Chapter 18

Entrepreneurship Education and Training Programmes: A Lifespan Development Perspective

Thomas Garavan, Fergal O'Brien, Clare (Ruth) Power, Gerri Matthews-Smith and Joan Buckley

Introduction

In the last four decades, both researchers and practitioners have proposed that entrepreneurship education and training programmes (EETPs) help in the development of entrepreneurs and new ventures (Bischoff et al., 2020; Nabi et al., 2017; Yi and Duval-Couetil, 2021). Therefore, formal EETPs have become an important feature of education provision at all levels of education, and national enterprise agencies with responsibility for the development of entrepreneurs and the alleviation of unemployment (Frese et al., 2016; Henry and Lewis, 2018; Melyoki and Gielnik, 2020). EETPs are also an important feature of the HRD literature and practice landscape (Garavan and O'Cinneide, 1994; Hubner and Baum, 2018). Researcher and practitioner interest lies in whether these programmes are effective when it comes to enhancing the supply of entrepreneurs, the successful establishment of businesses and the alleviation of unemployment through the creation of self-employment options (Campos et al., 2017; Galvão et al., 2018; Rideout and Gray, 2013). The growth in EETPs can be attributed to the increased inclusion of the fostering of entrepreneurship as a key component of most business and management schools, in addition to their prominence with national development agencies as a way of helping entrepreneurs grow successful businesses (Shane, 2010). Furthermore, changing global economic conditions have highlighted the realisation that entrepreneurship boosts employment and economic growth (Ferreras-Garcia et al., 2021; Ratten and Usmanij, 2021; Song and Winkler, 2014). Entrepreneurship is a key component of local and globalised market economies (Díaz-García et al., 2015), and consequently both education and training programmes specifically designed for entrepreneurs facilitate economic growth and develop the knowledge, skills and abilities of entrepreneurs (Harrington and Maysami, 2015; Lindh and Thorgren, 2016) who can create

businesses now and into the future. It is therefore not surprising that EETPs have moved up the political agendas of many countries across the globe. For example, in a 2018 OECD Report on SMEs and Entrepreneurship stressed the importance of developing entrepreneurship competencies and the significant role that schools, vocational colleges, higher education and enterprise development agencies play in this respect.

Given that EETPs are important strategic and policy initiatives contributing to increased employment and to local and regional development, it is important to better understand their design, characteristics, outcomes and effectiveness. Several reviews have pointed to the general strengths and weaknesses of theory and research on entrepreneurship education and training (Galvão et al., 2018; Henry and Lewis, 2018; Nabi et al., 2017; Rideout and Gray, 2013). Table 1 provides a summary, highlighting the current state of EETP research and points to the need to bring a fresh perspective to understand this area of HRD research and practice. An important meta-analysis by Nabi et al. (2017) focused on these programmes and highlighted that their value was predominantly investigated using short-term and subjective outcomes with insufficient account taken of the pedagogies and teaching approaches used and the contexts in which they are implemented. In another important analysis by Yi and Duval-Couetil (2021), the authors pointed out significant flaws in the measurement of the outcomes of these programmes and the poor evidence base around their long-term impact. Most reviews focus on entrepreneurship education programmes with significantly less focus given to entrepreneurship training programmes. However, Galvão et al. (2018) highlighted both dimensions but did not separate their impacts. Bischoff et al. (2020) specifically focused on entrepreneurship training for establishing entrepreneurs and highlighted its significant benefits but pointed to the scarcity of studies that have specifically investigated training with new or establishing entrepreneurs rather than education focused on students and prospective entrepreneurs. Other researchers have pointed out that studies of entrepreneurship education and training are hampered by using a multitude of frameworks, theories and methodologies (Martin et al., 2013; Nabi et al., 2017), in addition to the lack of research that takes a holistic and lifespan approach to the development of entrepreneur knowledge, skills and abilities.

In this chapter, we propose that EETPs should be understood as a lifelong dynamic process and highlight how entrepreneur knowledge, skills and abilities develop across the lifespan (Bohlmann et al., 2017; Brieger et al., 2021). A lifespan theory perspective proposes that the journey to become an entrepreneur proceeds through various stages starting in preschool, childhood, adolescence, to emerging adulthood and the full spectrum of adulthood (Arnett, 2007; Baltes et al., 2006; Erikson and Erikson, 1998; Liu et al., 2021). Research must also take account of the role of context in shaping that development process, including family, school, peer groups, third-level education, workplace, community, institutions such as enterprise development agencies, nations and society. Consistent with ecological system theory (Bronfenbrenner, 1994) the developing individual is influenced by multiple levels of context including historical, cultural and institutional factors, Therefore, to focus only on the potential entrepreneur or establishing

Q6

Table 1. Selected Key Findings: State of Entrepreneurship Education and Training Research.

Dimension	Focus	Key Findings	Examples
Entrepreneurship education and training summary studies and outcomes	• The domains of entrepreneurship education and training researched.	• The dominant body of research on entrepreneurship education and training has revolved around third-level education and university programmes.	• Vanevenhoven and Liguri (2013), Nabi et al. (2017)
	• The types of knowledge and skill outcomes derived from entrepreneurship education and training.	• There is a lack of consistent evidence showing that entrepreneurship education and training create more or better entrepreneurs.	• Martin et al. (2013)
		• Most studies tend to focus on short-term and subjective outcome measures.	• Nabi et al. (2017)
	• Evidence of development of entrepreneurship identity and commitment to entrepreneurship.	• Pedagogical methods focused on competence has a greater impact on attitudes and entrepreneurial intentions	• Bae et al. (2014)
	• Evidence of business start-ups and entrepreneurship success.	• There is a significant but small correlation between entrepreneurship education programmes and entrepreneurial intentions and start-ups.	• Martin et al. (2013).

