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Considering university-business cooperation from the perspective of graduates' early careers

Abstract

This paper explores the link between *graduates' employability* and *university-business cooperation* – two major pillars of higher education's labour market orientation policies in Europe. Based on selected studies, the paper develops and discusses several own conceptual frameworks. In the conclusion, it offers future research recommendations on studying the relationship between career success and university-business cooperation. It calls in particular for a stronger focus on SMEs and 'average' universities, compares similarities and differences among study fields and economic sectors, while explaining cooperation as an economic necessity versus a developmental opportunity and the hybridisation of academic professions.

Introduction

Current major European policy concerns related to establishing the European Higher Education Area are closely related to supporting graduates' career success, international mobility, cooperation among higher education institutions and among universities and business. The paper focuses on the last mentioned dimension. It looks at how three general questions in the area of university-business cooperation – *i) which are the most relevant modes of cooperation between universities and business; ii) what are the determinants of cooperation modes and their future developmental needs; and iii) which are the key developmental drivers and barriers to cooperation on the side of universities and business?* – are linked to the issue of graduates' transition from education to the labour market. In the context of the general interdisciplinary conceptualisation of knowledge creation processes and the shift from a linear to an interactive knowledge cycle (Nonaka and Takeuchi, 1995; Boisot, 2002; Lundvall, 2001), these questions relate to the functions of professional groups (e.g. Abbott, 1988), the overall goal of interaction between the academic sphere, business and society (e.g. Etzkowitz & Leydesdorff, 2000) and the transition of graduates from education to the labour market (e.g. Allen, Pavlin and Van der Velden, 2011).

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The HEGESCO project (Pavlin et al., 2009) indicates that most modes of cooperation between business and universities are perceived to be in the service of supporting graduates' careers, although some have shorter rather than longer term perspectives – as certain determinants of the development of competencies fall within the direct jurisdiction of higher education, while others go beyond the borders of higher education institutions. The need to further explore and improve knowledge in the interrelated areas of graduates' careers and cooperation between universities and business is clear. According to the HEGESCO project's findings, employers have very little knowledge of what to expect from graduates, and higher education institutions have a similar low level of knowledge concerning employers' needs. This problem is particularly relevant in the private sector which often has, compared to state-regulated professional education and certification, more blurred links with education.

The paper first gives an overview of the concepts of employability and professional success. Second, it looks at business-university cooperation and on this basis presents some concepts, frameworks and empirical results. It also outlines the results of a business university survey that compares the preferences of academics and employers regarding particular modes of university-business cooperation. In the next section, it opens up a discussion on the link between the modes and determinants of university-business cooperation and graduates' professional success. In the conclusion, it explains the main research implications and questions that can be derived on the basis of the presented considerations.

Employability and Professional Success

Academics have for decades already studied the effect of social background, personality traits and education on graduates' labour market performance (Schultz, 1961; Becker, 1962; Thurow, 1975; Collins, 1979; Abbott, 1988). Some of these approaches contend that higher education institutions are the main drivers of professional expertise, while others see education more as an institution allowing a persisting monopoly and selection over more privileged work. Debates in higher education on massification and a labour market orientation have particularly distinguished between: i) human capital and the manpower approach which place higher education in the position of labour market, employment and "matching" policies in order to stimulate economic growth; and ii) social demand approaches that favour freedom of choice, personal growth and equal opportunities (Teichler & Kehm, 1995: 116-117). Both approaches consider the issues of over-education and study massification (e.g. Freeman, 1976; Chevalier & Lindley, 2009), even though labour market prospects generally still increase with the level of one's educational achievements.

