

Entrepreneurial Learning Outcomes and Occupational Status of Business Graduates in the Baltics

ABSTRACT

In this paper, we present results of the quantitative analysis, which examines a relationship between learning outcomes of entrepreneurship education (EE) and occupational status choices of Bachelor business graduates in two post-transition Baltic countries, Estonia and Latvia. The underlying conceptual framework relies on the adapted Bloom's taxonomy of educational objectives, human capital theory and model of entrepreneurial careers. From this taxonomy we examine knowledge, skills and attitudes as the focal learning outcomes of EE. We compare these outcomes to three choices of employment status: employment entry, nascent intrapreneurship and private early-stage entrepreneurial activity. The study also gives due consideration to the types of EE intervention, namely, traditional and experiential. We drew the sample of 454 respondents from a population of imminent and recent graduates from Bachelor degree business programs delivered at Estonian and Latvian higher education institutions. We used cross-sectional design with a matched comparison group. The findings of the study challenge common assumptions by suggesting that knowledge and skills obtained during EE had no direct effect on occupational status, and none of the learning outcomes was related to employment entry. Furthermore, graduates who took part in predominantly traditional and predominantly experiential EE had similar chances to become entrepreneurs. Our discussion of possible reasons behind the unexpected results should be of special interest to entrepreneurship educators and researchers for designing EE modules and further evaluation studies.

Keywords:

Entrepreneurship education; learning outcomes; occupational status choice

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INTRODUCTION

“The more we study, the more we know. The more we know, the more we forget. The more we forget, the less we know. So, why study?” This ironic quote by an anonymous author unveils two general layers of discussion concerning the relationship between students and the education system in general: to what extent does education enable them with competencies benefiting professional life, and what teaching methods to employ to ensure effective learning relevant for their professional life? Though applicable to all disciplines, these questions do have special allure in entrepreneurship education (EE) research. Scholarly interest in EE has expanded exponentially, with an increasing number of modules in higher education institutions (HEIs) and widespread diffusion into all levels of the education system. Increase in EE is occurring in conjunction with an ongoing shift towards more experiential learning (Kuratko 2005; Katz 2003; Bruyat & Julien 2000). The question of pay-offs from these initiatives, however, remains open. The higher the rigor of studies devoted to measuring the EE impact, the less evident it is that EE produces desired outcomes (Rideout & Gray 2013) and the more evident that positive impact is overestimated (Martin, McNally & Kay 2013).

Impact of EE is commonly assessed using subjective measures, such as entrepreneurial self-efficacy and intentions, often referred to as perceived learning outcomes, and/or objective measures such as nascent entrepreneurship and number of established enterprises manifesting career choices of graduates (Nabi, Liñán, Fayolle, Krueger & Walmsley 2016). The empirical studies of EE based on objective measures tend to overlook other crucial outcomes pertaining to professional life of graduates, for instance, organizational employment entry and status, and

intrapreneurship. This is a surprising gap as EE provides students with the opportunities to develop personal qualities, beliefs, understandings, and transferable skills to enhance their employability both as an entrepreneur and as an employee (Moreland 2006). Recognizing this, there is growing interest among educators and policy makers in the impact of EE beyond traditional venture creation (QAA 2012; Moreland 2006; Gibb 1996). As of now, the relationship between the learning outcomes of EE and subsequent occupational choices of university graduates beyond the “intentions – start-up” link remains underexplored in EE literature.

Furthermore, in spite of the widespread encouragement to teach entrepreneurship experientially (e.g. Krueger 2007; Löbler 2006; Fiet 2001), the evidence supporting the assumption that experiential EE is associated with superior outcomes if compared to non-experiential EE is still lacking. To date, a handful of scholars directly compared the impact of different pedagogical methods in EE with varying results across subjective learning outcomes (Piperopoulos and Dimov 2014; Moberg 2014). In the meantime, the increasing number of EE modules and programs is shifting towards more experienced-based pedagogies.

We fill these gaps by analyzing the relationship between the type of EE, learning outcomes and occupational status choices of Bachelor business graduates in two post-transition Baltic countries, Estonia and Latvia. This paper contributes to contemporary EE research by answering the following research questions: 1) What is the relationship between learning outcomes and occupational status choices of the Bachelor business graduates? 2) Does the type of EE intervention influence graduate occupational choices? We analyze occupational choices through measuring employment entry and status, nascent intrapreneurship and private early-stage entrepreneurial activity (EA).

In this paper, we add to the literature also by suggesting an integrated and theoretically grounded framework based on a revised version of Bloom's taxonomy of educational objectives (Krathwohl 2002; Kraiger, Ford, & Salas 1993; Bloom, Masia & Krathwohl 1964). The framework puts forward a tripartite structure of learning outcomes comprising cognitive, skill-based and affective outcomes, which represents a more holistic view of subjective measures if compared to models of entrepreneurial intentions and is specifically designed for educational context. Cognitive learning develops knowledge or understanding of the subject matter; affective learning improves positive attitudes and willingness to learn and act within that area, and skill-based learning increases subject-related skills making learners apply knowledge acquired.

In addressing the abovementioned questions, we hypothesize that: 1) Occupational status choices are positively dependent upon learning outcomes, and 2) Graduates who went through experiential EE are more likely to engage into nascent intrapreneurship, private early-stage EA and are less likely to be unemployed. Nowadays, EE has much broader implications than just impact on classical entrepreneurship. Given changes in the economy and global workforce, individuals need to be more flexible, creative, and develop greater sense of self-reliance as well as freedom to choose how they can contribute to the society (Penaluna & Penaluna 2015).

The analysis is based on a sample of 454 respondents drawn from a population of last year students of the Bachelor degree business programs and recent graduates from these programs at eight prominent HEIs of Estonia and Latvia. The focus on two neighboring countries that experienced transition from planned to market economy allows us to bring attention to the context within which EE takes place, providing a counterweight to the dominance of EE research from Anglo-Saxon countries (Blenker, Trolle, Signe, Frederiksen, Korsgaard & Wagner 2014). Estonia and Latvia provided an interesting context in which to analyze EE as, despite having a

socialist past, both nowadays score higher than average in total early-stage entrepreneurial activity (TEA) in Europe (Krumina & Paalzow 2014) and are among the first 25 countries in global entrepreneurship development index (Acs, Szerb & Autio 2016). In addition, this context provides a useful setting for assessing the outcomes of experiential EE, because it has a quite distinct variation between the two types of EE interventions.

We analyzed the data using composite indicator building, multinomial probit and binary logistic regressions. The findings of the study challenge common assumptions by suggesting that knowledge and skills obtained during EE had no direct effect on occupational status, and none of the learning outcomes related to employment entry. Furthermore, graduates who studied entrepreneurship predominantly experientially had similar chances to become entrepreneurs as those graduates who took part in predominantly traditional EE.

The paper is organized in the following way. The next section outlines the conceptual framework underlying the quantitative analysis. A detailed description of the study methodology follows. We then outline findings of the study that question the dominant rhetoric, and discuss them in the final section of the paper.

CONCEPTUAL FRAMEWORK

Entrepreneurship is a crucial force for economic value creation, in particular stimulating innovation, job creation and economic growth (van Praag & Versloot 2007; van Stel, Caree & Thurik 2005). The individual competencies (e.g. knowledge, skills and attitudes), in turn, are critical elements that enable people to take entrepreneurial actions and become entrepreneurs (Wennekers & Thurik 1999). The EE stakeholders, policy makers, educators and management of HEIs, collectively invest into the development of entrepreneurial competencies of students with expectations of future returns from graduate professional life. If EE is effective, it can be a

powerful channel for generating long-lasting improvements in the society. In analyzing the effectiveness of EE, two main approaches to measuring outcomes have been taken. First, measuring subjective learning outcomes, e.g. assessing learning outcomes through analyzing changes in students' intentions towards entrepreneurship. Second, measuring objective behavioral outcomes such as starting up a new business. We argue that to get a good understanding of the effectiveness of EE it is necessary to explore both learning and behavioral outcomes and analyze the connections between the two.

