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To cite this article: Inna Kozlinska , Anna Rebmann & Tõnis Mets (2020): Entrepreneurial competencies and employment status of business graduates: the role of experiential entrepreneurship pedagogy, Journal of Small Business & Entrepreneurship, DOI: [10.1080/08276331.2020.1821159](https://doi.org/10.1080/08276331.2020.1821159)

To link to this article: <https://doi.org/10.1080/08276331.2020.1821159>



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Published online: 19 Oct 2020.



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Entrepreneurial competencies and employment status of business graduates: the role of experiential entrepreneurship pedagogy

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ABSTRACT

This study examines the relationship among experiential entrepreneurship pedagogy, entrepreneurial competencies and employment status of business graduates in two European countries. A proposed model relies on the adapted Bloom's taxonomy, human capital theory, and experiential learning theory. The model examines knowledge, skills, and attitudes as competencies, and relates them to the two forms of employment status: nascent intrapreneurship and early-stage entrepreneurial activity. These inter-relationships are tested closely considering a dominant pedagogical approach to teaching entrepreneurship – traditional or experiential.

The study is based on a cross-sectional survey of 454 graduates from Bachelor-level business programmes delivered at eight higher education institutions (four in each country); and on 16 semi-structured interviews with entrepreneurship educators, who taught the surveyed graduates.

The findings highlight that experiential pedagogy can be indeed more effective for developing all three entrepreneurial competencies, while traditional pedagogy might still be suitable for theoretical knowledge about entrepreneurship. Furthermore, experiential pedagogy moderates the relationship between different competencies and the employment status of graduates. This contingency on the pedagogy type is crucial implying a combination of traditional and experiential teaching methods to balance the effects of entrepreneurship education.

RÉSUMÉ

Cette étude examine la relation entre la pédagogie expérientielle de l'entrepreneuriat, les compétences entrepreneuriales et le statut d'emploi des diplômés en commerce dans deux pays européens. Le modèle proposé repose sur la taxonomie adaptée de Bloom, la théorie du capital humain et la théorie de l'apprentissage expérientiel. Le modèle examine les connaissances, les aptitudes et les attitudes en tant que compétences, et les relie aux deux formes de statut d'emploi: l'intrapreneuriat naissant et

ARTICLE HISTORY

Received 21 May 2020

Accepted 3 September 2020

KEYWORDS

Experiential pedagogy; Entrepreneurial competencies; Employment status; Intrapreneurship

MOTS-CLÉS

Pédagogie expérientielle; Compétences entrepreneuriales; Statut d'emploi; Intrapreneuriat

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l'activité entrepreneuriale de stade précoce. Ces interrelations sont testées de près en tenant compte d'une approche pédagogique dominante de l'enseignement de l'entrepreneuriat – traditionnel ou expérientiel. L'étude est basée sur enquête transversale conduite auprès de 454 diplômés de programmes commerciaux de niveau licence dispensés dans huit institutions d'enseignement supérieur (quatre dans chaque pays); et sur 16 entretiens semi-structurés avec des éducateurs en entrepreneuriat qui étaient les enseignants des diplômés interrogés. Les résultats soulignent que la pédagogie expérientielle peut en effet être plus efficace pour le développement des trois compétences entrepreneuriales, alors que la pédagogie traditionnelle pourrait encore convenir pour les connaissances théoriques sur l'entrepreneuriat. De plus, la pédagogie expérientielle tempère le rapport entre les différentes compétences et le statut d'emploi des diplômés. Cette contingence sur le type de pédagogie est cruciale, impliquant une combinaison de méthodes d'enseignement traditionnelles et expérientielles pour équilibrer les effets de l'éducation à l'entrepreneuriat.

Introduction

Scholarly interest in entrepreneurship education and pedagogy has expanded exponentially, with an increasing number of courses in universities and an ongoing shift towards more experiential learning (Kuratko 2005). The question of 'pay-offs' from these initiatives, however, remains open.

The uncertainty and ambiguity, action, and dynamism inherent in the essence of entrepreneurship suggest experiential pedagogy as the most appropriate for teaching the discipline in a university setting (Neck and Greene 2011; Fiet 2001). This pedagogy makes learners go outside classroom, apply relevant theoretical knowledge at various stages of entrepreneurial process, and reflect on perceived outcomes. Its basic idea is to mirror reality by dissolving borders between educational and professional life (Dewey 1998; Kolb 1984).

In spite of the intuitive appropriateness of experiential entrepreneurship pedagogy and the encouragement among leading scholars to use it (see, for example, Bécard and Toulouse 1991; Neck and Greene 2011), evidence supporting the assumption that experiential pedagogy makes greater impact on students' learning than traditional, lecture-based, pedagogy is still lacking. Because increasingly more entrepreneurship education (EE) courses and programmes are shifting towards experiential pedagogy, it is crucial to shed light on whether this pedagogy is indeed associated with superior competencies of learners, such as knowledge and skills that are the commonly targeted curricular outcomes in educational practice.

The outcomes of EE tend to be assessed using subjective measures, such as entrepreneurial self-efficacy and intentions, and/or objective measures such as the number of start-ups and related performance indicators (Nabi et al. 2017). The empirical studies of EE based on objective measures tend to overlook other crucial outcomes pertaining to professional life of graduates, for instance, engagement into nascent intrapreneurial activity. It is a surprising gap since EE, as an extension of management education, provides students with the opportunities to develop personal

qualities, understandings, and transferable skills to enhance their employability both as an entrepreneur and as an employee (Wilton 2008; Moreland 2006). Recognising this, there is growing interest among educators and policy makers in the outcomes of EE beyond traditional start-up creation (QAA 2012).

Furthermore, a relationship between subjective and objective outcome measures of EE further than the 'entrepreneurial intentions – start-up' link remains underexplored in the EE literature. Based on human capital theory (Unger et al. 2011; Becker 1975), the expectation is that what a university graduate knows, understands, and is able to do upon completion of studies should enable his/her career achievements. Although this association is at the heart of teaching and learning performance outcomes as well as the key measure of success of universities from the education policy perspective (QAA 2012; Rideout and Gray 2013; Wilton 2008), empirical evidence on it in the EE research is scarce.

This paper contributes to contemporary EE research and to career research by filling the identified gaps. The aim of the study is twofold: 1) to examine the relationship between experiential pedagogy and entrepreneurial competencies of university graduates; 2) to examine the association between competencies and early entrepreneurial employment status of graduates (serving as a proxy for career achievements).

The study adds 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, and Salas 1993; Bloom, Masia, and Krathwohl 1964). The framework puts forward a tripartite structure of individual competencies comprising entrepreneurial knowledge, skills, and attitudes. This framework specifically designed for educational context provides a holistic view of subjective measures, and can serve as a valuable add-on to the models of entrepreneurial intentions and employability skills in evaluating the outcomes of EE (Olutuase, Brijlal, and Yan 2020; Jackson and Wilton 2017; Iakovleva, Kolvereid, and Stephan 2011).

In terms of the contribution to career research, career theorists are often pre-occupied with organisational context that influences career progression, while this paper highlights educational antecedents of entrepreneurial career and employability (Jackson and Wilton 2017; Dyer 1995). Simultaneously the study adds to the diversity of career outcomes related to EE by analysing entrepreneurial employment status through measuring involvement into nascent intrapreneurship as well as early-stage entrepreneurial activity (EA).

The study follows a mixed method embedded design combining qualitative and quantitative research. The qualitative part is based on 16 semi-structured interviews with entrepreneurship educators at eight universities in Estonia and Latvia to determine the prevailing pedagogy in each university. The quantitative part is based on a survey of 454 imminent and recent Bachelor-level business graduates taught by the interviewed educators.

Regression analysis shows that experiential pedagogy is associated with higher entrepreneurial knowledge and skills than traditional pedagogy. Entrepreneurial attitudes, but not knowledge or skills, can increase the graduates' chances to engage into early-stage EA. Simultaneously, the effects of attitudes and knowledge on the entrepreneurial employment status are contingent upon the type of pedagogy. As such, the findings highlight that experiential pedagogy can indeed be more effective than

traditional pedagogy for developing competencies of learners, and that it affects the relationship between the competencies and employment status of graduates.

The paper is organised in the following way. The next section outlines the conceptual model of the study, followed by a description of the research methodology. The third section outlines the findings. The paper concludes by discussing the findings and setting directions for further research.

Conceptual model

Entrepreneurship is a crucial force for economic value creation, stimulating innovation, job creation and economic growth (van Praag and Versloot 2007; van Stel, Carree, and Thurik 2005). Individual-level competencies such as knowledge, skills, and attitudes are critical elements that enable people taking entrepreneurial actions (Wennekers and Thurik 1999; Becker 1975). Policy makers, educators, and university management collectively invest into the development of students' entrepreneurial competencies expecting future returns for graduates' employability (Nabi et al. 2017; Moreland 2006). We posit that to understand the effectiveness of EE, it is necessary to evaluate both entrepreneurial competencies and employment status of learners, as well as the connections between the two.

Experiential entrepreneurship pedagogy

Experiential pedagogy in EE is in vogue. Its necessity has been articulated vividly over the last couple of decades (Bécharde and Toulouse 1991; Neck and Greene 2011; Fiet 2001). However, empirical evidence on the effectiveness of experiential entrepreneurship pedagogy remains scarce (one of the rare studies touching upon this distinction conducted by Piperopoulos and Dimov 2015).

Experiential pedagogy is rooted in the constructivist and socio-constructivist paradigms of learning (Löbler 2006; Dewey 1998). The most well-known theorisation of this pedagogy is Kolb's experiential learning model (1984) that includes learning through action and reflection on this action. Experiential pedagogy employs a dynamic learner-centred approach to teaching commonly associated with personal and authentic experiences of students as the primary source of their learning (Bécharde and Grégoire 2007; Fiet 2001). It forces students to go outside classroom, apply acquired theoretical knowledge to experience various stages of the entrepreneurial process, and then reflect on perceived takeaways or failures. Teaching methods modelling entrepreneurship and working life, such as business modelling, real-life projects with companies, student enterprises, and critical reflections prevail during experiential classrooms (Hynes, Costin, and Birdthistle 2010; Lee, McGuiggan, and Holland 2010).

Traditional pedagogy, on the other hand, draws principally from behaviourist and cognitivist learning paradigms (Löbler 2006). It is a teacher-centred approach associated with traditional methods such as stand-up lecturing, seminar discussions, case studies or other typical in-class exercises. Thereby teaching process aims to help explore the nature of entrepreneurship, to develop students' critical thinking based on

predominantly theoretical understanding of the phenomenon, and to provide with best practice examples (Bécharad and Grégoire 2007).