In the last decade, hand in hand with policy recommendations public opinion has expected higher education institutions to become more oriented to the labour market in terms of practical training and the development of better professional and managerial competencies (e.g. team work, working under pressure or asserting authority over others...). Academics'

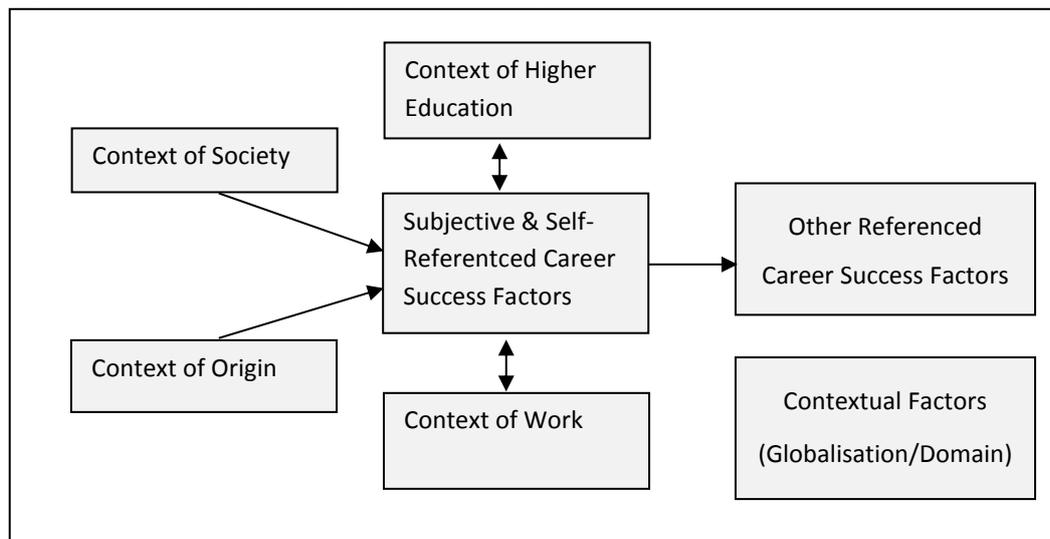
responses to these expectations have varied but the vast majority of higher education institutions in Europe have accepted a two-cycle model accompanied by ‘new’ (re)accreditation procedures, internal and external evaluations, the promotion of problem-based learning, a competence-based curriculum and institutionalised support for student practices and careers. These processes and bodies are supposed to improve the professional relevance of their graduates and increase the ‘quality’ and functional dimension of higher education institutions.

During the period of the Bologna processes, the policy imperative of the professional relevance of higher education has been accompanied by the term graduates’ “employability”. This concept has predominantly reflected key concerns for the development of human resources (Thijssen et al., 2008: 168-169): resolving problems with school leavers and underprivileged people with political ambitions to attain full employment and cut public losses (the 1970s), restructuring companies with corporations’ ambitions to attain efficient human resource management (the 1980s) and the development of successful career opportunities (the 1990s onwards). Hence, the concept is usually related to paradoxes and causalities of: individual capabilities versus actual registered employment, deprived youth in terms of finding a job at all versus the further prosperity of privileged youth (Teichler, 2008: 302), the skill-supply phenomenon versus the skill-demand phenomenon (Allen & Van der Velden, 2001) or individual factors versus personal circumstances (McQuaid & Lindsay, 2005: 209). Most current definitions of employability refer to an individual’s ability to obtain a meaningful job, which is not only limited to the issue of a skills and education match in terms of compatibility between individual, educational and professional destinations. It is foremost also related to highly personalised components of work such as identity, values and satisfaction – attributes that on the social level are related to labour market segmentation, mobility, professionalisation, professionalism and civil life.

In reality, most higher education stakeholders chiefly associate the issue of higher education employability with the question of the development of skills and qualifications, and their utilisation in the world of work. With a fairly limited reflection they believe an improvement in graduates’ employment is related to internationalisation, internships, problem-based learning and a learning outcomes approach (DEHEMS project, 2013-). Researchers have been questioning these policy recommendations and searching for particularities in relation to countries, disciplinary areas, programmes, institutions and other contextual factors (Pavlin and Judge, 2010; Pavlin, 2012). They seek to ascertain the relative effect of personal characteristics and social backgrounds as well as details of higher education systems such as, for example, how well the acquisition of relevant work experience is monitored, how developed are the incentives for fostering students’ motives and talents, how demanding study is, how traditional teaching is combined with newer problem-based learning, what are the characteristics of assessment modes, to what extent have higher education institutions established systems for informing employers and graduates about what to expect from HE graduates and how well have higher education institutions established graduate tracer studies that support the indicated study characteristics (Allen, Pavlin and Van der Velden, 2011).

