facilitation.
17. Fuchs et al. (2016)	University student-athletes' perception of their DC experiences, support services, and outcomes	Not specified	221 student-athletes from Austria, Estonia, Finland, Italy, and Slovenia, M age = 23.4; both genders, different sports	Cross-national study using a survey with closed and open questions	In all countries participants were satisfied with both sport and education and acknowledge DC support from family and friends; professional support was evaluated as higher in sport than in education. About 60–70% of the participants reported no DC support program at their universities.
18. Krieger and Kristiansen (2016)	Athletes' perception of the Culture and Educational Program within Youth Olympic Games	The IOC goals for the Culture and Education Program	12 German and 10 Norwegian participants of the Games; age 16–18; both genders, different sports	Qualitative post-positivist study; interviews.	Some gender, sport, and cross-national differences were found but in all the countries student-athletes demanded more flexibility and professional support in sport and education environments. Participation at the Culture and Education Program, was considered secondary and interfering to the Youth Olympic Games competitions.
19. Ryba et al. (2016)	Aims and methodology of a longitudinal Finnish DC project	HACM adapted to Finnish context	At T1: 391 Finnish student-athletes; age -15–16, both genders, different sport and 20 coaches in athletics and ice-hockey	Longitudinal, mixed-method study positioned in critical realism; surveys and interviews.	Athletes were more interested in education on sport-related topics (e.g., doping, security) and least interested to take part in educational events on global topics.
20. Skrubbeltrang, Olesen, and Nielsen (2016)	Student-athletes' DC pathways in relation to the code of conduct of the sport classes	Sociological framework of "becoming" (Deleuze, 1994)	7 Danish student-athletes attending sport classes at secondary schools and their entourage members	Ethnographic study involving individual and dual interviews	The code of conduct of the sport classes prescribes that student-athletes should equally invest in realizing their potentials in sport and education. Student-athletes who are willing/able to follow the conduct feel well adjusted and appreciated by their entourage. For student-athletes who are unwilling or unable to follow ambitious goals in both tracks (e.g., who prioritize sport or education) is getting problematic to stay in sport classes.

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Table 2 (continued)

Bibliography code and reference	Major foci	Framework	Participants and contexts	Methodology	Major findings/contributions
21. De Brandt, Wylleman, Torregrossa, Defruyt, and Van Rossem (2017)	DC competencies in elite student-athletes	HACM	107 Flemish higher education elite student-athletes (51%O, age = 18–26; different sports	Quantitative study using DCCQ-A	All the participants highly evaluated importance of competencies related to DC management, career planning, mental toughness, and social intelligence and adaptability. Female DC athletes (compared to males) reported higher possession of DC management competencies and higher need to develop mental toughness, and social intelligence and adaptability competencies.
22. Graczyk et al. (2017)	Comparison of DC competencies in individual and team sports athletes	HACM	243 Polish elite DC athletes (105F; M age = 18.7; individual sports (n = 161) and team sports (n = 82)	Quantitative study using DCCQ-A	Individual and team sport athletes were similar in terms of sum indexes of perceived importance and possession of the DC competencies. Team sport athletes perceived higher importance and possession of ability to make contacts with peers and belief in positive complementarity of sport and studies. DC scenarios related to “catching up after competitions/camps” and “coach not supporting the DC” were more typical for individual than team sport athletes.
23. Kerstajn and Topić (2017)	DC motivation in Nordic sports athletes in relation to some demographic variables	Not specified	117 elite DC athletes from Norway (n = 51; 18F) and Slovenia (n = 66; 31F; M age = 23.3; all from winter sports	Quantitative study using SAMSAQ-EU	Female athletes were found to be more motivated to education than male athletes. Slovene athletes were more motivated for athletic career than Norwegian athletes. Parents’ education plays a role in encouraging their kids to athletic career and also DC.
24. Kristiansen (2017)	DC challenges of elite athletes during preparation and performance at the European Youth Olympic Festival	HACM and the transactional stress model (Lazarus & Folkman, 1984)	26 Norwegian elite youth DC athletes (11F), M age = 16.6; various winter sports	Mixed-methods study using observations at pre-event camps and the event, and the survey	DC athletes experienced additional organizational type stressors pre- and during the event (e.g., late selection, more focus on sport than school issues pre-event, no special time planned for the studies during the event). Major DC challenges reported by athletes included: total workload at two arenas, planning and staying on the top of things, travel and catch up with school, perform well at both, less time to be social and to have rest, stay healthy. Supportive parents, school and federation facilitate coping with the DC challenges/stressors.
25. Küttel, Boyle, and Schmid (2017)	Cross-national comparison of factors contributing to quality of athletic retirement	Working model inspired by HATM and ACTM	231 Swiss (72F, 86 Danish (29F) and 84 (31F) Polish former elite athletes; different sports	Quantitative study using the ACTQ	The post career adaptation lasted 9–10.5 months across the samples. Satisfaction with the transition was higher in Swiss and Danish compared to Polish athletes. Post-career vocational difficulties were lowest in Swiss and the highest in Polish athletes. Completed higher education degree didn’t show to be beneficial for the retirement quality in any of compared countries.
26. Lupo et al. (2017a)	Student-athletes’ identity in relation to age, gender, sport event and level	Not specified	760 Italian student-athletes (51%F) in higher education; different sports	Quantitative study using BIMS-IT	Factor analysis revealed two factors: athletic and academic (DC) identity; and affectivity related to the identities. Higher identity and affectivity were found in younger athletes (i.e., before 24) and in elite athletes compared to sub-elite.
27. Lupo et al. (2017b)	DC motivation in relation to age, gender, sport event, level, educational path and year of attendance	Not specified	616 Italian student-athletes (310F) in higher education; different sports	Quantitative: SAMSAQ-IT/A (“harmonized version” of the SAMSAQ-IT)	Three factors were confirmed: sport motivation, academic motivation, and career athletic motivation. Elite athletes were higher than sub-elite in sport and career athletic motivation. Sport science students were higher than economic/law, humanistic, mathematics/engineering and medical students in sport and career athletic motivation. Academic motivation was the lowest in economic/law sciences.
28. Ramos, López De Subijana, Barriopedro, and Muniesa (2017)	Athletic career age/length markers in relation to career (DC) trajectory	HACM	476 Spanish retired elite athletes (179F); different sports	Retrospective questionnaire developed by the authors	DC athletes with convergent and parallel trajectories started practice, reached the elite level, showed the best result, and retired earlier than linear and sport-work path athletes. They also had shorter mastery athletic stage.
29. Ryba et al. (2017b)	Career construction styles of adolescent DC athletes	HACM adapted to Finnish context	18 Finnish elite DC athletes (10F), age = 15–16, upper secondary school; different sports	Qualitative constructionist study using longitudinal life story interviews with six months T1–T2	DC athletes constructed their identity and future plans through narratives integrating significant autobiographical events (including sport and education). Performance narratives dominated among the participants in constructing their life stories. Three career construction styles were identified: contrapuntal (sport and education life-themes harmoniously co-exist), monophonic (athletic life-theme dominates), and dissonant (sport and education life-themes are discorded).
30. Sorkkila, Aunola, et al. (2017)	Burnout profiles of DC athletes in relation to self- and parents’ expectations of success in sport and school	Burnout model (e.g., Smith, 1986)	391 Finnish DC athletes (51% F), age = 15–16, different sports; 448 parents (58% mothers)	Quantitative study using SBI, SpBI-DC, and SES (adjusted for athletes and parents)	The DC athletes with the contrapuntal style are clearer about their future plans. Four burnout profiles were identified: well-functioning (low sport, low school symptoms: 60%), mild sport burnout (28%), school burnout (9.6%) and severe sport burnout (2.7%). Athletes and parents’ expectations of success may protect from burnout at the same domain but also increase the risk for burnout in the other domain. To gain holistic view of DC athletes’ well-being it is recommended to study burnout within and across the two domains.
31. Sorkkila, Ryba, et al. (2017)	Construction and validation of Sport Burnout Inventory – DC form.	Not specified	391 Finnish DC athletes (51% F), age = 15–16, different sports.	Quantitative study using SpBI-DC	Three dimensions of sport burnout – exhaustion, cynicism, and inadequacy – were shown to be separate but closely related constructs of sport burnout. Validity of the SpBI-DC was confirmed by correlating the burnout dimensions with depressive symptoms, self-esteem, and sport tasks values.