Table 1. (*Continued*)

Dimension	Focus	Key Findings	Examples
	• Longitudinal studies of the impact of entrepreneurship education and training. • A focus on types of development approaches and pedagogies.	• The outcomes are more robust for academic-focused interventions compared to training-focused interventions. • The investigation of longitudinal impacts is nascent and fragmented hence difficult to draw conclusions. • Extensive use of learning theories and concepts from adult education and development, different classifications of teaching pedagogy and classifications of learning outcomes.	• Bischoff et al. (2020), Gregoire et al. (2019) • Nabi et al. (2017), Yi and Duval-Couetil (2021)
Theories used to explain entrepreneurship education and training	• The use of adult development and learning theories and human capital theory. • Use of employability theory to understand the effectiveness of programmes. • Multiple conceptualisations of entrepreneurship	• Strong reliance on human capital theory and concepts derived from entrepreneurship including entrepreneurial intention, business start-up and performance. • This theoretical perspective is used to understand self-employment programmes and programmes in community colleges and third-level education. • Entrepreneurship is understood perceptually as a mindset, a set	• Nabi et al. (2017) • Liguori et al. (2019), Bae et al. (2014), Barnard et al. (2019)

	and levels of entrepreneurship activity.	of intentions and entrepreneurial passion and objectively in terms of the establishment of a new venture or some form of self-employment.	• Nabi et al. (2017), Rideout and Gray (2013), Yi and Duval-Couetil (2021)
Criticisms of entrepreneurship education and training approaches	• Significant number of under-researched domains of entrepreneurship education and training.	• The narrow focus of entrepreneurship education and training has resulted in several neglected populations including community colleges, primary schools and programmes that fall outside the traditional business school.	• Liguori et al. (2019)
	• Lack of attention to development of entrepreneurship knowledge, skills and abilities across the lifespan.	• Studies on the long-term impact of entrepreneurship and training are difficult to find with most using cross-sectional designs.	• Yi and Duval-Couetil (2021)
	• Lack of strong longitudinal evidence that entrepreneurship education and training make a difference.	• This represents a major issue with research on EETP. Most studies are cross-sectional therefore the long-term impacts of this type of educational and training is not well understood.	• Nabi et al. (2017), Yi and Duval-Couetil (2021)
	• Very poor research designs and a lack of focus on issues of causality.	• Insufficient attention to potential moderating variables including demographics and the type of programme.	• Martin et al. (2013), Rideout and Gray (2013), Gregoire et al. (2019)

Table 1. (*Continued*)

Dimension	Focus	Key Findings	Examples
		• Not enough attention to the investigation of multilevel models incorporating individual, programme and macro-level factors. • Many studies suffer from a variety of methodological weaknesses that undermine the confidence that entrepreneurship education is worthwhile.	
	• Limited number of studies in developing and non-Western contexts.	• Most studies are undertaken in the United States and Europe with only a small number of studies in Asian context.	• Chhabra et al. (2021)
	• Limited use of experimental designs that compare training with non-training groups.	• Experimental designs are very difficult to implement in the context of EETPs and require a more pragmatic implementation.	• Gregoire et al. (2019)
	• A narrow conceptualisation of development and too much emphasis on courses rather than a full spectrum of development approaches.	• Too much focus on formal, face-to-face classroom activities and insufficient attention to technology delivered training and education, in addition to more individual-focused	• Ratten and Jones (2021), Nabi et al. (2021)

- Limited understanding of the role of technology and its impact on entrepreneurship education and training.

development approaches such as mentoring and advising.

- There is little in the way of research that investigates what impacts technology has on the design and delivery of entrepreneurship education and training programmes. Technology becomes an important imperative in the context of COVID-19.

- Ratten and Jones (2021)

entrepreneur in one context provides a limited understanding of entrepreneurship education and training. A major weakness of the current literature on EETPs is its predominant and limiting focus on early adult development and establishing entrepreneurs, combined with a major gap in understanding of these issues in childhood, adolescence, middle and later adulthood.

To address these issues, this chapter focuses on reviewing and consolidating the literature on EETPs within a lifespan perspective, to identify and explain specific development 'windows' or phases of development through which entrepreneur knowledge, skills and abilities are developed. In doing so we also bring out the different dimensions of context that are at play at each stage or phase of development. The next section of this chapter examines entrepreneurship education and training and discusses their similarities and differences. The chapter then organises the existing literature according to the distinct stages of our lifespan model and goes on to focus on the multiple levels of context and their implications for each phase of development. The chapter concludes with a discussion of research avenues and implications for stakeholders with responsibility for EETPs.

Classifying Entrepreneurship Education and Training Programmes

There are several challenges when it comes to categorising EETPs. Henry and Lewis (2018) highlight that one of the first issues concerns the distinction between *entrepreneurship* and *enterprise*. In practice both terms are used interchangeably; however, within the literature debate prevails as to their respective meaning. For example, entrepreneurship is typically conceptualised as creating a new business, creating something new and different or the process of creating a new business (Alberti et al., 2004; Curran and Stanworth, 1989). The concept of enterprise gives more emphasis to the development of creativity and enterprise skills to enhance an individual's employability (Henry and Lewis, 2018). The reality is that many EETPs conducted in an educational context emphasise the enterprise rather than the entrepreneurship component in that there is less focus on setting up a business. It is talked about, but it is not an explicit learning objective. In contrast, EETPs conducted in non-educational settings or through collaboration between an enterprise agency and a third-level educational organisation focus much more on the entrepreneurship component through the setting up of a new business venture or the growth of a newly formed business.

Jamieson (1984) proposed an especially important framework that helps to better distinguish diverse types of EETPs. He highlighted three categorises labelled 'about' 'for' and 'in'. The 'about' category emphasises the development of awareness of entrepreneurship, and the typical target audience is students at distinct levels within the education system with a major focus on elevating awareness of entrepreneurship as a career option and the importance of enterprise skills to enhance employability. The 'for' category focuses on preparing individuals to pursue self-employment and the development of new ventures. The target audience in this case will be aspiring entrepreneurs or individuals who are

currently unemployed and who have the potential to start a new business. The 'in' category focuses on EETPs that develop the skills of existing entrepreneurs with a particular emphasis on the development and growth of the business including internationalisation and the strengthening of the entrepreneurial team. The first category largely corresponds to what we call entrepreneurship education whereas the latter two categories can be described as entrepreneurship training. Table 2 provides a set of distinctions differentiating EETPs focusing on context, learning objectives, participants, programme characteristics and outcomes.