These two basic approaches to teaching entrepreneurship feature clear variation in the aims and teaching methods, hence, are likely to have different effects on students' competencies.

Entrepreneurial competencies: knowledge, skills, attitudes

The concept of “competencies” has been surrounded by scholarly debates, because it crosses several disciplines (education, psychology, organisational behaviour) and there are many views on its components – abilities, values, knowledge, skills, concepts of self, behaviours, etc. (Bacigalupo et al. 2016; Bird and Schjoedt 2009; Man 2006). One of the most comprehensive and holistic frameworks of competencies that can help even out the disparate views is the tripartite framework stemming from Benjamin Bloom's taxonomy of educational objectives. According to Bloom, Masia, and Krathwohl (1964) and Bloom et al. (1956), three major types of learning exist: cognitive, psycho-motor, and affective. Cognitive learning develops knowledge or understanding of the subject matter. This includes the ability to recall, interpret and apply learned material in different situations. Psycho-motor learning increases subject-related physical and psychological skills denoting the ability to observe and learn from another person's behaviour, to carry out specific tasks and co-ordinate a series of actions that require multiple skills. Affective learning improves positive attitudes and willingness to learn and act within an area of interest. It involves acceptance of and commitment to chosen values.

Education researchers further adapted the tripartite framework to evaluate the effectiveness of training, specifically looking into cognitive, skill-based, and affective outcomes (Krathwohl 2002; Kraiger, Ford, and Salas 1993); or, put simply, knowledge, skills, and attitudes, jointly referred to as ‘competencies’ required to successfully perform a particular activity or task (such as starting and running own venture or project) (Bacigalupo et al. 2016; Heder, Ljubic, and Nola 2011). Yet, only few EE scholars applied it as a competence-based approach to evaluating the effectiveness of EE (e.g. Lackéus 2014; Lans et al. 2008). Others chose to focus on one aspect of the triad at a time, e.g. skill-based (Olutuase, Brijlal, and Yan 2020) or affective (Keller and Kozlinska 2019).

Up to now, evaluation of educational effectiveness in entrepreneurship programmes has been dominated by measurement of entrepreneurial intentions and their antecedents (perceived behavioural control, attitudes and norms towards entrepreneurship), following theory of planned behavior (Ajzen 1991); see, for instance, Rauch and Hulsink (2015) and Nabi et al.'s (2017) systematic literature overview. Numerous studies, among them – Fragoso, Rocha-Junior, and Xavier (2020), Iakovleva, Kolvereid, and Stephan (2011), demonstrated validity of this theory in different cultural settings. However, the intentionality-related measures reflect mainly the outcomes of affective learning, overlooking knowledge and skills which are commonly assessed in education (Foucrier and Wiek 2019; Lackéus 2014).

The tripartite framework applied to EE includes these overlooked knowledge and skill elements. Fisher, Graham, and Compeau (2008) were the first to introduce this framework into EE by eliciting and categorising knowledge, skills, and attitudes specific to entrepreneurship. Knowledge pertains to, for instance, understanding basic concepts such as business modelling, lean start-ups, and business idea pitching. Skills denote application of knowledge and individual abilities in new product development, imagination, persuasion, networking, among a range of others. Attitudes represent an overall emotional predisposition towards entrepreneurship as a future career path.

Experiential pedagogy and entrepreneurial competencies

Both experiential and traditional entrepreneurship pedagogies are directed at developing entrepreneurial competencies of students (QAA 2012). The differences between the two pedagogical approaches should logically lead to differing effects of EE on competencies (Deslauriers et al. 2019; Deslauriers, Schelew, and Wieman 2011; Cronjé 2006). Experiential pedagogy makes students apply factual knowledge about entrepreneurship acquired during studies, thus, simultaneously building on the level of skills through ‘hands-on’ experience. Students of experiential EE should then develop a greater level of proficiency in new business idea generation, opportunity recognition, and exploitation, among other entrepreneurial skills, if compared to students of traditional EE (Morris et al. 2013). However, when it comes to entrepreneurial attitudes that depict positive predisposition and passion towards entrepreneurship as a possible career path, the effect of experiential pedagogy might turn out to be the opposite (Graevenitz, Harhoff, and Weber 2010; Oosterbeek, van Praag, and IJsselstein 2010). Facing the reality through practice of various stages of entrepreneurial process can make students more risk-conscious and less willing to become entrepreneurs despite autonomy and relative freedom that comes with this career. Hence, the first hypothesis of the study is twofold and formulated as follows:

H1a, b: Experiential pedagogy is *positively* associated with *a) entrepreneurial knowledge* and *b) entrepreneurial skills* of graduates.

H1c: Experiential pedagogy is *negatively* associated with *entrepreneurial attitudes* of graduates.

Entrepreneurial employment status

Education is viewed as one of the precursors of employment status (Dyer 1995; Katz 1992). Employment status can be defined as a result of one’s “*vocational decision to enter an occupation as a wage or salaried employee or a self-employed one*” (ibid 1992:30).

Up until now, EE researchers focused their efforts in studying the creation of new businesses, measuring objective impact indicators of EE such as nascent entrepreneurial behaviour, number of start-ups, and performance indicators (survivor rate, turnover, number of employees) (Charney and Libecap 2000; Brown 1990). Yet, this focus can be broadened in order to capture other important expressions of entrepreneurial behaviour in graduate professional life and wider benefits for graduate employability such as intrapreneurship.

The group of studies devoted to the linkage between EE and professional life of graduates is much smaller than the extensive research into EE and entrepreneurial intentionality (Nabi et al. 2017). These studies focus on start-up behaviours and communicate positive results: a) significant correlation between having EE as part of formal curriculum, various (mostly self-assessed) competencies, such as knowledge and skills (Martin, McNally, and Kay 2013; Charney and Libecap 2000); b) increase in entrepreneurial intentions accompanied by greater number of start-ups (Lange et al. 2011; Kolvereid and Moen 1997). However, the literature on career and entrepreneurial employment of EE graduates remains largely detached from the literature on their start-up intentions, knowledge, skills, etc. Evidence into connections between individual competencies and employment status of graduates beyond start-up behaviour is still lacking (Rideout and Gray 2013). The conceptual model of our study develops this literature further by focusing on two forms of employment status distinct for entrepreneurship – nascent intrapreneurship and early-stage entrepreneurial activity (EA).

The concept of intrapreneurship characterises entrepreneurial employees who can identify and exploit lucrative opportunities within an existing organisation (OFEM 2008; Pinchot 1985). Its tangible form can be a spin-out, new subsidiary or the launch of a new product line as a result of an entrepreneurial initiative, which is usually innovation-based, by an employee. The phenomenon, therefore, goes back to Schumpeter (1947) and the notion of creative destruction that leads to more effective and efficient production processes within organisations and to the establishment of new ventures (Moreland 2006). We track nascent intrapreneurial activity because to be involved in intrapreneurial activities an employee arguably needs to establish own authority and credibility in the face of the top management and/or owners of an organisation.

Early-stage EA, following the definition of the Global Entrepreneurship Monitor (Bosma, Wennekers, and Amoros 2012), includes nascent entrepreneurs, who are taking active steps towards starting a new venture; and (co-)owners of new enterprises that are less than three and a half years old. This early phase of activity is crucial since most dynamism, future job creation, and innovation are expected from the individuals involved in it (ibid 2012; Birch 1979).

Competencies as antecedents of entrepreneurial employment status

Entrepreneurial competencies are regarded as pervasive and transferrable across diverse disciplines and contexts; their development is of a great interest to educators and policy makers alike (QAA 2012; Morris et al. 2013; Moreland 2006). Reflecting human capital theory (Becker 1975), competencies acquired during EE are expected to translate into the entrepreneurial employment of graduates (Martin, McNally, and Kay 2013; Unger et al. 2011; Baldwin and Ford 1988). This suggests that students who score higher on the levels of entrepreneurial competencies should be more likely to engage into entrepreneurial behaviour in either corporate or private venture settings (Jackson and Wilton 2017; Morris et al. 2013). However, there is little consensus in the literature to date regarding the relative importance of entrepreneurial knowledge, skills, and attitudes for the professional life of university graduates. This study intends to shed light on that relationship and contributes to the employability

discussion in the education research literature as well as to the empirical knowledge on the determinants of career status¹ (Jackson and Wilton 2017; Dyer 1995).

Commonly, fewer business graduates choose to start up own enterprises in comparison to the number of graduates who choose paid employment (Charney and Libecap 2000). One of the reasons for this is that starting up a new enterprise requires such competencies as risk taking and uncertainty management, in addition to functional management expertise (for example, accounting or marketing). Engaging into early-stage EA by taking active steps towards starting own enterprise requires confidence in one's competencies, passion towards this activity, etc. An entrepreneurial individual within an existing organisation who undertakes an initiative to develop new products/services or becomes responsible for opening a new subsidiary, i.e. nascent intrapreneur, also needs a broader set of competencies than an average employee of this organisation, although s/he operates in *a priori* less risky environment (Urbano and Turro 2013). Therefore, having greater level of such competencies should increase the probability of graduates engaging in both entrepreneurial and intrapreneurial activities:

H2: Greater entrepreneurial *knowledge, skills and attitudes* are associated with an increased likelihood of engagement into a) *nascent intrapreneurship* and b) *early-stage EA*.

Experiential pedagogy, entrepreneurial competencies and employment status

Previous research has not consistently found EE to have positive effects on students' learning outcomes (e.g. Oosterbeek, van Praag, and IJsselstein 2010). Thus, impact researchers have called for exploring novel moderators of the association between EE and its expected impact, to explain the non-confirmatory findings (Nabi et al. 2017; Martin, McNally, and Kay 2013).

Viewed through the lenses of human capital theory, EE is a human capital investment, and entrepreneurial competencies are entrepreneurship-related human capital assets (ibid 2013). Prior research suggests that variation in the impact of EE arises also because different individuals experience same investment but extract the assets differently – due to varying innate capacities or other factors (ibid 2013; Unger et al. 2011). The current study suggests *examining experiential pedagogy as a potential moderator of the relationship between entrepreneurial competencies and entrepreneurial employment of graduates*. However, differing effects are expected for entrepreneurial knowledge, skills, and attitudes, and their relations to early-stage EA or nascent intrapreneurship.