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Table 2 (continued)

Bibliography code and reference	Major foci	Framework	Participants and contexts	Methodology	Major findings/contributions
32. Aunola, Selänne, Stambulova, and Ryba (2018)	Dynamics of student-athletes' motivational patterns in relation to their future career aspirations	Expectancy-value model (Eccles et al., 1983)	391 Finnish DC athletes (51% f), age – 15–16, different sports	Quantitative study using the self-developed questionnaire at T1, T2, and T3 (during two years)	Three motivational patterns were identified: a DC-motivated (high value of both sport and school), a low academically motivated (high value of sport and low value of school), and a low sport motivated. The patterns were stable across two year period and predicted the DC athletes' future aspirations (e.g., low academically oriented aspired for professional athletic career, and DC-motivated aspired for university education).
33. De Brant et al. (2018)	Construction and validation of the DCCQ-A	HACM	3350 European DC athletes (53% f), age – 15–26, different sports	Quantitative study using DCCQ-A	29-items 4-factor solution (DCCQ-A-29) showed satisfactory psychometric properties. The four factors – DC management, career planning, mental toughness, and social intelligence/adaptability – are recommended as a conceptual DC competency model for DC research and applied work.
34. Ekengren, Stambulova, Johnson, and Carlsson (2018)	Career development of professional handball players (including DC issues)	HACM	18 Swedish professional handball players (9 f), retired or around	Qualitative (critical realism) study; in-depth career interviews	The data is consolidated into an empirical career model of Swedish professional handball players using the HACM as a template. Handball was a priority to school since the beginning of the development career stage (especially for males). Elite sport school was a solution but only increased their handball identity. The players reflected on DC benefits (e.g., to have other things to do) and costs (lack of time for social life, rest and recovery, mental health issues). Mainly female players continued DC at the university level.
35. Franck and Stambulova (2018)	Individual pathways in the junior-to-senior transition (educational aspect involved)	Narrative theory	2 Swedish individual sport athletes (1 f)	Qualitative; constructionist; retrospective narrative type interviews	Performance narrative was a central story line for both athletes with more individualized side story-lines, such as the effort and relationship narrative and injury and reorientation narrative. Both athletes decided not to enter university when trying to establish themselves in seniors. Only when approaching career termination (due to injury or negative environment) they shifted attention to education.
36. Knight, Harwood, and Sellars (2018)	Role of social support network for DC athletes and factors optimizing such support	HACM	8 British elite DC athletes (5 f), age – 15–18; 4 sports; 33 entourage members; 9 elite (current or former) athletes from nine countries with DC in the background	Two-stage qualitative interpretivist study using interviews	Both current and former DC athletes emphasized importance of social support network for their DC development. Members of DC support network recognize needs of DC athletes and make adaptive changes, anticipate problems and suggest solutions, demonstrate a belief in the value of DC, minimize DC barriers, and create an autonomy-supportive environment. Key factors of optimizing the DC support were: focus on the whole person and integrated efforts within the support network. Findings were consistent across different sociocultural and sport contexts.
37. Ronkainen and Ryba (2018)	Dream day narratives of youth elite athletes	Career construction theory (e.g., Savickas, 2005)	17 Finnish DC athletes (10 f), age 16–17, different sports	Narrative type interviews aided by a dream day visual representations	Three types of dream days were identified: a day of holiday (n = 9) a day of peak athletic performance (5), and a regular day (3). Analytic themes included: get away from stressors, elite sport narrative, and lack of future exploration. A majority of narratives related to the athletes' near future and pictured a relaxed, "no rush", and happy day (that could be a sign of their current overload).
38. Ryba et al. (2017c)	Construction and validation of Career Adapt-Abilities Scale-DC form	Career construction theory (e.g., Savickas, 2005)	391 Finnish DC athletes (51% f), age – 15–16, different sports	Quantitative study using CAAS-DC, SpBI-DC, self-esteem, task values, and career scales	Five factors of the CAAS-DC were confirmed: concern, DC concern, control, curiosity, and confidence. The CAAS-DC showed high structural, scale, and item reliabilities and also consistency with the theoretical framework. The CAAS-DC is recommended for both the DC research and support.
39. Ronkainen, Ryba, Selänne, and Littlewood (2018)	Coaches' perspectives on athletes' DCs	Existential psychology and narrative inquiry	10 Finnish ice-hockey coaches, age – 27–52, M years of experience = 14	Narrative type interviews	Coaches' stories about their attitudes to players' DCs and relevant coaching practices were seen as narrative resources they pass to the young players.
40. Sallen, Hemming, and Richartz (2018)	Content and evaluation of the stress-resistance training program for DC athletes	The transactional stress model (Lazarus & Folkman, 1984)	245 German DC athletes (47% f), age 13–20, Olympic summer sports, elite sport schools	Quasi-experimental quantitative study with 3 measurements using a battery of instruments	Three composite vignettes revealed the coaches' view of education as important (mainly as a back-up plan) but modestly implemented in their coaching practice (e.g., talk to the players about school). Telling stories about professional players who followed DC pathway was given as an example of how education can be presented as an attractive life project for young players.
41. Sorkkila, Aunola, et al. (2018)	Dynamics of sport and school burnout in DC athletes in relation to achievement goals	Burnout model (e.g., Smith, 1986), the 2 × 2 achievement goal model (Elliot & McGregor, 2001)	391 (T1) and 373 (T2) Finnish DC athletes (51% f) – T1, age – 15–16, different sports	Quantitative study using SpBI-DC, school burnout, achievement goals in sport and school scales at T1 and T2 during one educational year	The 10-week program was aimed at increasing the DC athletes' resistance to a chronic stress. The topics included: introduction to stress-related knowledge, sources of stress and reactions, coping strategies, problem solving, stress-related thoughts and beliefs, personal goals, time management and work-life-balance, and the knowledge transfer to daily life. The intervention increased stress-related knowledge, general self-efficacy and stress sensitivity while chronic stress level, stress symptoms and stress reactivity were reduced.

