



WorldSkills competitors and entrepreneurship

Project 5

DuVE: Developing and understanding Vocational Excellence

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Preface

The *Developing and understanding Vocational Excellence* (DuVE) suite of research projects focuses on WorldSkills competitions (WSC). This research is timely because the current vocational education system in the United Kingdom is struggling to meet the demands of the workforce and the needs of many young people. While problems with vocational education have been widely noted in research, few studies have focused on understanding vocational excellence. Gaining this understanding is the primary aim of the DuVE projects.

WorldSkills competitions are held every two years and are organised by WorldSkills International (WSI) as part of their mission to 'raise the profile and recognition of skilled people, and show how important skills are in achieving economic growth and personal success' (WSI, 2015). Competitors from 53 countries participated at WorldSkills Leipzig 2013 in Germany, where over 1000 young people mostly aged 18-22 competed in 46 skill areas.

The UK started to compete in WSC in 1953 and hosted competitions in Glasgow in 1965, in Birmingham in 1989 and in London in 2011. In 1990 UK Skills was established as an independent charity to organise and support UK participation in WSC. Renamed WorldSkills UK in 2011, it is now part of Find a Future, a new organisation which brings together skills and careers initiatives from across the UK.

The WSC are recognised by many as the pinnacle of excellence in vocational education and training (VET). The Centre on Skills, Knowledge and Organisational Performance (SKOPE) has been researching WSC since 2007 to understand better how vocational excellence is developed through competition and to inform the development of Squad and Team UK. Between 2007 and 2009, two small projects investigated the individual characteristics of the competitors and their workplace learning environments and covered the competition cycles of WSC 2009 and 2011. The overarching questions addressed were:

- What are the characteristics of individuals who excel?
- What kinds of support enable the development of high-level vocational skills?
- How can vocational education be structured to aim not simply for adequate standards of achievement but for high achievement that reflects world class standards?
- Can broader societal benefits to developing vocational excellence be identified?

Following on from these two initial studies, the first phase of DuVE consists of three projects conducted between 2011 and 2013 and incorporating the competition cycle leading up to WorldSkills Leipzig 2013:

- Project 1: What Contributes to Vocational Excellence? A study of the characteristics of WorldSkills UK participants for WorldSkills Leipzig 2013
- Project 2: Learning Environments to Develop Vocational Excellence
- Project 3: Benefits of Developing Vocational Excellence

Find a Future then funded Phase 2, consisting of three follow-on projects and three new DuVE projects. The six projects are:

- Project 1: Modelling the Characteristics of Vocational Excellence
- Project 2: Learning Environments to Develop Vocational Excellence
- Project 3: Benefits of Developing Vocational Excellence
- Project 4: Further Education College Participation in WorldSkills and other Skills Competitions
- Project 5: WorldSkills UK Competitors and Entrepreneurship
- Project 6: Training Managers: Benefits from and Barriers to WorldSkills UK Participation

Taken together, the suite of six DuVE projects form one of the five legacy projects (funded by the National Apprenticeship Service and now Find a Future), which are intended to use evidence-based research to further develop high quality WorldSkills practice.

Projects 4, 5 and 6 build on Project 3, Phase 1. Reports from the projects can be found on the DuVE website: <http://vocationalexcellence.education.ox.ac.uk/publications/reports/>. Projects 1-3 continue through WorldSkills São Paulo 2015. The findings from this project contain practical recommendations for WorldSkills UK practice and can potentially inform the VET system in the UK more broadly.

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List of Abbreviations

DuVE - Developing and Understanding Vocational Excellence

E&T - Education and training

FE - Further Education

GEDI - Global Entrepreneurship and Development Institute

ICT - Information and Communication Technology

NAS - National Apprenticeship Service

QCF - Qualifications and Credit Framework

SKOPE - A research centre on Skills, Knowledge and Organisational Performance

VET - Vocational Education and Training

WSC - WorldSkills Competition

WSI - WorldSkills International

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Executive summary

This project examined entrepreneurial experiences of those young people who represented the UK at WorldSkills Competitions. We aimed to understand how and in what contexts WorldSkills competitors discovered, evaluated, and exploited opportunities to become entrepreneurial. We conducted individual semi-structured interviews with WorldSkills competitors. We collected qualitative and quantitative data and employed a combination of thematic and statistical techniques for the data analysis. The sample of 40 participants included 30 entrepreneurial individuals: 13 entrepreneurs; four intrapreneurs; and 13 latent entrepreneurs. These participants represented 21 skill categories. Ten competitors interviewed were not interested in entrepreneurship and this group represented eight skill categories.

A variety of individual and contextual factors influence the development of entrepreneurship. In this study we focused on four individual-level factors - social capital, psychological capital, human capital, and entrepreneurial motivation - and two contextual factors - industry-specific conditions and geographical context. The data analysis on entrepreneurial inclinations by sector indicated that entrepreneurship has strong sectoral properties. Three sectors of economic activity (Construction and Building Technology; Manufacturing and Engineering Technology; and Creative Arts and Fashion) were used to illustrate that cultures and structures of different industries are important when looking at the propensity of WorldSkills competitors to become entrepreneurial. The geographical location of a business is also central to an understanding of the specifics of firm creation and development.

We established links between WorldSkills competitors' social capital, psychological capital, human capital and how the competition experience contributed to the enhancement of different dimensions of these three types of capital as well as to the development of entrepreneurial motivation. Our research findings pointed towards the conclusion that training for and participation in WorldSkills enabled entrepreneurship by developing competitors' social networks, psychological characteristics, and technical and business interaction skills. However, it also emerged that the majority of entrepreneurial competitors had been entrepreneurial before they became involved with WorldSkills. Entrepreneurial motivation often preceded participants' engagement with competitions.

1 Introduction

Earlier research (Mayhew, James, Chankseliani, & Laczik, 2013) found that WorldSkills training helped competitors develop the necessary confidence, self-esteem and people skills to become entrepreneurial. Building on these findings, in this project we focus specifically on the entrepreneurial experience of young people who have represented the UK at the WorldSkills Competition (WSC).

Entrepreneurs have been compared to Olympic athletes who break new barriers (Kuratko, 2007), and so have the WorldSkills competitors who are the participants in this study. We interviewed a sample of 40 WorldSkills competitors to learn about their entrepreneurial experience and motivations and how their training for and participation in WorldSkills might have contributed to these. We aimed to understand how and in what contexts young people who have achieved excellence in selected vocational professions utilise psychological capital, human capital, and social capital to discover, evaluate, and exploit opportunities to create future goods and services. This includes firm creation as well as entrepreneurship within existing organisations, which we refer to as intrapreneurship. This study used the evidence obtained from in-depth semi-structured individual interviews with WorldSkills competitors to answer the following main research question:

How does WorldSkills experience facilitate the discovery, evaluation, and exploitation of opportunities to create future goods and services?

It also addressed three sub-questions:

1. How does WorldSkills competitors' propensity to become entrepreneurial relate to various motivators, industry-specific factors, and geographical contexts? How, if at all, did WorldSkills influence competitors' motivation to become entrepreneurial?
2. How do WorldSkills competitors' psychological capital, social capital, and human capital facilitate the discovery, evaluation, and exploitation of opportunities to create future goods and services? How is the development of these three forms of capital linked with competitors' WorldSkills experience?
3. How do entrepreneurial competitors view their core business challenges? How can WorldSkills support entrepreneurial competitors?

Nationally, entrepreneurship is popular, especially amongst young people. In 2011, 77% of 11 to 18-year-olds indicated that they wanted to start their own business, with an even split between the

genders (startups.co.uk, 2011). According to the most recent statistics, 14% of the UK workforce is self-employed (ONS, 2013). In this context, it is useful to mention that the Global Entrepreneurship and Development Institute (GEDI) recognised the UK as the most entrepreneurial economy in Europe and the fourth most entrepreneurial economy in the world (GEDI, 2014a). At the same time, the Special Eurobarometer indicates that VET in the UK does not stimulate the creation of small companies enough (European Commission, 2011).

Given the benefits of entrepreneurship¹ and the UK's position as one of the most entrepreneurial economies in the world, the study of why and how individuals who excel in vocational professions discover, evaluate, and exploit entrepreneurial opportunities is of practical and academic interest.

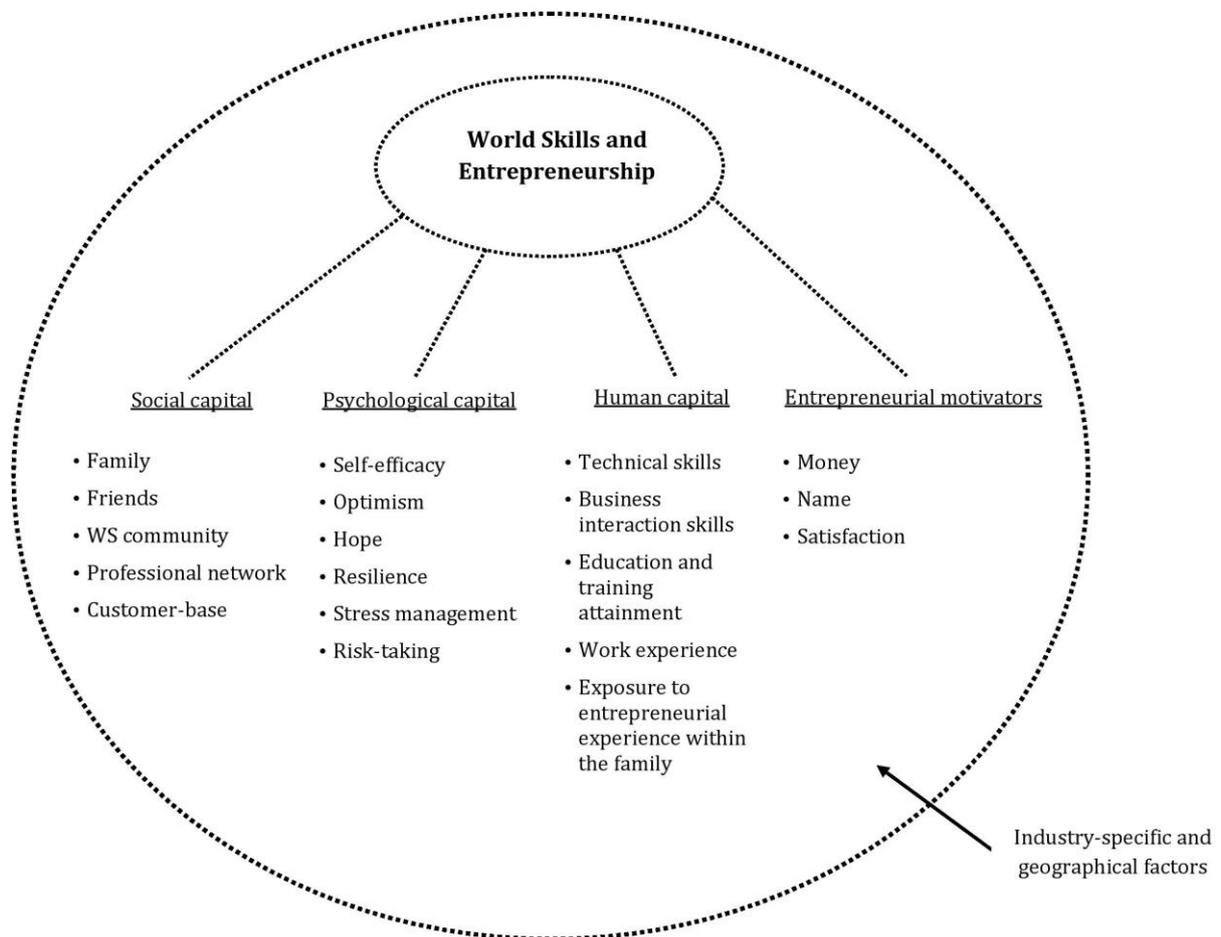
This report starts by introducing the conceptual framework of the research project. It is followed by a chapter on the methodological approach which includes an overview of the study participants, a description of the instruments used for data collection, an outline of the data analysis process, and comments on the limitations of the research design. The methodology chapter is followed by three chapters answering each of the sub-questions listed above.

¹ There is ample literature on the pivotal contributions of entrepreneurship to economic growth through driving innovation and change (Landes, Mokyr, & Baumol, 2012; Schumpeter, 1983), the equilibration of supply and demand (Kirzner, 1997), the conversion of new knowledge into products and services (Shane & Venkataraman, 2000), and the development of human and intellectual capital (Zahra & Dess, 2001).

2 Conceptual framework

A variety of individual and contextual factors influence the development of entrepreneurship. This study identifies four individual-level factors - social capital, psychological capital, human capital, and entrepreneurial motivation - and two contextual factors - industry-specific conditions and geographical context - that may be associated with how WorldSkills competitors discover, evaluate, and exploit opportunities to create future goods and services. The conceptual framework (Figure 1) sets out the main concepts that we examine in this study and the presumed relationships between them.