Traditional pedagogy targets the development of knowledge about entrepreneurship, understanding of basic theories and concepts as well as critical thinking (Bécharde and Grégoire 2007). When students learn in-class, for example, by discussing entrepreneurial case studies, they build up knowledge and attain certain level of confidence about their knowledge and skillset. By listening to guest lectures of successful entrepreneurs or to educators' inspirational examples about vast opportunities of entrepreneurial career, students tend to become passionate about being entrepreneurs. However, once they are pushed outside classroom and face authentic learning situations, for example, by designing, prototyping, and selling new products, their understanding of entrepreneurial process contextualises, modifies, and becomes more realistic (Sweller 1994). While in the traditional pedagogy

settings learners may feel confident that they know what entrepreneurship is about, in the experiential pedagogy settings they might start understanding how difficult and demanding entrepreneurial process can really be, that knowledge or what they know is not enough for success. This might not relate to such an extent to intrapreneurial activity, because corporate settings are characterised by a safer, less risky, environment with more resources and support available (Urbano and Turro 2013). In addition, management of an organisation one works for leverages her knowledge by exerting some form of control. Therefore, the following hypothesis is formulated as follows:

H3a: Experiential pedagogy *negatively moderates* the effect of entrepreneurial *knowledge* on early-stage EA.

Experiential pedagogy exposes learners to uncertain and complex situations (through behavioural simulations, student companies, job shadowing, and similar teaching methods), so that students develop personal experience which serves as the primary source of their learning (Kolb 1984). Thus, experiential pedagogy develops skills that can be readily transferred to professional life once the learners face similar situations (Baldwin and Ford 1988). Since experiential pedagogy is expected to develop a broad set of skills with broader relevance to different contexts, the ensuing hypotheses state:

H3: Experiential pedagogy *positively moderates* the effect of entrepreneurial *skills* on both b) nascent intrapreneurship and c) early-stage EA.

Finally, traditional pedagogy may inspire students to start a career path as an entrepreneur although this inspiration might be driven by '*false confidence of knowing little*'. Experiential pedagogy, in contrast, helps seeing similarities and differences between plans and reality, between theory-driven perceptions and factual experiences, and leads to students experiencing some of the complexity and uncertainty of new venture creation. Because the corporate environment is generally safer and more certain, an intrapreneurial path might be more appealing to graduates exposed to experiential pedagogy.

Prior literature, in particular the studies that use theory of planned behaviour (for example, Iakovleva, Kolvereid, and Stephan 2011), demonstrates the predictive power of affective measures – like attitudes towards entrepreneurship – for entrepreneurial intentions further explaining variance in entrepreneurial behaviour. Experiential pedagogy can amplify these effects for those students who have already developed more realistic understanding of entrepreneurship, but still want to pursue the entrepreneurial career path. Thus, the final hypotheses state:

H3: Experiential pedagogy *positively moderates* the effect of entrepreneurial *attitudes* on d) nascent intrapreneurship and e) early-stage EA.

Figure 1 visualises the conceptual model of the study.

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

Methodology

Context

Data for this study were collected at eight prominent universities of Estonia and Latvia in 2012–2013. The study in this context provides a valuable counterweight to

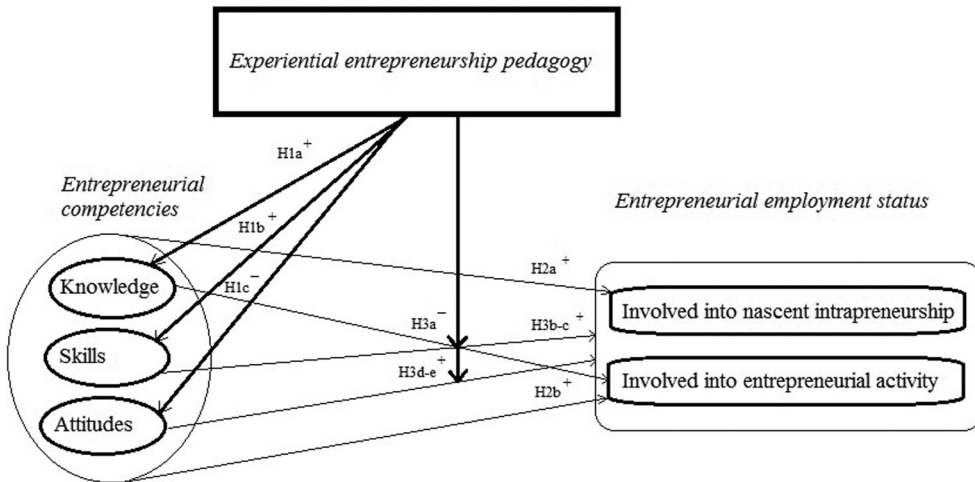


Figure 1. Conceptual model of the study.

the dominance of EE research from Anglo-Saxon countries (Blenker et al. 2014). Despite having a socialist past, where the economies were dominated by large firms producing few consumer goods and SMEs were almost non-existent (McMillan et al. 2003), both Estonia and Latvia score higher than average in total early-stage EA in Europe (Krumina and Paalzwow 2014) and are among the first 25 countries in Global Entrepreneurship Development Index (Acs, Szerb, and Autio 2016). In addition, this context is a useful setting for assessing the outcomes of experiential EE, because it has a quite distinct variation between traditional and experiential approaches to teaching.

Participants

We employed a mixed method embedded design that combined qualitative and quantitative data (Baxter and Jack 2008; Bryman and Bell 2007). The qualitative data were collected through face-to-face semi-structured interviews conducted with 16 entrepreneurship educators. The quantitative data were collected by an online survey administered to nearly 5000 graduates taught by the interviewed educators in both countries (2438 in Latvia and 2487 in Estonia).

The contributing educators, from 8 HEIs, represented the main HEIs teaching entrepreneurship in two small countries. Estonian HEIs in the sample covered 66% of the total number of university students, Latvian HEIs covered 32%; they also bore most of the EE teaching load (Estonian Ministry of Education and Research 2020; Central Statistical Bureau of Latvia 2020). The educators were found through personal networks, since in both countries there were a handful of university teachers of entrepreneurship at the time. The selection resulted in a sample of 16 interviewees (two per HEI), that was close to the maximum number of entrepreneurship educators who could be invited to contribute. Most of the educators had experience in entrepreneurship (or self-employment) and in teaching it.

Table 1. Descriptive information about the sample.

Country, University				Graduates		Total
				Recent	Imminent	
Estonia	A		N	38	11	69
	%	55.1%	44.9%			
	B		N	7	10	17
	%	41.2%	58.8%			
	C		N	16	14	30
	%	53.3%	46.7%			
Latvia	D		N	25	7	32
	%	78.1%	21.9%			
	E		N	46	14	60
	%			76.7%	23.3%	
	F		N	71	52	123
	%			57.7%	42.3%	
G		N	73	15	88	
	%			83.0%	17.0%	
H		N	6	29	35	
	%			17.1%	82.9%	
Total		N	282	172	454	
	%			62.1%	37.9%	

The online survey targeted imminent and recent bachelor-level graduates with business education background, who studied entrepreneurship. In each university, EE was taught as a semester or year-long course (worth 6 ECTS points²) included as a compulsory part of a three-year long bachelor's degree programme. The courses entitled 'Principles of Entrepreneurship', 'Student Enterprises' or alike were easy to find, since there were relatively few entrepreneurship courses in curricula. On top of that, respondents had at least one more course (worth 4–6 ECTS) focused on enterprise management or management theory.

The imminent graduates were final-year bachelor students about to graduate (classes of 2013 and 2014). The recent graduates were within two years after getting a diploma (classes of 2011 and 2012). This time frame was chosen to take a snapshot of the graduates' level of entrepreneurial competencies, while they still remembered the learning process and could answer questions about EE in retrospect.

The survey distribution resulted in a sample of 454 observations used in testing the conceptual model. Table 1 provides descriptive information about the sample. 62% of the respondents were recent graduates, 38% were about to graduate soon. 71% of the respondents were aged from 20 to 25, 16% – from 26 to 30, 13% – 31 and over. More responses were received from females than males – 60% over 40% of the total.

Instruments

Interview

To capture the differences in teaching practices, the interview instrument focused on questions of pedagogy and didactics, following Béchard and Grégoire's (2007) framework. The questions on didactics shed light on the aims the educators set for their practice, while pedagogy-related questions were concerned with the teaching and evaluation methods used (Blenker et al. 2008). Interview data categories elaborated

for this paper came down to two dimensions: teaching aims and methods of teaching as the most indicative of the prevailing type of pedagogy (Bécharde and Grégoire 2007).

Survey

Entrepreneurial employment status – dependent variable (DV)

Both forms of employment status – nascent intrapreneurship and early-stage EA – were binary variables taking the value of ‘one’ when the involvement in either of the activity was reported. The first DV captured the respondents’ involvement into new venture, subsidiary, product or service creation within an existing organisation (Bosma, Wennekers, and Amoros 2012). The second DV was measured as the involvement into nascent entrepreneurial activity and new firm ownership or co-ownership, adapting the Global Entrepreneurship Monitor’s approach (ibid 2012).

Entrepreneurial competencies – dependent variable in testing H1 and independent variable in testing H2, H3

The items of the measures of *entrepreneurial competencies* were compiled from a range of sources including Liñán and Chen (2009), Fisher, Graham, and Compeau (2008), Gibb (2005) as well as the GUESS survey (Sieger, Fueglistaller, and Zellweger 2014). The survey respondents were asked to agree or disagree with statements registering *the level of entrepreneurial knowledge, skills, and attitudes* post-hoc on a five-point Likert scale. They were also asked to evaluate perceived *changes in entrepreneurial knowledge and skills* that occurred *as a result of EE* (Fisher, Graham, and Compeau 2008).

Using both level and change as the complementary measures of competencies was crucial from the methodological perspective in light of the cross-sectional design of the study. The assessment of perceived change in addition to the level of competencies made possible for the respondents to highlight how they perceive EE courses to have specifically affected their learning. It, therefore, brings a more nuanced view on knowledge and skills, and allows relating the results to the impact of EE on competencies in the data analysis. However, the change was not measured for attitudes, because of the greater challenge of recalling changes in affective states retrospectively (see, for example, Forgas (1995) and Fisher, Graham, and Compeau (2008)).

Composite variables (indices) of the perceived level and change in competencies were constructed. Creation of composite variables, in line with the OECD methodology, consisted of four main stages: principal component analysis (PCA), standardization, weighting, and aggregation (Nardo et al. 2005). PCA enabled determining the statistical structure of the data. Table 2 outlines the number of components extracted for each variable and their composition. All the components had sufficiently high Cronbach’s alpha surpassing the commonly accepted threshold of 0.7 (Nunnally 1978). Whilst we pull out several factors for each competency, we decided to create composite indicators of the different factors to understand each of the competencies in full rather than investigating the subcomponents (Greco et al. 2019).

After the components’ items were standardized (z-scores created), we created the composite scales (*knowledge change, knowledge level, skills change, skills level, and*

Table 2. Measures of entrepreneurial competencies.