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Table 2 (continued)

Bibliography code and reference	Major foci	Framework	Participants and contexts	Methodology	Major findings/contributions
42. Sorkkila, Ryba, et al. (2018)	DC athletes' burnout risk and non-risk profiles associated with their perceived demands and resources	Burnout model (e.g., Smith, 1986)	391 (T1) and 373 (T2) Finnish DC athletes (51% female), age 15–16, different sports; 17 were interviewed	Mixed methods study using SpBI-DC and school burnout inventory, and conversational interviews	Four burnout profiles were identified: well-functioning profile, non-risk profile (in both symptoms were below average and stable across T1 and T2), burnout risk profile (high sport and school burnout at T1 and steady school burnout and decreased sport burnout at T2), developed burnout profile (significant increase of sport and school burnout symptoms from T1 to T2). School-related stress, inadequate recovery, disempowering coaching, and limited social life were perceived as DC demands, and social support, adaptability, and intrinsic sport motivation as athletes' DC resources.

Note: Abbreviations used in Table 2

General: DC – dual career; f – females; m – males.

Abbreviated frameworks: HAGM – the holistic athletic career model (Wylleman et al., 2013); ACTM – the athletic career transition model (Stambulova, 2003; 2016a); HATM – the human adaptation to transition model (Schlossberg, 1981); DMP – the dualistic model of passion (Vallerand, 2010), SDT – the self-determination theory (Deci & Ryan, 2000). References see in the reference list.

Instruments: AIMS – the Athletic Identity Measurement Scale; SAMSAQ-IT – the Student Athletes' Motivation towards Sport and Academics Questionnaire – Italian version; SAMSAQ-EU – the Student Athletes' Motivation towards Sport and Academics Questionnaire – European version; DCS – the Dual Career Survey; SIMS – the Student Identity Measurement Scale; IRQ – the Inter-goal Relations Questionnaire; DCCQ-A – the Dual Career Competency Questionnaire for Athletes; ACTQ – the Athletic Career Termination Questionnaire; BIMS-IT – Baller Identity Measurement Scale – Italian version; SBI – the School Burnout Inventory; SpBI-DC – the Sport Burnout Inventory – DC form; SES – the Success Expectations Scale; CAAS-DC – Career Adapt-Abilities Scale – DC form. References see in related articles.

2.2. Bibliographical coding and appraisal of the included papers

All included papers were sorted chronologically from 2015 to 2018, and within each year the papers were ordered alphabetically based on surnames of the first and (if necessary) the second authors. Therefore, each article got a bibliographical code (see Table 2) which will be used (in square brackets) to assist readers to distinguish between the included articles and other references.

After coding, the articles were full-text read and appraised for (a) major foci of the study, (b) theoretical (or other) framework used, (c) participants (number, mean age or age range, gender ratio) and contexts (country, sports, educational settings), (d) methodology (type of study, design, methods/instruments used), and (e) major contributions to the literature (e.g., conceptual, empirical, practical). We did not conduct any special research quality (e.g., PRISMA type; Moher et al., 2010) appraisal of each paper because we selected only peer-reviewed journal articles to ensure that research quality was satisfactory. The outcome of this work is presented in Table 2, which we consider to represent a rough analysis of the included papers and which will be further used for the synthesis of recent developments within the Eu-DC discourse.

3. Results: mapping and narrative syntheses of the included papers

The Eu-DC discourse has been built through researchers, practitioners, and policy makers' communication (e.g., presenting research, sharing experiences of best practices at conferences) and social (discursive) practices (e.g., networking, publications, joint research projects, developing DC support programs and policy documents). The language they create (e.g., terms, metaphors, theoretical and applied frameworks) contributes to constituting the Eu-DC discourse and gives meaning to all related initiatives and activities (McGannon, 2016). DC researchers have a certain position, role, and relevant identity within the Eu-DC discourse, and they lead the “academic conversation” mentioned by Guidotti et al. (2015) to negotiate conceptual, theoretical, methodological and applied issues within the Eu-DC discourse to inform DC practices and policies. Below we provide a mapping synthesis of the 2015–2018 DC research (Table 3), which positions this research within the Eu-DC discourse and shows its relevance to the Career discourse; then we summarize the major DC research findings in a form of narrative synthesis.

3.1. Mapping synthesis

Table 3 presents two types of mapping synthesis: *quantitative* (e.g., sorting out the papers in terms of major foci, samples, methodology, design, and theoretical frameworks used) and *qualitative* (i.e., mapping major research contributions). The quantitative part is useful to trace the progress achieved within the Eu-DC discourse after the systematic review by Guidotti et al. (2015), and the qualitative mapping shows contributions of the included papers into both the Eu-DC and the Career discourses.