Context

Q1

The context of both sets of programmes differs somewhat. Entrepreneurship education programmes are largely driven by a policy agenda that education in entrepreneurship can contribute to the development of future entrepreneurs and thus contribute to economic growth (Jones and English, 2004; Kourilsky, 1995). There is also a political context focusing on the expectation that business education continues to be relevant to the needs of society, including the economy, and that education needs to have greater impact in these areas (Pittaway and Cope, 2007). In addition, education is viewed as an important way of changing cultural values towards entrepreneurship and bolstering perceptions that it is a viable career option (Davidson and Wiklund, 1997; Stephan and Uhlaner, 2010). The context of entrepreneurship training programmes differs in several respects. From an economic perspective, two distinct dimensions are at play depending on the type of training programme. First, in the case of EETPs focused on the unemployed or those not active in the labour market, the economic justification for such programmes is to create employment opportunities and to bring labour market participants into the employment realm to pursue self-employment. In the case of the second category of EETPs, the economic justification is one of business formation (Ács and Szerb, 2010) and the development of nascent ventures to become international. Kelley et al. (2015) highlights that entrepreneurship has a major impact on the economic development of regions and countries, in addition to the creation of new enterprises at local level. Politically, governments are under significant pressure to reduce unemployment and ensure that there is a higher level of labour market participation. Entrepreneurship has gained a reputation as a significant economic force and as an engine for development, hence it has become a political imperative to advance and support entrepreneurship. Self-employment is therefore viewed as an important strategy in this context. When it comes to EETPs that are geared towards business formation and growth of the venture, governments wish to be viewed as taking a lead in this area and promoting entrepreneurship through strong supportive policies and institutions (Kuratko, 2005). Government support for entrepreneurship is likely to be favourably perceived in the international economic system, and it is good for re-election purposes locally. Culturally, entrepreneurship training can be used to address some of the factors that enable or restrain entrepreneurship for diverse groups in society and can contribute to the development of a strong entrepreneurial culture.

Table 2. Differences Between Entrepreneurship Education and Training Programmes (EETPs).

Dimension	Sub-Dimension	Entrepreneurship Education	Entrepreneurship Training
Context	• Economic • Political • Cultural	• The potential for education activities to contribute to the development of future entrepreneurs. • A response by education that is not developing the skills required by the economy. • The development of more positive attitudes towards entrepreneurship as an employment option.	• The need to respond to negative economic conditions and alleviate unemployment amongst vulnerable, unemployed and inactive individuals. • The potential to contribute to innovation-led and export-oriented entrepreneurs. • Enhancing the role of enterprise development agencies through the provision of soft supports. • The creation of an enterprise and entrepreneurship culture in society and legitimisation of entrepreneurship as a major employment option.
Learning objectives	• Types of knowledge objective	• Learning objectives will typically focus on developing entrepreneurial awareness and identification of entrepreneurship as a career option. Some emphasis on enterprise skills.	• Learning objectives will typically focus on providing unemployed or labour market initiatives with an employment option or the development of viable businesses or support of an existing business. The learning objectives are more entrepreneurial in focus.

Participants		
• Participant profile	• Diverse ages, gender and family backgrounds.	• Typically, males but increasingly females who vary in terms of age but usually in adulthood.
• Education	• Primary, secondary school and third-level education participants.	• Education levels may vary depending on the target of the programme. If targeted at unemployed or labour market inactive, then lower levels of education.
• Experience	• Varying levels of education with sufficient literacy and numeracy.	• If targeted at entrepreneurs who are starting a business or have started one, then usually third-level education.
• Interest and intentions	• No experience of significant entrepreneurship other than as part of the programme of study. • Interest in entrepreneurship is nascent and developing.	• Varying levels of experience of entrepreneurship depending on the target group. • Interest in entrepreneurship will vary considerably from those who have not considered it to those actively involved in entrepreneurial activity.
• Behaviour	• May demonstrate some of the behaviours that will signify future entrepreneurship potential.	• Will vary considerably when it comes to the behaviours required for entrepreneurship in terms of proactivity, risk taking and execution of business plans.

Table 2. (*Continued*)

Dimension	Sub-Dimension	Entrepreneurship Education	Entrepreneurship Training
Programme characteristics	• Programme design • Funding and finance • Class size and intensity • Trainers and delivery • Content and curriculum • Supports and other development interventions	• Consists of part of a core subject at primary and secondary level education or a module or full programme at third level. • Entrepreneurship education in primary and secondary school will typically be funded by central or regional government. In third level, it may be funded by central or regional government or the individual. • Class sizes could range from 30–200+ and intensity will be daily and weekly. • Trainers are typically teachers, educators, practitioners, consultants and professors who may not have experience of entrepreneurship. Delivery typically classroom-based, either face-to-face, virtual and/or experiential. • The content will be more general at primary and secondary level and	• Consists of a full-time or block release structured programme depending on the target audience. For unemployed populations may consist of a six-month full-time training programme. For establishing or established entrepreneurs, it will consist of a series of modules spread out over 9–12 months. • Programmes typically funded by central government or by enterprise development agencies. • Class sizes will typically be small with less than 20 participants, and intensity will vary depending on the target audience. Intensity may vary from daily, weekly to monthly. • Trainers are usually experienced entrepreneurs, enterprise development agency advisors, consultants, coaches, or experts in entrepreneurship from third-level education. Delivery will typically be in

focus on introducing the concept of entrepreneurship and some basic business and finance skills. At third level, focus on core business areas including finance, marketing, innovation, business planning and teamwork.

- Typically, an absence of supports and other development interventions. In third level may include some external advisors and mentors.

classroom and include face-to-face, virtual and experiential.

- The content will be more customised and focus on core business and start-up skills including financial literacy, accounting, sales and marketing, general business skills, business plan preparation, leadership and teamwork, internationalisation and socioemotional skills.
- Significant supports including access to finance, technical and new product development assistance, business coaching and mentoring, networking, job counselling and business planning/export planning supports.
- Development of entrepreneurial awareness or entrepreneurial intensity and commitment to an entrepreneurial venture.
- Development of socioemotional skills required to be a successful entrepreneur.

- Enhanced entrepreneurial awareness and the development of entrepreneurial mindset.
- Development of capabilities including the skills to consider entrepreneurship as a viable career option.

Outcome domains

- Entrepreneurial mindsets
- Capabilities
- Status
- Performance

Table 2. (*Continued*)

Dimension	Sub-Dimension	Entrepreneurship Education	Entrepreneurship Training
		• Development of business and management skills especially in third-level programmes. • Development of employability and career orientation. • Potential to pursue entrepreneurial ventures. • Increased salience of entrepreneurship in thinking about careers, willingness to take risks, increased networking and teamwork. • Micro-business start-up, work experience in an entrepreneurial venture, transition year job experience and co-operative education that involves a new start-up.	• Development of basic to advanced business and management skills depending on the target audience. • Development of skills in business formation, business planning and entrepreneurship team and leadership skills • Development of a new business, enhanced employability, income generation and employment, and network formation. • Demonstration of entrepreneurial behaviours including risk-taking, personal resilience, global mindset, and internationalisation. • Successful launch of a business including profits and sales, job creation, expansion, increased internationalisation, new products and services, and innovation.