KNOWLEDGE level. *'Please mark how the statements listed below apply to you, if 0 – does not apply and 4 – strongly applies' [5-point scale]:*

I know key principles of pitching business ideas to potential investors.	0.770
I understand the logics of granting loans in commercial banks.	0.748
I am acquainted with basic principles of team building and formation.	0.690
I understand how business plans differ from business models.	0.659
I know what lateral thinking is.	0.651
<i>Cronbach's alpha</i>	0.741

KNOWLEDGE change (composite). *'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?' [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]*

Opportunity recognition	0.775
Attraction of financing*	0.710
Lean start-ups	0.688
Development of new products and services	0.682
Evaluation of business opportunities	0.662
Business modeling*	0.645
The role of entrepreneurs in our society and economy	0.542
Project management	0.501
Entrepreneurship process	0.750
Business plans and its constituents*	0.724
Theories of entrepreneurship	0.716
Legal aspects of establishing a new enterprise	0.640
General principles of financial reporting	0.533
Integrated marketing communications	0.714
Business communication	0.664
Team management*	0.657
Positioning and branding of products and services	0.606
<i>Cronbach's alpha</i>	0.875 0.748 0.766

SKILLS level. *'To what extent do the following statements apply to you? Please mark the relevant score for each statement' [5-point scale]:*

I am able to attract resources for business ideas implementation.	0.797
I can identify and build management teams.	0.789
I can develop relations with potential investors.	0.786
I can build a working environment that encourages people to work the best they can.	0.690
I am able to motivate others to do what I wish.	0.602
I am well equipped with project management skills.	0.597
I am able to persuade potential customers to purchase a product or service.	0.562
I am an active networker.	0.544
I can convincingly communicate my ideas to other people.	0.527
I have a vivid imagination.	0.718
My intuition often helps to make right decisions in conditions of uncertainty.	0.697
I am able to see a range of lucrative opportunities in everyday life.	0.692
I can learn from any life situation.	0.621
I am able to implement new ideas into real life.	0.607
<i>Cronbach's alpha</i>	0.883 0.772

SKILLS change (composite). *'Can you do things now that you could not do at the beginning of the course?' [5-point scale: No improvement/Made one or two minor improvements/Made some improvements/Made substantial improvements/Can now perform very well]*

Work across teams and functions.	0.830
Be a valuable team-member.	0.829
Work with others who are different from me.	0.807
Lead a team.	0.769
Keep good interpersonal relations.*	0.717
Deal with uncertainty, adapt to new and uncertain situations.*	0.716
Resolve conflicts.	0.680
Organise and control ongoing projects.	0.563
Set priorities and focus on realistic goals.	0.548
Attract potential investors to my endeavors.	0.756

(continued)

Develop new products and services.	0.733
Devise profitable business models.	0.726
Build up professional networks.*	0.679
Solve creative business problems.	0.633
Develop innovative working environment.*	0.629
Negotiate deals with other businesses.*	0.565
Identify unmet needs of people.	0.554
Prepare a cash flow for a firm.	0.768
Write a business plan.	0.716
Identify and analyse risk.	0.686
Manage business risks.	0.661
Work out a marketing plan.	0.535
Conduct a market research.	0.531
Evaluate pros and cons of business ideas.	0.478
<i>Cronbach's alpha</i>	0.938 0.921 0.865

ATTITUDES level. '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]

To be an entrepreneur and have own company is my true passion. 0.924

A career as an entrepreneur suits me well – it gives more freedom and autonomy. 0.915

Among various options, I would rather be an entrepreneur. 0.892

Cronbach's alpha 0.897

*These items were selected for the robustness checks where content of change in knowledge and skills matched with the knowledge and skills levels. Cronbach's alphas of these variables, respectively: 0.703 and 0.871 (loading into one factor each).

attitudes level) to serve as the measures of competencies in the regression models. When creating composite scales, it is important to pay attention to how to weight the different items forming the scale.

There are various different approaches to weighting the different items of a composite scale, none of which clearly appears as a superior method (ibid, 2019). Thus, for our core analysis we chose to take a no weighting approach of averaging the items to create composite indicators which has the benefits of simplicity. The Cronbach's alphas of knowledge change (17 items), skills change (24 items) and skills level (14 items) were computed disregarding the multi-factorial structure of the composites and assuming all items of the scales have the weight of one. All the alphas were over 0.9. Thus, the reliability indicators supported the theoretically developed scales. We aggregated the items linearly, first averaging the items for each factor in each competency, then averaging the factors to create the competency composite variable. This approach has the advantage (compared to averaging over all items) of reducing the impact of "double counting" items that are highly correlated in the final composite (ibid, 2019).

As a robustness check, we also ascertained that our results did not change substantially when weighting the items to account for the variance each scale item explained in extracted components and for the share of variance each component explained in the composites. This approach to composite variable creation ensured that the data structure complexity is taken into account and all the original scale items take part in the measurement (Obadia and Vida 2011; Nardo et al. 2005). The components' items were standardized (z-scores created), weighted based on the variance explained in the PCA analysis, and linearly aggregated to form composite variables.

As you can see from Table 2, the items of level and change in knowledge and skills are not identical. There are fewer items for the measurement of levels to reduce the

respondents' fatigue and to improve the response rate. The other difference between the levels and change is that the reported level of competencies can be influenced by a whole range of entrepreneurship-related curricula (business management, marketing, and the like), since managerial knowledge and skills acquired in other courses can be relatable to entrepreneurial competencies (Man, Lau, and Chan 2002). Consequently, the resulting scales of the competence levels (especially of knowledge and skills) could also reflect the effect of the courses the surveyed graduates studied in addition to EE.

Experiential pedagogy – binary independent variable and moderator

This variable was created based on two sources of data: the interviews and the survey. The dominant type of pedagogy in each university was primarily detected based on the interviews. The survey data helped double-check this information. It asked respondents which learning activities they experienced during EE, offering a list of 25 activities to select from. These activities represented four broader groups of teaching methods: traditional methods, methods based on working life, methods modelling entrepreneurship, and participative methods (Akola and Heinonen 2008). The universities where the share of respondents who took part in the activities falling under the former three groups was the highest, were classified as predominantly experiential. After matching the information from both sources, observations from the universities with experiential and traditional pedagogy were respectively coded as '1' and '0' in the survey dataset.

Control variables

A battery of control variables firstly included such common variables as *gender*, *age*, and *country* in testing either individual competencies or professional performance (Rouse, Treanor, and Fleck 2013; Iakovleva, Kolvereid, and Stephan 2011). Gender and country were binary variables. Age was a continuous variable based on the reported year of birth and log-transformed to tackle the original skewness. *Prior entrepreneurial aspirations* (whether respondents wanted to become entrepreneurs before taking the course) were also controlled for in light of the previous research that suggested prior entrepreneurial exposure and experience can reduce positive effects of EE (Fayolle and Gailly 2015). It was measured on a five-point Likert scale, answers ranging from 'Definitely no' to 'Definitely yes'. Finally, the graduate status (binary variable) was part of the control set to account for possible differences between imminent (coded as '0') and recent graduates (coded as '1').

Methods of analysis

Since the first part of the study design relied on the existing theoretical framework of teaching and learning entrepreneurship (Bécharde and Grégoire 2007) that informed the interview instrument, content analysis was employed (Braun and Clarke 2006). The data were coded and processed in NVivo 11.

To test the study hypotheses, multiple linear and binary logistic regressions were estimated using IBM SPSS Statistics 24. Regression analysis served the purpose of making a

statistical prediction based on the theoretically reasoned interconnections among the model variables. For testing the association between the pedagogy type and competencies, linear regression (with the least squares method) was used, given a continuous measure of competencies (the constructed composites) and a dichotomous measure of the pedagogy type (similar approach employed by Deslauriers et al. 2019). For testing the second part of the model, logistic regression was used, fitting the binary outcome variable.

Addressing potential biases

Several extra tests were conducted to identify and mitigate such biases as non-response, self-selection, and common method bias.

Test for non-response bias

Non-response is a potential source of non-sampling error that can bias statistical analysis. It usually occurs when some members of the sample selected for analysis do not respond or cannot supply the required data for some other reason (Bryman and Bell 2007). The test for non-response bias is usually conducted prior to testing hypothesized associations to make sure those who responded to a survey are not significantly different from those who were invited but did not respond.

In this study, no statistically significant differences were registered between the survey respondents and non-respondents (whose questionnaires were incomplete, $N = 110$) in nascent and past entrepreneurship, respectively: $\{t = -0.098, p < 0.922\}$ and $\{t = -0.233, p < 0.816\}$. Also, no differences were found in prior knowledge about entrepreneurship and prior entrepreneurial aspirations between the two groups: $\{t = -0.894, p < 0.372\}$ and $\{t = 0.558, p < 0.577\}$. These test variables were the ones that the survey captured observations on from both compared groups.

Addressing self-selection bias

Potential sources of self-selection bias in this study are the selection of students into HEIs, into business study programmes, as well as into EE. Selection according to HEIs means that different HEIs can attract students with different profiles and learning preferences. While this might be the case, it does not necessarily affect the effects this research analyses. The local study of patterns of how people of different age groups choose an HEI (Sloka et al. 2007) revealed that secondary school graduates (15–18 years old) are most guided by financial aspects (e.g. state financed places and scholarship options). In addition, recommendations by friends and family are influential as is the likelihood of getting a well-paid job afterwards, the reputation of the HEI and low tuition fees. Study content or study quality, which are most likely to interfere with the analysed effects, are not mentioned as factors affecting the choice of an HEI.

One might still argue that a source of self-selection bias concerns enrolment of the respondents into particular HEIs, since we are uninformed what considerations drove the sampled individuals. However, the admittance of students to the HEIs was not directly linked to purposefully selecting into either traditional or experiential EE, which was a compulsory part of the bachelor programmes.

As a counterweight to the cross-sectional design limitations, one more test was run to support the sampling frame, showing that self-selection according to a study programme and available EE might not be interfering with the results and that the subset of the population selected for the analysis was targeted correctly (Bryman and Bell 2007). This test was based on a comparison of the sample ($N=454$) to a group of engineering graduates who did not study entrepreneurship ($N=41$) that the administered survey also captured. Due to the small size of the control group, the non-parametric Kruskal-Wallis test was run. With no statistically significant differences (at a 5% level) in self-assessed prior knowledge about entrepreneurship and prior entrepreneurial aspirations between the compared groups, the test signposted significantly better ($p < 0.01$) post-intervention entrepreneurial knowledge, skills and attitudes (both change and level except for the skills level) among the graduates who studied entrepreneurship. These differences reiterated the findings of previous studies that employed quasi-experimental design, for example, by Rauch and Hulsink (2015) and Souitaris, Zerbinati, and Al-Laham (2007), thus, supporting the sampling frame and lowering the chances of self-selection to significantly affect the analysis.