Comparing information in Table 3 with the mapping provided by Guidotti et al. (2015) the following brief summary could be made. The number of peer-reviewed journal articles on European DC athletes published during 2015–July 2018 (three and a half year period) is about the same as during the previous eight years (2007–2014), suggesting a trend of research intensification within the Eu-DC discourse. The term “DC” has been well established through its use in all of the 2015–2018 papers. Geographically, 17 national contexts are covered in this review (compared to 27 in the 2007–2014 period), with some countries keeping the same high degree of involvement (e.g., the UK, Germany, Italy, Slovenia) and some others demonstrating an increase (e.g., Finland, Spain) or decrease (e.g., Greece, Portugal) in published research.

Table 3
Mapping synthesis of the included papers (N = 42).

	Quantitative mapping
DC term used	[1–42]
European contexts addressed (with bibliographic codes)	Austria [17], Belgium [15, 21], Denmark [20, 25], Estonia [17], Finland [17, 19, 29, 30, 31, 32, 38, 41, 42], France [3, 8], Germany [1, 18, 40], Italy [8, 17, 26, 27], Norway [18, 23, 24], Poland [21, 25], Portugal [8], Slovakia [4], Slovenia [8, 12, 17, 23], Spain [6, 7, 13, 14, 28], Sweden [8, 11, 34, 35], Switzerland [25], the UK [2, 5, 8, 16, 36]; transnational-European origin [9, 10]; mixed European sample [33]
DC in sport and education	1–42 (N = 42)
DC in sport and work	3, 9 (N = 2)
DC support issues	1, 2, 5, 6, 11, 15, 17, 21, 30, 33, 34 (N = 11)
Characteristics of athlete samples	Total athlete sample: n = 9883 Both genders: 1, 2, 4, 6–38, 40–42 (N = 39) Only males: 3; Only females: 5 Mixed sports: 1–4, 7, 8, 10, 11, 13, 15–21, 23–33, 36–38, 40–42 (N = 33) Individual sports: 9, 12, 22, 35 (N = 4); Team sports: 5, 9, 12, 14, 22, 34 (N = 6) Elite (youth or senior) athletes: 3, 4, 7, 12, 13, 14, 18, 22, 23, 24, 15, 28, 36, 40 (N = 14) Professional/semi-professional athletes: 4, 9, 10, 34 (N = 4) School level (age 15–18): 1, 11, 15, 18–20, 24, 29, 30–33, 36–38, 40–42 (N = 18) University or graduated/retired/working: 2, 6–10, 12, 13, 16, 17, 21–23, 25–28, 33–36, 40 (N = 22)
Significant others involved as participants	2, 5, 19, 20, 30, 36, 39 (N = 7); Total entourage sample: n = 553
Methodology	Quantitative: 1, 6–8, 14–17, 21–23, 25–28, 30–33, 38, 40–42 (N = 23) Qualitative: 2–5, 9, 10, 12, 13, 18, 20, 29, 34–37, 39 (N = 16) Mixed-methods: 11, 19, 24, 42 (N = 4)
Research design	Cross-sectional: 2, 3, 5–8, 14–18, 20–23, 25–27, 30, 31, 33, 36–40 (N = 26) Longitudinal concurrent: 1, 11, 13, 19, 24, 29, 32, 41, 42 (N = 9); retrospective: 4, 9, 10, 12, 28, 34, 35, 36 (N = 8) Cross-cultural: 8, 17, 23, 25 (N = 4)
Theoretical frameworks used	Career frameworks: Holistic athletic career model: 2, 3, 5, 6, 11, 14, 19, 21, 22, 24, 25, 28, 29, 33, 34, 36 (N = 16); Athletic career transition model: 2, 11, 25 (N = 3); Career construction theory: 9, 37, 38 (N = 3) Other psychological frameworks: Dualistic model of passion: 14; Self-determination theory: 14, 16; Transactional stress model: 24, 37; Burnout model: 30, 41, 42; Expectancy-value model: 32; Existential psychology: 36; The 2 × 2 Achievement goal framework: 41 Sociological or managerial frameworks: 15, 18, 20 (N = 3) Not specified: 1, 4, 7, 8, 17, 23, 26, 27, 31 (N = 9)
	Qualitative mapping of research contributions
Conceptual and theoretical	<i>Proposed definitions of:</i> - an optimal DC balance [11] - “winning in the long-run” and “winning in the short-run” [11] <i>Proposed empirical frameworks:</i> - Grounded theory on personal competencies and environmental factors leading to DC athletes’ benefits [5] - Three dimensions of DC motivation: student athletic motivation, academic motivation and career athletic motivation [8] - Three discourses (performance, DC, and transnational career) contributing to career construction of transnational DC athletes [9] - Three DC pathways of transnational athletes based on the geographical direction and motivation for migration [10] - Swedish DC pathways framework [11] - Adapted Finnish version of the holistic athletic career model [19] - Three DC trajectories: linear, convergent, and parallel [13] - Three types of DC athletes: sport-oriented, life spheres-balanced, and private life-oriented [14] - Three profiles of DC striving: mixed motives strivers, intrinsic-identified, and dual-identified [16] - DC competency framework for athletes: DC management, career planning, mental toughness, social intelligence/adaptability [21, 33] - Two dimensions of DC athletes’ identity: athletic and academic (DC) and affectivity related to the identities [26] - Three career construction styles of DC athletes: “contrapuntal”, “monophonic”, and “dissonant” [29] - Four burnout profiles of DC athletes: well-functioning, mild sport burnout, school burnout, and severe sport burnout [30] - Three motivational patterns of DC athletes: DC motivated, low academically motivated, and low sport motivated [32] - The empirical career model of Swedish professional handball players (with DC involved) [34] - Four burnout profiles of DC athletes: well-functioning, non-risk, burnout risk, and developed burnout [42] <i>Support to existing career frameworks</i> [2, 3, 5, 6, 9, 10, 11, 12, 14, 21, 22, 24, 25, 28, 29, 33, 34, 36, 37, 38] <i>Instruments developed and/or tested:</i> SAMSAQ-IT [7], SAMSAQ-EU [8, 23], DCS, SIMS [11], DCCQ-A [21, 22], BIMS-IT [26], SpBI-DC [30, 31, 41, 42], CAAS-DC [38] <i>Diverse approached in qualitative research:</i> post-positivist [2, 3, 12, 13, 18], narrative/interpretivist/constructionist [9, 10, 29, 34, 35, 36, 37, 39], phenomenological [4], grounded theory [5], ethnography [20]
Methodological	
Empirical (major research themes)	<i>DC in sport and education:</i> DC pathways [3, 5, 6, 9, 10, 12, 13, 17, 18, 19, 20, 22, 27, 28, 29, 34, 36]; DC transitions [2, 5, 10, 11, 12, 14, 34, 35]; DC demands [2, 11, 12, 24, 34, 42]; DC personal resources/competencies [1, 2, 5, 11, 14, 21, 22, 33, 42]; DC motivation and identity [7, 8, 10, 11, 16, 23, 26, 27, 32, 34]; DC support network [2, 4, 5, 11, 17, 19, 23, 24, 30, 34, 36, 39]; DC environment [2, 5, 15, 17, 20]; DC barriers [2, 4, 5, 6, 11, 17, 18, 20, 24, 34]; DC athletes’ coping strategies [2, 11]; DC athletes’ health, lifestyle, and well-being [30, 31, 37, 40, 41, 42]; DC dropout [1, 5]; DC benefits and costs [3, 34]; DC and retirement [3, 13, 25, 28] <i>DC in sport and work</i> [3, 9]
Applied (DC support)	DC programs and their evaluation [6, 15, 40] Recommendations on content and optimization of DC support [1, 2, 6, 11, 21, 30, 33, 34, 36, 37, 42]