Figure 1. The conceptual framework



We define entrepreneurship as the process of the discovery, evaluation, and exploitation of opportunities to create future goods and services (Shane & Venkataraman, 2000, p. 218). The domains that this study examines focus on:

- entrepreneurship (firm creation/self-employment);

- intrapreneurship (entrepreneurship within existing organisations); and
- latent entrepreneurship.

We define them as follows. Creating firms is the generally understood action and definition of an entrepreneur. In this study we refer to self-employed individuals as entrepreneurs. Intrapreneurs are individuals involved in the discovery of ideas or opportunities to create value, including activities that lead to the establishment of a new and self-financing organisation within an existing firm (Financial Times Lexicon, 2013). Latent entrepreneurs are individuals who declare preference for self-employment over employment, although still employed at the time of the interview (and were not exhibiting any intrapreneurship traits); they are potential entrepreneurs. Finally, when referring to entrepreneurial individuals in this report, we include all the three categories - self-employed competitors, intrapreneurs and latent entrepreneurs.

In the study's conceptual framework, entrepreneurship is connected to four individual-level factors:

- Social capital: the key premise of social capital theory is that networks of relationships represent different types of actual and/or potential resources. Social capital is the advantage created by an individual's 'location in a structure of relationships' (Burt, 2005, p. 4);
- Psychological capital: In defining and operationalising psychological capital (PsyCap), we mainly rely on Luthans, Youssef, & Avolio (2007). PsyCap is defined as an individual's positive psychological state characterised by self-efficacy, optimism, hope, and resiliency;²
- Human capital: For the purposes of this study, entrepreneurial human capital is the knowledge and skills that an individual has acquired through formal education and training (E&T), work experience, non-formal/informal learning experiences that developed technical skills and business interaction skills, and any family history of entrepreneurship. These

² Luthans, Youssef, & Avolio (2007) define self-efficacy as having the confidence to 'take on and put in the necessary effort to succeed at challenging tasks' (p. 3). In this study we use the terms self-efficacy and confidence interchangeably. Optimism is defined as 'making a positive attribution about succeeding now and in the future' (ibid.). Hope is a more complex concept and consists of the willpower of 'persevering toward goals,' understanding of pathways that may lead to these goals, and the ability of 'redirecting paths to goals in order to succeed' (ibid.). Luthans et al. (2007) identify hope with willpower. In interviews with competitors, we mostly used the word willpower (rather than hope) because of the perceived similarity in the meanings of optimism and hope. Finally, resiliency is 'the positive psychological capacity to rebound, to 'bounce back' from adversity, uncertainty, conflict, failure or even positive change, progress and increased responsibility' (Luthans, 2002, p. 702).

measures of human capital are similar to those used in the research literature (e.g. Bates, 1990; Davidsson & Honig, 2003; Mosey & Wright, 2007); and

- Entrepreneurial motivation: Motivation usually refers to cognitive, emotional, or biological processes that cannot be directly observed but can have a strong influence on individuals' thinking, planning, and behaviour (Baron, 2013, p. 24). For the purposes of this project, entrepreneurial motivation is the willingness to become an entrepreneur. Motivation can influence and at the same time stem from the three types of capital and, therefore, refers to a characteristic inherently different from the other three concepts.

We have also collected data on competitors' self-reported ability to manage stress and their propensity to take risks. According to the literature, those who manage stress well and consider themselves to be risk-takers seem to be more entrepreneurial, with higher psychological capital than those who are risk-averse and easily stressed (Baron, Franklin, & Hmieleski, 2013; Kuratko, 2007).

Finally, the framework assumes that entrepreneurship cannot be fully understood without taking into consideration industry-specific and geographical contexts (see Figure 1). The cultures and structures of different industries are important when looking at the propensity to become self-employed. The geographical location of a business is also central to an understanding of the specifics of firm creation.

3 Methodological approach

We collected qualitative and quantitative data and employed a combination of thematic and statistical techniques for the data analysis. In-depth interviewing was chosen as the most appropriate approach for exploring competitors' own understandings and interpretations of their experiences that helped (or did not help) the discovery, evaluation, and exploitation of entrepreneurial opportunities.

We conducted in-depth semi-structured individual interviews with 40 WorldSkills competitors between March 2014 and December 2014.

3.1 Participants

To identify study participants, we used a combination of convenience sampling, snowballing, and purposive sampling. Participant recruitment started by contacting the WorldSkills competitors from the UK who were on the National Apprenticeship Service (NAS) mailing list. An invitation to participate in the study was circulated via an email sent out by NAS in February 2014. Since the email was sent out by NAS, the exact number or year-group of the competitors on the mailing list remained unknown to the research group. In addition, we utilised a database of competitors created for an earlier DuVE project and telephoned those competitors to seek their participation. In total, 40 competitors agreed to participate in the study and interviews took place in person or by telephone at a time and location most convenient to respondents.

The sample of 40 participants included 30 entrepreneurial individuals: 13 entrepreneurs (nine had been self-employed prior to their participation in WorldSkills); four intrapreneurs; and 13 latent entrepreneurs. These participants represented 21 skill categories. Ten competitors interviewed were not interested in entrepreneurship and this group represented eight skill categories. The study participants covered all of the six WorldSkills sectors: Construction and Building Technology, Transportation and Logistics, Manufacturing and Engineering Technology, Information and Communication Technology, Social and Personal Services, Creative Arts and Fashion (Appendix 1).

The majority of the study participants (29) lived in England. Of the others, eight competitors lived in Northern Ireland, one in Wales and one in Scotland. One competitor lived abroad.

Eight participants were female and 32 were male, with an age range from 21 to 39 years old. The average age of participants who identified themselves as entrepreneurial was 25. This group included entrepreneurs, latent entrepreneurs, and intrapreneurs. The average age of participants who did not identify themselves as entrepreneurial was 24.

The participants represented different WSC year groups and all medal categories. Of the 40 competitors interviewed, two competed in 1997, one in 1999, one in 2001, three in 2007, six in 2009, 13 in 2011, and 14 in 2014. Two respondents were gold medallists, three were silver medallists, eight were bronze medallists, and 19 were awarded medallions of excellence. Eight participants did not win a medal or a medallion.

Twenty-three interviewees were involved with WorldSkills in some capacity at the time of the interview. Of these, 15 were entrepreneurial and eight were not interested in entrepreneurship.

The average duration of self-employment was 63 months across the sample of entrepreneurs, with a median of 36 months. Eight of the 13 entrepreneurs had been in their businesses for three years or less at the time of the interview.

We obtained informed consent from each participant prior to audio-recording their interviews. To ensure confidentiality, none of the participants are named in the report, and we have taken all necessary precautions to avoid identification of individuals. When referring to study participants, we indicate the year of their participation in the WSC and differentiate between entrepreneurs (E), intrapreneurs (I), latent entrepreneurs (L), and those not interested in entrepreneurship (N).

3.2 Instruments

This study used semi-structured interviews with open-ended questions as the main research instrument. The process of designing the instrument started with identifying factual, thematic, and theoretical categories stemming from the research questions. Empirical and theoretical literature on entrepreneurship, social capital, psychological capital, human capital, and entrepreneurial motivation, as well as the research team's substantive knowledge and research evidence on WorldSkills were used in the process of designing the protocol (Appendix 2). We first developed the interview protocol for entrepreneurs, then created three variations of this protocol to be used with intrapreneurs, latent entrepreneurs, and those not interested in entrepreneurship.

The first version of the interview protocol was pilot tested with a competitor who participated in EuroSkills in 2008 in Rotterdam.

The PsyCap questionnaire (Appendix 3), developed by Luthans, Youssef, & Avolio (2007) was used to measure the construct of psychological capital. The participants were asked to complete the questionnaire after answering the interview questions.

3.3 Data analysis

The qualitative (interview) and quantitative (PsyCap questionnaire) data were analysed using the various techniques explained below.

The qualitative data was analysed in several stages. The audio-recorded interviews were first transcribed. Using NVivo software, narratives were broken down into 74 nodes that represented factual, thematic, analytical, and formal categories. Factual categories refer to objective data, such as age, year of participation in WSC, gender, medal information, size of business, or date of becoming self-employed. Thematic categories refer to specific constructs discussed in the conceptual framework, such as influences of WorldSkills on developing social capital, psychological capital, human capital, and entrepreneurial motivation, relationships between geographical and sectoral contexts and entrepreneurship. Theoretical categories refer to the evidence related to specific theoretical constructs from the existing literature, for example, trust, optimism, resiliency, and entrepreneurial motivation. Finally, formal categories refer to the place and date of the interview, interview length, and mode of interview (face-to-face or telephone).

The first draft of nodes was generated using the interview protocol and its three variations. These nodes were revised and other nodes were added as we proceeded with the process of coding the interview data. At the final stage of the thematic analysis, we systematically grouped the nodes in relation to the thematic and theoretical categories pertaining to each sub-question.

The quantitative data included the PsyCap questionnaire results. In addition, SPSS software was used to generate some basic descriptive statistics on the qualitative data.

3.4 Limitations

This study has two limitations. First, it relied on self-reporting. Second, it gathered data from 40 non-randomly selected competitors, and the findings cannot necessarily be generalised to the population of WorldSkills UK competitors or to WorldSkills competitors in general. Thus, the findings should be interpreted as illustrative for understanding the relationship between WorldSkills experience and the development of entrepreneurship.

4 Propensity to become entrepreneurial: entrepreneurial motivation, industry-specific factors, and geographical contexts

We assumed that the likelihood of becoming entrepreneurial was related to different individual motivating factors as well as to industry-specific and geographical contexts to which WorldSkills competitors belonged. Therefore, this section provides the analysis of WorldSkills competitors' perceptions of these two types of contexts as they relate to the propensity to become entrepreneurial. We also discuss a number of motivating factors involved in participants' decision-making on self-employment and whether or not WorldSkills could have had any influence on motivating individuals to become self-employed.

4.1 Entrepreneurial motivation

We define entrepreneurial motivation as the willingness to become an entrepreneur. Entrepreneurial motivation may be driven by the desire to accumulate wealth and attain fame, as well as greater independence, more meaningful work, better self-realisation, a desire to help others, or the 'romance of being a leader or an entrepreneur' (Baron, 2013, p. 35), among other factors. An individual may be positively pulled toward establishing a new firm or negatively pushed into it. The positive pull may be related to the expectation of increased life satisfaction whereas the negative push may be associated with having an unsatisfying job, a resignation, or redundancy.

It emerged from some interviews that the competitors were 'usually in quite a comfortable job and so they [did] not feel the need to go out and have their own business as much' (L11, 2011). Twenty-seven of the 40 participants of this study were in employment. The data showed that although the WorldSkills competitors seemed to be quite sought-after by employers, the assumption that they would choose the security of being employed did not always hold; some young people were passionate about entrepreneurship irrespective of how satisfying their employment experience had been.

Thirteen of the 40 competitors were self-employed. When examining entrepreneurial motivations, we analysed the data of all entrepreneurial competitors, including those who were self-employed, intrapreneurial at their workplace, and latent entrepreneurs. There was a large variation in the motivating factors that led young people into entrepreneurial activity or made them determined to become self-employed in the future. The majority of entrepreneurial competitors had been entrepreneurial before they became involved with WorldSkills; they were self-employed, intrapreneurs or latent entrepreneurs. In other words, strong entrepreneurial motivation often preceded participants' engagement with competitions.

In response to our question on the main motivating factors for establishing a firm and/or becoming self-employed, the entrepreneurial competitors gave a number of answers. While some interviewees named a single motivating factor, others mentioned more than one factor that drove their desire to become entrepreneurial. Table 1 summarises the main motivating factors for all entrepreneurial individuals, which included 30 respondents: 13 entrepreneurs, 13 latent entrepreneurs, and four intrapreneurs.

Table 1. Main motivating factors for entrepreneurial competitors³

Motivating factor	Number of entrepreneurial competitors
More money	21
Making a name	14
Professional satisfaction from offering exceptional products and services to customers	8
More flexible work schedule	7
More independence	6
Being one's own boss	6
Creating something that can grow and improve	2

Extrinsic rather than intrinsic factors motivated entrepreneurial activity in the sample interviewed, with money and reputation being at the top of the list. Two-thirds of the entrepreneurial individuals recognised that making more money was an important consideration. One entrepreneur explained that money had been the main incentive for him from his early teenage years as he always wanted to achieve a good standard of living which he felt was impossible without high earnings (E14, 2013). 'It all comes down to money, doesn't it? That's the truth' (E13, 2011). It emerged that quite a few other interviewees shared this opinion:

I want to make as much money as I can. (E5, 2009)

In a self-employed role you have more scope to grow the business and to hopefully make more money by staying self-employed. That is quite a selfish reason, but it is really that we all work to make money. (L7, 2011)

Two of the 13 entrepreneurs interviewed were driven by financial interests to such an extent that they decided to start their businesses in a different skill sector from the one they competed in at the

³ The figures on Table 1 do not add up to 30 as respondents usually referred to more than one motivator.