Test for common method bias

To alleviate concerns about common method bias that arise when all variables are collected through self-report, the widely used Harman's single factor test was conducted (Podsakoff et al. 2003). This test assesses the extent to which research findings may be biased by common method variance. If the common factor explains over 50% of the variance among all items, the common method variance is considered to be a problem. In the current data, 30% of the variance was shared among all variable items that is well below the critical threshold of 50%. Therefore, common method bias is unlikely to be an alternative explanation for the findings reported in the study.

Addressing situational bias

Factors unrelated to pedagogy type might cause situational biases. One of such factors, country-level control, was included into all the regression models, proving to be insignificant except one case (see Findings). One of the research limitations to this study is that there may be other factors that we have not controlled for. We discuss this further in the conclusions and discussion.

Findings

Type of entrepreneurship pedagogy

Table 3 summarizes main insights from the interviews with entrepreneurship educators. As expected, the approach to teaching entrepreneurship differed across the surveyed universities.

The teaching aims the educators pursued can be classified into four groups: 1) the development of knowledge and awareness *about* entrepreneurship, *characteristic of the traditional pedagogy*; 2) the development of competencies *for* entrepreneurship, *characteristic of the experiential pedagogy*; 3) the development of an entrepreneurial personality for life in general and, possibly, setting up own enterprises at some point in the future; 4) establishing fit with entrepreneurship as a career alternative. Although the educators' aims differed and were distinct for the first two groups of

Table 3. Expert interview insights: aims set and methods used.

University	Dimension	Details	Diagnosis
A: "Introduction to Entrepreneurship" 3 ECTS (year 1), "Principles of Entrepreneurship" 3 ECTS (year 2–3)	Aims	To balance between developing a personality knowledgeable about entrepreneurship and an entrepreneurial personality. To widen beliefs and develop mind-set in addition to knowledge and skills in business planning.	Predominantly traditional, learning opportunities outside formal curriculum
	Methods	Lectures with incorporated examples from real-life and built-in assignments; reflective feedback. Business planning, cases studies. Voluntary extra-curricular activities available, such as interdisciplinary 'Idea Lab' and 'Garage48'.	
B: "Entrepreneurship Basics" 3 ECTS (year 1), "Entrepreneurship" 4 ECTS (year 2)	Aims	To show that company creation and management is possible for anyone. To help students in making well-grounded career choices. To convey the knowledge necessary for setting up and managing your own enterprise.	Traditional
	Methods	Traditional lectures and seminars, business plans and simulations but stronger emphasis on theory. Group discussions, creativity exercises, extensive independent work, including business modelling. Business competition as an extra-curricular activity.	
C: "Business Basics" 3 ECTS (year 1), "Student Enterprises" 3 ECTS (year 1–2).	Aims	To push students out into the real world to experience entrepreneurship and become successful in creating or managing their own companies. To provide students with opportunities for evaluating what type of entrepreneurship suits them most.	Experiential, explicitly learner-centred
	Methods	Implementation of business ideas and real-life projects; educator as a mentor. Fully based on team work. Company visits, reflective feedback, self-analysis questionnaires. Guest lectures by alumni entrepreneurs.	
D: "Entrepreneurship" 6 ECTS points (year 1–2)	Aims	To increase awareness about entrepreneurship, about what it means and takes to be an entrepreneur. To help students take away from education as much as possible to be used in working life.	Traditional, with systematic company visits
	Methods	Lectures, seminars, case studies and heavily oriented on business planning. Distance learning, company visits (a minimum of five companies of different types: intellectual, manufacturing, agricultural, etc.).	

(continued)

Table 3. Continued.

University	Dimension	Details	Diagnosis
E: "Basics of entrepreneurship" 6 ECTS (year 1–2)	Aims	To stimulate students become entrepreneurs, to determine personal fit with entrepreneurship. To teach terminology and business planning.	Predominantly traditional, in-class
	Methods	Lectures, case studies, discussions, role plays, practical work (short exercises), business planning, industry analysis; tests, individual tasks, reports, etc./cases, problems, role-playing, group projects. In-class activities mainly. Some extra-curricular activities (mainly business plan competitions).	
F: "Entrepreneurship" 6 ECTS or "Entrepreneurship and business planning" 6 ECTS (year 1–3)	Aims	A mind-shift towards entrepreneurial thinking and behaviour. To open students up, to help them find own strengths and uniqueness. To enable students to make a strategic analysis, diagnose environment, determine competitive advantage, maximize the firm value.	Predominantly experiential, a combination of entrepreneurship and case-based management education
	Methods	Cross-cultural and creativity exercises, videos from professional agencies outlining specific entrepreneurial cases, problem-based learning; business plans, role plays, negotiation cases, elevator pitches. Portfolio management. Harvard simulations (online), effectuation, virtual international cooperation projects. Visiting 5–10 companies per year. Ensuring that students get real learning value in exchange, real-time assignments/reflective practice. Presentations of the company analysis to the board, venture capitalists or panel of experts. Case study approach, 1/3 theory, 1/3 case studies, 1/3 seminars.	
G: "Lab of entrepreneurship" 6 ECTS (year 1) / Specialization "Entrepreneurship" 7.5 ECTS (year 3, 16 out of 88 students chose this track)	Aims	To position entrepreneurship as a career alternative. To increase students' motivation to become entrepreneurs knowing advantages and possible risks. To develop necessary skills to conduct entrepreneurial activities.	Experiential, learning opportunities outside formal curriculum
	Methods	Steve Blank's approach: lectures about developing own start-up ideas, guest lectures by practitioners about certain topics, business model development, model testing outside classroom, and pitching. Cooperation with companies as part of business model testing, interaction with clients, customers, vendors, and	

(continued)

Table 3. Continued.

University	Dimension	Details	Diagnosis
H: “Practical entrepreneurship” 6 ECTS	Aims	<p>partners to test the model assumptions. Learning through storytelling (“my story – your lesson”).</p> <p>“30 EUR challenge” exercise to maximize the initial investment in two weeks, creativity exercises, learning diaries.</p> <p>To clarify what entrepreneurship is; to help an individual understand, whether s/he can become an entrepreneur; to teach setting aims and achieving them.</p> <p>To integrate knowledge into practice. Establishment of own enterprise as a meta-objective.</p>	Predominantly traditional with an emphasis on business games
	Methods	<p>Lectures, own experience, thematic videos, situation analysis, group work, discussions, application of new management methods, presentations, creativity exercises, business games (helps diagnosing who can become an entrepreneur), student research projects, experience exchange.</p> <p>Some company visits; formal individual internships at companies; no cooperation with science parks or business incubators.</p>	

aims, they were not necessarily representative of the dominant type of entrepreneurial pedagogy unless coupled with the teaching methods employed. Educators employing experiential pedagogy explicitly mentioned pushing students outside classroom to experience entrepreneurial process and, in most cases, to reflect upon it. Based on this analysis, EE was diagnosed as more experiential in University C in Estonia and in University F and G in Latvia.

The assessment of the frequency of the EE methods used in the surveyed universities as informed by the survey respondents confirmed the principal conclusions from the interviews. Teaching methods based on working life, such as real-life problem solving, pitching business ideas to investors, real-life projects with companies, among others, evidently occurred more often in universities C, F, and G. Methods modelling entrepreneurship via the creation of mini-companies, incubation, business modelling, business competitions and entrepreneurship labs were also the most frequent in these universities. Similar conclusion applies to the frequency of participative activities, especially in the Estonian sample. While there are elements of both traditional and experiential EE in each university, evident leaders in the use of experiential pedagogy are diagnosable. See [Appendix](#) for details.

Results of regression analyses

This section presents results of the regression analyses.

Table 4 shows descriptive statistics and correlations of the regression variables. The strongest correlations are observed among the entrepreneurial competence variables.

The conceptual model of the study was tested in two steps. On the first step, multiple linear regressions of entrepreneurial competencies (both level and change) were run with experiential entrepreneurship pedagogy as the main explanatory variable (H1a-c). On the second step, binary logistic regressions of entrepreneurial employment status were run with entrepreneurial competencies as the main explanatory variables (H2a-b, H3a-e).

Table 5 outlines results of the first set of regressions. It shows that experiential pedagogy is associated with higher level of entrepreneurial knowledge and skills as well as with the greater change in skills than traditional pedagogy (H1a and b). The effect on attitudes (H1c), however, is positive, small, and marginally significant. Judging by the negative sign of *B*-coefficient, experiential pedagogy has a decreasing yet non-significant effect on perceived change in knowledge.

Prior entrepreneurial aspirations is the most influential control variable exhibiting a consistent positive effect on the competencies of graduates. In addition, female graduates perceive they benefited more from EE in terms of knowledge and skills than male graduates. Simultaneously, the levels of knowledge and attitudes remain higher among males. The graduate status does not appear to be a confounding variable in any of the regressions except for making the difference for the change in knowledge with recent graduates reporting bigger perceived change.

Tables 6 and 7 outline results of the second set of regressions. Model 1 examines the effects of entrepreneurial competencies (level and change simultaneously) on the graduates' entrepreneurial employment status, as per H2. It reveals only a marginal effect of attitudes on the likelihood of engagement into early-stage entrepreneurial activity. Models 2 and 3 test the effects of the level and change in knowledge and skills separately, alongside attitudes and experiential pedagogy as a moderator on the entrepreneurial employment status, as per H3. Model 4 follows up on the same test with the whole set of independent variables including interactions of the type of pedagogy with competencies (both level and change).

Consistently significant moderation effects of experiential pedagogy are observed on the relationship between attitudes and entrepreneurial employment status of graduates. As Figure 2a signposts, experiential pedagogy indeed increases the odds of engaging into nascent intrapreneurship. The result goes in line with the reasoning that graduates who learnt entrepreneurship in an experiential way might perceive corporate environment as safer and more attractive, and translate their entrepreneurial attitudes from the realm of self- to paid employment.

This analysis unveils another unexpected yet noteworthy effect pertaining to early-stage EA. It appears that experiential pedagogy is nearly as effective for graduates with high level of entrepreneurial attitudes as traditional pedagogy is effective for graduates with low level of attitudes to increase the odds of engaging into EA. See

Table 4. Descriptive statistics and correlations.