Learning Objectives

EETPs differ when it comes to learning objectives or anticipated outcomes. These learning objectives generally relate to the development of entrepreneurial competencies. Competencies are conceptualised in a broad fashion with Chandler and Jansen (1992) highlighting three sets of competencies: managerial, technical/functional and entrepreneurial. This is expanded by Mitchelmore and Rowley (2010) proposed four groups of competencies including entrepreneurial skills, business and management skills, human relations skills and conceptual and relationship skills. In the case of EETPs in primary, secondary and third-level education the focus will be on the development of entrepreneurship awareness and intentions, the development of a conceptual understanding of entrepreneurship and the development of human relations and relationship skills (Penchev and Salopaju, 2011) to enhance the chances of future career success. González-Serrano et al. (2018) highlights that a focus should be on developing students' entrepreneurial intention and their capacity to become future entrepreneurs. This category of EETP has the potential to provide students at all levels within education with the knowledge and practical insights necessary to develop positive attitude and intentions towards entrepreneurship (Chhabra et al., 2020; Gibb, 1987). When it comes to EETPs with a training focus much greater emphasis is given to the development of business and management skills, the technical and functional skills of starting and managing a new business, the enhancement of a range of soft skills including teamwork, relationship and networking skills (Bakkali et al., 2010; Smith and Morse, 2005).

Q2

Participants

The participant profile on each category of EETP will differ significantly depending on its emphasis on education or training. For example, González-Serrano et al. (2018) highlighted that in the case of programmes with an education focus, the typical profile will be undergraduates or postgraduates studying entrepreneurship as part of a degree programme or a specialist Master's programme. Therefore, most participants will be aged 17–23 in the case of university-level programmes; however, where there are targeted at primary and secondary schools, the age profile will be much younger. In terms of gender, programmes in primary and secondary school will be targeted equally at males and females; however, at university level more males than females tend to participate in specialist modules on entrepreneurship. The participant profile of entrepreneurship training programmes tends to be significantly different. The age range will tend to be 25–45. Many programmes targeted at unemployed people force tend to have a higher age range of 35–50 and tend to be predominantly male. There is also evidence that participants on EETPs designed to help new entrepreneurs or those growing their businesses tend to be predominantly male.

Programme Characteristics

EETPs in university settings tend to have significantly larger class sizes that undertake training programmes, and the delivery of content will be distributed throughout using different modules or in some cases more specialist modules. This type of EETP will typically be very intense, of shorter duration and the context will be geared towards start-ups and managing an existing start-up. The content in this case will be more specialised, skills-based and emphasise the development of business information and growth skills. When it comes to training methods, EETPs tend to use methods such as lectures, seminars, workshops and case studies (Hytti and O'Gorman, 2004). Some more specialised EETPs will use business simulations, workshops, counselling and mentoring, company visits, setting up a business, business planning and business games (Ferreras-Garcia et al., 2021; Jack and Anderson, 1999). Vincett and Farlow (2008) highlighted the effectiveness of the business plan as a teaching method and that its effectiveness depends on the motivation of the student and the amount of time available to complete it. Other scholars have highlighted the use of experiential learning methods, the use of action learning and learning by doing when it came to developing students' entrepreneurial skills (Nabi and Holden, 2008). Barr et al. (2009), for example, highlighted that traditional teaching approaches did not work when it came to entrepreneurship and that the best approach is one where there are checkpoints for student learning, and a major focus on projects taking real hands-on experience and an interdisciplinary approach. Nabi et al. (2021) investigated the role of mentoring in developing both entrepreneurial orientation and nascent behaviours during the early years in university and found that it was vital for socioemotional development, the enhancement of specialist knowledge, the provision of role model presence and emotional support. Melyoki and Gielnik (2020) investigated the impact of action-oriented training on university students and how it influenced students' mindsets to embrace self-employment and start a business. They found that this type of training enhanced students' commitment to entrepreneurship, perceptions of the do-ability of entrepreneurship and the adoption of a new career perspective.

The types of learning methods used on EETPs tend to favour elevated levels of experiential learning, action learning, the preparation of business plans and action-oriented approaches. For example, Gielnik et al. (2015) and Zacher and Frese (2018) highlighted these action-oriented strategies emphasise real-life situations, feedback-intensive situations problem-solving and the implementation of actions. They will place a strong emphasis on group activities, the development of entrepreneurial teams, the monitoring of venture performance and the use of advisors, coaches, mentors and counsellors who provide rich feedback to participants. These feedback sources are important in developing financial mental models, financial action planning and the performance of start-up actions (Keith and Frese, 2008).

Outcomes

The outcomes of EETPs tend in the main to focus on attitude change, knowledge and skill changes, feasibility, entrepreneurship intention, socioeconomic impact, business start-ups and performance (Nabi et al., 2017). These approaches tend to focus on the individual whereas Lu and Jover (2019) emphasise an anthropocosmic approach which emphasises the inter-connections between that individual and a variety of communities within which that individual operates. This latter reasoning suggests that outcome should focus on societal and community impact, and the network of relationships within the entrepreneurship ecosystem. Brentnall et al. (2018) highlight three categories of entrepreneurship, all with diverse types of outcomes. These are (1) the contextual application of entrepreneurial characteristics and qualities, (2) the state of being entrepreneurial and (3) the development of an entrepreneurial climate and support structure. Cognitive outcomes derived from EETPs include knowledge of, and about, entrepreneurship; new business venture formation; and enhanced efficacy for entrepreneurship. Behavioural outcomes include the entrepreneurial intensity of the participant, the development of critical skills and opportunity recognition; affective measures include passion for entrepreneurship, and positive attitudes towards entrepreneurship as a career. We specify five important outcome domains associated with EETPs.

Mindsets

The first focuses on entrepreneurial mindsets, and we envisage that this outcome will be relevant to both types of EETPs. Mindset represents a broad category but generally include socioemotional skills, overall awareness of entrepreneurship and motivation to be an entrepreneur. Emotional skills are particularly amenable to training and education interventions. Dimensions of mindset developed by EETPs include self-confidence, leadership, creativity, risk-taking, emotional resilience and self-efficacy. In addition, both types of EETPs can develop socioemotional skills such as teamwork, interacting with others and social networking (Hytti et al., 2010; Rauch and Frese, 2007). EETPs are valuable in creating a positive perception of entrepreneurship (Martin et al., 2013), the desirability of starting a business (Kolvereid and Moen, 1997; Souitaris et al., 2007). This set of outcomes may be of less concern for EETPs where the participant has already made the decision that entrepreneurship is the path to take.

Capabilities

Capabilities in the context of EETPs are concerned with the hard skills required to establish a new venture. These will be a particular preoccupation of training-focused EETPs and will include competencies, knowledge and the technical skills associated with the new venture. Examples of the capabilities highlighted include accounting and marketing skills (Curran and Stanworth, 1989), the skills needed to open and manage a new venture (Karlan and Valdivia, 2011),

the mobilisation of resources (Detienne and Chandler, 2004) and skills required to set up businesses in particular sectors. EETPs that target disadvantaged groups are likely to focus considerably on basic issues such as separating household money from business monies, the need to record expenses and sales, and basic budgeting skills.