Learning Outcomes of EE

Up to now, assessing the learning outcomes of EE has been dominated by measurement of entrepreneurial intentions and their antecedents (attitudes and norms towards entrepreneurship, perceived behavioral control, etc.); see, for instance, Rauch & Hulsink (2014); Dickson, Solomon & Weaver (2008); Peterman & Kennedy (2003). Numerous studies, among them – Liñán & Chen (2009), Iakovleva, Kolvereid and Stephan (2011), Tkachev & Kolvereid (1999) demonstrated validity of the theory of planned behavior (Ajzen 1991), which originates in social psychology, to EE in different cultural settings. However, the intentionality-related measures mainly reflect affective and conative processes of the human mind (Kyrö 2008; Hilgard 1980), and neglect knowledge and skills.

Originating from the pedagogical literature Benjamin Bloom's tripartite taxonomy of educational objectives provides an alternative approach to assessing the impact of EE. Bloom, Engelhart, Furst, Hill & Krathwohl (1956) divide learning into three types: cognitive, affective and psycho-motor. Cognitive learning develops knowledge or understanding of the subject matter; psycho-motor learning increases subject-related physical and psychological skills, and affective learning improves positive attitudes and willingness to learn and act within that area.

Fisher, Graham & Compeau (2008) introduced the tripartite framework into EE by eliciting and categorizing cognitive, skill-based and affective learning outcomes specific to entrepreneurship. The tripartite approach balances recognition of various types of learning and the outcomes associated with them, hence, can be considered more holistic than the entrepreneurial intentionality models alone for understanding the entrepreneurial competencies, because it pays attention to knowledge and skills alongside affective elements.

The concept of “competencies” has been surrounded by scholarly debates, because it crosses several disciplines (education, psychology, organizational behavior) and there are many views on its components – abilities, knowledge, skills, traits, concepts of self, etc. (Bird & Schjoedt 2009; Man 2006). We follow the tripartite framework closely and refer to competencies as the learning outcomes of EE comprising knowledge, skills and attitudes (Fisher et al. 2008; Bloom et al. 1956). From the viewpoint of human capital theory (Unger, Rauch, Frese & Rosenbusch 2011; Becker 1975), EE intervention is a human capital investment, which may or may not lead to developed competencies. The competencies, in turn, stand for the outcomes of the human capital investment, or entrepreneurship-related human capital assets.

Occupational Status Choices

Research on the impact of EE has also focused on objective measures of entrepreneurship such as nascent behavior, number of start-ups and performance indicators (survivor rate, turnover, number of employees) (e.g. Charney & Libecap 2000; Brown 1990; Clouse 1990). Yet, we argue that this focus needs to be broadened to avoid overlooking other important expressions of entrepreneurial behavior in graduate professional life and wider benefits for graduate employability, for example, intrapreneurship and obtaining higher occupational status, managerial positions within existing organizations. In addition, adopting a broader perspective of

entrepreneurial career, individual entrepreneurialism can help enter employment and being more employable in general. While this perspective may entail complex forms and dynamics, the current paper follows a simple definition of career meaning the work one performs expressed through occupation (Arthur, Hall & Lawrence 1989).

According to Katz (1992:30), occupational status choice is a “vocational decision to enter an occupation as a wage or salaried employee or a self-employed one”. This decision can be foreseen and intentional given one’s predisposition and readiness or unexpected but acceptable due to availability or absence of more desirable options. Over the course of careers, individuals may “adopt several occupational identities” and change their career orientation (Dyer 1994:12). The model of entrepreneurial careers (ibid 1994) takes into account this dynamic view of professional progression. Yet, for the purposes of the current study, we take a static perspective by focusing on the impact of educational variables specifically on early occupational status choices. Dyer’s model considers a range of individual, social and economic antecedents, career socialization, orientation and a three-phase progression (early-, mid- and late career), where education precedes career orientation in the socialization process alongside with prior start-up and work experience. We address Dyer’s (1994) call for further empirical research into relative influence of educational antecedents on career choice and broaden the focus of the EE literature by not only analyzing the impact of EE on nascent intrapreneurship, and private early-stage EA, but also on organizational employment entry and status.

Connecting the Learning Outcomes of EE and Occupational Status Choices

The group of studies devoted to the linkage between EE and professional life of graduates is much smaller than the extensive research into learning outcomes, particularly pertaining to entrepreneurial intentionality (Nabi et al. 2016). To the most part, they communicate positive

results: a) significant correlation between EE and both entrepreneurship-related human capital assets and entrepreneurship outcomes, namely, nascent and start-up behaviors as well as financial success (Martin et al. 2013); b) increase in subjective outcomes accompanied by greater number of start-ups (Lange, Marram, Jawahar, Yong & Bygrave 2011; Kolvereid & Moen 1997); c) greater likelihood of being involved in start-up activities, own a company and have higher income among entrepreneurship graduates (Charney & Libecap 2000). However, the literature on professional outcomes largely remains detached from the literature on learning outcomes of EE. Evidence and insights into quantifiable connections between the two are lacking (Rideout & Gray 2013). EE interventions are put in place to develop or increase entrepreneurial competencies, which, in their turn, are supposed to lead to greater achievements in the graduate professional life or higher occupational status. Yet, these links are yet to be supported by adequate evidence. To fill this gap, we hypothesize that:

Hypothesis 1a. Individuals with greater levels of knowledge in entrepreneurship obtained as a result of EE are less likely to be unemployed and more likely to engage into nascent intrapreneurship and private early-stage EA.

Hypothesis 1b. Individuals with greater levels of entrepreneurial skills acquired as a result of EE are less likely to be unemployed and more likely to engage into nascent intrapreneurship and private early-stage EA.

Hypothesis 1c. Individuals with greater levels of entrepreneurial attitudes gained during EE are less likely to be unemployed and more likely to engage into nascent intrapreneurship and private early-stage EA.

These hypotheses also follow human capital theory according to which competencies acquired throughout EE should translate into professional life of graduates (Martin et al. 2013; Unger et al. 2011; Baldwin & Ford 1988).

Experiential Entrepreneurship Education

Some of the study programs and modules intend to increase general awareness about entrepreneurship and make it a more attractive career option, others aim to grow entrepreneurial individuals who might start new ventures at some point of their lives in the future, and the remaining ones intend to “produce” entrepreneurs (Rasmussen & Sørheim 2006; Bécharde & Grégoire 2007). Clearly, “learning to become entrepreneurial” and “learning to become an entrepreneur” call for different teaching methods than “learning about entrepreneurship” (Gibb 2005; Hytti, Kuopusjarvi & Enteva team 2004). The latter perspective draws principally from behaviorist and cognitivist learning paradigms. It is a formative, teacher-centered approach associated with traditional methods such as standard lectures, seminar discussions, case studies or other typical in-class exercises. Thereby teaching process aims to explore the nature of entrepreneurship to students, to provide with best practice examples, to develop their critical thinking based on predominantly theoretical understanding of the phenomenon. The former two draw from cognitivist, constructivist and socio-constructivist paradigms, and manifest a more dynamic and holistic learner-centered approach associated with personal and real-life experiences as the primary source of learning (Löbler 2006; Bécharde & Grégoire 2007; Fiet 2001). This approach is associated with teaching methods modeling entrepreneurship and working life, e.g. business modeling, real-life projects with companies, student enterprises, critical reflections, streamed from the branches of work-, project-, practice-, problem-based and other forms of experiential learning (Hynes, Costin & Birdthistle 2011; Lee, McGuiggan &

Holland 2010). It is the kind of learning that forces to go outside classroom, experience entrepreneurship process, and reflect on perceived take-aways and/or failures. In this vein, we define experiential EE as *the process of equipping students with entrepreneurial competences by the means of teaching methods modeling entrepreneurship and methods based on working life* (adapted from QAA 2012; Akola & Heinonen 2008).