Regression variables	Mean	Std.dev.	1	2	3	4	5	6	7	8	9	10	11	12
1 Involved into early-stage activity	0.262	0.440												
2 Involved into nascent intrapreneurship	0.376	0.485	0.084											
3 Knowledge change	3.371	0.715	0.010	0.058										
4 Knowledge level	3.395	0.787	0.151**	0.164**	0.377**									
5 Skills change	3.341	0.775	0.047	0.118*	0.624**	0.366**								
6 Skills level	3.667	0.627	0.202**	0.166**	0.360**	0.582**	0.420**							
7 Attitudes level	3.570	0.990	0.384**	0.178**	0.169**	0.256**	0.226**	0.363**						
8 Entrepreneurship pedagogy type	0.531	0.500	0.059	0.092	-0.008	0.115*	0.152**	0.081	0.097*					
9 Gender	0.599	0.491	-0.187**	-0.091	0.083	-0.156**	0.061	-0.014	-0.171**	-0.121*				
10 Age	3.276	0.168	0.095*	0.059	0.057	0.101*	-0.009	0.097*	-0.001	-0.200*	-0.007			
11 Graduate (recent or imminent)	0.621	0.486	0.022	-0.065	0.093*	0.036	0.077	-0.07	0.009	0.094*	0.028	0.084		
12 Country	0.326	0.469	-0.041	-0.067	-0.011	0.041	-0.116*	0.000	-0.032	-0.457**	0.061	0.291**	-0.057	
13 Prior entrepreneurial aspirations	3.504	1.223	0.352**	0.100	0.185**	0.250**	0.184**	0.319**	0.591**	0.096*	-0.174**	0.025	-0.057	-0.099*

Notes: N = 454 (except the involvement into nascent intrapreneurship where N = 311).

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

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

Table 5. Experiential pedagogy and entrepreneurial competencies.

Independent variables:	Dependent variable: Entrepreneurial competencies				
	Knowledge level	Knowledge change	Skills level	Skills change	Attitudes level
(Constant)	<i>Coef.</i> 1.419 ⁺ (0.727)	<i>Coef.</i> 2.161 (0.676)	<i>Coef.</i> 1.756 (0.573)	<i>Coef.</i> 2.363 (0.730)	<i>Coef.</i> 3.218 (0.437)
Age	0.409 ⁺ (0.222)	0.186 (0.206)	0.390* (0.175)	0.095 (0.222)	-0.010 (0.133)
Gender	-0.170* (0.073)	0.168* (0.068)	0.068 (0.058)	0.173* (0.074)	-0.104* (0.044)
Graduate	0.060 (0.074)	0.146* (0.068)	-0.097 ⁺ (0.058)	0.110 (0.074)	-0.018 (0.044)
Country	0.192* (0.087)	-0.021 (0.081)	0.054 (0.069)	-0.083 (0.087)	-0.001 (0.052)
Prior entrep. aspirations	0.147*** (0.030)	0.123*** (0.027)	0.162*** (0.023)	0.121*** (0.030)	0.165*** (0.018)
Entrepreneurship pedagogy (EP)	0.232*** (0.080)	-0.031 (0.075)	0.131* (0.063)	0.188* (0.128)	0.082 ⁺ (0.048)
<i>R</i> ²	0.106	0.061	0.124	0.071	0.202
<i>p</i> -level	***	***	***	***	***
<i>N</i>	454	454	454	454	454

Notes: standard errors in parentheses;
⁺*p* < 0.10;
**p* < 0.05;
***p* < 0.01;
****p* < 0.001.

Table 6. Entrepreneurial competencies and nascent intrapreneurship.

	Dependent variable: Involvement into nascent intrapreneurship				
	Model 1	Model 2	Model 3	Model 4	
<i>Independent variables:</i>	<i>Exp(B)</i>	<i>Exp(B)</i>	<i>Exp(B)</i>	<i>Exp(B)</i>	<i>95% CI</i>
Age	1.183	1.184	1.216	1.196	[0.916; 1.561]
Gender (female)	0.805	0.827	0.814	0.822	[0.483; 1.400]
Graduate	0.757	0.698	0.681	0.696	[0.408; 1.188]
Country	0.652	0.668	0.726	0.665	[0.349; 1.268]
Prior entrep. aspirations	0.992	0.867	0.894	0.865	[0.637; 1.175]
Knowledge level	1.164	1.331		1.343	[0.554; 2.327]
Knowledge change	0.908		0.992	0.915	[0.775; 1.512]
Skills level	1.088	1.281		1.274	[0.649; 2.203]
Skills change	1.194		1.233	1.061	[0.737; 1.736]
Attitudes level	1.228	1.036	1.234	1.035	[0.690; 1.552]
Entrepreneurship pedagogy (EP)		1.296	1.301	1.268	[0.720; 2.234]
Knowledge level × EP		0.803		0.790	[0.395; 1.581]
Knowledge change × EP			0.947	1.020	[0.529; 1.968]
Skills level × EP		0.865		0.856	[0.444; 1.649]
Skills change × EP			0.939	1.088	[0.560; 2.112]
Attitudes level × EP		1.681*	1.512*	1.655*	[1.096; 2.498]
(Constant)	0.881	0.781	0.777	0.785	
Cox and Snell R ²	0.059	0.080	0.072	0.081	
Nagelkerke R ²	0.080	0.109	0.098	0.111	
p-level	*	*	*	*	
Events/N	117/311	117/311	117/311	117/311	

Notes: CI – confidence interval;

* $p < 0.05$.

Table 7. Entrepreneurial competencies and early-stage entrepreneurial activity.

	Dependent variable: Involvement into in early-stage entrepreneurial activity				
	Model 1	Model 2	Model 3	Model 4	
<i>Independent variables:</i>	<i>Exp(B)</i>	<i>Exp(B)</i>	<i>Exp(B)</i>	<i>Exp(B)</i>	<i>95% CI</i>
Age	1.299*	1.267 ⁺	1.293*	1.243 ⁺	[0.972; 1.590]
Gender (female)	0.564*	0.504*	0.583*	0.538*	[0.325; 0.892]
Graduate	1.299	1.213	1.252	1.322	[0.796; 2.194]
Country	0.836	0.785	0.853	0.795	[0.439; 1.440]
Prior entrep. aspirations	2.382***	2.088***	2.230***	2.146***	[1.562; 2.947]
Knowledge level	1.010	1.321		1.391	[0.833; 2.323]
Knowledge change	0.797		0.885	0.826	[0.525; 1.302]
Skills level	1.197	1.019		1.013	[0.593; 1.731]
Skills change	0.979		1.090	1.061	[0.675; 1.670]
Attitudes level	1.406 ⁺	1.197	1.387*	1.201	[0.820; 1.759]
Entrepreneurship pedagogy (EP)		0.855	0.848	0.824	[0.464; 1.463]
Knowledge level × EP		0.604 ⁺		0.623	[0.329; 1.179]
Knowledge change × EP			0.885	0.953	[0.502; 1.810]
Skills level × EP		1.296		1.410	[0.729; 2.730]
Skills change × EP			0.839	0.825	[0.436; 1.564]
Attitudes level × EP		1.631*	1.637*	1.695*	[1.079; 2.662]
(Constant)	0.314	0.386	0.332	0.354	
Cox and Snell R ²	0.179	0.187	0.187	0.195	
Nagelkerke R ²	0.262	0.273	0.274	0.285	
p-level	***	***	***	***	
Events/N	119/454	119/454	119/454	119/454	

Notes: CI – confidence interval;

⁺ $p < 0.10$;

* $p < 0.05$;

*** $p < 0.001$.

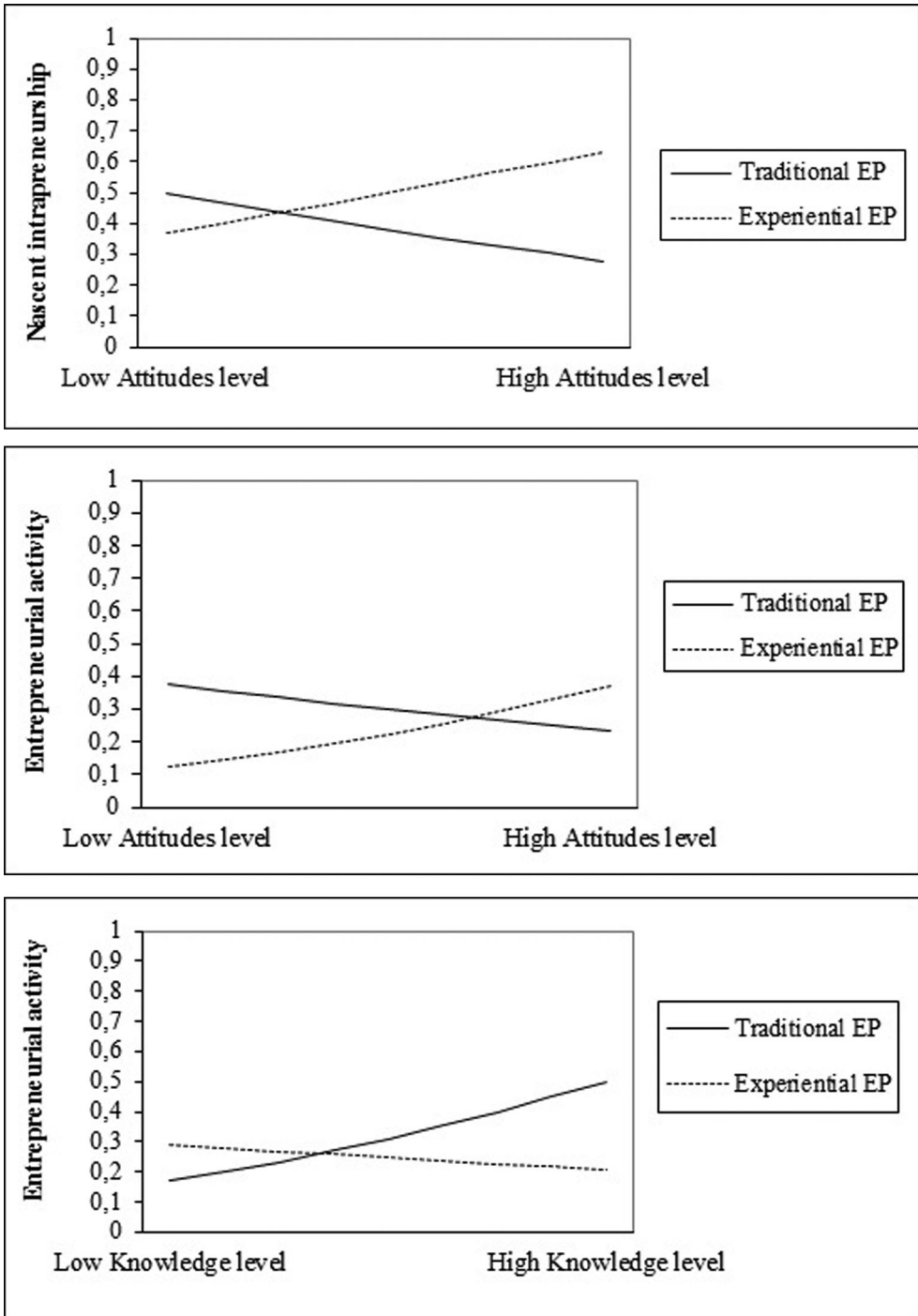


Figure 2 a. Pedagogy type moderating the relationship between entrepreneurial attitudes and involvement into intrapreneurial activity. b. Pedagogy type moderating the relationship between entrepreneurial attitudes and involvement into entrepreneurial activity. c. Pedagogy type moderating the relationship between entrepreneurial knowledge and involvement into entrepreneurial activity.