Note: n – number of participants, N – number of papers; figures 1–42 are bibliographical codes of the papers (see Table 2); see full titles of instruments in notes to Table 2.

Similar to Guidotti et al. (2015), all the papers included in the current review deal with DC in sport and education, with only two of them considering some aspects of DC in sport and work as well [3, 9].

Current DC support issues are addressed moderately, compared to the previous period when the topic was new and popular. A total athlete sample covered by the studies included in this review is almost ten

thousand participants [e.g., 26, 27, 33]. Comparable with the 2007–2014 studies, the athlete samples are mainly mixed in terms of sports and gender, and show preference for elite junior or senior athletes over professional athletes, and for university level (or older) athletes over secondary education level students. A growing trend in recent research is a higher interest in studying athletes' significant others (coaches, teachers, parents, friends, support staff members) and their perspectives on DCs or DC support [e.g., 2, 30, 36, 39]. The ratio between recent quantitative, qualitative and mixed-methods studies looks rather similar to that described by Guidotti and colleagues. Quantitative research dominates the field, with several new instruments developed and tested during the recent years (see Table 3). Qualitative research has grown in diversity and added new aspects to understanding of how DC pathways and athletes' projected future are constructed and imbedded in career and life design [9, 29, 37]. Many qualitative studies are retrospective and follow career experiences longitudinally [e.g., 4, 9, 10, 36], complementing a classic longitudinal design with two or more concurrent rounds of data collection [e.g., 1, 11, 29, 41, 42]. Mixed-methods studies are still in the minority [11, 19, 24, 42], but show promise in terms of opening new DC development nuances on the intersections between wider quantitative and deeper qualitative data (e.g., inter-individual differences). When we mapped theoretical frameworks used in the studies, we observed that the holistic athletic career model (Wylleman et al., 2013) was used in nearly a half of all the studies (see other frameworks and related information in Table 3).

Moving on to the qualitative mapping of the major contributions of the 2015–2018 papers (the second part of Table 3), we found a new definition of an optimal DC balance (forthcoming) and two new metaphors (“winning in the long-run” and “winning in the short-run”) introduced in [11] and used in [29]. There were 16 new empirical frameworks [e.g., 5, 11, 13, 19, 21, 30, 32, 33] to guide future DC research and practice. Studies based on Wylleman et al.'s holistic athletic career model [e.g., 2, 3, 5, 19], Stambulova's athletic career transition model [2, 11, 25] and Savickas' career construction theory [9, 37, 38] lend support to these frameworks. It was also constructive to see other psychological frameworks applied in the DC studies, for example, Vallerand's dualistic model of passion [14], Deci and Ryan's self-determination theory [14, 16], Lazarus and Folkman's transactional stress model [24, 40], Eccles' expectancy-value framework [32], as well as some managerial and sociological frameworks [15, 18, 20]. Seven new instruments mentioned in Table 3 are important methodological contributions to the literature and provide new resources to researchers and practitioners.

We have synthesized the empirical findings of the 2015–2018 studies into two major categories: *DC in sport and education* and *DC in sport and work*. Further, we were able to describe the rich content of the first category by 13 themes (e.g., DC pathways, DC transitions, DC and retirement; see all in Table 3), while the content of the second category was so “thin” that no particular themes could be identified. Applied contributions of the 2015–2018 studies could be described by two themes: evaluation of DC programs and recommendations about the content and/or ways of optimization of the DC support.

Complementing the mapping synthesis, a narrative synthesis (Grant & Booth, 2009) was conducted with detailing conceptual, theoretical, methodological, empirical and applied findings of the DC research. In this synthesis (see below), we focused on the recent contributions (Tables 2 and 3) while taking into consideration the earlier contributions addressed in the previous review papers (Table 1).

3.2. Narrative synthesis

DC is experienced by athletes during the periods when they combine sport with education or work. In Europe, where the settings of sport and education or sport and work are separated, the EU encouraged making special efforts in providing support to DC athletes (e.g., Aquilina & Henry, 2010; Henry, 2013). While both DC types were addressed in the

EU DC Guidelines (2012), *DC in sport and education* has been until recently the central focus of the Eu-DC discourse. Although we included key words related to sport and work in our search of the literature (see Methodology), no papers that focused exclusively on *DC in sport and work* were found, and only two papers touched upon some of the related issues. For example, athletes find combining sport and work more difficult than sport and studies because almost no support (e.g., flexible schedule) is provided to employee-athletes [3]. It was also possible to deduce that female athletes choose additional work to support themselves financially more often than males athletes, especially in high professionalization sports [9, see also 34]. It is in fact only recently that a major research project on *DC in sport and work* has been initiated (B-WISER, 2018).

In the EU DC Guidelines (2012), athletes' DCs occur during primary, secondary/upper secondary and higher education. This means that DC might be imbedded in a lifespan development through athletes' middle childhood, early and later adolescence. None of the included DC studies covered DC at a primary school level (although this could be important for athletes in early specialization sports), leading to a conclusion that research within the Eu-DC discourse addresses athletes' DCs on secondary/upper secondary and higher education levels (ages 12–25). These studies mainly focused on *DC pathways* and factors involved, *DC transitions* and related factors, and *DC support issues* – all closely interrelated.