Entrepreneurial Status

This category of outcome gives emphasis to important status outcomes such as starting a business, earning a higher level of income and self-employment. Rather than focus on the knowledge and skill outcomes of EETPs, they highlight how the programme affects the individual and how their economic and social situation has improved. Examples of the outcomes highlighted include new venture creation (Singh et al., 2010), achieving employment (Brodmann et al., 2011) and increased savings and income (Cox et al., 2012). This category of outcomes is of relevance to training rather than education-focused EETPs; however, some entrepreneurial masters programmes may be interested in this category of outcome.

Entrepreneurial Performance

This category of outcome focuses primarily on the venture created and whether the participant continued as an entrepreneur. When it comes to the venture, it includes employment growth, profitability, internationalisation and performance as an entrepreneur (Shane 2010; Volkmann et al., 2009). For example, Botha et al. (2013) highlighted performance indicators such as annual sales, number of employees, number of customers, market expansions and internationalisation. In contrast Karlan and Valdivia (2011) highlighted performance outcomes such as improvements in separating household and business monies, reinvesting profits in the venture, maintaining records of sales and expenses and making changes to the business.

Research on EETPS Across the Lifespan

The lifespan perspective (Baltes, 1987) argues that development is a lifelong process that involves both gains and losses in psychological characteristics. Therefore, as people get older some abilities such as physical ability decline whereas others such as knowledge and skills are maintained or increase. There is also a good body of evidence that motivations and goals will change as age changes (Hertel and Zacher, 2015; Kanfer, et al., 2013; Truxillo et al., 2015). This notion therefore has implications for how we view EETPs and suggests that we must consider the development of entrepreneurial skills and abilities as lifelong. Therefore, there can be important entrepreneurship development experiences at each stage of the lifespan journey. Within each stage, different development

Q4

experiences and dimensions of context are at play that shape the development of entrepreneurs and their emergence in adulthood.

Nascent Stage (0–6 Years)

The preschool stage is conceptualised as the first stage of the lifespan journey and is characterised by many researchers as the nascent stage because it is a fundamental influence on later stages (Erikson and Erikson, 1998). This is a period of significant play which potentially has value as developmental experiences in shaping later entrepreneurial motivations and intentions. Many theories of entrepreneurship point to the role of personality traits and characteristics important to entrepreneurship (Brieger et al., 2021), and it is this stage that these characteristics begin to form. Two dimensions of this stage are potentially relevant as development experiences to entrepreneurship. The first relates to attachment and its role in socialising infants (Bowlby, 1982). Such attachment figures provide a sense of security, and they allow the child to develop knowing that this security blanket exists. The second dimension, play, focuses on the types of activities that the infants engage with such as games and social play (Roseberry et al., 2014). Many of these play activities are important to the development of entrepreneurial activities such as teamwork, taking turns, dealing with conflicts, and gaining entry to social groups and have the potential to sow the seeds of entrepreneurial activities. Within these play activities infants can display entrepreneurial behaviours and help to shape their potential identity as entrepreneurs. All these dimensions are however speculative given that there is an absence of research on this dimension of entrepreneurial development. Should there be a comment on the appropriateness of development initiatives aimed at fostering entrepreneurship at this point?

Externally Driven Stage (Childhood, 6–12 Years)

This stage of development is characterised by the involvement of the child in both activities at school and at home which help develop their communication, social and cognitive abilities. During this stage children will have the opportunity to participate in many co-operative learning activities. In school settings, for example, they are learning things collaboratively (Yamaguchi, 2001), such as team assignments and competitions. In these situations, children may adopt roles and be given the opportunity to engage in entrepreneurial activities such as problem-solving, creativity and team leadership. They may also be given opportunities to complete household chores and as a result develop their skills to negotiate, compromise and deal with conflict. These activities will enhance their psychosocial development which is important for entrepreneurship. They may also have many sibling interactions that develop their people skills, leadership capabilities and the importance of negotiation and compromise (Ross et al., 2006).

This stage of development has been investigated in the context of entrepreneurship development with the predominant focus being on what happens in schools. There is some research undertaken on primary schools by Deuchar (2004), Hytti (2002) and Leffler and Svedberg (2005). Common entrepreneurial development activities included in the syllabi of these schools include project work, mini-companies, idea generation and creativity exercises, and work experience in the community (Sagar, 2013; Young, 2014). Pepin and St-Jean (2019) investigated the impact of school entrepreneurial initiatives on children aged 10–12 years of age and found, using a quasi-experimental design, that there were few differences between those trained and those that did not participate in an entrepreneurial project. Overall, we have few insights as to whether EETPs in primary or elementary schools enhances students' creativity, innovativeness, initiative taking, perseverance and uncertainty tolerance. Additionally, we have few insights concerning the role of other contexts at this stage of the lifespan, including household chores and sibling interactions.

Experimental Exploration Stage (Adolescence, 12–18 Years Old)

The adolescence stage is considered an especially important period of transition involving significant physical, emotional and cognitive changes (Erikson, 1968). It has resonance for the development of identities, decision-making capabilities and experimental exploration (van Linden and Fertman, 1998). During this stage, several developmental experiences are significant in the context of entrepreneurship development. First, extra-curricular activities can provide adolescents with opportunities to engage in sport, to work in the community, to volunteer and undertake part-time work experiences. These activities are important in aiding the development of work ethic, transacting business, leadership experience, negotiation and conflict management. Second, peer interactions have a key role to play here, including the development of friendships, social networks, role identity, teamwork and a sense of belonging. Third, at this stage role models also emerge as a key influence (Bandura, 1977). These are individuals who have had success in entrepreneurship, and they help to guide and direct the behaviours of adolescents to think about entrepreneurship as a career. Fourth, the influence of parents and their behaviour is also pertinent at this stage. They may serve as entrepreneurial role models, sources of inspiration, display leadership characteristics and influence career choice. Fifth, the school is also an especially important setting and the types of entrepreneurship development activities undertaken can be significant (Elert et al., 2015). There is some research on the impact of EETPs on secondary and community college students (Barnard et al., 2019) which much highlights the value of these programmes in enhancing students' motivation to think about an entrepreneurial career, to develop important skills that will help a career in this area and consideration of business start-ups. Overall, we do not know enough about the effectiveness of EETPs at this level.