Unger et al. (2011) argue that acquisition and transfer processes are central to human capital effects. Acquisition aims to transform learning experiences into knowledge, but obviously there is no guarantee that the experience leads to increased competencies (ibid 2011). Transfer, in turn, is the application of knowledge acquired in one situation to another situation; this application can happen in new ways or with new content (Schunk 2012; Unger et al. 2011). We posit that transfer can occur even if a learning experience led to no changes or to an overall decrease in one's competences (e.g. Oosterbeek, Van Praag & IJsselstein 2010). The similarity or familiarity with the situation is more important for successful transfer that might depend on deeply personal takeaways from the educational process (Thorndike 1906). Reflecting on entrepreneurship as a career choice, students in experiential modules might have a better understanding of what is meant by entrepreneurship and make more conscious career choices. Similar refers to other learning situations that model working life. Therefore, exposure to experiential EE as compared to non-experiential EE can be more important for the occupational status choice and career progress over and above the effect EE makes on the learning outcomes of graduates. We hypothesize that:

Hypothesis 2a. Graduates who underwent experiential EE are less likely to be unemployed.

Hypothesis 2b. Graduates who underwent experiential EE are more likely to engage into nascent intrapreneurship.

Hypothesis 2c. Graduates who underwent experiential EE are more likely to engage into private early-stage EA.

Figure 1 visualizes and summarizes the framework and hypotheses of the study. The framework subdivides the general employment entry and status into paid employment, self-employment and unemployment. Self-employed graduates can become either professionals (with or without employed staff) or launch new enterprises. Given the early phase of occupation and the age group of the Bachelor business graduates, founders are expected to act as company owners and vice versa. This classification is also based on the assumption that graduates started companies to become self-employed since other reasons (e.g. inheritance and marriage) would fall outside of the range of EE, except for acquisition or purchase it might trigger. Paid employment is further divided into four levels from management to office clerks. Then, special cases of paid- and self-employment expressed through nascent intrapreneurship and private early-stage EA are put forward.

Insert Figure 1 about here

The next section sheds light on methodological details of the study: context, sampling, measures, and methods of analysis employed.

METHODOLOGY

Context: Post-Transition Countries

Estonia and Latvia are the neighboring countries located in the Northeastern part of Europe. They transited from planned to market economy only a decade after regaining independence in the early 1990s as a result of the collapse of the Soviet Union. Planned

economies had been dominated by large firms producing few consumer goods; SMEs, a large part of every market economy, were almost non-existent (McMillan & Woodruff 2003).

As of now, Estonia and Latvia are both classified as innovation-driven countries according to the World Economic Forum Global Competitiveness Index report's classification for economic development levels. TEA (that includes nascent entrepreneurs and new businesses less than 3.5 years old) was the highest in Europe in 2013 – 13% in both countries (Krumina & Paalzow 2014). The share of young people aged from 18 to 35 in TEA accounts for almost 40% in Latvia and 30% in Estonia; half of it falls on 18-25 year-old individuals in Latvia and 10% in Estonia (Krumina & Paalzow 2015). Moreover, local entrepreneurs are more likely to have received training in entrepreneurship than non-entrepreneurs (Arro, Elenurm, Masso, Mets & GEM Estonia team 2012; Martinez, Levie, Kelley, Saemundsson & Schott 2010). Given these figures, one could assert that local entrepreneurial activity is associated, at least to some extent, with EE in these post-transition countries, which makes the chosen empirical setting even more topical to research. Furthermore, Estonian and Latvian HEIs had no well-developed ecosystem that would include infrastructure relevant for the EE implementation in higher education, e.g. prototyping and design factories, pre-incubators, university-industry cooperation platforms, etc. at the time we conducted the survey. These conditions allowed assessing the outcomes of EE per se with no support of a specialized institutional support framework.

Sample

We collected the data from March to November 2013 at eight Estonian and Latvian HEIs using purposive homogeneous sampling. This type of sampling is exactly suitable for achieving a sample where units (individuals or sites) possess defining characteristics or traits (e.g. background, age, occupation) targeted by a researcher (Creswell 2012). The survey sought for

respondents with business education background, who studied entrepreneurship, were either last year students of the Bachelor degree business programs, who were about to graduate soon, or recent graduates from these programs but within two years after obtaining a diploma. This time frame was chosen to gauge learning outcomes of EE in the short- and mid-term period while they were still fresh in memory of the graduates.

We balanced the use of cross-sectional design not only with a comparison group of non-entrepreneurship students matched by age, gender, study background and prior entrepreneurial proclivity, but also with a range of questions on prior competencies and experience of the respondents. Contacts established in the selected schools helped distribute over 4000 e-mail invitations that resulted in 497 complete and valid responses. This comprised observations of both entrepreneurship (N=454) and non-entrepreneurship (N=43) respondents. Non-response bias did not interfere with results, since we registered no statistically significant differences at 1-5% levels between the survey respondents and non-respondents (whose questionnaires were incomplete, N=110) in prior knowledge about entrepreneurship, entrepreneurial intentions and nascent entrepreneurship: respectively, $\{t=-0.498, p<0.618\}$, $\{t=-1.708, p<0.088\}$ and $\{t=-0.025, p<0.980\}$.

The baseline EE intervention was worth 6 ECTS points, i.e. a semester or year-long module run on the second or third year of a three-year long Bachelor degree program (e.g. Principles of Entrepreneurship, Entrepreneurship Basics, and Student Enterprises). The respondents' admittance to a certain HEI was not directly linked to purposefully selecting either traditional or experiential EE, which was a compulsory part of the Bachelor degree programs.

Table 1 provides descriptive information about the sample of imminent and recent graduates we used in testing the hypotheses (N=454). The number of the recent graduates

prevailed (62% versus 38%). Out of 282 recent graduates, 5% graduated in 2013, 49.6% in 2012, 36.9% in 2011, 5% in 2010 and the remaining 3.5% graduated slightly later. Out of 172 imminent graduates, 46.5% expected to graduate in 2013 (2-3 months after the survey was conducted), 47.7% in 2014, 4.7% in 2015, and the remaining 1.2% marked later. Out of 454 respondents, 72% were aged from 20 to 25, 16% – from 26 to 28, 12% – 29 and over. More responses were received from females than males – 60% over 40% of the total.

Insert Table 1 about here

Measures

We compiled the measures of learning outcomes from Liñán & Chen (2009), Fisher et al. (2008), Gibb (2005) as well as GUESS survey (Sieger, Fueglistaller & Zellweger 2014). Formulation of the related questions followed closely Fisher et al.'s (2008) approach. We asked the respondents to evaluate perceived changes in knowledge and skills that occurred as a result of EE; to agree or disagree with statements registering the level of entrepreneurial attitudes post-hoc given a 5-point Likert scale. Assessing perceived outcomes of educational interventions is a well-accepted practice in education research supported by several reviews documenting the validity of self-assessments (Kraiger et al. 1993). Then, we constructed composite indicators of the learning outcomes following the OECD methodology (Nardo, Saisana, Saltelli, Tarantola, Hoffman & Giovannini 2005). We created three composite variables: *knowledge composite*; *skills composite* and *attitudes composite*. The knowledge and skills composites comprised three components each, the attitudes composite had six components as Table 2 specifies.

Insert Table 2 about here

Private early-stage EA was a dichotomous variable created by assigning the value of 1 to all the observations, when a respondent was a self-employed professional, trying to start a new enterprise or owned a young enterprise at the time of the survey, and the value of 0, when s/he was involved in neither of these activities. We adopted the measure from the Global Entrepreneurship Monitor studies (Bosma, Wennekers & Amoros 2012), but extended it to self-employed professionals considering the target population of young individuals.