The concept that in the last few years has been increasingly related to stakeholders' perspective of 'employability' is *career success* – defined as a sequence of roles and positions in the individual's work and free time (Gunz and Peiperl, 2007), or professional success in terms of the transition from education to the labour market, the “appropriateness” of education and job, income, satisfaction etc. (Teichler, 2008: 300). However, in theory these elements are analysed and classified as: i) *subjective and objective*; and ii) *self-referenced and other referenced* dimensions of careers (Heslin, 2003; Judge & Kammeyer-Muller, 2007). These distinctions have inspired the creation of several conceptual frameworks such as those in the DEHEMS project (2013-).

Figure 1: Exemplary conceptual model of professional success from the DEHEMS project



Source: Adjusted from Demeter, Chudzikowski, & Pavlin (2010); Conceptual contribution to the DEHEMS project, draft document

The model presented in the figure distinguishes between subjective and self-referential career success factors and influencing contexts (Mayrhofer et al., 2007): the context of origin refers to a person's cultural, social, class and educational background as well as their work history, the context of higher education, chiefly referring to teaching and learning modes and organisational characteristics, the context of work encompassing issues such as job characteristics, work-related social relationships, labour markets, new forms of working and organising, and the context of society and culture that involves societal and biographical data. On this basis, the final operationalisation of the model of the DEHEMS project included several career success factors (*job satisfaction, a graduate's match between acquired and required competences, career developmental opportunities, job security, work autonomy and work-life balance*) and influencing factors (*previous education experience, type of study, programme characteristics, teaching modes, a graduate's behavioural characteristics during their study period, spatial mobility and work experience during and after graduation, characteristics of the job and employer and country of origin*). Related data and the measurement instrument that supported this conceptual model were acquired earlier from higher education graduates five years after graduation in the CHEERS (2013-), REFLEX (2013-) and HEGESCO (2013-) projects.

The Flash Eurobarometer Survey (Gallup Organisation, 2010) looked at graduates' careers from the perspective of the world of work. It studied how employers perceive graduates' skills and abilities, study programmes and fields, graduate recruitment modes, educational institutions' reputations, the amount and type of training given to graduates, the recruitment of foreign graduates from abroad and major challenges companies face when hiring graduates.

Another aspect observed in this survey was cooperation with higher education institutions in terms of curriculum design and study programmes, training and recruitment of graduates. In the next section, we present some recent approaches and studies related to business-university cooperation modes and discuss in what ways they are connected with fostering graduates' transition from education to the labour market.

University-business cooperation

Introduction

The shift from industrial to post-industrial information societies (e.g. Bell, 1973; Habermas, 1979) has been accompanied by growing interest in cooperation between the university and industry (Freeman, 1982). With the area of the 'knowledge-based society' characterised by increasing globalisation processes, the value of services and intangibles, networking organisations and digital technologies, university-business cooperation has been described using distinct concepts such as "national innovation systems" (Nelson, 1993), a "new mode of knowledge production" (Gibbons et al., 1994), "entrepreneurial university" (Clark, 1998) and "the triple helix model" (Etzkowitz & Leydesdorff, 2000; Etzkowitz, 2008).