Within the *DC pathways*, and especially in the *transitions* involved, student-athletes face *demands* (appraised as challenges and/or stressors) in sports (e.g., train and perform well, advance to a senior level) and education (e.g., attend classes, execute assignments, pass exams). It is important to note that these demands are inseparable from the concomitant changes in their psychological, psychosocial and financial development [e.g., 2, 3, 4, 12]. In psychological development, central processes are related to construction of identity, future plans [2, 26, 29, 34, 37], and development of personal resources or competencies for coping with DC demands [2, 11, 21, 22, 42]. In psychosocial development, student-athletes are expected to build up or maintain relationships with sport and non-sport peers, communicate adequately with coaches, sport authorities, teachers, parents, and members of the support staff [2, 3, 5, 12]. In financial development, DC athletes have to negotiate or earn financial support for their sport, studies and private life [3, 12]. Obviously, the demands student-athletes have to meet are many and require time and effort to cope with. It is fair to say that concurrent demands occurring at different layers of development “compete with each other,” so that DC athletes have to prioritize (e.g., school during the exam period or sport when approaching competitions) and make shifts in this prioritizing depending on life situations. In other words, to feel adjusted within the DC pathway student-athletes need to find and maintain an *optimal DC balance* that is “a combination of sport and studies that helps student-athletes achieve their educational and athletic goals, live satisfying private lives and maintain their health and well-being” [11, p. 12]. This balance can metaphorically be compared with a dynamic equilibrium or a juggling act, and has been defined as “winning in the short-run” [11], meaning that student-athletes who are able to maintain the DC balance continue in the DC pathway.

To “win in the short-run,” DC athletes have to deal not only with demands in sport, studies, social, and private life, but also contend with *DC barriers* (i.e., personal and external factors that interfere with successful adjustment/coping). External barriers, such as lack of flexibility and financial support [4, 6, 17], negative biases against athletes and sport science students in higher education [4], significant others' skepticism about athletes' DC path [5], organizational stressors [24], and lack of professional support/DC support programs in higher education [17], are complemented by personal barriers, such as lack of time for social life and recovery, fatigue, injuries, and burnout [4, 6, 11, 24, 30, 37, 41, 42]. Just a simple list of athletes' barriers and demands shows how challenging and stressful the DC pathway might be, and

how important it is for student-athletes to have *DC resources* (i.e., personal and external factors facilitating adjustment/coping) and implement adequate *coping strategies*.

DC research suggests that personal resources are decisive factors in DC adjustment [2, 11, 22], while all forms of formal and less formal DC external support (e.g., social support network or professional support providers) serve as complementary and/or compensating factors [2]. For example, DC support providers reflect that, rather than being simply controlling or protective, their support should be directed toward helping student-athletes become autonomous and self-responsible [2, 6, 11, 36, 42]. As shown in [36], DC network members (e.g., parents, professional staff) must strive to recognize DC athletes' needs, anticipate problems, demonstrate belief in the value of DC, minimize barriers, and create autonomy supportive DC environment. Therefore, effective support is about helping DC athletes help themselves, mainly through development of DC competencies. The DC competency framework, created within the EU funded project "Gold in Education and Elite Sport" (GEES, 2016), consists of four major groups of competencies: DC management, career planning, mental toughness, and social intelligence and adaptability [21, 33]. The GEES researchers showed that European DC athletes find the development of these competencies important and necessary for dealing with DC demands in general, and with difficult DC situations or scenarios (e.g., sport and school schedule overlap, injury) in particular [21, 22, 33]. Other authors emphasized volitional, motivational and adaptability competencies [1, 42], stress-resistance and coping [40] as recommended content for DC support programs. Relying on their own competencies, seeking support when necessary, and utilizing resources available in DC environment can also be viewed as DC athletes' major *coping strategies* [e.g., 2, 6, 11].

DC athletes' *motivation* and *identity* are the topics situated "on the border" between DC resources and barriers [e.g., 7, 8, 11, 16, 23, 26, 27, 32]. This means that some motivational profiles, such as highly identified motives for both sport and education (i.e., they are driven by understanding the high importance of both), facilitate coordination of efforts in reaching both sport and study goals [16, 32]. Other two profiles, identified in [16] and characterized by (a) diverse types of motives both for sport and education, and (b) high intrinsic for sport and high identified for education, are less favorable but also widespread, especially the (b). The motivational profile with sport as a passion and education as a need is usually associated with athletic identity dominating over academic and other identity dimensions, which carries a risk for identity foreclosure. Identity issues are approached differently by quantitative and qualitative research. Quantitative researchers assess athletic and academic identities of DC athletes and conclude that their athletic identity is higher than the academic one [11]. Qualitative constructionist researchers treat identity as a complex cultural construct that athletes form via communication and narratives, drawing from whatever narrative resources are available in their environment [9, 10, 29, 37]. Dominant performance narratives within sport cultures may support athletic identity and marginalize academic and other identity dimensions [29, 35, 37, 39]. In the review paper of Pavlidis and Gargalianos (2014) the authors attempt to explain why high athletic identity is attractive: "In the current sporting context, success brings immediate gratification. Superstar athletes are idolized by the masses ... The fatigue from DC efforts is also immediate, while benefits derived from education (e.g., employability) are usually distant. Moreover, (...) well-educated athletes get limited (if any) appraisal or public recognition." (p. 295). Therefore, it is important to create positive narrative resources within the Eu-DC discourse, such as stories delivered through (social) media (e.g., NOS, 2018) or simply "by mouth" about athletes who successfully combine their elite sport careers with education [39].

DC athletes' health, lifestyle (i.e., how they eat, sleep, recover, develop daily routines) and *well-being* are addressed indirectly in many papers, but only a few studies really target these issues (e.g., [30, 40–42]; see also Li & Sum, 2017). Health is one of the most important

resources for DC athletes, whereas negative physical and/or mental health related issues (e.g., physical complaints, role strain, injuries) might interfere with the DC pathway and increase the risks of burnout and dropout [1, 5, 11, 30, 34, 35, 41, 42]. In [30], the DC athletes' burnout symptoms are shown to be specific for sport or school domain and heavily influenced by athletes and parents' domain-specific expectations of success, with high expectations protecting from burnout in the same domain while increasing the risk of burnout in the other domain. Further, the same authors [41] revealed a spill over burnout effect from school to sport over time and mastery goals in both domains as burnout protective factors. These studies on DC and health have just scratched the surface of this vital area, and much more research needs on how to prevent sport and/or school burnouts and dropouts [1, 5, 30, 31, 40–42].