Employment was a nominal variable that consisted of six categories: 0 – unemployed; 1 – self-employed, 2 – management, 3 – professional, 4 – civil servants, specialists, 5 – office clerks, interns, where the categories 2-5 stood for the groups of paid employment following the ILO classification (2012). 29 individuals working in existing organizations were also self-employed (the phenomenon known as “moonlighting”, see Dyer 1994), but we treated them as self-employed only to avoid the duplication problem in this dependent variable.

The special case of paid employment, nascent intrapreneurship, was a binary variable of the current involvement into new venture, subsidiary, product or service creation within an existing organization (Bosma et al. 2012). We followed the individual-level perspective on intrapreneurship that characterizes entrepreneurial employees, who are able to identify and exploit lucrative opportunities within a company (OFEM 2008).

To diagnose, whether traditional or experiential intervention prevailed in the surveyed HEIs, we asked the respondents to specify activities they took part in during an entrepreneurship module or program. We offered them a list of 25 activities, or methods, to select from. The methods represented four broader groups: traditional methods, methods based on working life, methods modeling entrepreneurship and participative methods (Akola & Heinonen 2008). Based on this, we classified the Estonian HEI C and the Latvian HEIs G and F as the most experiential

in each country, since the share of respondents from these schools who took part in the methods modeling entrepreneurship and working life was greater. Appendix A gives more detailed information on this classification. In a wider project where these data originally come from, qualitative interviews with educators who teach the entrepreneurship modules supported the diagnostics bringing about the same conclusions on where the HEIs stand in terms of the type of EE intervention.

Control Variables

A battery of control variables included the following: *gender*, extensively researched for many years (Rouse et al. 2013; Ljunggren & Kolvereid 1996); occupation of parents: *parents-entrepreneurs* and *parents-managers*, whose influence was previously discovered to be ambivalent (Zellweger, Sieger & Halter 2011; Lussier & Sonfield 2010); as well as a number of entrepreneurs in personal networks, which are usually instrumental for the entrepreneurial success (Johannisson 1988). We also controlled for age and graduation status.

Even more importantly, we controlled for prior competencies of the entrepreneurship module participants, since a number of studies pointed out the significance of prior knowledge, experience and career aspirations (Williams & Lombrozo 2013; Zellweger et al. 2011; Matlay 2008; Krueger, Reilly & Carsrud 2000), which students possessed before enrolling to the HEIs. We assess *prior knowledge* and *prior experience* on a scale ranging from 0 to 3, where 0 equals “I knew nothing”/ “I had no experience”, 2 stands for “I knew something”/ “I had some experience” and 3 equals “I knew a lot”/ “I had vast experience”. *Prior proclivity* towards entrepreneurship had a 5-point Likert scale.

Methods

To test the study hypotheses, we used multinomial probit regression of employment and binary logistic regressions of intrapreneurship and private early-stage EA. The multinomial probit regression allows for a dependent variable with more than two categories suitable for the 6-category employment variable and fits the task of comparing coefficients across the occupational choices. We opted to use binary logistic regression for the cases of private early-stage EA and intrapreneurship due to its' dichotomous construction.

ANALYSIS AND RESULTS

This section presents results of the regression analyses. Before going into details of the main findings, we highlight comparative results for the learning outcomes of the survey respondents, who studied entrepreneurship (N=454) and who did not study it (N=43). Then we sequentially outline results of three regressions – of employment, nascent intrapreneurship and private early-stage EA – that we used to test the study hypotheses.

The non-parametric Kruskal-Wallis test signposted better post-intervention scores of *knowledge* and *skills* of the graduates who studied entrepreneurship in comparison to their counterparts, who did not study it: $\{\chi^2=12.012, df=1, p<0.001\}$, $\{\chi^2=5.558, df=1, p<0.018\}$, respectively. The scores of the *attitudes composite* were higher for the graduates who studied entrepreneurship at a 10% level. Comparison of the scores for the first sub-component of the composite that we labeled “entrepreneurial affection” showed that the first group scored higher at a 5% level: $\{\chi^2=6.322, df=1, p<0.012\}$. Scores of the other five sub-components were also higher but not significantly. Hence, the test supported the sampling adequacy and reinforced knowledge, skills and attitudes as the outcomes of EE.

Table 3 shows the descriptive statistics and correlations of the regression variables.

Insert Table 3 about here

Table 4 outlines the results of the multinomial probit regression which analyses the relationship between an individual's occupational status and their EE learning outcomes and program type (experiential or not). The baseline category is unemployed, to which the other occupational status are compared. Firstly, none of the learning outcomes exhibited a statistically significant relationship with employment entry and status level, contrary to our expectations. However, if the graduates participated in an experiential program, they were more likely to be managers ($B=0.633$) and professionals ($B=0.537$) than unemployed. When we change the baseline outcome to self-employment (1), we find that individuals were more likely to be managers and professionals than self-employed if they participated in experiential EE. However, this effect faded away when we controlled for country. In addition, being a graduate, having a parent-manager, higher prior aspirations and being older made one more likely to be self-employed than unemployed as controlling for these variables indicated. The same effects, except for aspirations, pertained to managerial positions.

Insert Table 4 about here

Tables 5 and 6 show the results of the binary logistic regression estimations of intrapreneurship and private early-stage EA. Increase in perceived knowledge and skills did not imply higher odds of engaging into nascent intrapreneurship. The same result held for the attitudes composite. However, the first sub-component of the attitudes composite that represented high affection towards entrepreneurship did show a significant positive effect on both intrapreneurship and private early-stage EA that remained when we added all the controls as

Model 4 and Model 5 of Table 5 show. Undergoing experiential EE affected the likelihood of engaging into nascent intrapreneurship positively, yet at a 10% level (Model 4), but again the effect disappeared when we added country as a control (Model 5). Past intrapreneurship was consistently significant in all the consecutive models of this regression increasing the odds of nascent intrapreneurial activity by 7 times in comparison to having no past intrapreneurial experience.

Insert Table 5 about here

The final regression revealed strong positive influence of entrepreneurial attitudes that increased the odds of engaging into private early-stage EA by 3 times (Model 3 and Model 4 in Table 6). Intervention type had no effect this time. However, increase in the knowledge outcome had unexpected adverse influence reducing the likelihood of becoming an early-stage entrepreneur by 2.65 times among the graduates, i.e. the less one knew about entrepreneurship the more likely s/he engaged in the target activity. Similarly, gender had an adverse effect in case of a female. Other control variables, namely prior aspirations and network, were found to bring consistently positive influence.

Insert Table 6 about here

In descriptive terms, out of 124 cases of involvement into private early-stage EA, 35 were new company owners. The young companies specialized in diverse areas of operation from agriculture to arts. They tended to employ less than 4 people, yet few companies had over 10 but less than 50 employees. 24 companies reported accounting profit within the period of existence. Half of the new companies had an annual turnover of less than EUR 20 000; the owners of these companies also did not have high growth aspirations tending to remain within the manageable

size. Most importantly, the majority of young enterprises were launched either during Bachelor studies or after the graduation. Only 4 were serial entrepreneurs. In general, the descriptive data show that many companies survived in the short- and mid-term. Even if the young companies fail, they still contribute to the overall entrepreneurial activity in the region.

Insert Figure 2 about here

Figure 2 sums up the findings of our study. Among the three types of learning outcomes, we found that only attitudinal outcomes had significant positive effect on the occupational status choices, namely, on nascent intrapreneurship and private early-stage EA. H1c can still be supported partly, because we revealed no effect on employment entry and status, and only the first sub-component of the attitudes composite was significant in the case of intrapreneurship. Also, contrary to expectations, we found no direct effect from perceived knowledge and skills on occupational status, i.e. H1a and H1b did not find support. That said, these outcomes correlated with entrepreneurial attitudes significantly, while we detected through mediation regression analysis no indirect effect of knowledge and skills on occupational status (output tables available upon request). As for H2, the positive effect of the experiential EE on the employment entry and status evaporated when the country factor was controlled as well as was weak in the case of nascent intrapreneurship. We suggest the potential reason is in the differences in implementation of experiential EE between the two countries or due to other contextual influencers that overtake the anticipated effect. Given that, we granted partial support to H2a and H2b. The type of intervention did not have a direct effect on the involvement into private early-stage EA, thus H2c did not find support in our analysis.