WSC. One competed in Creative Arts and Fashion and another in Construction and Building Technology; they both started a business in Transportation and Logistics. The main difference between the two entrepreneurs was that the business run by the first competitor involved purely low-skilled work, whereas the business owned by the second one required advanced vocational skills. The first ran the business alongside his full-time employment in his original Creative Arts and Fashion sector, while the second was self-employed full-time. The latter said this was not an unusual practice as another colleague of his, also a WorldSkills competitor, had done the same. The main motivation for all of them was the opportunity to make more money. One of the competitors explained that he planned to expand his business and, potentially, go back to his original profession when the business was running successfully. Currently, he did not see any reason to stay in his original sector as it would not provide the lifestyle he would like:

I'd much rather be in a more managerial position, and running my own business and organising it, and paying people to do the work for me. And the same with [another WorldSkills competitor]. It sounds ridiculous, but I want to spread this business, have a big business, so big that I shouldn't really need to work. I've got a crazy idea. I want to try and buy an island. (E14, 2013)

Being 'rich and retired – the double R,' was also the main motivating factor for another interviewee (L5, 2011). Early retirement and a good quality of life were key aspects of the financial motivation to be self-employed for quite a few other participants in this study; 'I don't want to be working when I'm 55; I want to be retired,' said a latent entrepreneur (L8, 1997).

Making a name for themselves was the second most frequent motivating factor amongst entrepreneurial competitors. Almost half of the entrepreneurial individuals talked about 'build[ing] up a good reputation for [themselves] and get[ting] a good name' (E8, 2013). Some of the competitors mentioned leaving 'a bit of history behind' (L12, 2009). Self-employment allowed the competitors to work on making their dreams come true and putting their skills to use in a way that would ultimately make them well-known:

There is that phrase "work on your own dream or someone else will hire you to work on theirs." If you believe in the work and it's a good fit for you, that's wonderful. But I'm not interested in working for anybody else. I want to build my empire. (E5, 2009)

The reputation-related motivating factors were often intertwined with the professional satisfaction that entrepreneurs derived from offering exceptional products and services to their customers: 'I get beautiful emails from people saying "your work has affected me" or "I really like what you have done" or "It has really inspired me to do this." That is where I sink my teeth into it' (E5, 2009). The expectation that customers would appreciate the unique, high-quality products and services that WorldSkills competitors offer made some latent entrepreneurs more motivated:

I would like to do something new which is not there yet and I would like - I really like people when they say I've done a good job. If I can open a [business] which is popular, that would really push my self-confidence because I am so passionate about the idea that I have. (L13, 2011)

One of the entrepreneurs explained that self-employment allowed him to invest more time in completing each job and, thus, generate outputs of much higher quality than he would have been able to produce while working for someone else under tight time constraints:

I'm very fussy, so, where I used to work, it's obviously a business, they're trying to make money, whereas I want to do it perfectly. To do things perfectly takes longer, whereas [the employer] wanted stuff done to a time limit, so, yes, I got fed up of not doing stuff perfectly. I'd rather be happy with the job than do it really quick. (E10, 2011)

Most of the entrepreneurs who expressed great passion about vocational work and the satisfaction derived from such work also recognised a key limitation of self-employment that slightly curbed their motivation. The limitation they referred to was the amount of time required for running a business. Some of the competitors enjoyed the substantive vocational aspects of their work so much that they did not wish to waste too much time on business management. This was a serious limitation for some entrepreneurs; to the degree that they said they were thinking about going back to employment in order to have more time to dedicate to the vocational aspects of their work.

WorldSkills as a motivator for entrepreneurship

How did WorldSkills influence competitors' motivation to become entrepreneurial? In order to answer this question, we looked at the timings of when respondents became self-employed. Among the entrepreneurs interviewed (13 individuals), the majority (nine) became self-employed before their participation in the competition:

I've just always wanted to work for myself. I've always just imagined myself as being self-employed (E10, 2011)

From the minute I started work I was always self-employed. I was made to go self-employed straightaway, even as an apprentice. So anytime I did training for any skill competitions it was always at my loss. I never got paid for training or for going. (E3, 1997)

We examined in greater detail those four competitors who became self-employed following their training for the WSC to see if there was anything in their competition experience that triggered their motivation to become entrepreneurial. These cases are presented in Table 2.

Table 2. Four competitors who became self-employed following their WorldSkills training

Case 1 - The competitor considered the substantive interest in his profession to be the main motivating factor. Making more money or achieving a better quality of life had never been driving factors for him. After the WSC he found himself in a job that he did not like; this experience served as a push for him to start thinking about self-employment (E11, 2007).

Case 2 - The competitor held a full-time job in the sector in which he had competed and had his own business in a completely different sector. The only motivation for him was making more money. The full-time job, where he used his world-class skills did not seem to allow the competitor to approach the work in a more intrapreneurial manner. The skills-base required by his business was very low (mainly related to buying and selling used products) in contrast to the skills he had to use in his full-time employment. His current job pushed him to seek another source of income and start his own business almost three years after his participation in the WSC (E12, 2009).

Case 3 - The competitor had 14 years of work experience before becoming self-employed and was pushed into self-employment by the economic crisis when the firm where he used to work downsized. That was the place of employment during the training for and participation in WorldSkills (E2, 2001).

Case 4 - The competitor was driven by his dream to make a name for himself by offering exceptional artistic products to the customers. He believed self-employment would allow him to make that dream come true: 'I am not interested in spending my life making somebody else's dream... I want to build my empire. I want to put the very best of what I can do out there' (E5, 2009). The competitor became self-employed 3.5 years after his participation in the WSC.

None of the four entrepreneurs who became self-employed following their participation in the WSC felt that WorldSkills experience had a significant influence on their entrepreneurial motivation. Three out of the four were negatively pushed into entrepreneurial work rather than positively pulled into it.

The entrepreneurial group whose responses are summarised in Table 1 included not only entrepreneurs, but also intrapreneurs and latent entrepreneurs. None of the intrapreneurs or latent entrepreneurs connected their entrepreneurial motivations with WorldSkills.

All 13 latent entrepreneurs said they had a strong motivation to establish their own firms. The majority of the latent entrepreneurs argued they had reasons to be unhappy with their jobs and aspired to establishing their own businesses that would allow them to leave employment. Some of them did not feel their jobs provided sufficient professional development and promotion opportunities, while others did not feel challenged at their workplaces. Thus, most of the latent entrepreneurs' motivation to become self-employed stemmed from push factors rather than pull factors.

Finally, two latent entrepreneurs were pulled by an intrinsic factor (greater independence). They felt their employers provided excellent apprenticeship training, supported them through the WorldSkills training, promoted them soon after their participation in the international competition, provided a job that involved a good deal of international travel, and were financing their further studies. Despite the high level of job satisfaction, these two latent entrepreneurs had a growing desire to establish their own firms. One of them explained: 'this company's brilliant and it's really set me for life but I do want to get my own company, do something which is mine' (L2, 2013).

All latent entrepreneurs remained in employment as they did not feel ready to start their own business either due to a lack of availability of initial capital and/or their perceived lack of essential business management skills.

Finally, the respondents who were not self-employed and did not express a strong motivation to become entrepreneurial (the not-interested group) were asked to talk about their career plans for the next five to ten years as a way to determine whether they planned to become more entrepreneurial in the future. It emerged that most of the respondents had some idea about where they wanted to be in their careers: continuing to do technical work for the company where they worked at the time of the interview; moving up to a managerial position at the same company or changing their workplace; shifting to a slightly different type of work within the same sector (more hands-on or more research focused), or taking up a career in teaching. The majority of the respondents who were interested in teaching were also engaged in training WorldSkills competitors at the time of the interview. The involvement of competitors in WorldSkills training is confirmed in another DuVE report (Wilde, James, & Mayhew, 2015), which mentions the role of 'wider trainers', often former competitors, who support the training managers in their work.

4.2 Sectoral and geographical dimensions of entrepreneurship

The cultures and structures of different industries are important when looking at the propensity of competitors to become self-employed. The geographical location of a business is also central to an understanding of the specifics of firm creation and development as entrepreneurs do not exist in a vacuum, but in the context of their local and national geographies. A mixture of attitudes, resources, and infrastructure make up the entrepreneurial ecosystem (GEDI, 2014b). In this study the relevance of geography was intertwined with the sector of economic activity. For example, in the business of selling car parts, the location was viewed purely as a matter of convenience since most of the transactions were completed online. However, when we looked at floristry or wall and floor tiling,

the location emerged as a relevant theme because metropolitan areas provided more and better opportunities for entrepreneurs.

Many entrepreneurial individuals interviewed said that London offered the best entrepreneurial ecosystem, due to the concentration of high-end private clients and large corporate customers. The perceived limitation of being based in London was that the costs of running a business would be much higher than in any other part of the UK. Being London-based was perceived as a decisive factor for having a smoothly-running business even in the sector that operated entirely online - Information and Communication Technology (ICT). '[The company] have actually got an office in London now, they're only there one day a week but it's that presence that's started giving them the clients' (E4, 2011). Despite this assumption, the competitor preferred a peripheral location and having more clients to being located in London and having fewer, high-end clients: 'If you wanted higher-end clients you'd work towards London, whereas if you don't mind lower-end clients, and you'd work in Wales, [...] but you'd probably get more of them, if that makes sense' (E4, 2011).

Only one participant was actually based in London. He was a latent entrepreneur working in the ICT sector. He wanted to move out of London in the near future as he thought the competition in the capital was too intense: 'I want to come here and learn as much as I can in the City, but then, sort of, make my own thing and go somewhere else, because as good as London is, it's very saturated' (L4, 2009).

Out of the 30 entrepreneurial individuals, 21 were generally happy with their geographical location and spread of business activities; nine were unhappy and wanted to move or expand their geographical coverage.

Despite the fact that most of the individuals interviewed have travelled abroad with WorldSkills, the majority of the entrepreneurial individuals did not plan to do business too far away from their residential location. Most of the businesses operated within a 15 to 60 mile radius from the main site:

I've got all the work I need locally within a 20 mile radius so I don't see much point in looking for work further away. It's only giving me more expenses on travelling. I generally never have to go further than 20 miles. (E7, 2013)

I would never travel more than probably 20 miles. The more local it is the better because of fuel prices; it's nice to be local. I've never travelled more than that 20 mile bracket to go to work. (E8, 2013)

Five of the 30 individuals were seriously considering working abroad. Two of them were latent entrepreneurs from the Social and Personal Services sector. One of them recognised the role of

WorldSkills in helping her acquire international networks that would be useful if she decided to set up a business abroad:

The networks that I mainly gained from WorldSkills were more international networks than anything else which will give me the opportunity to not limit myself to opening a restaurant within the UK, that I could potentially go elsewhere - New Zealand, China, anywhere. (L6, 2013)

Three entrepreneurs working in the Construction and Building Technology sector, two of them from Northern Ireland, were contemplating a move to Australia. They considered the Australian business climate to be more favourable than the UK, and based their judgements on the experiences of their colleagues in Australia. All three of the competitors mentioned someone they met through WorldSkills who worked in Australia. The reasons that delayed their move to Australia were the time required to make the necessary arrangements, the money required for the move, and family obligations.

It also became clear that entrepreneurship has strong sectoral properties. We conducted initial analysis of the data by six sectors and determined that the following three sectors showed the most difference: Construction and Building Technology; Manufacturing and Engineering Technology; and Creative Arts and Fashion. We are using these three to illustrate the sectoral and geographical differences in the propensity to become self-employed. Our sample from Creative Arts and Fashion included only entrepreneurial individuals, whereas those working in Manufacturing and Engineering Technology were largely not interested in entrepreneurship. The sample of WorldSkills competitors from the Construction and Building Technology sector represented a mix of entrepreneurial and non-entrepreneurial individuals.

Construction and Building Technology

We interviewed 13 WorldSkills competitors working in Construction and Building Technology occupations. Of these, seven were entrepreneurs, three were latent entrepreneurs, two were intrapreneurs, and one was not interested in entrepreneurship.

There are approximately two million people working in the construction industry in the UK; four in ten of these are self-employed (House of Commons, 2014). It emerged from the interviews that, in some occupations, for example wall and floor tiling, most are self-employed (E13, 2011).

Most of the entrepreneurial competitors in Construction and Building Technology recognised the benefit of WorldSkills as it set them up for developing their business by allowing them to retain their tools following their participation in the WSC. That was 'a massive help' for one competitor (E14, 2013). As explained by another, he would need to 'go and spend £3000 or £4000. It was a great help' (E8, 2013).