These concepts have gradually been reflecting the call for the 'third mission' of universities – from teaching and research towards community engagement – via technology transfer, trans-disciplinarity, regional development and living laboratories (e.g. Trencher et al., 2013: 4). The so-called Wilson's review (Wilson, 2012), in the case of the UK, explains well which actions drive university-business and foster students' careers. Examples include *setting enterprises by graduates, the enhancement of study relevant work experience through apprenticeship and qualifications, the recognition of informal learning and recognition, lifelong learning activities, implementation of an innovation voucher scheme, support for graduates' career services and alumni etc.* Moreover, this review indicates that cooperation between universities and industry is supposed to cause paradigmatic shifts (Wilson, 2012: 23-24) like, for example: *"from future-oriented research in advanced technologies, to in-house up skilling of employees", "from university science park developments, to support for entrepreneurial research students finding their way in the business world", "from improving business skills amongst undergraduates, to enabling small companies to recognise the value of employing a first graduate", "from supporting spin-out companies from research teams, to helping government agencies attract major employers to invest..."*

Related to this, the Organisation for Economic Cooperation and Development and the European Commission (OECD & EC, 2012) have also recently promoted guidelines for how universities can become more “entrepreneurial”. The areas they identify relate to leadership and governance, organisational capacities with a strong stress on acquiring new financial sources and cooperation with business, the promotion of entrepreneurial principles and innovation through the curriculum, promoting start-ups, internationalisation and the development of measurement principles. These “recommendations” are accompanied by the latest economic necessity to “*do more with less*” (OECD, 2010). In this context, several authors question this convergence from the traditional towards an entrepreneurial university and do not regard it as a positive development (e.g. Hackett, 2005), particularly due to the proletarianisation, deprofessionalisation and hybridisation of academic roles (Henkel, 2009; Kogan, 2009) as well as the decline of the traditional social function of higher education to give equal opportunities and citizenship (Zgaga, 2009). Moreover, intensified collaboration between industry and the academic sphere is leading to the segmentation and trivialisation of disciplinary areas (Becher, 1989), modified or even polarised relations between research and teaching (Elton, 1986) and the precarisation of academic institutions (Musselin, 2009).

Few studies have tried to explain the principles of university-business cooperation in relation to disciplinary differences. Existing literature (e.g. Kolb, 1981; Neumann, 2009) differentiates between hard-pure (e.g. natural sciences and mathematics), soft-pure (the humanities and the social sciences), hard-applied (e.g. medicine) or soft-applied (e.g. social work) categories and explain what this implies for the vocational focus and professionalisation scope of graduates’ careers. Moreover, Pavlin and Svetlik (2008) described the principles of how these different disciplines interact with the world of work, particularly when it comes to the creation of study programmes, (re)accreditation of study programmes and implementation of practicums. The typology that was selected for the empirical work in the DEHEMS project (2013-) is based on six different professional domains.

Table 1: Types of higher education study domains

	Vocational Orientation		Academic Orientation
	Unregulated Domain	Regulated Domain	
Social Sciences and Humanities	<i>Business and Economics</i>	<i>Education and Teaching Studies</i>	<i>Sociology and Political Studies</i>
Science and Engineering	<i>Engineering (incl. Civil Engineer)</i>	<i>Medicine and Pharmacology</i>	<i>Life Science (incl. Mathematics, Computing)</i>

Source: Schomburg, Janson and Pavlin (2010)

The variety of disciplinary areas importantly determines what applied potential for the world of work a particular higher education institution offers due to the capabilities of its academics and students which are determined by (Teichler, 2011: 403):

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- *a professionally geared composition of knowledge within a study programme (e.g. mechanical engineering) versus an academically determined composition of knowledge of a study programme (e.g. philosophy);*
- *an academic versus applied emphasis of teaching and learning, i.e. an emphasis on understanding the logic of the knowledge system versus an emphasis on the transfer of knowledge to practical problem-solving;*
- *academic orientation versus orientation towards practice, i.e. pursuit of knowledge for its own sake versus learning to understand the tensions between theory and practice during the course of study;*
- *preparing students to be able to become scholars versus preparing students to understand and utilize the results of academic work in their subsequent professional work outside academia;*
- *prime emphasis on the understanding and the ability to handle conventional wisdom versus prime emphasis on sceptical and critical views as well as on coping with indeterminate work tasks and innovation;*
- *emphasis on conveying foundation of knowledge relevant for professional practice versus preparing students directly to master all the relevant knowledge;*
- *emphasis on general knowledge and competences versus emphasis on specific academic or professional knowledge and competences, and*
- *disciplinary versus interdisciplinary approaches.”*