CONCLUSIONS AND DISCUSSION

By examining the relationship between perceived learning outcomes of EE modules with occupational status choices of the Bachelor degree business graduates in Estonia and Latvia, this study contributed to the current stock of knowledge about the impact of EE with a particular emphasis on experiential interventions. In doing so, we combined together the streams of education impact research with career research that often go in parallel (Dyer 1994). The analysis went beyond typical private venture creation and extended the intentions-start-up behavior link by including entrepreneurial knowledge and skills into the assessment following an integrating and theoretically grounded framework based on the adapted Bloom's taxonomy of educational objectives (Fisher et al. 2008; Kraiger et al. 1993; Bloom et al. 1964). We diversified the occupational status choices to distinguish between employment entry, status level in paid employment and self-employment addressing the growing interest of entrepreneurship educators and policy makers in the wider impacts of EE in educating individuals who possess the set of transferrable entrepreneurial skills, applicable knowledge of business processes, have greater sense of initiative and self-reliance, creativity, resilience, and other personal qualities and competencies essential in the job market of today (Penaluna & Penaluna 2015). Furthermore, this study tested the differences between the effects of experiential and traditional EE on the occupational status choices bridging the important empirical gap in the EE literature and touching upon pedagogical reasons for earlier contradictory findings (Nabi et al. 2016). Finally, we focused on two post-transition countries that, on the one hand, contextualize the contribution but, on the other hand, counterweight the dominance of EE research from Anglo-Saxon countries (Blenker et al. 2014) and, more importantly, provide with a more distinct variation between the two types of EE interventions.

The findings of our study are somewhat unexpected and in conclusion question the widespread assumptions about EE built upon the premises of human capital theory, including the bets commonly placed on experiential EE. We are among the first EE researchers to address these important linkages empirically and to discuss possible reasons behind the unexpected results. We treat the assumptions challenged in this paper from the perspective of the state of EE desirable by its key stakeholders, while the results discussed represent the state of affairs prevailing at present in the post-transition context of the Baltic countries.

Most of entrepreneurship modules aim to equip students with relevant knowledge and skills in addition to inducing positive entrepreneurial attitudes that would benefit their careers. Our study confirmed the importance of the latter in relation to nascent intrapreneurship and private early-stage EA reiterating earlier messages from career literature and EE research (e.g. Douglas & Shepherd 2002; Krueger et al. 2000), but the role of knowledge and skills remains questionable. Because the analysis revealed no dependency of the occupational status choices on these competencies, one can reasonably enquire whether EE develops knowledge and skills that are really demanded in the graduate professional life, or there exists a mismatch between the competencies taught and required in the job market either of self- or paid employment. Consonant with the gap that exists between academic research and implementation of its results, is there a gap between EE and real life? This is particularly questionable in light of the broad array of items employed to measure the learning outcomes of EE that cover also managerial aspects of entrepreneurship.

The results also question overall quality of experiential EE or the way it is implemented. Experiential EE does not necessarily condition selection into self-employment or even employment entry and status if country differences are taken into account, even though it should

condition the transfer of previous learning experiences to similar situations in professional life (Schunk 2012; Unger et al. 2011). Strictly speaking, it did not matter significantly whether to study entrepreneurship traditionally or experientially in terms of the graduates' occupational status choices. This finding is surprising and even provocative especially for management of HEIs, educators and policy makers. Yet, what if those who are initially predisposed towards entrepreneurship would enter this career path regardless of studying the discipline traditionally or experientially? In conditions of limited resources, teaching entrepreneurship to undergraduates could then be subject to sensible austerity instead of continuing to channel resources towards more experiential EE. Why would HEIs and governments need to invest into the stream of experiential learning projects involving lean start-up hackathons, 24-hour entrepreneurship camps and alike on a massive scale, or there is another, presumably more reasonable and fruitful option to make these investments targeted for pre-motivated, more experienced and mature students? However, this stance prevents numerous students from getting a better sense of what entrepreneurship really is by making this available only to a small "elite" group of individuals. Either austerity or bluing is extreme at this point of our knowledge development about the impact of experiential EE. Prior to stimulating further shift towards more experiential learning or cutting the expenditures abruptly, it is necessary to reveal what potential drawbacks of the current implementation of these educations are. Is the educators' qualification and experience adequate to deliver experiential EE? Are students ready to learn experientially? Is the study infrastructure suitable for these purposes? What is the optimum intervention volume to generate quantifiable changes?

The experiential methods entrepreneurship educators employ are quite similar across many universities, but the environment expressed through the educational infrastructure and the

system of networks among stakeholders, usually demanding considerable investment of financial and temporal resources, differ a lot in countries with well-developed economies, such as the UK, Netherlands and Finland. To build and sustain (pre-)incubation facilities, design and prototyping factories, university-industry cooperation platforms, HEIs would need extra funds that such countries as Estonia and Latvia do not possess. Alternatively, it is an open question whether and to what extent infrastructural support matters in the implementation of experiential EE.

Next, the learning patterns and preparedness of students to benefit from experiential EE could be the most compelling arguments in this discussion. Experiential learning that the cognitivist and social constructivist paradigms govern (Löbner 2006) is more suitable for individuals that have a substantial luggage of prior experience to capitalize upon, who are experienced and motivated enough to take responsibility for own learning and to construct their own reality (as the humanistic theory of learning and andragogy suggest) (Penaluna & Penaluna 2015). The research subjects in this study were Bachelor-level graduates in their twenties. Even though they were not complete novices in entrepreneurship, possessing some prior competencies, they were still relatively young and more used to traditional learning (that most likely dominated in other study modules) to fully benefit from the experiential interventions. A brief investigation of the secondary educational context that establishes the basic learning standards and habits of young applicants returns a rather traditional picture, but with a substantially increased amount of group work and discussions over the past two decades. Preferences of local students towards either experiential or traditional learning differ dividing the subjects into proponents and opponents of the educational innovations. It is arguably not the initial perception of the teaching approach among students, but their ability to learn when this approach is enacted, on the one hand, and the teachers' ability to implement this approach, on the other hand, that matter.

Learning as a function of changes in the cognitive, skill-based and affective states has a central role in training effectiveness (Kraiger et al. 1993). Acquisition that transforms learning experiences into knowledge, skills and attitudes, and retention of the acquired competencies are known to bridge the intervention characteristics (e.g. audiences, design, organization, and environment) with generalization of learned material and maintenance of trained skills or behaviors (in other words, competencies) on the job (Unger et al. 2011; Baldwin & Ford 1988). In this process, the amount of learning obtained is an important precursor to transfer (Goldstein 1991). Acknowledging that the researched subjects underwent on average only a 6 ECTS points worth intervention, its effect could have been marginalized. At the same time, in the hands of a talented or well-trained educator even a short intervention can become life-changing for students.

It has to be also acknowledged that the outcomes in professional life of graduates can take more time to mature. In the studied time frame, statistically immeasurable, subtle results might spring later, since the sense-making from learning is not always an immediate process. As the regression of employment entry and status level showed, being older did make one more likely to become self-employed than unemployed and more likely to be employed in managerial, professional or other positions.