In addition, there were cases when entrepreneurs used the WorldSkills name to receive discounts on tools. In exchange, tool manufacturers were allowed to use the competitors' name in advertising:

When I was buying one of my great big machines the company I rang up said, because I told them about WorldSkills, if they could use me for advertising they would give me a discount. And they said, oh, the boy who designed our website was from WorldSkills too and they gave me a discount. (E10, 2011)

Northern Ireland was mentioned as one of the most challenging places to work in construction in the UK because of the perceived economic stagnation and the alleged low profile of selected vocational professions. An entrepreneur based in England talked about the experience of a WorldSkills competitor from Northern Ireland:

He's probably more entrepreneurial than me, but he says there's just nothing going on in Ireland. When I went there, there were no young people. They all go to Australia or Canada or England. He says you might as well leave, there's no future there really. (E10, 2011)

Also, some construction occupations seemed to be perceived differently in Northern Ireland when compared to England. For example, a competitor mentioned that while in England his occupation was seen as a career, in Northern Ireland it was seen 'by people as something you do if you don't have any qualifications in anything else' (L7, 2011).

Interviewees were of the opinion that entrepreneurial opportunities in Northern Ireland compared extremely poorly with opportunities in London:

I've worked in London and some of the jobs that I have been on have been million pound jobs. The last hotel I was on the job was worth 17 million. I've never worked on a job even half that over here, in Northern Ireland. I think the biggest job I've been on over here was a hotel near Ballymena, that was, I think it was a 5 million pound job, but that's the biggest then. After that it might have been a small nightclub for maybe 100,000. The guys over in London, they would tell me that they were tiling some bloke's house that was worth 4

million. There just aren't houses in Northern Ireland that are worth 4 million. (E13, 2011)

Interviewees differentiated between private and commercial work in the construction sector. The term 'private work' was used to refer to the work commissioned by individuals. The term 'commercial work' was used to refer to the work commissioned by a government agency or a firm. Participants explained that commercial work was rather difficult to get in Northern Ireland, for example: 'It's hard if you're based in Northern Ireland, it's hard for you to go and get an offer for a job in London. You just can't really' (E13, 2011). As for the private work, it was thought one had to be based in London. Even though it was mentioned above that London was believed to offer the best entrepreneurial ecosystem, none of the WorldSkills competitors interviewed who worked in construction were based in London. Some of the reasons mentioned by interviewees were their family and the networks they already had where they lived. Another reason was a reluctance to move to London; they said they would not like living in London.

Although the commercial work in construction was more profitable than private work, it also had some limitations, such as the necessity of upfront investment and the relatively limited creative side:

[With] a lot of big contracts, it would be every three months you get paid or something like that. So you obviously need enough money to keep yourself going until you get a payment through. That's probably a big massive obstacle for somebody like myself who is in a small firm. (E13, 2011)

Although some competitors claimed they had very successful businesses in the sector, most of the entrepreneurs considered it difficult to make a lot of money in the Construction and Building Technology. One of the England-based entrepreneurs was driven by financial interests to such an extent that he decided to start a business in a different skill sector:

The whole [construction] industry is a bit backwards; for the skill level that's required for it, you really don't get much money for what it is, which is one thing I've learnt over the years from doing it – I love doing it, but it's just, if you want to actually earn some decent money, it's very hard to get it. (E14, 2013)

The impact of geographical dimensions on entrepreneurship would have benefited from the insights of WorldSkills competitors living in Scotland and Wales. Regrettably, we could recruit only one competitor from each of these nations.⁴

⁴ The majority of the study participants (29) lived in England and another eight competitors lived in Northern Ireland. One lived abroad.

Creative Arts and Fashion

We interviewed five WorldSkills competitors working in Creative Arts and Fashion occupations. Of these, four were entrepreneurs and one was an intrapreneur.

WorldSkills competitors working in Creative Arts and Fashion differentiated between bespoke and standard products and services. The type of product seemed to be associated with the location from which customers came. Customers for bespoke products came from across the UK and abroad, whereas customers for standard products came from within a 20-minute driving radius of the business locations. One of the entrepreneurs based in the UK worked mainly on orders for bespoke products from clients worldwide. He said he had travelled for work to America, Holland, Singapore, Australia, and Belgium within one year and recognised that WorldSkills networks helped him make contacts that facilitated getting international orders (E5, 2009). Another entrepreneur who worked in the same skill category was based in a small town, producing mostly standard products and serving mainly local clients:

We have a ten-mile radius for delivery. We go a bit further depending what it's for but customers do tend to come from within seven miles. We get quite a few people asking for the different [bespoke] stuff. The normal customers are quite local. (E9, 2011)

London, again, emerged as the ideal location for the discovery and exploitation of opportunities to create future goods and services in Creative Arts and Fashion. Even towns and cities, such as Milton Keynes, not too far from London reportedly could not offer comparable opportunities in terms of the scale of corporate contracts and the artistic scene:

Although Milton Keynes isn't very far from London, the London scene hasn't quite hit Milton Keynes. A lot of London is corporate work and event floristry, which is almost quite an American idea, like big proms and evening parties; we don't really get that here. (I3, 2013)

None of the five competitors in this sector worked in or intended to relocate to London. An entrepreneur based in a major city in northern England explained his decision not to relocate to the UK capital by saying he felt more comfortable in his hometown. The entrepreneur lived with his parents and therefore saved on living costs. Also, he explained that London was dauntingly competitive and the start-up capital required would have been much higher than in other cities:

The competition in London is very big. There is a lot of competition. You would need a lot of money to even get your foot in the door. To start immediately I don't think I would be here today. It's very expensive to set up something like that. So it would be probably two or three times more expensive. (E5, 2009)

Manufacturing and Engineering Technology

We interviewed nine WorldSkills competitors working in Manufacturing and Engineering Technology occupations. Of these, seven were not interested in entrepreneurship and two were latent entrepreneurs (see

Appendix 1).

Start-up costs for a business in Manufacturing and Engineering Technology were perceived to be high (N3, 2013), with employment contracts at large organisations considered too attractive to justify taking the risk of becoming self-employed. Therefore, WorldSkills competitors who were sought after by large companies because of their world-class skills were not inclined to leave their jobs and start their own firms (L11, 2011).

A potential business idea offered by one respondent in Manufacturing and Engineering Technology sector was a design company start-up. In his view, a design company was relatively easy to establish as it did not require a large initial investment. However, the limitation was that a company that offered only design and no manufacturing would not attract a sufficient number of customers for the firm to survive: 'a small design company that doesn't manufacture things is very limited to the number of people who will approach you to design something for them' (N9, 2011).

Thus far, we have identified various motivating factors, industry-specific factors, and geographical contexts associated with entrepreneurship. Extrinsic rather than intrinsic factors motivated entrepreneurial competitors in the sample interviewed, with money and reputation being at the top of the list. There was limited evidence to argue that their WorldSkills experience had a major influence on study participants' entrepreneurial motivation. Self-employment was related to the sector of economic activity: all competitors interviewed in Creative Arts and Fashion were entrepreneurial, while the majority of those working in Manufacturing and Engineering Technology were not interested in entrepreneurship. Geographical location was perceived as an important determinant for entrepreneurial success. However, not many competitors were prepared to relocate to the locations that they considered to be more beneficial for their business development. Two entrepreneurs who were thinking of relocating relied on their WorldSkills networks in terms of setting up businesses in new places. These cases are discussed in the section on social capital and entrepreneurship.

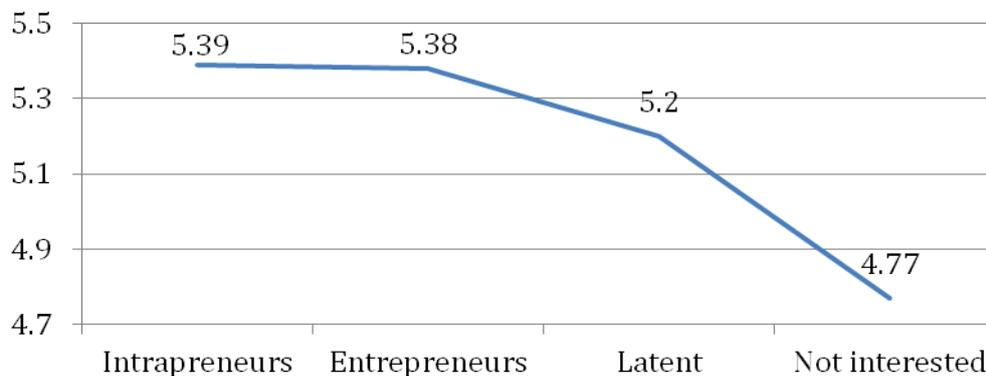
5 Psychological capital, social capital, and human capital

5.1 Psychological capital and entrepreneurship

Psychological capital is an individual's positive psychological state characterised by self-efficacy, optimism, hope, and resiliency (Luthans et al., 2007). In this study, self-efficacy is identified with confidence; hope is identified with willpower. We also gathered data on competitors' self-reported ability to manage stress and their propensity to take risks.

The PsyCap questionnaire analysis showed that the average PsyCap scores were highest for intrapreneurs (5.39) and entrepreneurs (5.38) and lowest (4.77) for those who were not interested in entrepreneurship (Figure 2).⁵

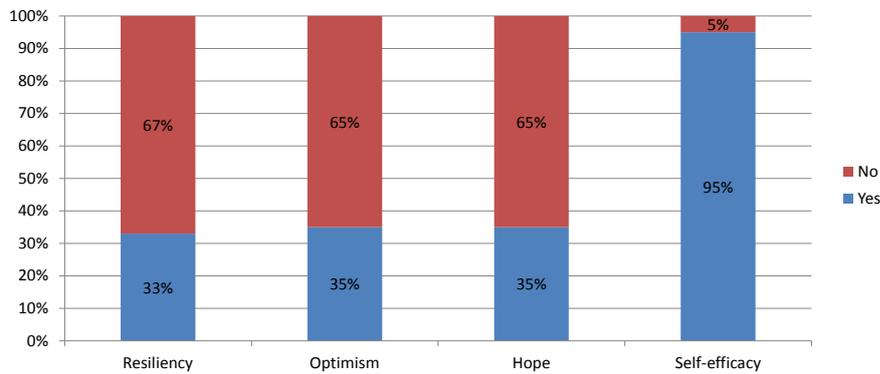
Figure 2. Psychological capital: average scores for different groups



We asked WorldSkills competitors to think of one experience that had the strongest influence on developing each of the components of psychological capital: self-efficacy, optimism, hope, and resiliency. The analysis of the responses showed that 95% of the participants recognised WorldSkills as the most important lifetime experience that had developed their self-efficacy (Figure 3). However, only 34% of participants considered WorldSkills experience to be their most influential lifetime experience for developing optimism, resiliency, or hope (Figure 3). For the majority of WorldSkills competitors, the most important influences on the development of these three characteristics were related to their childhood/parents, workplace experience, school experience, health-related issues, or religious beliefs.

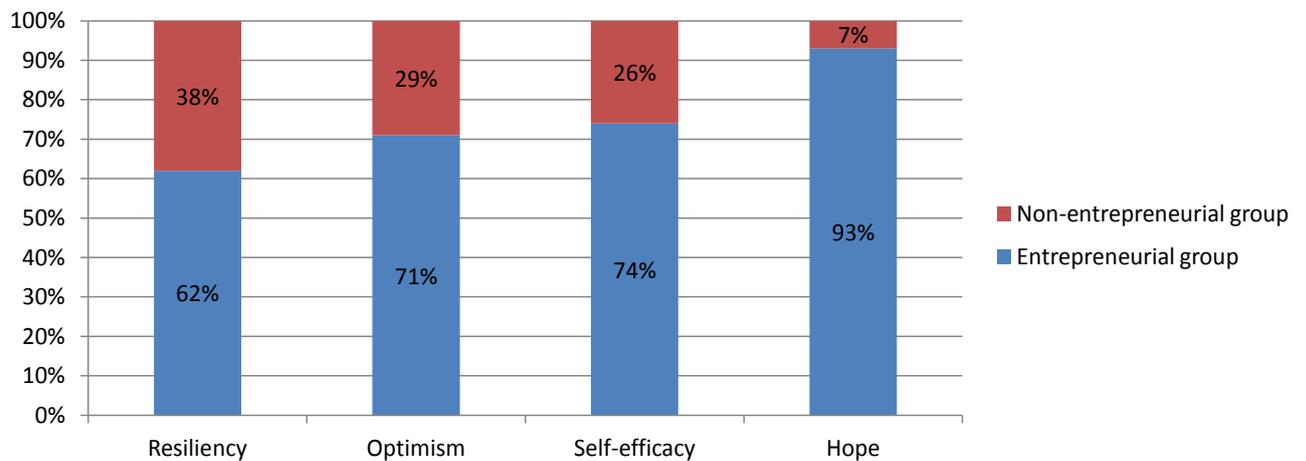
⁵ We conducted independent samples t-tests to check if the mean PsyCap scores were different for any of the four groups when compared to others and for the entrepreneurial group (n=30) when compared to the non-entrepreneurial group (n=10). None of the five t-tests showed statistically significant differences between groups.