Self- and Opportunity-Oriented Stage (18–30 Years Old)

This phase is generally characterised as emerging adulthood, and in the context of the development of entrepreneurship and other life domains it is perhaps the most fundamental of stages (Arnett, 2004). Not surprisingly research on EETPs has focused largely on this adage at the expense of earlier and later stages; however, they have done so in the context of university-level courses (Bodnar et al., 2015; Liguori et al., 2019). They have largely ignored individuals in this age category developed in courses and programmes that fall outside the university context. The research evidence indicates that EEPT programmes targeted at this category and life stage can be effective with numerous studies highlighting their positive effects (Henry and Lewis, 2018; Nabi et al., 2017). These courses play an important role in developing entrepreneurial identity, develop awareness of strengths and weaknesses for a career in entrepreneurship, and in taking on entrepreneurial roles and careers (Melyoki and Gilenik, 2020; Nabi et al., 2021).

However, scholars have given less attention to other forms of development during this phase. These include the impact of mentoring, coaching and counselling type development interventions (Crisp and Cruz, 2009). There are few insights concerning how internships and first job experience as development processes impact entrepreneurship as a career choice and the skills they help develop in such areas as leadership, emotional intelligence, networking and management skills. There are also entrepreneurship development opportunities in areas such as volunteering, student-run businesses and business planning processes.

Purpose-Driven Stage (30–60 Years Old)

This is a long stage in terms of age, yet we do not know much about the effectiveness of EETPs for adults, especially training interventions for those who are mid- or late-career entrepreneurs. This is a very fundamental period in terms of the accomplishment of goals, motivation to be an entrepreneur and success as an entrepreneur. In addition, this age category will likely have family responsibilities and function as role models for earlier age categories when it comes to entrepreneurship (Cahill et al., 2016). A significant question concerns what types of development approaches are most effective with this age cohort when it comes to this life stage. To what extent are people in this category interested in purpose-driven entrepreneurship activities? What is the influence of parenthood and marriage on the effectiveness of EETPs?

Legacy-Making Stage (Late Adulthood, 60+ Years)

This is characterised as a period when the focus is on building a legacy (Kotter-Gruhn and Smith, 2011). Increasingly, many individuals in this stage may go into self-employment or pursue lifestyle entrepreneurship activities. There is an absence of literature that highlights the development needs for this category and

the types of EETPs that may be of value. They may also wish to continue to contribute to society and community in many ways and do not have any plans to retire.

Multiple Levels of Context and EETPS

What becomes clear from our discussion so far is that the processes involved in developing entrepreneurs are both temporal and contextual. Ecological systems theory (Bronfenbrenner, 1986) highlights that development and by extension EETPs operate within multiple levels of context and have differing levels of impact on development across the lifespan. We highlight some of these contextual influences and where they are most salient in the context of entrepreneurship development and EETPs.

The Family

The role of the family is critical at the initial stages of the lifespan. It will be critical to the stages of preschool, childhood and early adulthood, and its impact will be marked in areas such as identity development, attachment experiences, role models, sibling experiences and household activities. The family will significantly impact the extent to which entrepreneurship activities are valued, encouraged and facilitated (Murphy and Johnson, 2011). The family takes on another dimension when the individual reaches adulthood and then has a family. This will have implications for the time available for development activities, the types of developmental activities that are most effective and the nature of the development needs and learning objectives. Do we want to amplify this by referring to the FB literature which suggests that established family businesses can foster entrepreneurship both by context/culture and the ready availability of cash for investment?

The Education System

We propose that the education system can have an influence al all stages of the lifespan. However, to date within entrepreneurship development it is most pronounced during childhood, adolescence and emerging adulthood (Manning, 2003). The education system can have perhaps the most targeted impact on entrepreneurship development through the provision of targeted programmes at different life stages (LIguori, et al., 2019; Nabi et al., 2017). It represents an accelerated form of development that will help to crystallise an individual's entrepreneurial commitment, intentions, identity and action (Bischof et al., 2020). During later life stages, education and structured training programmes will help adults to re-orient their careers to self-employment and entrepreneurship (Elert et al., 2015).

The Working Organisation

The working organisation is an important but under-recognised contextual dimension impacting entrepreneurial development and EETPs. This will be particularly salient during adulthood and late adulthood and may help to shape the career of adults and lead them to change jobs and seek self-employment in the start-up or new venture. In addition, organisations may encourage intra-preneurship (Huang, et al., 2021) whereby employees are encouraged to pursue new ventures and alternative career options. Again FB lit may support here.

Societal and Cultural Context

The societal and cultural context represents the most distant dimension of context impacting the life stage in development and EETPs. The societal context can include economic activity, institutional arrangements and policies supporting entrepreneurship development, the status of entrepreneurship within a particular country and the way in which entrepreneurs operate (Herrmann, 2019). In addition, there are informal elements that are expressed in culture, with diverse cultures having both different conceptions of both entrepreneurship and devel-opment (Nguyen et al., 2009). These informal cultural elements will have important and yet under-researched impacts on the effectiveness of EETPs.

Researching EETPs and Practice Implications

The research on EETPs is growing at a significant pace, and recent meta-analysis has highlighted the value of education-focused EETPs (Nabi et al., 2017). However, much of this research is focused on education programmes within universities, and significantly less attention has been paid to education at other stages of the lifespan. The field is therefore ripe for new research.

The most significant and pressing research gap in relation to EETPs concerns the impact of programmes at all stages of the lifespan and, most particularly, the early and later stages. There is a considerable volume of research that explores the predictors of entrepreneurship and the emergence of entrepreneurs, yet we know little about the impact of development processes on child and adolescent stages of lifespan development. We also observed that there are few studies that investigate EETPs in preschool and primary school settings, and the value that different development activities in these settings have in developing an entrepreneurial identity and interest in entrepreneurship. Likewise, we need to develop insights into the impacts during adulthood and late adulthood and develop strategies around what approaches, and designs are most effective. The most urgent issue is the need to conduct longitudinal research that captures the impacts of develop-ment experiences across the years. This is necessary to understand which stages are most impactful in developing entrepreneurs. It would also enable researchers to capture the trajectories of entrepreneurs as they develop and the outcomes associated with each stage (Bohlmann et al., 2017).