To sum up, possible reasons behind the unexpected results can relate to the implementation of experiential EE, limited intervention volume of EE in general, infrastructural constraints as well as learners' characteristics (their learning habits, prior competencies, etc.). We acknowledge the time frame of the survey, the use of cross-sectional design and retrospective assessment of learning outcomes as the main limitations of this research. The number of observations per HEI and the fact that we sourced the sample from different business programs adds heterogeneity to the analysis. However, given that the conceptual premises are

robust empirically, they should remain salient in heterogeneous samples (Iakovleva et al. 2011). Regarding the choice of design, there are several studies that are based on post-intervention measurements (with control groups) as well as relatively short EE modules (e.g. Piperopoulos & Dimov 2014; Charney & Libecap 2000; Lange et al. 2011; Kolvereid & Moen 1997) that strengthens the methodological reasoning of this study. That said, it does not consider unique features of the contributing HEIs and deeper insights into the delivery of experiential EE that could potentially provide more exhaustive explanations of why certain teaching methods did not work as expected. For this reason, more comparative studies using both qualitative and quantitative research methods are called for. This includes comparing not only the forms of interventions but also business and non-business (engineers, designers, psychologists, etc.) graduates in this regard, because EE could make more difference to the latter group when it comes to combining creative and design specialty competencies with entrepreneurial competencies in professional life.

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FIGURE 1 Framework and hypotheses of the study

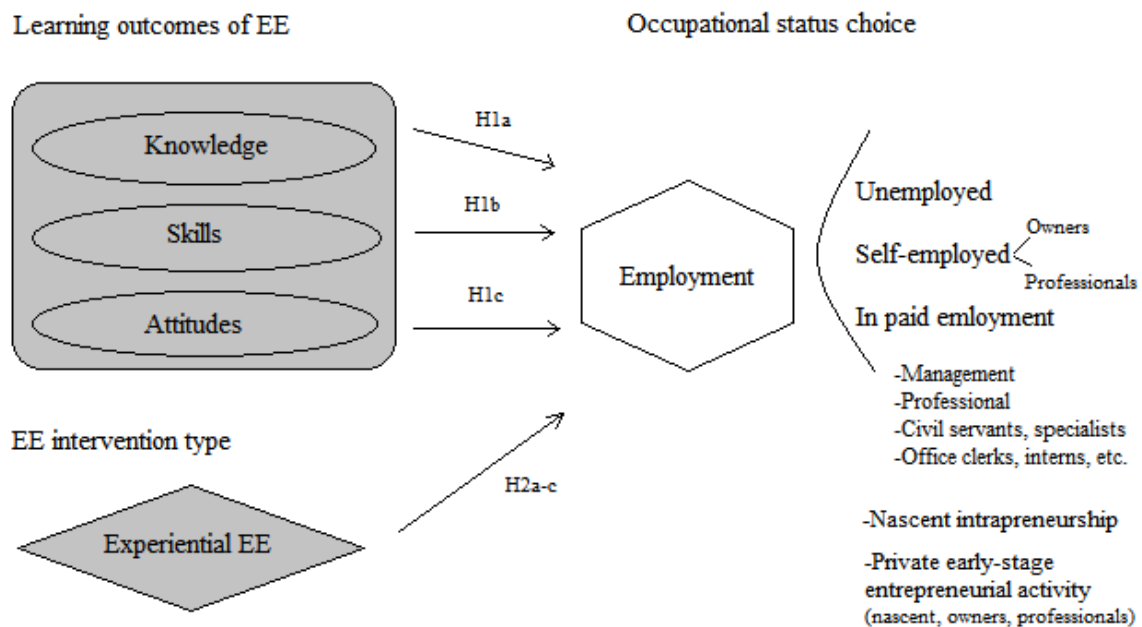


FIGURE 2 Findings of the study

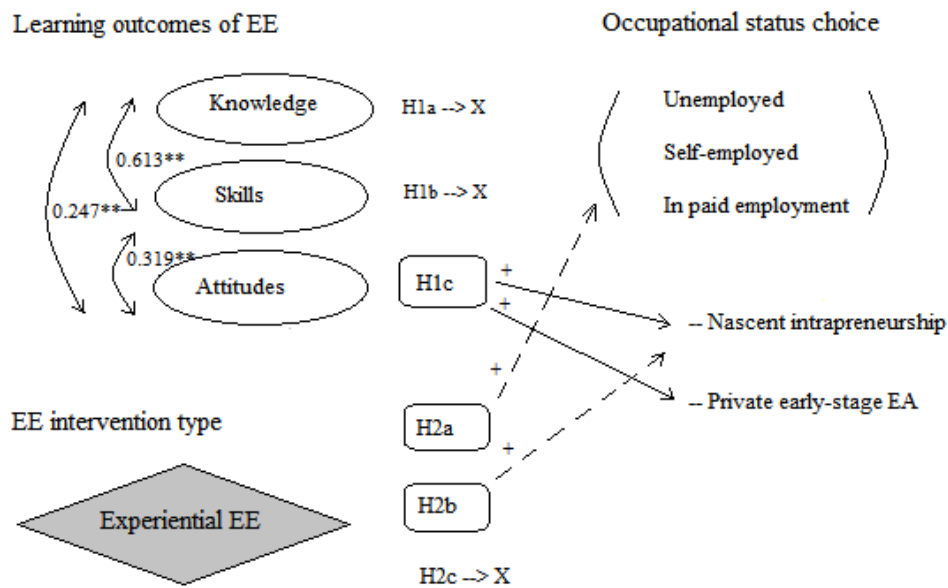


TABLE 1 Descriptive information about the sample

HEI and Bachelor completion, institution share crosstab			Did you complete your Bachelor degree?		Total	Response rate (est.)	HEI share in the sample
			Yes	No			
Estonia	A	N	38	11	69	25.0%	15.2%
		%	55.1%	44.9%	100.0%		
	B	N	7	10	17	12.0%	3.7%
		%	41.2%	58.8%	100.0%		
C	N	16	14	30	6.6%	6.6%	
	%	53.3%	46.7%	100.0%			
D	N	25	7	32	10.7%	7.1%	
	%	78.1%	21.9%	100.0%			
Latvia	E	N	46	14	60	10.3%	13.2%
		%	76.7%	23.3%	100.0%		
	F	N	71	52	123	12.2%	27.1%
		%	57.7%	42.3%	100.0%		
	G	N	73	15	88	27.5%	19.4%
		%	83.0%	17.0%	100.0%		
	H	N	6	29	35	18.1%	7.7%
		%	17.1%	82.9%	100.0%		
Total	N	282	172	454	15.3%	100.0%	
	%	62.1%	37.9%	100.0%			

TABLE 2 Measures of the learning outcomes

KNOWLEDGE composite			
<i>“During your entrepreneurship course or program, have you learnt new information that you did not know at the beginning of the course about the following topics?”</i> [5-point scale: Learned nothing new/Was exposed to topic/Learned some basic facts about it/Learned a moderate amount of new info/Gained extensive new knowledge of the topic]			
Legal aspects of establishing a new enterprise	0.686		
Development of new products and services	0.655		
Opportunity recognition	0.769		
Attraction of financing	0.702		
Project management	0.502		
Lean start-ups	0.700		
Evaluation of business opportunities	0.642		
General principles of financial reporting		0.617	
Theories of entrepreneurship		0.715	
Entrepreneurship process		0.706	
Business plans and its constituents		0.663	
Business modeling		0.736	
Integrated marketing communications			0.721
Business communication			0.668
Team management			0.655
Positioning and branding of products and services			0.651
The role of entrepreneurs in our society and economy			0.493
<i>Cronbach’s alpha</i>	<i>0.871</i>	<i>0.792</i>	<i>0.811</i>
SKILLS composite			
<i>“Can you do things now that you could not do at the beginning of the course?”</i> [5-point scale: No improvement/Made one or two minor improvements/Made some improvements/Made substantial improvements/Can now perform very well]			
Write a business plan.			0.731
Work out a marketing plan.			0.535
Identify and analyze risk.			0.715
Conduct a market research.			0.540
Evaluate pros and cons of business ideas.			0.497
Prepare a cash flow for a firm.			0.735
Manage business risks.			0.653
Resolve conflicts.	0.677		
Be a valuable team-member.	0.834		
Work across teams and functions.	0.839		
Work with others who are different from me.	0.800		
Lead a team.	0.766		
Deal with uncertainty, adapt to new and uncertain situations.	0.708		
Set priorities and focus on realistic goals.	0.548		
Organize and control ongoing projects.	0.562		
Keep good interpersonal relations.	0.715		
Negotiate deals with other businesses.		0.571	
Solve creative business problems.		0.653	
Develop new products and services.		0.746	
Build up professional networks.		0.677	
Identify unmet needs of people.		0.568	
Develop innovative working environment.		0.640	