Figure 3. The proportions of participants who recognised WorldSkills as the most important influence for the development of these psychological characteristics (n=40)



Of those who recognised WorldSkills as the most important influence on the development of each of the four psychological characteristics, the majority were entrepreneurial (Figure 4).

Figure 4. Entrepreneurship category of those who recognised WorldSkills as the most important influence on developing these psychological characteristics



The following provides a more in-depth understanding of how each of the four components of psychological capital was developed through the WorldSkills experience.

Self-efficacy/confidence

Thirty-eight of the individuals interviewed (95% of the sample) recognised WorldSkills as the most important influence on developing their self-efficacy / confidence (Figure 3). Of these, 28 individuals (74%) were entrepreneurial (Figure 4). WorldSkills seemed to have given these individuals 'obviously more confidence to believe [they could] do whatever you want[ed] to do' (E14, 2013). Confidence helped some interviewees say 'I can do that' when they faced a new challenge. One of the competitors said the competition experience helped him 'dramatically with confidence' (E6, 2011).

Some entrepreneurial competitors claimed their confidence was boosted by the opportunities WorldSkills provided in terms of meeting new people and going to new places (E12, 2009). Others spoke about adapting to different scenarios through their WorldSkills experience (E11, 2007). Still others mentioned the process of learning and how that helped them gain the knowledge which contributed to the development of their confidence:

Being judged constantly and being marked and told how to improve and where to look for different things helped you gain the knowledge you need to be confident. To be judged in an international competition, you've got to be confident you're making the exact right thing and know your product well. For me, that is the main thing. (E11, 2009)

Quite a few competitors seemed to have developed their confidence through working with their training managers: 'she recognised I was quite shy, and she put me into awkward situations,' said one of the entrepreneurs (E4, 2011). Another entrepreneur remembered how the training manager would tell him: 'unless you do something you're not comfortable with every now and again, you're never going to move on and I live by that' (E9, 2011).

Confidence was generally recognised as extremely useful for having a successful business: 'obviously a client can tell if you're shy and they're not going to have confidence in you because you're not showing confidence in yourself' (E4, 2011). One aspect of confidence that some entrepreneurial competitors found particularly valuable was assertiveness in communicating on difficult topics. They argued that their WorldSkills experience, in particular their negotiations with employers on training time, helped them develop skills that they could use with difficult customers:

You're more assertive with what you need to tell [customers] because you're confident in what you're telling them. It helped me confidence-wise to know my trade more, be able to talk to customers, bosses, new people. I would never have talked to normal people before and when I've gone through the cycle, I was doing demonstrations and workshops; it was a real confidence boost in general to do it. (E9, 2011)

Another interviewee, who was intrapreneurial at his family firm, had a similar point to make:

Now I can be a lot more confident in what I am doing; it's having that confidence that goes a long way with customers because if they see somebody is not very confident, they will be a little bit wary of them doing the job. It means quite a lot to customers having that confidence. (I2, 2013)

One entrepreneur talked about the experience of dealing with unpleasant situations through WorldSkills and how it helped him develop the confidence required for the successful operation of his firm:

There are some quite rude and obnoxious people out there, and dealing with pleasant and polite people was easy, but dealing with obnoxious people isn't, and as you went across the board of meeting so many different types of people, we had training in WorldSkills that taught you how to deal with different situations. So I believe on a grand scale, the experience I had with them, has no doubt whatsoever helped me and assisted me (E2, 2001).

Hope/willpower

Fifteen of the individuals interviewed (35% of the sample) recognised WorldSkills as the most important influence on developing their hope/willpower (Figure 3).⁶ Of these, 14 individuals (93%) were entrepreneurial (Figure 4).

Most reported having very high levels of hope/willpower and believed that willpower was crucial when it came to accomplishing tasks and achieving goals in life: 'Life won't hand it to you on a silver platter. If you want something you need to go and get it and work hard to get it' (L6, 2013).

One-third of the WorldSkills competitors recognised that WorldSkills had a decisive influence on developing their willpower. This is how a latent entrepreneur described the WorldSkills influence:

One thing I've learned is you're faced with a task and it looks really daunting. But as you sit down and go through it step by step, it becomes so much easier. It's like a big wall in front of you at first and seems impossible but that's something I've learned, things always do look daunting at first but once you break it down and go into it, anything can be achievable if you want it to be achievable. [...] As you progress and come to a hurdle within this journey, that you want to make a company or make a future, I've learned you've just got to step back and you know it can be overcome. That's one big memory I've got from the WorldSkills, so many tasks I was faced with that seemed impossible at first but they're not. (L2, 2013)

Another competitor confirmed that WorldSkills helped him to approach each task pragmatically by looking at a plan and breaking it down into manageable parts (E5, 2009). The process of preparing for the WSC was seen to be important in terms of developing willpower. The WSC was 'a key driver for that; it was how badly do I want this, how much am I going to practise. I'm going to come in at

⁶ Luthans et al. (2007) identify hope with willpower. In interviews with competitors, we mostly used the word willpower (rather than hope) because of the perceived similarity in the meanings of optimism and hope.

five in the morning and I'm going to practise and practise. And I worked hard because I wanted to' (L8, 1997). Competitors were not allowed to give up in the middle of the training process and they had to work very hard to get to the end (E10, 2011). Overall, the WSC was a test for competitors' willpower (L1, 2013). 'If you've got the willpower, you can do anything you want. There's no point in having dreams if you're not going to try and do them' (E14, 2013).

The majority of the rest of the sample claimed they always had the willpower and WorldSkills contributed to its advancement in some ways. 'I obviously already had some of it anyway, that's why I was put into WorldSkills, but obviously, it helps a lot. [WorldSkills] made me realise that you really can do whatever you want to do,' explained one of the competitors (E14, 2013).

Optimism

Fourteen of the individuals interviewed (35% of the sample) recognised WorldSkills as the most important influence on developing their optimism (Figure 3). Of these, ten individuals (71%) were entrepreneurial (Figure 4).

A small number of competitors explained that WorldSkills made them realise how much they could achieve in a limited period of time by focusing on their goals: 'As long as you've got that focus, you can achieve anything you want' (E9, 2011). Some competitors felt that the international competition was 'quite a moment' that made them and their families believe in them: 'I didn't believe I would have the skills. You just don't believe in yourself until something like that happens and that spurs you on to think what could happen. Anything could be round the corner' (L2, 2013). Generally, it seemed that WorldSkills made some competitors feel they 'need[ed] to be optimistic' (L6, 2013), that there was no other option left to them: 'I can't see how it won't work, so I don't really think about the challenges. I don't think about problems' (E14, 2013).

One entrepreneurial individual defined optimism as a 'mixture of self-belief in [their] own skills' and an expectation of positive things in the future:

Most of my optimism is based, rightly or wrongly, on self-belief, you go into something assuming that you can make it work. So, if I start a project my assumption is, even if it doesn't get launched, we will do great work and we will have fun along the way, and we're aiming to get something launched, but actually you know that you have the skills that you should be able to get to the end. It's a mixture of self-belief in your own skills, and I think I got that from when I was in catering college. (I1, 1999)

Resiliency

Thirteen of the individuals interviewed (33% of the sample) recognised WorldSkills as the most important influence on developing their resiliency (Figure 3). Of these, eight individuals (62%) were entrepreneurial (Figure 4).

The capacity to bounce back was recognised as an important characteristic for an individual to successfully complete the WorldSkills journey and was considered to be an innate trait by some competitors: 'to be in a competition, you already got to be [resilient] in a way. If anything goes wrong, and you throw it away then you have lost, so I must have already been slightly like that from the beginning' (E6, 2011). Others talked about the importance of different stages of the WorldSkills cycle for developing resiliency. At squad selection and team selection, 'which were tougher than the WSC' (E14, 2013), competitors faced difficulties that they had to overcome immediately and failures that they had to recover from following the events. These experiences made them 'definitely, a lot tougher' (E14, 2013).

The WorldSkills journey had some elements that further developed competitors' capacity to be resilient. For example, the feedback received in the process of learning reportedly helped to build on the experience of failure and to move on with new skills and stronger motivation to achieve outstanding results (I4, 2013). If a task was not completed to the expected level, competitors had to do it repeatedly. One of them explained: 'you needed a bit of resilience there when you were being told that your work you thought was good isn't actually that good and to do it again and to do it better the next time. That probably helped the resilience' (L7, 2011). Another competitor described how the WorldSkills experience that developed his resiliency also helped him appreciate when to take a break from persistently trying to achieve an excellent outcome and how to come back to the task later:

When I was practising for some of my competitions, I made a [competition piece]. And, I must have made about 40 of these things, and I couldn't make it work right, but in the end I realised that it was my own frustration that was stopping me from doing it. So, I said, right I'll put that down, go and do something else that I know I can do, and I came back the next day and did it the first time, and it worked. You learn it on the small things, but then at [my workplace] I've had to learn that at a project level, that there are times when it's worth continuing to spin the plates and to push and poke, and sometimes it's better to go off and do something else and then come back. (I1, 1999)

Stress management

Psychological capital can serve as an effective buffer against high levels of stress in entrepreneurs (Baron et al., 2013). Our study of WorldSkills competitors confirmed this relationship. The competitors who said that they managed stress poorly had slightly lower scores on the psychological capital test (PsyCap=4.88, n=13) than those who considered their stress management to be good (PsyCap=5.30, n=27).

Entrepreneurial individuals reportedly had a higher capacity to tolerate and manage stress. While the majority of the entrepreneurial individuals (80%, 24 individuals) said they were good at managing stress, the majority of the non-entrepreneurial individuals (70%, 7 individuals) considered themselves poor at managing stress levels.

Many of those who said they were good at managing stress admitted that they had been generally calm since very early age. In some cases, WorldSkills competitors talked about the influence of the competition experience on helping them to 'rationalise stress better' (L1, 2013) and on improving their ability to deal with stress:

I always used to get very stressed out and WorldSkills taught me a lot on how to deal with it because you are in such a pressurized environment. You have got to learn how to do it, how to block the stuff out and just get on with what you do like there were thousands and thousands of people in those halls and I didn't see one of them. (I2, 2013)

Risk-taking

The academic literature, as well as popular culture, often describes entrepreneurs as risk-takers. Such depictions go hand in hand with them being portrayed as confident, resilient, hopeful, and stress-tolerant optimists. This sub-section looks at the risk-taking behaviour of WorldSkills competitors, as 'taking risks beyond security' is considered to be one of the main characteristics of entrepreneurs (Kuratko, 2007). 'I don't think you'll get anywhere unless you take a couple of risks but [starting a business] is a pretty big one. But I'm not afraid to take risks and taking the jump to do it,' explained one of the latent entrepreneurs (L6, 2013). More than half (65%) of the 30 entrepreneurial respondents claimed they were risk-takers. The rest preferred to 'play it safe' (E12, 2009) or 'take only calculated risks' (E11, 2007).

Some entrepreneurs who said they were risk-takers talked about their 'nothing-can-possibly-go-wrong' approach to business. An entrepreneur who started his business in social and personal services with '£1,000 in the bank and an old laptop' said 'it couldn't fail because there was no option. There was no option to fail' (E5, 2009). Others reasoned that the timing was right: 'just because I was

of a young age, I thought, I'll take the risk now before I get older because I don't have any of the house or car or anything to pay for every month' (E6, 2011).

It also emerged that social networks, and in particular family members, had the largest influence on competitors developing approaches to risk: risk-aversion or risk-tolerance. The WorldSkills experience seemed to have also had some effect on some entrepreneurial and non-entrepreneurial competitors in terms of developing their risk-tolerance and demonstrating to them that taking risks can be worthwhile. One of the WorldSkills competitors recollected how she took a 'massive risk' at the international competition and how it had paid off (N2, 2013). Another competitor indicated that in order to train for the WSC, he had to give up profitable work and also leave his job; he considered these to be major risks that had paid off (N9, 2011).

5.2 Social capital and entrepreneurship

The topic of social capital and entrepreneurship has received considerable attention in the business literature.⁷ Social capital may be a catalyst, obstacle, or unrelated to entrepreneurship (Light & Dana, 2013). This study mainly focused on whether the networks developed through WorldSkills served as a catalyst for competitors' professional success, especially for entrepreneurs. An intrapreneur explained that there are:

very few occasions when you achieve something completely on your own. You rely on other people, whether it's your partner making you dinner when you get home, or whether it's a supplier who has to send something on time. The relationships you build up around your entrepreneurship, or your business, really matter (I1, 1999).