These particularities significantly determine the prevailing orientation of academics towards industry cooperation. Lam (2010), for example, developed a typology that describes the *traditional academic* who believes the academic sector and industry should be separate, the *traditional hybrid* and the *entrepreneurial hybrid* who believe some form of cooperation should exist and the *entrepreneurial type* who believes in the fundamental importance of science and business collaboration. Lam further explored to what extent different factors – *increasing funding and other research resources, application & exploitation of research results, creation of opportunities for knowledge exchange/transfer, building personal and professional networks, enhancing the visibility of research and an increase in personal income* – motivate particular academic types for cooperation with business. These elements also hold important implications for the development of curricula, interdisciplinary development, the integration of learning with research, the organisation of problem-based learning and student practices (Palmer et al., 2010).

On this basis various actors have developed frameworks on university-business cooperation.

Some Concepts, Frameworks and Results

Although several projects have started to develop indicators that measure cooperation such as number of patents, spin-offs and contract value of contracts with external stakeholders (e.g. SIAMPI from 7FP¹), “...there is still no comparative information as to which universities are among the world's major providers of science-based information and services to the business sector in general, and research-active industry in particular” (Tijssen et al., 2009). It is thus no surprise that there is a wide diversity of university-business cooperation modes that in recent times have been extracted from the best case studies. A report of the Technopolis organisation (2011), for example, presents a review of 15 countries that identified best practices of university-business cooperation, including practice-oriented teaching methods, problem-based learning in interaction with industry, decentralised management in cooperation with SMEs, autonomous management of business cooperation at the university level, compulsory placements with industry, common laboratories etc. Davey et al. (2011a) also conducted a similar survey on 30 European case studies related to entrepreneurial training, international MBA programmes, state-of-the-art R&D with industry, adult education, start-ups, accelerating apprenticeships, empowering science-society linkages or generating living laboratories.

The search for drivers and barriers is another area that has recently been attracting significant attention. While the set of drivers (e.g. better employability of graduates, curriculum improvements, spin-offs and financial measurements) can be classified according to a particular beneficiary (e.g. higher education institutions, academics, students, the community etc.), the set of barriers has *traditionally* been classified as restrictions imposed by a company, problems related to the appropriation of results, communication problems, duration of the research and cultural differences (Mora-Valentin & Ortiz-de-Urbina-Criado, 2009: 396). Based on the results of an Imperial College survey, Wilson (2012: 28) conceptualised major barriers to business university cooperation in the UK and to different degrees the results can be generalised across European countries. In the report, he stressed: “i) the needs of the business do not align with the mission and strategy of the university, ii) time scale and capacity mismatch (a university has already committed its resources and does not have the available capacity to meet the timescale that the business needs, iii) capability mismatch (a university does not have the skill set or the facilities to meet the needs of the business), iv) the cycle of bureaucracy (where external funding is required, the bidding cycle does not meet the timescale the business needs), v) financial constraints (a university is unable to provide the service required for the price the company is willing to pay), vi) sustainability: the investment required by the university to provide the service does not have an acceptable payback period,

¹ Short for “Social Impact Assessment Methods for research and funding instruments through the study of Productive Interactions between science and society”, see: <http://www.siampi.eu/> .

vii) mismatch in expectations and objectives (expectations of outcomes from collaboration are not mutually recognised), viii) agreement on the future of the intellectual property that may be generated”.

Some other reports have in recent years presented a general picture of university-business cooperation in Europe. For example, with a large-scale survey among over 4,000 enterprises Davey et al. (2011b) explored how eight EC pillars of business-university collaboration (research and development, mobility of academics, mobility of students, commercialisation of R&D results, curriculum development and delivery, lifelong learning, entrepreneurship and governance) are practised by academics and what determines these cooperation aspects. The authors found there is a high statistical correlation among these types and measurable modes are perceived to be more important than more tacit ones. The study also found the strong effect of influencing factors that were classified as action processes (mechanisms that support university-business cooperation, strategies, structures and approaches, activities and framework conditions), motives, drivers and barriers. Interestingly, the results show that academics believe their institutes, students and employers benefit from cooperation much more than they do. They see the funding system and bureaucracy within higher education institutions as the main barriers to cooperation. This is the reason, according to the report, that almost every second academic is not involved in any way in cooperation with industry.