The three major *transitions of DC athletes* have been addressed in the recent European research. First is the transition to upper secondary education (i.e., around 15–16 years of age), associated with a choice between elite sport school and regular school with the eye on the junior-to-senior athletic transition [5, 11, 35]. Second is school graduation, with planning for the future and making a choice between DC continuation at the university (termed "convergent", "parallel" or "life spheres-balanced" trajectories) or focusing exclusively on sport and the transition to the senior level ("linear" or "sport-oriented" trajectory) [2, 10, 12, 14, 32]. Third is the graduation from the university that involves a choice between continuation in sport and athletic retirement followed by the post-sport career [13, 25]. Athletes act as active agents in constructing their careers, with significant others either providing support or placing doubts on athletes' career decisions and plans [9, 10, 29, 37]. Music metaphors are suggested in [29] to describe DC athletes' career construction styles as "contrapuntal" (sport and education themes co-exist in future planning), "monophonic" (athletic themes dominate) and "dissonant" (sport and education themes are in discord), with the "contrapuntal" style shown to be the most beneficial in bridging athletes' current situation and future projections. Research also confirms that athletes who select the "convergent", "parallel" or "life spheres-balanced" DC trajectory, approach athletic retirement in a more resourceful way than athletes that follow the "linear" or "sport-oriented" trajectory [13]. Moreover, preparing for and facilitating post-sport career adaptation provide "a safe net" (Henry, 2013) and lead to "winning in the long-run" [11], with benefits including transferable skills [22], harmonious sport passion and identity, and satisfaction of basic psychological needs [14]. This means that by helping student-athletes to become "winners in the short-run" (i.e., adjusting to the DC situation they are in and not dropping out), the support providers prepare them to become "winners in the long-run" (i.e., being ready for athletic retirement upon graduation or later).

Assisting athletes in making responsible career decisions, support providers should take both holistic and individual approaches [2, 5, 6, 11, 29, 36]. Although it is obvious that athletes have individual personality profiles and life circumstances, research that addresses age, gender, sport, level of competition, and cross-national similarities and differences in relation to various DC issues might come useful. For example, there is some evidence that athletic careers of DC athletes may be "skewed" to the younger ages (e.g., for beginning of practice, reaching the top, and retiring) compared to careers of athletes focusing only on sport [28], individual sport athletes have higher DC motivation than team sport athletes [7], DC identity is higher in younger and elite athletes [26], and female athletes have lower athletic identity [7], better DC management competencies [21], higher preference for the DC trajectories, and higher risk of dropout than male athletes [1, 33, see also 34]. In contrast, studies on DC motivation (in terms of age, gender, sport) and DC competencies (sport) show conflicting results [7, 8, 17, 22] that invite further investigation.

Although this synthesis applies to the European DC context, it is important to note that this context is heterogeneous, with differences at national level (see Aquilina & Henry, 2010 and Henry, 2013 about four

types of DC regulations in EU countries; Table 1), type of sport (e.g., winter vs. summer sports, high vs. low professionalization sports), education environment (e.g., school vs. university), sport environment (e.g., national elite sport school vs. regular school with or without sport classes) and the type of closest support network (e.g., parents) (see also Guidotti et al., 2015). These environmental factors of different levels interact and might work as both resources and/or barriers for DC success [2, 3, 5, 15, 20, 25, 42]. When helping student-athletes to increase benefits and reduce costs of their DC experiences, the integration of efforts in the athletes' environment and the holistic approach in DC support is a proven path that leads to success [36].

4. Critical reflections, major research gaps and future challenges

Our state-of-the-art review of psychological research within the Eu-DC discourse has revealed the continuing high interest in the DC subject with a number of new developments as witnessed, for example, by the new definitions (e.g., optimal DC balance), instruments (e.g., DCCQ-A), and frameworks (e.g., three dimension of DC motivation) created during the recent years. What expected next is using these new developments in further DC research to shed more light on the psychological processes important in DC (e.g., development of DC competences, context-specific coping mechanisms, identity issues) keeping in mind that these processes are also investigated within the Career discourse.

Based on this review, it is possible to say that European DC research contributes to, and bridges the Eu-DC discourse and the Career discourse. All conceptual, theoretical, methodological and applied contributions summarized above are *resources* that enrich both discourses. Researchers within the Career discourse are currently attempting to address the diversity of athletes' careers across cultures, being guided by the *cultural praxis of athletes' careers* paradigm that emphasizes close links between theory, research, practice, and contexts (Stambulova, 2016a, 2016b; Stambulova & Ryba, 2013b, 2014). The Eu-DC discourse has been context-sensitive from the start, by highlighting the specifics of the European DC context (e.g., as opposed to the North American context) and taking into account the differences between DC systems in different EU countries (Aquilina & Henry, 2010; Henry, 2013). Therefore, the major tenets of the *cultural praxis of athletes' careers* (see Stambulova & Ryba, 2013b, 2014) provide a suitable lens for our critical reflections on the recent European DC (psychological) research.

The first tenet encourages researchers to use the holistic lifespan (Wylleman et al., 2013) and holistic ecological (Henriksen, Stambulova, & Roessler, 2010; see also; Henriksen & Stambulova, 2017) perspectives to capture the whole spectrum of athletes' experiences in sport and beyond, including environmental influences from micro- and macro-levels, as well as athletic and non-athletic domains. While the holistic lifespan perspective is a central driving force of the current European DC research included in this review, the holistic ecological research has been lacking during the recent years. Although various environmental influences (e.g., regulation of national DC systems, DC support programs, families, coaches, etc.) are considered [e.g., 2, 3, 5, 36], there is still no clear understanding of the “whole environment” for the DC athletes. There is hope that the current European project “Ecology of DC” (ECO-DC, 2018) which targets DC development environments (DCDEs), their taxonomy and criteria of effectiveness, features of successful DCDEs, and ways for optimization of DCDEs, will shed light on this important area.

The second tenet of the cultural praxis of athletes' careers is about *contextualizing* of all the steps in career studies including culturally meaningful definitions of key concepts, culturally adapted theoretical frameworks and instruments, contextualized data interpretations and practical recommendations. The authors of all reviewed papers addressed the national context of DC athletes. In many papers, the role of contexts is acknowledged and relevant contexts are described, but not fully utilized to interpret the research findings. Among positive new developments, we can highlight the creation of several adapted or

empirical (i.e., contextualized) frameworks [11, 19, 34] and culturally adapted quantitative instruments [e.g., 8, 32, 33] to be used in future DC research and practice in respective contexts.