Attract potential investors to my endeavors.		0.747				
Devise profitable business models.		0.729				
<i>Cronbach's alpha</i>	0.927	0.918	0.870			
ATTITUDES composite						
"Please indicate the extent to which you agree with the following statements..." [5-point scale: Strongly Disagree/Disagree/Neither Agree nor Disagree/Agree/Strongly Agree]						
I want to start a (one more) new enterprise.	0.782					
Among various options, I would rather be an entrepreneur.	0.849					
To be an entrepreneur and have own company is my true passion.	0.873					
A career as an entrepreneur suits me well – it gives more freedom and autonomy.	0.852					
I am confident in my ability to start a new enterprise.	0.686					
My professional goal is to be an entrepreneur.	0.842					
I will make every effort to start a new enterprise, when aspired.	0.686					
I always try to find innovative solutions to arising or existing challenges.		0.645				
I openly question how things can be improved.		0.567				
I perceive myself as a creative person.		0.774				
I am enthusiastic about generating new ideas and recognizing new opportunities.		0.685				
I am always trying to be alert to new ideas and opportunities that come to my mind.		0.654				
I always make my best effort to convince other people in my ideas.		0.546				
I am sure I can be (I am) a good leader of a team.		0.401				
Usually I set ambitious goals to myself.			0.653			
I want to achieve more than most other people.			0.845			
It is vital for me to grow and develop constantly.			0.724			
I like taking business risks – it excites me!				0.648		
I tend to take my chances, even if I might fail.				0.779		
For me, failure is a valuable outcome of the process of doing.				0.651		
I feel self-confident when talk to successful entrepreneurs.				0.449		
I can rely on myself in any uncertain situation.					0.814	
I can rely on myself in any demanding situation.					0.801	
I am keen on new learning.						0.804
I appreciate professional guidance from more experienced people.						0.801
<i>Cronbach's alpha</i>	0.923	0.795	0.758	0.713	0.746	0.625

TABLE 3 Descriptive statistics of the regression variables

	Variable	Mean	SD	N	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	Employment	2.205	1.661	454	1																			
2	Intrapreneurship	.376	.485	311	-.133*	1																		
3	Private EA	.295	.457	454	-.147**	.057	1																	
4	Knowledge	.030	.480	454	-.031	.061	.014	1																
5	Skills	.047	.510	454	.003	.122*	.060	.613**	1															
6	Attitude	.032	.462	454	-.082	.198**	.324**	.247**	.319**	1														
7	Prior knowledge	1.681	.804	454	-.029	.045	.173**	.037	-.027	.153**	1													
8	Prior ent. experience	.590	.808	454	-.049	.074	.209**	-.026	-.044	.151**	.481**	1												
9	Prior work exp.	1.207	.966	454	.004	.116*	.197**	.058	-.016	.114*	.296**	.437**	1											
10	Prior ent. aspirations	3.504	1.223	454	-.087	.100	.365**	.189**	.187**	.513**	.214**	.167**	.106*	1										
11	Prior mng aspirations	3.786	1.094	454	-.049	.148**	.140**	.061	.084	.347**	.188**	.081	.090	.427**	1									
12	Graduate status	.621	.486	454	.159**	-.065	.018	.104*	.076	-.035	-.090	-.053	-.058	-.057	-.041	1								
13	Age	1.414	.703	454	.039	.065	.093*	.044	-.026	-.009	.168**	.315**	.488**	.026	-.031	.034	1							
14	Gender	.599	.491	454	.074	-.091	-.190**	.076	.063	-.171**	-.113*	-.120*	-.048	-.174**	-.094*	.028	.009	1						
15	Parent-entrepreneur	.355	.479	454	-.105*	-.060	.045	-.018	.004	.121**	.088	.080	-.064	.082	.048	.000	-.194**	-.079	1					
16	Parent-manager	.474	.500	454	.013	.034	.044	-.020	-.015	.116*	.092	.077	-.002	.110*	.181**	-.023	-.189**	-.043	.403**	1				
17	Entrep. network	2.568	1.208	454	-.079	.095	.223**	.169**	.067	.240**	.283**	.257**	.209**	.173**	.079	.018	.161**	.009	.181**	.094*	1			
18	Past intrap.	.311	.464	347	-.214**	.406**	.131*	.066	.055	.206**	.131*	.247**	.214**	.074	.026	.008	.174**	-.116*	-.020	-.028	.153**	1		
19	Type of intervention	1.531	.500	454	.026	.092	.047	-.003	.154**	.133**	-.066	.037	-.059	.096*	.188**	.094*	-.225**	-.121*	.070	.114*	-.058	.003	1	
20	Country	1.674	.469	454	.072	.067	.028	.015	.115*	.045	-.025	-.126**	-.211**	.099*	.255**	.057	-.286**	-.061	.015	.151**	-.233**	-.122*	.457**	1

Notes: *. Correlation is significant at the 0.05 level (2-tailed). **. Correlation is significant at the 0.01 level (2-tailed).

TABLE 4 Results of the multinomial probit regression of employment

	<i>Dependent variable: Employment</i>				
	1	2	3	4	5
<i>Independent variables:</i>	B coef.	B coef.	B coef.	B coef.	B coef.
Parent-entrepreneur	-0.666*	-0.471+	-0.287	-0.587*	-0.725*
Parent-manager	0.659*	0.771**	0.176	0.492*	0.618*
Age	0.525*	0.768***	0.018	0.480*	0.237
Gender	-0.260	0.046	-0.166	-0.045	0.480+
Graduate status	1.072***	0.751***	0.998***	0.832***	0.525*
Prior knowledge	0.221	0.056	0.136	0.108	0.063
Prior ent. aspirations	0.340**	-0.056	-0.203+	0.052	0.121
Prior mng. aspirations	-0.050	0.026	0.076	-0.070	-0.034
Prior work experience	0.094	0.156	0.059	0.009	0.102
Prior ent. experience	0.269	0.057	0.191	-0.045	-0.046
Knowledge composite	0.008	-0.024	-0.464	-0.271	-0.172
Skills composite	0.023	-0.159	0.305	0.173	0.168
Attitudes composite	0.367	0.072	0.044	0.266	-0.406
Intervention type	0.111	0.633**	0.537*	0.221	-0.025
(Constant)	-3.831	-3.166	-1.461	-1.701	-2.044
N	454				
Wald Chi-square	155.40				
degrees of freedom	70				
p-level	0.000				

Notes: +p<0.10; *p<0.05; **p<0.01; ***p<0.001

0 – Unemployed (baseline outcome – all coefficients are given in respect to difference between the baseline category and the other categories); 1 – Self-employed, 2 – Management, 3 – Professional, 4 – Civil servants, specialists, 5 – Office clerks, interns, etc.