Participants identified five networks as the most important for their professional success: family networks, friendship networks, professional networks, customer networks, and WorldSkills community networks (which sometimes overlapped with friends and professional contacts).⁸

WorldSkills competitors recognised professional networks as the most important for their professional success, followed by family networks (see Table 3). Nearly half of the respondents talked about the value of the WorldSkills networks for their professional success. While the

⁷ See, e.g., Birley, 1985; Casson & Giusta, 2007; Galindo, 2008; Light & Dana, 2013

⁸ Family networks included competitors' immediate and extended family members. Professional networks included colleagues from current and past workplace(s), managers and leaders in the industry, contacts acquired through professional association membership and students/apprentices with whom WorldSkills competitors worked. Friends were competitors' close associates who did not practise the same profession and were not family members. Customer networks included the clients with whom the respondent had worked. WorldSkills community networks included training managers, other competitors, and professionals that the respondents met through WorldSkills.

professional and WorldSkills community networks were considered important by similar proportions of entrepreneurial and non-entrepreneurial individuals, these two groups differed in their reliance on friends and family. Nearly twice the proportion of entrepreneurial individuals recognised friends and family as relevant networks for their professional success compared with non-entrepreneurial individuals (Table 3).

Table 3. Importance of different networks

Type of network	Entrepreneurial category	% (number of respondents in the entrepreneurial or non-entrepreneurial groups, respectively) recognising the importance of the network
Professional networks	Entrepreneurial	80% (24)
	Non-entrepreneurial	80% (8)
Family networks	Entrepreneurial	67% (20)
	Non-entrepreneurial	30% (3)
WorldSkills community networks	Entrepreneurial	47% (14)
	Non-entrepreneurial	50% (5)
Customer-base	Entrepreneurial	40% (12)
	Non-entrepreneurial	0% (0)
Friends	Entrepreneurial	20% (6)
	Non-entrepreneurial	10% (1)

Social capital may be associated with a number of benefits for entrepreneurs. It may improve the chances of survival and growth of new businesses (Brüderl & Preisendörfer, 1998), allow access to potentially valuable information (Baron, 2013; Galindo, 2008; Hoang & Antoncic, 2003), give access to advice and encouragement (Baron, 2013; Hoang & Antoncic, 2003), provide emotional support to entrepreneurs (Birley, 1985), give increased access to financial resources (Baron, 2013; Birley, 1985; Galindo, 2008), and develop trust (Baron, 2013). Next, we look at how WorldSkills competitors experienced these benefits and what role WorldSkills played in building these networks.

A majority of entrepreneurial individuals indicated that social networks contributed or were expected to contribute to their business development. Very often, these networks were related to work/college experiences or family networks. In a number of cases, networks were acquired through the competition experience. For example, an entrepreneur (E10, 2011) explained that he had been working closely with two people from the WorldSkills squad. They had slightly different specialisations in the same skill sector and complemented one another. One of those colleagues was planning to move from Northern Ireland to England and work for E10's business. Another

entrepreneur saw considerable benefits from keeping in touch with his training manager: 'My training manager has been fantastic. He's always tried to help me work wise, if anybody has needed any work done he's always recommended me, and that sort of thing' (E13, 2011). Yet another competitor thought his business benefitted from collaborations with other WorldSkills competitors:

When I do big projects in the UK or [abroad], I take over there a girl who I trained for WorldSkills. Two other girls who made the squad and one girl made the team. I trained them and mentored them. They now own shops that are businesses and studios. They are always up for something exciting. If I say "Do you want to go to Ireland for a week and help me?" "Yes, yes we will." (E5, 2009)

Latent entrepreneurs hoped to be able to employ WorldSkills ex-competitors when they were in the position of being able to offer jobs: 'definitely they would be your first choice, 100%. That would be the first people that you would want to work for you' (L10, 2007).

Networks allowed access to potentially valuable information. One of the latent entrepreneurs said he would definitely turn to his training manager in providing support in terms of relevant information at the time of starting his own business. 'He is sort of my guardian angel, really,' said the competitor (L12, 2009). In addition to training managers, fellow competitors were also a supportive source of advice and guidance. One of the entrepreneurs recollected the responses of people outside his close network after he had described an idea for a new product. He said people reacted with 'That's not realistic' or 'You're stupid', whereas his close friend and a fellow WorldSkills competitor always encouraged him with words like 'Genius, I love it. You're the man' (E14, 2013). There was another case when the networks acquired through WorldSkills encouraged the pursuit of entrepreneurial ideas by showing how self-employment can work: 'It was a case of meeting a few of the lads and lasses [through the WorldSkills] that were already self-employed, and I thought, Christ, they're only twenty-five and they've got their own business, and supporting themselves from it. I thought that was brilliant' (E12, 2009).

One of the main assumptions behind the benefits of social capital is that the goodwill, trust, or sympathy of other people is a valuable resource (Adler & Kwon, 2002, p. 18). In business networks, trust is crucial and may be defined as 'a confident and warranted belief that the other party will honour their obligations' (Casson & Giusta, 2007, pp. 228–229). The issue of trust emerged as a topic of discussion with 14 WorldSkills competitors, all of them entrepreneurial: 'I know people that I can trust and rely on' (E13, 2011) or 'these are people that I would trust, which is very important, to have the same core ethic as me and the same motivation as me, very similar characters to me' (L8, 1997). Family and friends constituted the most trustworthy networks for entrepreneurial competitors.

Although the literature notes that keeping and developing social networks can have costs (Adler & Kwon, 2002), most of the interviewees did not see the investment in building social networks as a cost. For example, when asked what kinds of costs were associated with developing professional networks, one of the entrepreneurs responded: 'I see it as being able to give. It is not a cost at all. That's a horrible way to think about it. I don't want to say there are costs involved at all' (E5, 2009). In contrast, those WorldSkills competitors who did not invest as much as others in keeping active and/or expanding their networks, especially the WorldSkills network, used the argument of costs to explain their lack of investment, often referring specifically to the costs related to geographical separation:

If someone called me and said, "Do you fancy a quick drink tomorrow night in Edinburgh?" I will be like "No, I don't, not really." I can't travel that far, that was the problem with WorldSkills, everyone was from all over the UK but it was always in London where we met (E2, 2001).

Whether individuals build networks with people who have similar or different opinions and practices to their own may be related with the propensity to form new ideas, generate growth, and create innovation. Building networks with people who have similar opinions and practices to one's own is known as closure, and building networks with people who have different opinions and practices from one's own is referred to as brokerage (Burt, 2005). Closure helps to strengthen connections within groups, enhancing trust and alignment, and resulting into improved efficiency; brokerage allows the building of connections across groups and is associated with growth, innovation and higher likelihood of detecting and developing good ideas. We asked interviewees whether their networks connected them to professional practices that were different from their own (brokerage) or similar to their own (closure). A chi-square test showed that there was a significant difference in the type of networks that entrepreneurial and non-entrepreneurial individuals had built. Namely, the most important networks of all ten non-entrepreneurial individuals included people with similar professional backgrounds. Amongst the entrepreneurial group, the majority had brokerage networks (17 individuals).

A third mechanism - linking - is also mentioned in the literature. While brokerage and closure are horizontal metaphors, linking is a vertical metaphor. Linking social capital implies connecting with groups or individuals who are at a different level of social hierarchy, building relationships with people in positions of power (Woolcock, 2002). A few of the competitors talked about the role of the WorldSkills community in helping them to link with individuals in positions of power, for example, people from Whitehall, the Royal Family, or business leaders. Whilst there was no evidence that

connections with government officials or royalty resulted in professional benefits, exposure to business leaders seemed to be most useful for entrepreneurial individuals:

[Business leaders] would be more useful than other networks, without a doubt, because they're the ones that are actually in the [industry] now, they're the ones that are kind of live now, whereas the princes, and all these other high-profile people you don't speak to them again. The only real networks that I got from there where I gained things were [the companies] which do all the products – they basically said to me, if you ever need any products in the future, let us know, and we'll supply you products at, like, cheap prices (L5, 2011).

Finally, this study confirms the idea developed by Adler & Kwon (2002) that it is through ability, motivation, and opportunity that social capital is activated. A few participants acknowledged that WorldSkills put competitors in environments where opportunities to network were high, thus helping to develop the confidence and communication skills that contributed to expanding individuals' social networks:

[WorldSkills] gives you the right tools to go and network, you can ask questions and you feel confident asking the questions. It puts you where high profile [professionals] would be, like designers to go and work with them, you would never get that anywhere. You go and you use what you can to make the most of that opportunity so it's not wasted and you keep in touch with those people just through meeting them, all the judges and designers. Not always but they get in touch with you back. (E9, 2011)

5.3 Human capital and entrepreneurship

For the purposes of this study, human capital comprises five elements: education and training (E&T) attainment, technical skills, business interaction skills, work experience,⁹ and exposure to entrepreneurship within the family. We discussed family networks in the previous section on social capital. In this section we focus specifically on the entrepreneurial knowledge that became available to some competitors through their family experiences of self-employment. WorldSkills emerged as the major contributor to two of these five elements - technical skills development and business interaction skills development.

Technical skills

We have overwhelming evidence from this study, confirming findings from another research project on the benefits of skills competitions (Mayhew et al., 2013), of the significance of the WorldSkills training for the development of competitors' excellence in their respective vocational skill areas.

⁹ For the purposes of this study, work experience is defined as any experience that an individual acquires when working in a specific occupation.

Eighty-eight per cent of the interviewees acknowledged the influence of WorldSkills on the development of their technical skills.

We looked at the association between winning medals, as one indicator of possessing the highest level of technical skills, and entrepreneurship. We discovered that amongst those who did not win a medal or won a medallion of excellence, there were almost equal proportions of entrepreneurial and non-entrepreneurial individuals. However, those who won gold and silver medals (13% of all respondents) were all entrepreneurial. A bronze winner explained how the technical skills he developed through WorldSkills helped him in his business:

because all the training was by hand, because that's what the competition is, it's the old-fashioned way. That was really useful because that's probably what taught me all the hand skills... the very bespoke stuff, and that's what people pay for, if it's done by hand, because anybody can push something through a machine. Or very unusual things, sometimes there isn't a machine to do the job. (E10, 2011)

Many competitors argued that WorldSkills turned them into perfectionists; they consistently worked to achieve the highest quality in order to make the products or services they offered exceptionally attractive to their customers:

It's in terms of trying to get people to go 'wow'. Because, ultimately, when you've got your own business, you need to delight your customers, and that's what keeps them coming back. If I had to connect it to the competition stuff, I'd say that doing competitions forces you to think, what's going to make people go 'wow'. I'd never really thought of it quite in that way before. That's what competitions do. They force you to think, what's going to make somebody go 'that's fantastic' (E5, 2009).

One important aspect of technical skills development that helped self-employed competitors was the development of the knowledge and skills of working efficiently, focusing on those parts of the work that matter the most, while saving time and materials:

Making it as efficiently as possible, and making sure that the quality matters where it needs to matter, and where it's not seen, doesn't matter, where you can cut corners, if that makes sense. That's where you make the money by...it sounds bad, by cutting corners, because... so you learn a lot about that [through WorldSkills] (E14, 2013).

Business interaction skills

The way WorldSkills competitors approached the people around them and their own work seemed to be crucial for their successful self-employment. We refer to these skills as business interaction skills or people skills. There is ample evidence from this project, as well as from another DuVE project on the benefits of skills competitions (Mayhew et al., 2013) that the competition experience developed competitors' people skills:

Obviously, being in WorldSkills, you learn a lot of people skills. You get a lot of interviews. You meet a lot of people. Your people skills grow a lot. I mean, I can happily talk to a customer now; before that, I was a bit shy. (E14, 2013)

One aspect of communication skills that some entrepreneurial competitors found particularly useful was discussing difficult topics with others. They argued that the WorldSkills experience and, in particular, negotiations with employers regarding training time, helped them improve skills that they then used with difficult customers. This aspect of business interaction skills development overlaps with one of the aspects of psychological capital - confidence - discussed earlier.