A second major area of research concerns the need to broaden our conceptions of development approaches and consider a blend of development methods with EETPs (Henry and Lewis, 2018). To date, research has focused on the more classroom-based activities and has not investigated the effectiveness of technology-driven approaches and the use of individualised approaches such as mentoring, coaching and feedback processes (Melyoki and Gielnik, 2020). Researchers can explore the types of outcomes associated with each of these different approaches and highlight if configurations of some methods are more effective than others. Third, research has not effectively contextualised EETPs and investigated the multiple levels of context that shape both development processes and outcomes (Ratten and Jones, 2021). For example, we have limited insights on the impacts of societal and cultural variables on both the design and outcomes of EETPs. What impact does the work context have on mid- and late-career entrepreneurs, and how does it shape the type of development processes that will be effective? How do the various levels of context interact with each other to shape development processes and the outcomes of EETPs? Which contextual influences are most significant over the lifespan and why?

In terms of the applied end of the research spectrum, researchers need to conduct research that does comparative investigation of formal EETPs targeted at different age cohorts and populations of learners. What are the most effective approaches, when should these development interventions be timed, what types of development methods should be used? What structural arrangements work best? What are the key elements of content at each stage of the lifespan, and what types of effectiveness metrics are most appropriate? We need as researchers to shift our gaze away from a total focus on university-based EETPs. We have essentially ignored the development issues and approaches for adults in the later years of life. We also need to better understand how older adults leverage their knowledge and skills to engage in self-employment and entrepreneurship activities and their impact on the outcomes of EETPs for this group.

A lifespan perspective on EETPs has important implications for design and delivery. First, there is a major policy requirement to think in a broader way about the diverse groups that are beneficiaries of entrepreneurship development processes. We need to think of development starting in childhood and continuing throughout the lifespan. It is important for practitioners to better understand the development tasks that are required at each stage of the lifespan and the most effective ways to address these design issues. What becomes clear is that the one-size-fits-all approach does not work, and that once-off development programmes are less likely to be effective. Practitioners need to acknowledge the cumulative and non-linear nature of development. Therefore, it becomes imperative to consider the impact of multiple development processes over time to make assessment of the effectiveness of EETPs.

Conclusion

In this chapter we reviewed EETPs as an important part of HRD with a specific focus on the distinct types of programmes, their objectives, target audiences and learning outcomes. We then adopted a lifespan development lens to understand the role of EETPs across the lifespan and point to the development issues that arise at each stage. We also highlighted the distinct levels of context that apply at each stage of the lifespan and the relative importance of these contextual issues over time. Our essential argument is that the development of entrepreneurs is cumulative and non-linear, and that at each stage of the lifespan EETPs will play a different role, have a different emphasis and should be designed to fit the development needs and expected outcomes at that stage.

References

Ács, Z.J. and Szerb, L. 2010. The global entrepreneurship and development index (GEDI). In DRUID Conference, London. Available at: http://www2.druid.dk/conferences/viewpaper.php?id=502261andcf=%2043

Alberti, F., Sciascia, S. and Poli, A. 2004. Entrepreneurship education: notes on an ongoing debate. In Proceedings of the 14th Annual IntEnt Conference, Vol. 4, No. 7, Italy, University of Napoli Federico II.

Arnett, J.J. 2004. *Emerging Adulthood: The Winding Road from the Late Teens through the Twenties*, Oxford, Oxford University Press.

Arnett, J.J. 2007. Emerging adulthood: what is it, and what is it good for? *Child Development Perspectives*, 1, 68–73. doi: 10.1111/j.1750-8606.2007.00016.x

Bae, T.J., Qian, S., Miao, C. and Fiet, J.O. 2014. The relationship between entrepreneurship education and entrepreneurial intentions: a meta-analytic review, *Entrepreneurship Theory and Practice*, 38(2), 217–254. doi: 10.1111/etap.12095

Bakkali, C., Messeghem, K. and Sammut, S. 2010. Les structures d'accompagnement à la création d'entreprise à l'heure de la gestion des compétences, *Management and Avenir*, 39, 149–162. doi: 10.3917/mav.039.0149

Baltes, P.B., Lindenberger, U. and Staudinger, U.M. 2006. Life span theory in developmental psychology. In *Handbook of Child Psychology: Theoretical Models of Human Development*, Eds R.M. Lerner and W. Damon, pp. 569–664, New York, NY, John Wiley & Sons.

Baltes, P.B. 1987. Theoretical propositions of lifespan developmental psychology: on the dynamics between growth and decline, *Developmental Psychology*, 23, 611–626. doi: 10.1037/0012-1649.23.5.611

Barnard, A., Pittz, T. and Vanevenhoven, J. 2019. Entrepreneurship education in U.S. community colleges: a review and analysis, *Journal of Small Business and Enterprise Development*, 26(2), 190–208. doi: 10.1108/JSBED-06-2018-0178

Barr, S.H., Baker, T.E.D., Markham, S.K. and Kingon, A.I. 2009. Bridging the valley of death: lessons learned from 14 years of commercialization of technology education, *Academy of management learning and education*, 8(3), 370–388.

Bischoff, K.M., Gielnik, M.M. and Frese, M. 2020. When capital does not matter: how entrepreneurship training buffers the negative effect of capital constraints on business creation, *Strategic Entrepreneurship Journal*, 14(3), 369–395. doi: 10.1002/sej.1364

Bodnar, C.A., Clark, R.M., and Besterfield-Sacre, M. 2015. Lessons learned through sequential offerings of an innovation and entrepreneurship boot camp for sophomore engineering students, *The Journal of Engineering Entrepreneurship*, 6(1), 52–67.

Bohlmann, C., Rauch, A. and Zacher, H. 2017. A lifespan perspective on entrepreneurship: perceived opportunities and skills explain the negative association between age and entrepreneurial activity, *Frontiers in Psychology*, 8(2015). doi: 10.3389/fpsyg.2017.02015

Botha, M., Niemann, G. and Van Vuuren, J. 2013. Measuring the effectiveness of the women entrepreneurship programme on potential, start-up, and established women entrepreneurs in South Africa, *South African Journal of Economic and Management Sciences*, 10(2), 160–183. doi: 10.4102/sajems.v10i2.577

Bowlby, J. 1982. Attachment and loss: retrospect and prospect, *American Journal of Orthopsychiatry*, 52(4), 664–678. doi: 10.1111/j.1939-0025.1982.tb01456.x

Brentnall, C., Rodríguez, I.D. and Culkin, N. 2018. The contribution of realist evaluation to critical analysis of the effectiveness of entrepreneurship education competitions, *Industry and Higher Education*, 32(6), 405–417.