TABLE 5 Results of the binary logistic regression of nascent intrapreneurship

	<i>Dependent variable: Nascent intrapreneurship</i>					
	Model 1	Model 2	Model 3	Model 4	Model 5	
<i>Independent variables:</i>	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)	95% C.I.
Parent-entrepreneur	0.682	0.675	0.638	0.626	0.647	[0.345; 1.211]
Parent-manager	1.309	1.368	1.463	1.410	1.319	[0.738; 2.357]
Graduate status	0.764	0.759	0.715	0.662	0.658	[0.367; 1.179]
Prior work experience		1.112	1.135	1.151	1.193	[0.881; 1.616]
Prior ent. experience		0.843	0.838	0.807	0.823	[0.574; 1.181]
Prior ent. aspirations		1.162	0.935	0.930	0.903	[0.679; 1.202]
Past intrapreneurship		6.724***	6.687***	6.944***	7.102***	[3.934; 12.823]
Knowledge composite			0.771	0.811	0.816	[0.403; 1.651]
Skills composite			1.646	1.508	1.515	[0.777; 2.955]
Ent. affection			1.443*	1.439*	1.473*	[1.055; 2.057]
Intervention type				1.609+	1.359	[0.743; 2.487]
Country					1.565	[0.782; 2.130]
(Constant)	0.716	0.218	0.447	0.374	0.318	
Events/N	117/311	117/311	117/311	117/311	117/311	
Chi-square (χ^2)	3.516	57.574	65.781	68.723	70.343	
degrees of freedom	3	7	10	11	12	
p-level	0.319	0.000	0.000	0.000	0.000	
Cox & Snell R ²	0.011	0.169	0.191	0.198	0.202	
Nagelkerke R ²	0.015	0.230	0.260	0.270	0.276	
PAC	52.4%	73.3%	72.7%	72.3%	73.6%	
Sensitivity	0%	53.8%	49.6%	51.3%	51.3%	
Specificity	100%	85.1%	86.6%	85.1%	87.1%	
PPV	-	68.5%	69.0%	67.4%	70.6%	
NPV	62.4%	75.3%	74.0%	74.3%	74.8%	

Notes: +p<0.10; *p<0.05; ***p<0.001; PAC – % accuracy in classification, sensitivity – % of cases that had the observed characteristic, specificity – % of cases that did not have the observed characteristic, PPV – positive predicted value (% of correctly predicted cases with the observed characteristic), NPV – negative predicted value (% of correctly predicted cases without the observed characteristic).

TABLE 6 Results of the binary logistic regression of private early-stage entrepreneurial activity

	<i>Dependent variable: Private early-stage EA</i>				
	Model 1	Model 2	Model 3	Model 4	
<i>Independent variables:</i>	Exp(B)	Exp(B)	Exp(B)	Exp(B)	95% C.I.
Gender	0.378***	0.410***	0.440**	0.427**	[0.253; 0.721]
Parent-entrepreneur	1.174	0.843	0.754	0.770	[0.449; 1.319]
Graduate status	0.967	1.037	1.079	1.074	[0.635; 1.817]
Prior ent. experience		1.327+	1.336+	1.370+	[0.982; 1.911]
Prior work experience		1.223	1.211	1.252	[0.931; 1.685]
Prior ent. aspirations		2.629***	2.376***	2.338***	[1.745; 3.132]
Ent. network		1.508***	1.551***	1.602***	[1.263; 2.033]
Knowledge composite			0.390**	0.377**	[0.185; 0.769]
Skills composite			1.563	1.601	[0.835; 3.071]
Attitudes composite			2.899**	3.090**	[1.527; 6.254]
Intervention type				0.693	[0.390; 1.231]
Country				1.688	[0.891; 3.201]
(Constant)	0.631	0.003	0.004	0.003	
Events/N	124/320	124/320	124/320	124/320	
Chi-square (χ^2)	21.624	132.425	148.428	151.490	
degrees of freedom	3	7	10	12	
p-level	0.000	0.000	0.000	0.000	
Cox & Snell R ²	0.048	0.258	0.284	0.259	
Nagelkerke R ²	0.068	0.372	0.409	0.416	
PAC	72.1%	77.9%	79.5%	79.1%	
Sensitivity	0%	45.2%	47.5%	46.8%	
Specificity	100%	90.6%	91.9%	91.6%	
PPV	-	65.1%	69.4%	68.2%	
NPV	72%	81.0%	81.9%	81.6%	

Notes: +p<0.10; **p<0.01; ***p<0.001; ten cases with studentized residual values greater than 2.5 were excluded from this regression.

APPENDIX A Teaching methods/educational activities specified by respondents

Methods/HEI	A (N=69)	B (N=17)	C (N=30)*	D (N=32)	E (N=60)	F (N=123)*	G (N=88)*	H (N=35)
I. Traditional methods								
<i>lectures</i>	96.8%	92.0%	97.1%	98.7%	85.7%	86.1%	96.6%	90.0%
<i>discussions</i>	62.7%	52.0%	65.7%	47.4%	71.4%	62.0%	70.8%	60.0%
<i>case studies**</i>	64.2%	60.0%	77.1%	40.8%	40.0%	51.8%	73.0%	27.5%
<i>business planning**</i>	49.3%	32.0%	71.4%	46.1%	54.3%	41.6%	61.8%	20.0%
II. Methods based on working life								
<i>real-life problem solving</i>	31.3%	16.0%	42.9%	18.4%	22.9%	42.3%	64.0%	22.5%
<i>internships (practice at work)</i>	43.3%	32.0%	42.9%	69.7%	57.1%	47.4%	34.8%	12.5%
<i>real-life projects with companies</i>	16.4%	16.0%	28.6%	5.3%	5.7%	22.6%	55.1%	5.0%
<i>working with mentors</i>	3.0%	0.0%	22.9%	3.9%	2.9%	5.8%	18.0%	5.0%
<i>guest lectures by practitioners</i>	52.2%	40.0%	42.9%	10.5%	38.6%	34.3%	75.3%	25.0%
<i>job shadowing</i>	1.5%	8.0%	5.7%	0.0%	11.4%	5.1%	25.8%	2.5%
III. Methods modeling entrepreneurship								
<i>24-h camps</i>	2.7%	4.0%	0.0%	0.0%	1.4%	3.6%	1.1%	0.0%
<i>mini-companies</i>	1.4%	8.0%	16.2%	1.3%	7.1%	4.4%	50.6%	7.5%
<i>virtual mini-companies</i>	1.4%	8.0%	10.8%	0.0%	10.0%	19.7%	3.4%	15.0%
<i>pre-incubation & incubation</i>	0.0%	0.0%	37.1%	1.3%	5.7%	7.3%	10.1%	0.0%
<i>simulations</i>	7.5%	28.0%	28.6%	10.5%	20.0%	34.3%	29.2%	20.0%
<i>business games</i>	11.9%	28.0%	54.3%	39.5%	35.7%	53.3%	23.6%	45.0%
<i>business modeling</i>	13.4%	16.0%	25.7%	7.9%	31.4%	22.6%	37.1%	10.0%
<i>business competitions</i>	1.4%	8.0%	8.1%	1.3%	8.6%	14.6%	34.8%	0.0%
<i>entrepreneurship labs</i>	0.0%	0.0%	5.4%	0.0%	2.9%	2.2%	18.0%	2.5%
<i>inter-disciplinary teamwork</i>	4.5%	4.0%	11.4%	7.9%	14.3%	11.7%	21.3%	10.0%
<i>pitching business ideas</i>	31.3%	60.0%	62.9%	22.4%	22.9%	26.3%	38.2%	17.5%
IV. Participative methods								
<i>international exchange programs</i>	1.5%	8.0%	5.7%	1.3%	15.7%	10.2%	11.2%	10.0%
<i>creativity exercises</i>	16.4%	24.0%	31.4%	25.0%	30.0%	40.1%	36.0%	37.5%
<i>fishbowls</i>	17.9%	16.0%	28.6%	15.8%	7.1%	8.8%	1.1%	7.5%
<i>scientific discussions</i>	10.4%	4.0%	11.4%	5.3%	14.3%	10.9%	5.6%	7.5%

Notes: Highest share per country shown in bold. *HEIs that implement more experiential EE. **Whilst the treatment of business planning as a traditional method might be disputable, it is commonly delivered in a traditional way in the local HEIs. Most often, it is an individual or pair assignment requiring submission of a 10-15 page document comprising mission statement, product or service description, market and SWOT analysis, and cash flow forecast, amongst other standard components. Depending on the way case studies are implemented, they can also be classified as participative or based on working life if accompanied by company visits, yet they tend to be more formal in Estonia and Latvia.