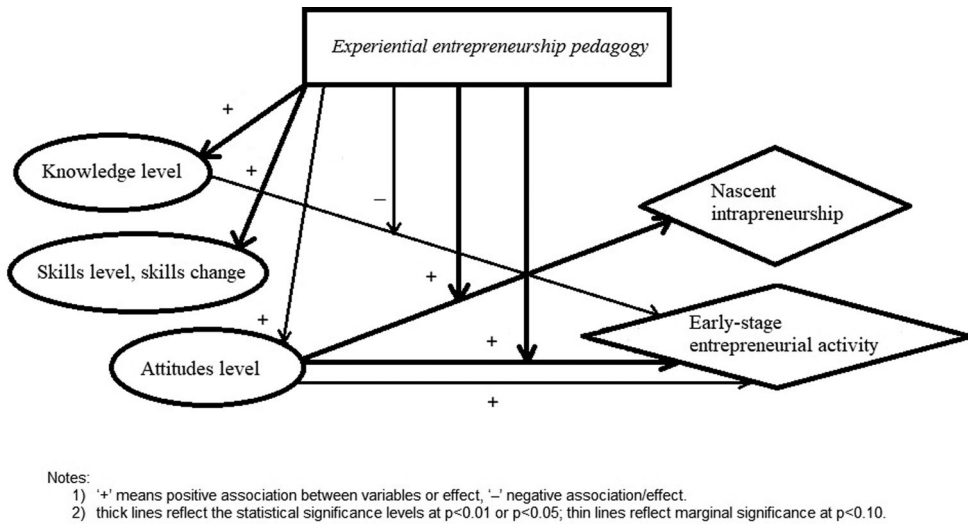


Figure 3. Results of the study.

Figure 2b. Although being also positive, this moderation effect is slightly different from the one observed with intrapreneurship. Traditional pedagogy might be so helpful for individuals with low attitudes because this type of pedagogy is more inspirational and content-oriented at the same time.

The third effect relates to entrepreneurial knowledge. As the plotted moderation on **Figure 2c** shows, having higher level of knowledge in conditions of experiential pedagogy is associated with lower likelihood of engaging into early-stage EA. Despite being marginally significant and exclusive for Model 2 (see **Table 7**), the result aligns with the argument about more realistic understanding of entrepreneurship that students obtain when pushed outside classroom to experience entrepreneurial process. Thus, the more graduates know about entrepreneurship the less they are willing to launch own enterprises.

Contrary to expectations, no significant associations were found between entrepreneurial skills and employment status.

Among the control variables, age, gender, and prior aspirations exhibited statistically significant effects on early-stage EA; such that older graduates, males, and those who had higher prior willingness to become entrepreneurs were more likely to engage into EA.

Figure 3 visualises the results of the study. **Table 8** sums up the hypotheses testing results.

Robustness checks

Because of the cross-sectional nature of the study, mediation analysis was not selected as the core method of analysis. However, as part of robustness checks, the indirect effect of experiential pedagogy on entrepreneurial employment status was tested using PROCESS Macro v2.16 for SPSS (Hayes 2013). Results obtained were fully replicated with no registered indirect effects.

Table 8. Summary of the hypotheses testing results.

Hypothesized association	Status
H1a: Experiential pedagogy is <i>positively</i> associated with the entrepreneurial knowledge of graduates.	Confirmed for level (but not change)
H1b: Experiential pedagogy is <i>positively</i> associated with entrepreneurial skills of graduates.	Confirmed for level and change
H1c: Experiential pedagogy is <i>negatively</i> associated with the entrepreneurial attitudes of graduates.	Not confirmed
H2a: Greater entrepreneurial knowledge, skills and attitudes are associated with an increased likelihood of engagement into nascent intrapreneurship.	Not confirmed (but found that the effect of attitudes depends on the type of pedagogy)
H2b: Greater entrepreneurial knowledge, skills and attitudes are associated with an increased likelihood of engagement into early-stage EA.	Partially confirmed for attitudes (also found that the effect of attitudes and, to an extent, knowledge depends on the type of pedagogy)
H3a: Experiential pedagogy <i>negatively</i> moderates the effect of entrepreneurial knowledge on early-stage entrepreneurial activity.	Partially confirmed for level
H3b: Experiential pedagogy <i>positively</i> moderates the effect of entrepreneurial skills on nascent intrapreneurship.	Not confirmed
H3c: Experiential pedagogy <i>positively</i> moderates the effect of entrepreneurial skills on early-stage entrepreneurial activity.	Not confirmed
H3d: Experiential pedagogy <i>positively</i> moderates the effect of entrepreneurial attitudes on nascent intrapreneurship.	Confirmed
H3e: Experiential pedagogy <i>positively</i> moderates the effect of entrepreneurial attitudes on early-stage EA.	Confirmed

Extra tests were also performed with modified versions of knowledge and skills change measures that matched the content of level measures of these competencies (in networking, decision-making in uncertainty, creation of favourable work environment, among other; see notes to Table 2). They are not measuring exactly the same thing, hence, to ensure robustness we pulled the items that were most similar – identified by ‘*’ in Table 2. These regressions brought about the same results as presented in this section.

Conclusions and discussion

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 and economy (Penaluna and Penaluna 2015; Tomlinson 2012). This crucial direction in the discussion on employability and EE concerned with developing entrepreneurial competencies aims to deal with some of the contemporary challenges. Whilst both EE research and career research address this discussion, the two research streams often go in parallel. By examining the relationships among experiential entrepreneurship pedagogy, entrepreneurial competencies, and early entrepreneurial employment status of university graduates, this study makes a number of novel intertwined theoretical and empirical contributions to the both streams of EE and career research.

The analysis supports the viability of the tripartite competence framework drawn from Bloom’s taxonomy for measuring entrepreneurial competencies. The tripartite approach balances recognition of various types of learning and the learning outcomes associated

with them. Because it pays attention to knowledge and skills alongside affective measures, this approach can serve as a holistic alternative or addition to the entrepreneurial intentionality models. It can be particularly informative for evaluating entrepreneurial competencies of students and capturing change in individual competencies that happens as a result of EE or registering the level of competencies at a certain point in time.

The conceptual model of the study also adds to the literature by going beyond typical new venture creation and extends the intentions-start-up behaviour link by including entrepreneurial knowledge and skills into the assessment (Foucrier and Wiek 2019; Fisher, Graham, and Compeau 2008; Kraiger, Ford, and Salas 1993). Furthermore, instead of focusing just on the start-up behaviour as many prior studies did (Nabi et al. 2017; Charney and Libecap 2000), the model considers two types of entrepreneurial employment, or career, status of university graduates – nascent intrapreneurship and early-stage entrepreneurial activity (EA). This aligns with the growing interest of business educators and policy makers in the wider impacts of entrepreneurship and management education such as the development of competencies transferrable to diverse contexts, be it creating new ventures or growing existing organisations (Penaluna and Penaluna 2015; Wilton 2008).

Additionally, the study contributes to the EE literature, as it is one of the first to find the empirical evidence that experiential EE is indeed associated with superior competencies of entrepreneurship graduates, in particular, with knowledge and skills. Yet, assessing the change and level of these competencies at the same time revealed that students may not perceive experiential pedagogy as helpful for augmenting their entrepreneurial knowledge as an *outcome* of EE. That said, experiential pedagogy is clearly more helpful for both perception of change and the level of skills in comparison to traditional pedagogy. This provides a counter-evidence to the study of Olutuase, Brijlal, and Yan (2020) who found no effect of teaching method on generic entrepreneurial skills (creativity and innovation, flexibility and adaptability, etc.) outlined in Bacigalupo et al. (2016). A possible explanation for the opposing effect on skills is the measurement approach that in the current study includes more entrepreneurship-specific rather than generic measures (e.g. developing new products, negotiating deals with other businesses, devising profitable business models). However, experiential pedagogy has a marginal direct and, contrary to the initial expectations, positive influence on the level of attitudes.

These findings do generally support the experiential learning theory rhetoric (Dewey 1998; Kolb 1984) advocating the effectiveness of experiential pedagogy for teaching entrepreneurship in universities as far as entrepreneurial competence development is concerned (Bécharde and Toulouse 1991; Neck and Greene 2011). Whilst traditional pedagogy might still be suitable for developing theoretical knowledge and understanding of entrepreneurship. In order to further develop procedural knowledge, or skills, the teaching methods that bring the learning process closer to a real-life environment, such as creation of mini-companies, business modelling, and job shadowing, seem to demonstrate the best fit.

Considering multi-directional effects of EE on entrepreneurial intentions found in previous research (Rauch and Hulsink 2015; Oosterbeek, van Praag, and IJsselstein 2010), scholars in the field called for testing novel moderators of the relationship

between EE and the impact expected from it (Martin, McNally, and Kay 2013; Rideout and Gray 2013). Addressing the call, this study is one of the first to find that experiential pedagogy moderates the relationship between entrepreneurial competencies and employment/career status of graduates. The finding refers specifically to the association of attitudes with both forms of the entrepreneurial employment status examined and to the association of attitudes and knowledge with early-stage EA. From the theoretical perspective, this analysis supports the importance of educational antecedents for an entrepreneurial career as proposed in the early models of Dyer (1995) and Katz (1992). In particular, it highlights that the levels of knowledge and attitudes coupled with the type of pedagogy act as determinants of entrepreneurial employment status of university graduates. Thus, we should consider these effects in future models dealing with human capital effects of EE.

The distinction between the change and level of competencies also highlights an interesting issue: the effects from the level of attitudes and knowledge may be explicitly leveraged by other business-related disciplines, i.e. not all the explained variance might be attributable to EE but also to project management, strategic management or similar courses in a curriculum. This also suggests the importance of further research on the joint multi- and inter-disciplinary effects on competence formation in entrepreneurship and management education more broadly, also complementing prior studies on business graduates' learning (e.g. Wilton 2008). However, it may also be indicative that it is not so easy for students to recognise how much they learnt from EE courses.