The HEGESCO project case survey and its further implications

In the course of implementing a qualitative study as part of the HEGESCO project (2013-) (Pavlin et al., 2009), a group of researchers from Lithuania, Poland, Hungary, Slovenia and Turkey has explored the most important modes of university-business cooperation and the differences in how they are perceived. In each country 30 structured interviews were conducted, 15 among higher education institutions (management) and 15 among large employers (in most cases human resource managers). Based on the consortium’s agreement a general question framework was provided. When the interviews (150 in total) were complete, a group of experts extracted content aspects from the interviews, generated a standardisation framework and conducted codification in line with the standardisation guidelines. Accordingly, a simple data analysis was provided that allows a broad comparison of similarities and differences in views on university-business cooperation among higher education institutions and businesses (see Table 2).

Table 2: Framework of the forms of collaboration perceived to be most important as reported by higher education institutions and employers

Programme creation and changes	Programme creation (general aspects); common lectures; research projects and informal contacts
Practical training	
Research and development	
Final thesis	
Seminars and conferences	
Creation of common organisations	University bodies, associations,

	spin-offs
Recruitment	Direct Recruitment; career days; cooperation with career centres
Financial support	

Source: Adjusted to HEGESCO project (Pavlin, 2009; Kovačič, 2009)

Irrespective of the country differences, by far the most important identified mode of cooperation was practical training as highlighted by approximately four out five employers and two out of three higher education institutions. Most interviewees stressed that practical training should be given greater importance as it “...often remains a formality, *lacking a mentor that would assist a student or employers resist from taking students for practices*” (Kovačič, 2009: 47). Other key modes among higher education institutions were programme creation, research projects, involvement in common bodies and other aspects such as the common organisation of competitions, access to technological advancements, international exchange etc. On the employers’ side, the two most important modes were practical training and direct recruitment. Overall, the results tentatively indicate large differences in the way employers and higher education institutions perceive practical training, seminar and conferences, involvement in common bodies or recruitment.

The study surprisingly indicates that the cooperation modes between university and business in many ways resemble the perceived future development of higher education (Pavlin & Svetlik, 2009). Among employers and universities, the biggest future developments to be perceived are: *practical orientation (practical work, traineeships and internships), financial system and material issues, curriculum improvements, management system developments, research and autonomy*. As expected, cooperation with employers is listed as one of the most important developmental features. “The largest discrepancies among HE institutions and employers are in their perception of practical work and adaptation to employers’ needs, which are significantly more important in the view of employers than HE institutions” (Pavlin & Svetlik, 2009: 66). While almost every second employer sees the practical orientation of study programmes as one of the most obvious developmental trends, this is listed by only one out of ten academics. Employers reported (Pavlin & Svetlik, 2009: 57): “...*The role of practical training in education is enormous and enables students to get familiar with the specific character of work under the constant supervision of a mentor*”; “*the currently prevailing model favours theoretical over practical knowledge, and it should be the other way round*...”; “*it is not about the liquidation of theoretical subjects, which are very important for personal development as well as indispensable for students who intend to continue an academic career but to focus on possible applications of theory in practice*” or “most of the lecturers are very far from the practices and only aware of the academic world”. Similar views were shared by employers in the case of traineeship, study visits, adaptation to employers’ needs and strengthening the vocational focus on the field of study. To a greater extent than employers, representatives of higher education institutions conversely expect changes in financial systems, different types of flexibilisation, management and teachers’ training.