The third and fourth tenets of the cultural praxis of athletes' careers encourage researchers to go for a deeper exploration of *individual career pathways*, including minority athletes (e.g., females) and *transnational athletes*. Individual DC pathways (including females) are addressed in several studies [3, 4, 9, 10, 35] and complemented by empirical typologies of DC athletes [13, 14, 29, 30] useful for future research and DC support. Transnational DC athletes were participants of only two studies [9, 10], and, given the globalization of today's sport and increasing interest in transnational athletes and cultural transitions internationally (e.g., Ryba, Schinke, Stambulova, & Elbe, 2017), more studies on DC of transnational athletes might be called for in the future.

Interdisciplinary research, participatory action research, multicultural and transnational consulting, and international networks of career practitioners that are also encouraged by the cultural praxis of athletes' careers, are not highly visible within the DC research reviewed in this paper. To elaborate on these issues, we wish to acknowledge the positive and encouraging role of the European Commission in setting DC high on its agenda as well as the contributions of the European Athlete as Student network into several European research projects and connections between various European DC stakeholders (see Capranica et al., 2015). Additionally, new steps have been made within the GEES project (see Wylleman, De Brandt, & Defruyt, 2017), addressing the competencies of DC support providers based on data from researchers, practitioners, national level DC managers and the DC support providers from nine EU countries (publications forthcoming). One lesson learned from GEES is that DC support providers in Europe form a very diverse group with an uncertain job profile and lack of specialized training. GEES proposed therefore a conceptual framework with six groups of competencies: advocacy and cooperation, reflection and self-management, organizational, awareness of DC athletes' environment, empowerment, and relationship competencies. Based on this framework, three educational modules for DC support providers have been developed, implemented and evaluated in Belgium, the Netherlands, Spain and Sweden within the recent project “The development and evaluation of learning modules for dual career support providers: a European pilot” funded by the IOC (VUB, 2018).

To briefly sum up, this critical analysis revealed varying degrees of fit between European DC research and the tenets of the cultural praxis of athletes' careers: there is a good fit with the holistic perspective and context-sensitivity, but less with the rest of the tenets, suggesting areas for future improvements. In addition, major research gaps were revealed through mapping and narrative syntheses of the literature, such as scarcity of data on DC in sport and work, DC “costs” and crisis-DC transitions, DCDEs from the holistic perspective, DC athletes' mental health, lifestyle and well-being, DC support programs (content and evaluation), and others. Therefore, major future challenges for DC researchers include:

- To develop an agenda for research on DC in sport and work (e.g., athletes' employability challenges) and link it to DC in sport and education research (e.g., identity foreclosure, occupational delay). First steps in this direction are already underway, with the current EU funded project “Be a Winner In elite Sport and Employment before and after athletic Retirement” (B-WISER, 2018) examining employability competencies and experiences of still active, just retired, and first employed athletes and obtaining work-related stakeholders' perspectives on athletes' employability and employment.
- To develop research on: (a) DC at a primary school level (for athletes in early specialization sports), (b) DC pathway of athletes in late specialization sports, (c) DC for paralympic athletes, (d) specific educational programs which increase the possibility of success for elite student-athletes (e.g., self-study, distance learning, scholarship programs, academic programs specifically developed for elite

student-athletes), (e) the role of elite sport organizations in optimizing DC pathways related to both education and work.

- To continue studying the “pluses” of DC and disseminating best practice examples, while complementing this work by increased attention to the “minuses” or “costs” of DC (e.g., burnout, dropout, crisis-transitions).
- To explore various kinds of DCDEs in Europe (both successful and less successful) and provide guidelines for their optimization.
- To intensify research on DC athletes’ mental health and create support services addressing sub-clinical and clinical health issues (see relevant FEPSAC and ISSP Position Stands: Moesch et al., 2018; Schinke, Stambulova, Si, & Moore, 2017).
- To advance research on transnational DC athletes and how their cultural transitions might be facilitated by supportive acculturation environments (e.g., Ryba et al., 2018).
- To create DC support programs implementing a competency perspective based on the GEES frameworks.
- To further promote the use of major tenets of the cultural praxis of athletes’ careers within the DC research, by insisting on clear positioning of the authors/studies in regards of scientific paradigm, methodology, research design, and contexts involved, all while supporting research diversity (see [19] as a good example).
- To continue sharing DC knowledge through English language publications and other forms of communication on the European level, but also invest into national DC discourses (i.e., national language publications, policy documents) in European countries.

A major challenge we see for the Eu-DC discourse is to integrate efforts in further development of a European DC culture (Capranica et al., 2015) as a coherent set of values and assumptions promoting sport within education (e.g., DC pathways in academic world and destigmatizing athletes in higher education), education within sport (i.e., a stronger DC approach and support system integrated in elite sport culture, emphasizing links between sport, education, and employability competencies), and also sport and education within the business community in Europe. On the research level, development of the European DC culture is characterized by promotion of the holistic lifespan and ecological perspectives, context sensitive research and practice, resource/competency approach, and conceptualization of an athletic career as a resource for athletes’ life career. On the policy level, this process is supported by the European Commission (2014) document “Education, training, youth and sport” that encourages policy coordination among EU countries to facilitate exchange opportunities and international cooperation in sport, higher education, and vocational training for “boosting young people’s personal development and job prospects” (p.1). European DC culture might help to consolidate the efforts of, and improve collaboration between, the various DC stakeholders, including researchers and the research users. A good example of such collaboration is a recent policy document “Swedish National Guidelines for Elite Athletes’ Dual Careers” (2018), informed by European and national DC research as well as best practice examples.

We understand that our view of these challenges might be challenged by others, and we invite relevant communication within the Eu-DC and Career discourses. In our Editorial to the Special Issue of *Psychology of Sport and Exercise* on DCs (Stambulova & Wylleman, 2015), we concluded that “with this SI we are ‘chipping away at the stone’ of DC in order for it to become a building block in future research and service provision” (p. 2). We do hope that this review paper will become the next building block for the “edifice” of the Career and Eu-DC discourses, and we encourage our readers to apply the contributions acknowledged here in their research, practice, policy making and at their respective contexts.

Conflicts of interest

We declare no conflicts of interest in regard of the paper.

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