Some interviewees talked about the approaches to work and people used in the process of competitor training. This included rejecting routine approaches and adopting unconventional ways of thinking, being organised, taking responsibility for paperwork, seeking excellence in everything, and seeking to work with people who are perfectionists. The following two quotes demonstrate how two entrepreneurial competitors reflected on WorldSkills and its positive role in changing their approaches to work and people:

What competitions do is they force you to think in a different way to how you do on a day-to-day basis. In your day-to-day work it's possible to end up thinking in quite a routine way. What a competition does is it says, you need to get to a different result, therefore, thinking in the same way won't work. I'm just basing this on experience; what competitions do, they force you, with a bit of adrenalin, to think about a different challenge, and it is quite invigorating. (I1, 1999)

You like everything in the right place. You want things clean and tidy. People like to see that. If you were to quote some work and someone turns up in a van which looks dirty and they get out and their appearance isn't very smart. You are thinking "Is that the way he's going to be across the whole job?" He might be able to do the job very well, but appearance is what you see. One of the things they were particularly happy with when I did the WorldSkills was the organisation, the way everything is. You've got a place for everything. It's very much like that still now. You go to a job and you set up a site. It is all written out and drawn out prior to the job starting. The way you are taught to do things and the cleanliness and tidiness is kind of rubbed off on a much bigger scale. (E3, 1997)

One of the latent entrepreneurs explained: 'the whole well-roundedness of a person I would take from WorldSkills - how they look at a person, how they analyse a person - would now be probably how I will analyse, without realising it, a person or an employee' (L6, 2013).

The competition seems to have had varying influences on participants' business interaction skills development; some benefited from it more than others. Those who talked in great detail about the relevance of people skills seem to have also been more successful in using the WorldSkills name for promoting their business. These interviewees considered their WorldSkills experience as a good tool for publicity that would result in more clients. 'It's a big stepping-stone,' said L5 (2011), 'you've only got to type my name in Google and see that I was crowned. So I could use that as advertising.'

Another competitor explained that WorldSkills experience 'sounds impressive when you're telling someone about it, it's definitely helped me gain a few clients, and for them to get confidence in me because they've seen what I've done' (E4, 2011). A recent competitor said he used the WorldSkills name on an advert in his village because everyone knew him and might not have had a great deal of trust in his abilities because of his young age. The advert worked effectively, the competitor said, as the international success story made his potential clients realise he could do the job (E10, 2011).

Another competitor thought his WorldSkills medal presented an excellent selling point for his future business: 'When you are pitching yourself, it gives them a bit of faith in that you have achieved something on a world level, and it proves to them your capabilities of being able to do their work to the highest standard' (L7, 2011). Again, this benefit largely depended on the business interaction skills that WorldSkills competitors developed through their WorldSkills experience.

Education and training attainment

Three aspects of education and training (E&T) attainment are relevant for this study: competitors' experience of entrepreneurship education, the qualification attained by participants, and their plans for pursuing E&T in the future.

Competitors reported little formal experience with entrepreneurship education. Very few had taken any courses in business studies, accounting, finance, management, or a related subject, either as part of their qualifications, continued professional development, or independently of a work or study programme.

Only one respondent, who participated in the competition in 2001, mentioned a specific training programme provided during the WorldSkills training that was focused on business skills development. This training consisted of workshops giving scenarios of how to cope with running a business. There were also role-play exercises based on different business situations:

There is no way it couldn't have helped. There was no way it has no effect when you were given lots and lots of scenarios and lots and lots of case work and lots of competition and lots of interviews, and lots of paperwork; there is no way that that didn't give me something which I have taken out of it in today's life. (E2, 2001)

We looked at the differences in the E&T qualifications attained by entrepreneurial and non-entrepreneurial individuals. A t-test demonstrated that the average level of E&T attainment, as expressed by Qualifications and Credit Framework (QCF), was Level 4 for 30 entrepreneurial competitors and Level 5 for ten non-entrepreneurial competitors. Additionally, WorldSkills competitors were asked if they felt they would need to pursue any E&T in the future, by attending a

training course or acquiring a formal qualification. We classified competitors' responses into three groups: none, some, and extensive. The differences between the entrepreneurial and non-entrepreneurial groups emerged through chi-square analysis. Amongst ten non-entrepreneurial individuals, only one did not plan to pursue any E&T in the future. Amongst 30 entrepreneurial individuals, 14 did not plan to pursue any E&T. Both groups, however, intended to undertake or upgrade industry certifications as required by their respective industries. These findings may point to the possibility that higher levels of E&T attainment are not necessarily associated with a higher likelihood of entrepreneurial pursuits.

Work experience

For the purposes of this study, work experience is defined as any experience that an individual acquires when working in a specific occupation. Across the sample as a whole, entrepreneurial individuals had more work experience (on average, 50 months) than non-entrepreneurial individuals (on average, 38 months). This difference should be viewed in the light of another statistic - participants' age; there was no significant difference in the mean age of entrepreneurial (25) and non-entrepreneurial (24) individuals included in our sample.

All latent entrepreneurs remained in employment as they did not feel ready to start their own business due either to a lack of initial capital and/or their perceived lack of essential business management skills. When talking about the future, latent entrepreneurs and intrapreneurs mentioned the word 'learning' more often than self-employed individuals. What they often meant was learning in the workplace that helped them acquire those basic skills of management that would allow them to be self-employed: 'I think workplace learning suits me more. I'm much more practical, I need to do it to learn it' (L1, 2013). One of the latent entrepreneurs explained how he changed jobs from a large non-profit to a large for-profit company in order to gain more diverse experience of how a profit-making firm works:

I had got that kind of corporate experience, the ability to work in a team, how to manage projects, that kind of stuff. It [was] not a commercial, money-making business, so the next thing for me was to learn, okay, so how do you then make money, you know, or how do you then do something in an environment that's built to make money, so it's a very different way of looking at it. So, eventually, at some point I can put all these pieces together to then, eventually, go off by myself. (L4, 2009)

Exposure to entrepreneurial experience within the family

We asked WorldSkills competitors about entrepreneurial experience within their families and classified the respondents into those who had a self-employed family member and those who did

not. Amongst the non-entrepreneurial group of WorldSkills competitors, one-fifth had entrepreneurial experience in their family, while four-fifths of entrepreneurial competitors had a family member who owned a business or was self-employed.

Having an entrepreneurial family member was associated with multiple benefits for entrepreneurs, in terms of psychological capital (resiliency), human capital (knowledge of finance and accounting practices), and social capital (networks).

Most of the family experiences of entrepreneurship described were success stories: '[My uncle] is self made. He had his own house built up in the mountains in [Europe]. He's living the dream!' (L8, 1997). However, there were also cases of unsuccessful entrepreneurial experiences of family members which seemed to have affected the individuals interviewed and somewhat delayed their decision to become self-employed. A latent entrepreneur described a traumatic case of his step-dad going bankrupt and how this had developed his resiliency, although made him more cautious about opening his own firm (L4, 2009). Another latent entrepreneur talked about the failure of their family business and how the family struggled for subsequent years. Here again, the entrepreneur felt that the experience had improved his resiliency and made him more 'determined to get everyone back on their feet' (L12, 2009).

Family history of entrepreneurship reportedly made most of the entrepreneurial individuals more motivated to be entrepreneurs themselves. As one latent entrepreneur noted: 'my dad's done very well for himself, I'd be quite pleased if I'd done as well as my dad had' (L9, 2009). Another latent entrepreneur was also inspired by his father:

He's been one of my main inspirations through the whole thing. I don't think I would have got here if I didn't have such a massive support network at home but he's very sort of if you want it go and get it. Life won't hand it to you on a silver platter. If you want something you need to go and get it and work hard to get it. (L6, 2013)

Having a self-employed individual or a firm owner at home represented a considerable benefit in terms of getting advice on matters related to running a business, especially on the finance and accounting side. The majority of the entrepreneurs interviewed with an entrepreneurial family member received some help and advice on running a business from them.

Family tradition influenced WorldSkills competitors not only through the entrepreneurial experiences that they witnessed on a day-to-day basis but also through the networks that they acquired via family business connections:

Probably part of it will be drawn on the experience of my father as well. Obviously he has been running the business now for about 30 years, so he has built up a lot of contacts in terms

of builders and contacts related to public sector work as well. So probably on that, and I suppose as well just family and friends on a more personal level, the motivation that they give you to try and move forward and that sort of support. (L7, 2011)

The interviews with non-entrepreneurial competitors demonstrated that many of them did not have any self-employed individuals at home, at work, or among friends: 'I don't know anyone who's self-employed. They're employed with companies' (N9, 2011).

6 Challenges of self-employment

Study participants did not think self-employment was an easy career path, even though 26 out of 40 competitors had either seriously contemplated or already taken the risk of starting their own business over the security of being employed. Becoming self-employed was associated with a number of challenges. Sustaining business activities was also perceived as a tough task. Latent entrepreneurs talked about the challenges they expected to encounter in the future as they planned to start a new business. There were commonalities in how WorldSkills competitors perceived the problems they faced or expected to encounter at the time of becoming self-employed or at the time of expanding the business. The availability of start-up capital, the skills required in managing finance, paperwork, the client base and workload, and finding resources to employ new staff were amongst the problematic issues related to entrepreneurial career.

Becoming self-employed

A considerable number of entrepreneurial competitors talked about the difficulties associated with having no preparation for the technicalities of starting a business:

I wish I could have had someone who [would] help [with explaining] what is a limited company, what is a sole trader, where do you begin, what insurances do you need, how do you file your taxes? I had to kind of figure that out. Very stressful. If I had someone there who said "Oh yes, this is how you do it." (E5, 2009)

Some competitors were not prepared at the start of the business for all the paperwork required. The fact that 'all of a sudden' they had to 'pay an accountant and keep receipts' was a major problem for them (E8, 2013). Only after becoming self-employed did some competitors discover that 'you just can't take it for granted that you show up on Monday morning, you have to go and look at jobs and give people prices; there's a lot of work outside work' (E8, 2013).

Still others were concerned about legal and licensing requirements for starting a business in the construction sector. 'Because it's quite a lucrative market, it's really hard to get information on it, even on the internet and stuff,' explained one of the latent entrepreneurs (L12, 2009).

While a number of competitors learned about the procedures for handling paperwork and dealing with accounts easily, others found it challenging even after a few years of self-employment: 'whilst I had the production sorted, I had the ability to talk to customers - that was all second nature to me, dealing with the financial side of it was very difficult and still is' (E2, 2001).

Those who managed to deal with paperwork mentioned that 'getting people to know we were here' was a key challenge when starting up a firm (E9, 2011). Establishing a client base and developing a

unique product or service seemed to be among the central concerns for latent entrepreneurs: 'The difficulty is being unique. The difficulty is being attractive to people and actually staying afloat for more than a year' (L13, 2011). Another latent entrepreneur also focused on 'establishing a clientele, and then also gaining my reputation, becoming trustworthy' as the main challenges at the start-up stage (L4, 2009).

It emerged that most of the entrepreneurs saw challenges in planning and managing their workload. The process of completing jobs seemed to have been stressful because of their limited experience with planning, costing, getting supplies, and completing multiple jobs:

Some of the jobs I've taken on are just far too big for me. I tend to just say yes to everything and then worry about making it afterwards. So sometimes I just haven't got the machinery so I have to find a different way. (E10, 2011)

Finally, for some respondents 'the main difficulty was probably just getting enough money to gather up and work, just hard to get on your feet. But once you get the work and money starts coming in, it works out grand' (E7, 2013). Access to financial resources was one of the most frequently mentioned challenges amongst entrepreneurial competitors. They tried to tackle this problem by saving to start a business or borrowing the minimum amount required.

The financial aspect of a start-up was something that worried a number of latent entrepreneurs. Some of them expected help from their social networks, but others admitted they would 'struggle a little bit with the finance side of things' (L9, 2009). Although some competitors in this study benefited from the tools they retained following their participation in the WSC, entrepreneurial competitors had to invest substantial amounts of money in additional tools to run a business. An entrepreneur in Creative Arts and Fashion indicated that one of the most serious difficulties was to get 'the capital to buy the equipment. There is a lot of equipment in this room, about £70,000 worth without stock' (E2, 2001).

Finally, a number of entrepreneurs who were self-employed during their participation in WorldSkills, talked about difficulties encountered by being self-employed during the process of training for the WSC. Although self-employment provided flexibility of being 'able to take [time] off work whenever wanted' (E7, 2013) to some competitors, others had to be entirely unemployed for some periods of time:

I was unemployed during the training but when it was over, I started picking up bits of work of my own. I worked for a contractor for four or five years when I left school but I was away probably at least a week per month, maybe far more for the training and it didn't suit him. He was a small contractor and he needed somebody there all the time so it didn't really suit him. A lot of the lads in big firms were supported. [My client] needed somebody there all the time

and I wasn't able to be. I thought WorldSkills was more important than him. In hindsight, it was a good decision. (E8, 2013)

Business expansion

Across the sample as a whole, entrepreneurs wished to expand their businesses but were conscious of the challenges associated with the expansion. Out of 13 entrepreneurs, 11 did not employ anyone on a permanent basis, one employed one person, and one employed nine to ten people. Thus, all the entrepreneurs were small business owners. Most of the entrepreneurs purchased accounting services and hired contractors only when they had specific jobs for them to complete:

Depending on the type of project we have, sometimes I have up to 20 freelancers working for me. It depends on the project. For example, I had one assistant. That was the last two days. This weekend I am going to [overseas] where I have four assistants. (E5, 2009)

Respondents seemed to be concerned with establishing stable sources of cash flow that would allow them to employ others:

it's the financial side of taking on somebody else, so we'd have to get a lot more customers to be able to pay for the wages and do that sort of thing but it's the balancing act between getting too many customers so that we can't cope between the two of us and taking on another person and then there is not enough work. So you got that balancing out there which is quite hard to work out. (I2, 2013)

In some sectors, for example, Construction and Building Technology, an upfront investment in supplies was required for large commercial bids. Some entrepreneurs considered this a serious obstacle to their expansion, especially when they had nothing to put up against a loan (E13, 2011).