University-business cooperation and graduates’ employment – towards a common framework

Recent policy activities (e.g. EC, 2011) promote business-university cooperation as a process that across study domains introduces new knowledge results into the study curriculum, promotes research in general and increases teaching and research synergy on the levels of teachers, students as well as employers. Several previous studies indicate that university-business cooperation modes correlate strongly (see the previous section), which generates positive spillover effects for the local community and environment. Another frequently mentioned positive outcome is graduates’ transition from education to the labour market and their overall “employability” success: some modes of business-university cooperation are, in fact, a dimension of a graduate’s career or its components.

Table 3: Modes of university-business cooperation and graduates’ professional success

Modes of university-business cooperation* (Business and universities)	Modes of graduates’ career success (Graduates)
programme creation; practical training; research and development final thesis; seminars and conferences; creation of common organisations; recruitment; financial support for a higher education institution	job satisfaction; skill match; career development; job contract; work autonomy; work-life balance

* Davey et al. (2011b) explicitly also encountered the mobility of academics, commercialisation of R&D results and lifelong learning.

Source: Own elaboration

On the basis of Table 3 we can generate the proposal that most modes of university-business cooperation are reflected in the dimensions of graduates’ early careers, with the exception of financial support for institutions, mobility of academics or R&D commercialisation which could have more indirect influences. However, one might also expect significant differences in business-university cooperation effects on graduates’ career success, including changes in a positive or negative direction of their impacts depending on study fields and industry sectors. Another important parallel can be drawn between the determinants of university-business cooperation and graduates’ career success.

Table 4: Determinants of university-business cooperation and graduates' career success

Determinants of university-business cooperation (Business and universities)	Determinants of graduates' career success (Graduates)
number and position of 'collaborators' involved; organisational strategies and practices; drivers of and barriers to cooperation; cultural orientation and values towards university-business cooperation; expected benefits for the actors involved; company perspective on cooperation with university; HRM policies (recruitment and promotion practices)	educational history; social background; spatial mobility; work experience during and after graduation, type of study; programme characteristics; teaching modes; a graduate's learning characteristics; characteristics of the job

Source: Own elaboration

The comparison presented in Table 4 reveals some commonalities and differences when comparing the determinants of university-business cooperation with the determinants of graduates' career success. Some factors like, for example, job determinants and HRM practices appear in both segments, while teaching and learning modes are typically not listed among business-university cooperation determinants; in fact, they appear as the outcomes of cooperation which can provide further premises for designing complex research models. Further parallels can be drawn, for example, among most cooperation determinants and teaching modes and the relevance of work experience. However, the context of the future research model should be systematically framed by the so-called intervening variables like, for instance, industry sector, field of study, characteristics of the employer (size, sector, changes, share of HE graduates), programme and higher education institution and the effect of economic crisis.

Conclusion and future research challenges

Which major research implications and research questions can be derived from the earlier considerations in relation to: i) the desirable strategic development of higher education; ii) fostering graduates' employment via the labour market orientation of higher education; and iii) cooperation between universities and enterprises?

First, in the area of university-business cooperation it is worth examining whether different higher education stakeholders follow similar motives. The earlier study of Davey et al. (2011a: 28), for example, indicates there is a relatively large number of motives among students (e.g. skill improvements), business (e.g. performance), society (e.g. improving the local environment) and academia (e.g. developing a personal network). In a similar fashion, the differences in drivers and barriers should also be surveyed further.

Second, much of the attention in research has recently been placed on case studies of large multinational companies and very well-known universities (e.g. Edmondson, 2012). Few studies have considered collaboration between universities, SMEs and NGOs.

Third, one might presume there are differences not only in the extent of collaboration but also in kind. Few studies have so far explained the particularities of university-business cooperation with regard to study fields, economic sectors and occupational groups.

Fourth, a challenge relates to policy recommendations. There is a relatively small discussion concerning whether the emerging cooperation is a smart developmental decision, economic necessity due to the reduction of public finances or, as Wilson (2012) in the case of the UK put it, whether private funding is a necessary condition for public funding.

Fifth, given that cooperation with business is one of the major developmental forces in changing higher education, it is vital to consider not only the consequences for the further hybridisation of academic roles, but also the nature of academic certificates and more recent the newer role of 'pro-European' qualifications.

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