The findings, therefore, widen the existing knowledge about different effects of competencies (or absence of thereof) on entrepreneurial employment status. They shed novel light on that relationship highlighting its contingency on the type of pedagogy, and the differences of respective effects on the entrepreneurial employment status spanning beyond start-up creation. Furthermore, the analysed differences between the effects of experiential and traditional pedagogy bridge the important empirical gap in the EE literature and touch upon pedagogical reasons for earlier contradictory findings in the entrepreneurial intentions' studies (Nabi et al. 2017; Graevenitz, Harhoff, and Weber 2010; Oosterbeek, van Praag, and IJsselstein 2010). The analysis indicates that being passionate about becoming an entrepreneur or having relevant skills as a result of EE is not enough for subsequent engagement into intrapreneurial or entrepreneurial activity. The way entrepreneurship is taught can actually determine whether a graduate becomes an intrapreneur or entrepreneur depending on the level of entrepreneurial attitudes one has. Hence, in the educational context, graduates' affective dispositions towards entrepreneurship might not be the only important pre-determinant of subsequent career behaviour.

The findings of this study also raise questions about the unexpected results from the direct association of entrepreneurial competencies and employment status. In a way, these results challenge the current literature discourse based on human capital theory (Becker 1975) and models of entrepreneurial career (Dyer 1995; Katz 1992) that views individual competencies as determinants of graduate career status (Martin, McNally, and Kay 2013; Morris et al. 2013; Unger et al. 2011). Although the study finds that the effects from knowledge and attitudes are contingent upon the type of

pedagogy, and there is a marginal direct effect of attitudes on early-stage EA (aligned with theory of planned behaviour), the results remain counter-intuitive in relation to skills.

Skills show neither direct nor moderated effects on the entrepreneurial employment status. A possible way of interpreting this result is that being skilled in various aspects of entrepreneurship does not necessarily mean that one is willing to engage into related behaviour; or at least not yet, since the time frame of the study is delimited to two years after graduation and a relatively short baseline EE intervention of 6 ECTS. This time factor could also be behind an alternative explanation. Learning as a function of changes in the cognitive, skill-based and affective states has a central role in training effectiveness (Kraiger, Ford, and Salas 1993). Acquisition that transforms learning experiences into skills and their retention are known to bridge the intervention characteristics (such as audiences, design, organisation, and environment) with generalisation of learned material and trained skills on the job (Unger et al. 2011; Baldwin and Ford 1988). In this process, the amount of learning as well as the time to appropriate the learning effects can be important precursors to transfer (Goldstein 1980). Hence, we may also contend that the positive effects of the entrepreneurship pedagogy type on the level of competencies might be not sufficient to affect the graduate employment status in the examined time period, and more positive measurable effects can spring later.

Practical implications

This study posits and indicates that experiential pedagogy can be effective. It increases knowledge, skills and attitudes related to entrepreneurship, but its results also suggest that considering initial entrepreneurial profile of student groups to better tailor EE interventions can be useful if wanting to encourage entrepreneurial careers. For example, if a programme aims to make more graduates engage into EA, using experiential teaching methods that model entrepreneurship and working life with students who have higher level of attitudes may prove more effective. In turn, traditional teaching methods such as lecturing and in-class discussions might be helpful for raising entrepreneurial inspiration and positive attitudes of students who had low level of attitudes prior to EE. This implies that profiling students based on their entrepreneurial attitudes may be helpful for choosing the appropriate type of pedagogy.

For entrepreneurship educators and other stakeholders involved in EE delivery, the results suggest designing mixed EE interventions (combining traditional and experiential methods) to balance the effects on the competence triad, to enable graduates extracting more of potential human capital assets from studies in the longer-term, and to generate statistically salient effects of skills for subsequent entrepreneurial career options.

It should be acknowledged that it might be challenging to achieve the balanced development of cognitive, skill-based and affective learning within the limits of one study course and longer EE interventions may be necessary, also in order for the competencies to affect the graduate employment status and labour market competitiveness, as a result.

More broadly, from an educational perspective, writing learning outcomes and setting impact targets are integral to any educator's regular work (Bloom, Masia, and Krathwohl 1964). The duality of pedagogical benefits of measuring learning outcomes as the educational governance device highlighted in previous literature (Wilton 2008) may open another line of future discussion on management education outcomes in light of the obtained results. If it is challenging for students to assess what they learnt from EE shortly after interventions, then the process of learning might be more valuable in itself; hence, new standards of evaluating the process or longitudinal assessments with *a posteriori* sense-making could add more value to assessing the educational effectiveness.

Limitations and future research

There are several limitations to the empirical study. Like many impact studies in education, this paper uses a cross-sectional design and self-reported data (Rideout and Gray 2013). Allowing a certain amount of bias related to selection according to universities or EE, similar to other studies of this kind (see, for instance, Rauch and Hulsink 2015; Fisher, Graham, and Compeau 2008), might have '*implications for the generalisability of the findings, but not necessarily for the internal validity*' (Piperopoulos and Dimov 2015:7). That said, it is crucial to note that the respondents' admittance to a certain university was not directly linked to purposefully selecting into either traditional or experiential EE, which was a compulsory part of the bachelor's degree programmes. Furthermore, when it comes to external validity and the selection of HEIs, the survey captured the major HEIs in the two countries; as discussed in the methodology section, HEIs not included in the sample had a smaller share of or were not providing EE.

When it comes to self-reports, assessing perceived outcomes of educational interventions has been a well-accepted practice in education research supported by several reviews documenting the validity of self-assessments (Nabi et al. 2017; Kraiger, Ford, and Salas 1993). Recent evidence suggests that student learning measured using multiple choice tests and individual perception might differ for active and passive forms of learning; such that in the active learning conditions perception of learning can be lower (Deslauriers et al. 2019). The results of our study match that evidence in relation to entrepreneurial knowledge (level versus change and negative moderating effect of experiential pedagogy). However, this does not allow relating the evidence to the skill-based or affective domains, and does not undermine the validity of self-assessment. In further studies, it can also be explored whether these effects differ by discipline.

The analysed dataset in this study combined imminent and recent graduates which might be considered to be in different stages of their careers, yet the analysis explicitly controlled for that revealing no differences in either entrepreneurial competencies or types of employment status between the two groups. The only exception was the perceived change in knowledge meaning that recent graduates attributed the acquired knowledge to EE to a greater extent than imminent graduates. This gives a

subtle indication on the suitability of longitudinal studies that allow evaluating the appreciation of university-based EE that graduates develop over time.

Finally, this study does not consider unique features of the contributing universities and deeper insights into students' profiles and learning. This could potentially lead to situational bias. That is why comparative studies using mixed methods design would be valuable to conduct. This includes comparing not only the forms of interventions but also business and non-business (engineers, designers, and other) graduates in this regard, because EE could make more difference to the latter group when it comes to combining creative specialty competencies with entrepreneurial competencies in graduate careers.

Notes

1. The study follows the definition of career as the work one performs expressed through occupation (Arthur, Hall, and Lawrence 1989).
2. Credit points for studies calculated according to the European Credit Transfer and Accumulation System. 1 point usually corresponds to 25–30 hours of study.

Acknowledgments

The authors acknowledge highly valuable feedback from two reviewers received during 'Careers in the Rough' workshop at the Academic of Management Annual Meeting 2017. They are also immensely grateful for the feedback and support of senior researchers from the European University Network on Entrepreneurship.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

This research received support from the European Regional Development Fund and the European Social Fund in 2013–2016.

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Appendix: Teaching methods/educational activities specified by respondents

Methods/Universities	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								
lectures	96.8%	92.0%	97.1%	98.7%	85.7%	86.1%	96.6%	90.0%
discussions	62.7%	52.0%	65.7%	47.4%	71.4%	62.0%	70.8%	60.0%
seminars	94.3%	86.4%	77.8%	58.7%	88.3%	59.3%	95.5%	97.1%
II. Participative methods								
scientific discussions	10.4%	4.0%	11.4%	5.3%	14.3%	10.9%	5.6%	7.5%
creativity exercises	16.4%	24.0%	31.4%	25.0%	30.0%	40.1%	36.0%	37.5%
international exchange programs	1.5%	8.0%	5.7%	1.3%	15.7%	10.2%	11.2%	10.0%
fishbowls	17.9%	16.0%	28.6%	15.8%	7.1%	8.8%	1.1%	7.5%
case studies	64.2%	60.0%	77.1%	40.8%	40.0%	51.8%	73.0%	27.5%
III. Methods based on working life								
real-life problem solving	31.3%	16.0%	42.9%	18.4%	22.9%	42.3%	64.0%	22.5%
internships (practice at work)	43.3%	32.0%	42.9%	69.7%	57.1%	47.4%	34.8%	12.5%
real-life projects with companies	16.4%	16.0%	28.6%	5.3%	5.7%	22.6%	55.1%	5.0%
working with mentors	3.0%	0.0%	22.9%	3.9%	2.9%	5.8%	18.0%	5.0%
guest lectures by practitioners	52.2%	40.0%	42.9%	10.5%	38.6%	34.3%	75.3%	25.0%
job shadowing	1.5%	8.0%	5.7%	0.0%	11.4%	5.1%	25.8%	2.5%
IV. Methods modelling entrepreneurship								
mini-companies	1.4%	8.0%	16.2%	1.3%	7.1%	4.4%	50.6%	7.5%
virtual mini-companies	1.4%	8.0%	10.8%	0.0%	10.0%	19.7%	3.4%	15.0%
pre-incubation and incubation	0.0%	0.0%	37.1%	1.3%	5.7%	7.3%	10.1%	0.0%
business planning	49.3%	32.0%	71.4%	46.1%	54.3%	41.6%	61.8%	20.0%
business modelling	13.4%	16.0%	25.7%	7.9%	31.4%	22.6%	37.1%	10.0%
pitching business ideas	31.3%	60.0%	62.9%	22.4%	22.9%	26.3%	38.2%	17.5%
simulations	7.5%	28.0%	28.6%	10.5%	20.0%	34.3%	29.2%	20.0%
business games	11.9%	28.0%	54.3%	39.5%	35.7%	53.3%	23.6%	45.0%
business competitions	1.4%	8.0%	8.1%	1.3%	8.6%	14.6%	34.8%	0.0%
inter-disciplinary teamwork	4.5%	4.0%	11.4%	7.9%	14.3%	11.7%	21.3%	10.0%
entrepreneurship labs	0.0%	0.0%	5.4%	0.0%	2.9%	2.2%	18.0%	2.5%
24-h camps	2.7%	4.0%	0.0%	0.0%	1.4%	3.6%	1.1%	0.0%

Notes: Highest share per country shown in bold.

*Universities that use predominantly experiential entrepreneurship pedagogy.