Thus, many entrepreneurs feared expanding their marketing because of the increased workload and paperwork that it could entail. They were concerned they could not manage the increased workload on their own. 'You don't need too much work because you just can't keep up with it,' explained one of the self-employed competitors (E10, 2011). In order to respond to the increased demand, entrepreneurs would need to employ one or more people. However, the commitment to employing people was perceived as a highly risky and very costly decision by the majority of entrepreneurs: 'you run the risk of running up a bill with somebody and then going bankrupt and that would not be very nice. I suppose it happens to a lot of people' (E8, 2013).

7 Conclusion

Through our research we sought to examine how WorldSkills competitors recognized and took advantage of opportunities to create future goods and services. Specifically, we were interested in how, if at all, WorldSkills experiences facilitated the process of the discovery, evaluation, and exploitation of entrepreneurial opportunities. Identifying the influence of social phenomena is considered to be an extremely complex process in social scientific research since counterfactuals can rarely be known. Linking entrepreneurial experiences with WorldSkills was not a simple task for the research team or for the competitors themselves; the majority of study participants saw some connections between the two experiences, but not all of these connections were easy to pin down.

A variety of individual and contextual factors influence the development of entrepreneurship. In this study we focused on four non-discrete individual-level factors - social capital, psychological capital, human capital, and entrepreneurial motivation - and two contextual factors - industry-specific conditions and geographical context. Three sectors of economic activity were used to illustrate that cultures and structures of different industries are important when looking at the propensity of competitors to become entrepreneurial. The geographical location of a business is also central to an understanding of the specifics of firm creation and development as entrepreneurs do not exist in a vacuum, but in the context of their local and national geographies. In this study the relevance of geographical location was intertwined with the sector of economic activity. In addition, we have identified some business-related challenges that entrepreneurial competitors faced at different stages of their careers. The availability of start-up capital, the skills required in managing finance, paperwork, the client base and workload, and finding resources to employ new staff were amongst the difficulties related to entrepreneurial career.

We established links between WorldSkills competitors' social capital, psychological capital, human capital and how the competition experience contributed to the enhancement of different aspects of these three types of capital as well as to the development of entrepreneurial motivation. Our research findings pointed towards the conclusion that training for and participation in WorldSkills enabled entrepreneurship by developing competitors' social networks, psychological characteristics, and technical and business interaction skills. However, it also emerged that the majority of entrepreneurial competitors had been entrepreneurial before they became involved with WorldSkills; they were self-employed, intrapreneurs or latent entrepreneurs. In other words, strong entrepreneurial motivation often preceded participants' engagement with competitions.

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Appendices

Appendix 1. Skill sector, skill category, and entrepreneurial classification of study participants

SKILL SECTOR	SKILL CATEGORY	ENTREPRENEURIAL CLASSIFICATION
Creative Arts and Fashion	Floristry	Entrepreneur
	Floristry	Entrepreneur
	Jewellery	Entrepreneur
	Jewellery	Entrepreneur
	Floristry	Intrapreneur
Manufacturing and Engineering Technology	Manufacturing Team Challenge	Latent
	Mechatronics	Latent
	Manufacturing Team Challenge	Not interested
	Manufacturing Team Challenge	Not interested
	Industrial Electronics	Not interested
	Sheet metal technology	Not interested
	Welding	Not interested
	Manufacturing Team Challenge	Not interested
Mechanical Engineering Design - CAD	Not interested	
Social and Personal Services	Pastry Chef	Intrapreneur
	Cooking	Latent
	Beauty Therapy	Latent
	Beauty Therapy	Latent
	Restaurant Service	Latent
	Hairdressing	Not interested
Construction and Building Technology	Landscape Gardening	Entrepreneur
	Wall and Floor Tiling	Entrepreneur
	Bricklaying	Entrepreneur
	Carpentry	Entrepreneur
	Joinery	Entrepreneur
	Wall and Floor Tiling	Entrepreneur
	Cabinetmaking	Entrepreneur
	Architectural Stonemasonry	Latent
	Landscape Gardening	Latent
	Plumbing and Heating	Latent
	Refrigeration and Air Conditioning	Intrapreneur
	Landscape Gardening	Intrapreneur
	Refrigeration and Air Conditioning	Not interested
Information and Communication Technology	Web design	Entrepreneur
	IT PC/Network Support	Entrepreneur
	Web design	Latent
Transportation and Logistics	Car Painting	Not interested
	Car Painting	Latent
	Automotive Technology	Latent
	Car Painting	Latent

Appendix 2. Interview schedule for entrepreneurs

Do you consider yourself to be an entrepreneur? If yes and they have set up their business, continue with this schedule (1a). If yes and they are entrepreneurial within an existing organisation, use the interview schedule 1b.

If not, ask the respondent if they would you like to become an entrepreneur? If not, proceed with the interview schedule 2. If yes, proceed with interview schedule 3 (latent E).

About the firm

1. When was the firm established?
2. Do you personally own a part of or the whole firm? How many other people are co-owners or co-managers?
3. What is the name of the firm?
4. What does the firm do? Is there anything that differentiates your products/services from the rest of the market?
5. Who are your customers? What geographical range do your customers come from?
6. Why did you decide to start a business at this location? Is this the place where you lived/live now?
7. What is your sector of business activity?
8. On average, how many clients do you have per month?
9. What is your annual turnover?
10. How many people do you employ full-time? How many people did you employ after one year from the start of the business?
11. When was the first time that your employees received wages from this firm?
12. Are you also employed elsewhere? If so, where?
13. Was the idea of starting your business influenced by your experience as an employee/student or through your participation in the WSC?
14. How did the skills and knowledge acquired through the WSC help you in firm creation?
15. To what extent are the techniques and/or technology of your firm related to the techniques and/or technologies you learned about through your WorldSkills experiences? Is it closely related, partially related or not related?
16. What difficulties did you face in setting up your firm?
17. How did you deal with those difficulties?
18. What were the biggest strengths you had when you decided to establish your own business?
19. Who was your employer at the time when you decided to establish your firm? How did your employment experience influence your decision to become an entrepreneur?

20. What other options were there at the time when you chose to become an entrepreneur? Why did you choose establishing your own firm? What benefits did you think this would bring to you in contrast to the next-best alternative?

21. Do you think you will be operating this firm in three years time?

Human capital

[NOTE: when asking these questions, make sure that you establish WHEN they happened in relation to (a) competitor's participation in the WSC and (b) firm creation]

22. Has anything you learned at FE college/university/other professional development courses been useful for you in starting and developing your business activities? Tell me more about these courses. What were their names and duration?

23. Did you have managerial and/or supervisory experiences at your prior workplaces before establishing your own firm? Tell me about these experiences.

24. Did you work in small, medium or large companies before establishing your own firm?

25. Were you ever involved in the development of new activities for your employer, such as developing new goods or services, or setting up a new business unit / subsidiary?

26. Did you acquire any other entrepreneurial skills and knowledge at prior workplace(s), educational institutions or any other settings?

27. Have any of your family members owned or run a business?¹⁰ What is their occupation and level of education?¹¹

Social capital

28. Tell me about your most important relationships with others, your networks that have contributed to starting and/or developing your business activities.

29. Which of these relationships helped you in seeking, discovering and evaluating new opportunities; acquisition of resources; and project implementation/market organisation [winning customer support/encouraging potential buyers]? How did they influence these opportunities?

30. Which of these relationships connect you with opinions and practices that are different from yours? And which of these networks connect you with opinions and practices similar to yours?¹²

31. Do you have different levels of trust in different relationships? Tell me about it.

32. Can you tell me about the examples of reciprocity in your networks?

33. What was the role of training and participating in the WSC on developing these networks?

34. What kind of benefits does belonging to these networks bring? Probe: quality and amount of information, support and advice, encouragement, cooperation and trust from others, influence, control, financial resources, reputational or signalling benefits.

¹⁰ Ask them to think back to two generations in the past

¹¹ This will give information about the social class background

¹² On brokerage and closure

35. What were the costs associated with keeping or developing these relationships?
36. Looking at the costs and benefits of keeping or developing these networks, do you think these were worth the investment?

Psychological capital

37. (a) Tell me about your experience that was the strongest influence on developing your optimism, i.e. expectation of positive and desirable events in the future.

(b) Since that event, are you more likely to attribute positive events to personal, permanent and pervasive causes and interpret negative events in terms of external, temporary and situation-specific factors now than you used to before that experience? Can you give an example? [OPTIMISM]

38. Tell me about your most important experience that developed your confidence to take on challenging tasks, complete them and reach goals [SELF-EFFICACY]

39. (a) Tell me about your experience that developed your willpower to attain goals and ability to see the pathways to these goals, redirecting paths to goals in order to succeed.

(b) Are you more determined to achieve your goals and is it difficult to distract you from your targets than it used to be prior to that experience? Can you give an example? [HOPE]

40. (a) Tell me about your experience that was most influential in developing your resiliency, i.e. the ability to recover from unfavourable events or stressors.

(b) When beset by problems and adversity, are you more likely to continue working hard towards achieving your goals than you used to before that experience? Can you give an example? [RESILIENCY]¹³

41. Did the WorldSkills experience contribute to the development of your self-efficacy, optimism, hope and resiliency? Give some examples.

42. How did your experiences of the WSC developed your capacity to tolerate and manage stress?

43. How did self-efficacy, optimism, hope and resiliency help you in making a decision to start a business and turning your entrepreneurial idea into reality?

44. What is your approach to risk-taking? Are you a risk-taker? Can you give me an example?

Motivation

45. What did you seek in your effort to launch a firm? Probe: greater independence, opportunity to engage in work you find meaningful, higher income, fame, reputation, there was no other opportunity of work, emancipation from social structures or conditions they find restricting, self-realisation, 'romance' of being an entrepreneur, social mobility, expectation of increased life satisfaction, being dissatisfied with the job you held

46. What other factors might have influenced your motivation to start a business? Probe: family tradition, inspiration by witnessing entrepreneurs (where? when?), inspired by a course at a college/HEI, participation in the WorldSkills, etc.

¹³ The above four questions are based on Luthans, Youssef, and Avolio (2007)

Closing up

47. Is there anything else you would like to add regarding the influences of WSC on your experience of discovering, evaluating and exploiting entrepreneurial opportunities?
48. Can you suggest the names of potential interviewees?
49. Can you think of anyone who participated in the year before or after you in the same skills category but did not become an entrepreneur?

Appendix 3. Psychological capital questionnaire

Below are statements that describe how you may think about yourself right now. Use the following scales to indicate your level of agreement or disagreement with each statement.

6 = strongly agree; 5 = agree; 4 = somewhat agree; 3 = somewhat disagree; 2 = disagree

1 = strongly disagree

1. I feel confident analyzing a long-term problem to find a solution.	
2. I feel confident in representing my work area in meetings with management.	
3. I feel confident contributing to discussions about the company's strategy.	
4. I feel confident helping to set targets/goals in my work area.	
5. I feel confident contacting people outside the company (e.g., suppliers, customers) to discuss problems.	
6. I feel confident presenting information to a group of colleagues.	
7. If I should find myself in a jam at work, I could think of many ways to get out of it.	
8. At the present time, I am energetically pursuing my work goals.	
9. There are lots of ways around any problem	
10. Right now I see myself as being pretty successful at work.	
11. I can think of many ways to reach my current work goals.	
12. At this time, I am meeting the work goals that I have set for myself.	
13. When I have a setback at work, I have trouble recovering from it and moving on.	
14. I usually manage difficulties one way or another at work.	
15. I can be "on my own" so to speak at work if I have to.	
16. I usually take stressful things at work in stride.	
17. I can get through difficult times at work because I've experienced difficulty before.	
18. I feel I can handle many things at a time at this job.	
19. When things are uncertain for me at work I usually expect the best.	
20. If something can go wrong for me work-wise it will.	
21. I always look on the bright side of things regarding my job.	
22. I'm optimistic about what will happen to me in the future as it pertains to work.	
23. In this job, things never work out the way I want them to.	
24. I approach this job as if "every cloud has a silver lining".	

Source: Luthans, Youssef, & Avolio (2007, pp. 237–238)