Brieger, S.A., Bäro, A., Criaco, G., et al. 2021. Entrepreneurs' age, institutions, and social value creation goals: a multi-country study, *Small Business Economics*, 57, 425–453. doi: 10.1007/s11187-020-00317-z

Brodmann, S. and Polavieja, J.G. 2011. Immigrants in Denmark: access to employment, class Attainment and earnings in a high-skilled economy, *International Migration*, 49, 58–90. doi: 10.1111/j.1468-2435.2010.00608.x

Bronfenbrenner, U. 1986. Ecology of the family as a context for human development: research perspectives, *Developmental Psychology*, 22(6), 723–742. doi: 10.1037/0012-1649.22.6.723

Bronfenbrenner, U. 1994. Ecological models of human development. In *International Encyclopedia of Education*, Eds T. Husen and T.N.Postlethwaite, 2nd ed., Vol. 3, pp. 3–44, Oxford, Elsevier.

Cahill, K.E., Giandrea, M.D., Quinn, J.F. 2016. Evolving patterns of work and retirement. In *Handbook of Aging, and the Social Sciences*, Eds L.K. George and K.F. Ferraro, 8th ed., pp. 271–291, San Diego, CA, Academic Press. doi: 10.1016/B978-0-12-417235-7.00013-5

Campos, F., Frese, M., Goldstein, M., Iacovone, L., Johnson, H.C., McKenzie, D. and Mensmann, M. 2017. Teaching personal initiative beats traditional training in boosting small business in West Africa, *Science*, 357(6357), 1287–1290.

Chhabra, S., Raghunathan, R. and Rao, N.V.M. 2020. The antecedents of entrepreneurial intention among women entrepreneurs in India, *Asia Pacific Journal of Innovation and Entrepreneurship*, 14(1), 76–92. doi: 10.1108/APJIE-06-2019-0034

Chandler, G.N. and Jansen, E. 1992. The founder's self-assessed competence and venture performance, *Journal of Business Venturing*, 7, 223–236. doi: 10.1016/0883-9026(92)90028-P

Cox, P., Koerberle, S.G., Uyanik, T.T. and Chen, N. 2012. *Access to Finance and Capacity Building for Earthquake-Affected Micro and Small Enterprises: Implementation, Completion, and Results Report*. Multi-Donor Java Reconstruction Fund Grant, International Organization for Migration, World Bank, Washington, DC.

Q5

Crisp, G. and Cruz, I. 2009. Mentoring college students: a critical review of the literature between 1990 and 2007, *Research in Higher Education*, 50, 525–545. doi: 10.1007/s11162-009-9130-2

Curran, J.M. and Stanworth, J.E. 1989. Education and training for enterprise: problems of classification, evaluation, policy and research, *International Small Business Journal*, 7, 11–22. doi: 10.1177/026624268900700201

Davidsson, P. and Wiklund, J. 1997. Values, beliefs, and regional variations in new firm formation rates, *Journal of Economic Psychology*, 18, 179–199. doi: 10.1016/S0167-4870(97)00004-4

DeTienne, D.R. and Chandler, G.N. 2004. Opportunity identification and its role in the entrepreneurial classroom: a pedagogical approach and empirical test, *Academy of Management Learning and Education*, 3(3), 242–257. doi: 10.5465/AMLE.2004.14242103

Deuchar, R. 2004. Reconciling self-interest and ethics: the role of primary school pupil councils, *Scottish Educational Review*, 36(2), 159–168.

Díaz-García, C., González-Moreno, A. and Sáez-Martínez, F.J. 2015. Eco-innovation: insights from a literature review, *Innovation*, 17(1), 6–23. doi: 10.1080/14479338.2015.1011060

Elert, N., Andersson, F.W. and Wennberg, K. 2015. The impact of entrepreneurship education in high school on long-term entrepreneurial performance, *Journal of Economic Behavior and Organization*, 111. doi: 10.1016/j.jebo.2014.12.020

Erikson, E.H. 1968. *Identity: Youth and Crisis*, New York, NY, W. W. Norton and Co.

Erikson, E.H. and Erikson, J.M. 1998. *The Life Cycle Completed*, New York, NY, W. W. Norton.

Ferreras-Garcia, R., Sales-Zaguirre, J. and Serradell-López, E. 2021. Developing entrepreneurial competencies in higher education: a structural model approach, *Education + Training*, 63(5), 720–743. doi: 10.1108/ET-09-2020-0257

Frese, M., Gielnik, M.M. and Mensmann, M. 2016. Psychological training for entrepreneurs to take action: contributing to poverty reduction in developing countries, *Current Directions in Psychological Science*, 25(3), 196–202. doi: 10.1177/0963721416636957

Galvão, A., Ferreira, J.J. and Marques, C. 2018. Entrepreneurship education and training as facilitators of regional development: a systematic literature review, *Journal of Small Business and Enterprise Development*, 25(1), 17–40. doi: 10.1108/JSBED-05-2017-0178

Garavan, T.N. and O'Cinneide, B. 1994. Entrepreneurship education and training programmes: a review and evaluation Part 1, *Journal of European Industrial Training*, 18, 3–12. doi: 10.1108/03090599410068024

Gibb, A.A. 1987. Enterprise culture – its meaning and implications for education and training, *Journal of European Industrial Training*, 11(2), 2–38. doi: 10.1108/eb043365

Gielnik, M.M., Spitzmuller, M., Schmitt, A., Klemann, D.K. and Frese, M. 2015. "I put in effort, therefore I Am passionate": investigating the path from effort to passion in entrepreneurship, *Academy of Management Journal*, 58, 1012–1031. doi: 10.5465/amj.2011.0727

González-Serrano, M.H., Valantine, I., Hervás, J.C., Pérez-Campos, C. and Moreno, F.C. 2018. Sports university education and entrepreneurial intentions: a comparison between Spain and Lithuania, *Education and Training*, 60(5), 389–405. doi: 10.1108/ET-12-2017-0205

Gregoire, D., Binder, J. and Rauch, A. 2019. Navigating the validity tradeoffs of entrepreneurship research experiments: a systematic review and best-practice suggestions, *Journal of Business Venturing*, 34(2), 284–310.

Harrington, C. and Maysami, R. 2015. Entrepreneurship education and the role of the regional university, *Journal of Entrepreneurship Education*, 18(2), 29–38.

Henry, C. and Lewis, K. 2018. A review of entrepreneurship education research: exploring the contribution of the Education and Training special issues, *Education and Training*, 60(3), 263–286. doi: 10.1108/ET-12-2017-0189

Herrmann, A.M. 2019. A plea for varieties of entrepreneurship, *Small Business Economics*, 52, 331–343. doi: 10.1007/s11187-018-0093-6

Hertel, G. and Zacher, H. 2015. Managing the aging workforce, In *The Sage Handbook of Industrial, Work, and Organizational Psychology*, Eds C. Viswesvaran, N. Anderson, D. Ones, and H.K. Sinangil, 2nd ed., Vol. 3, New York, NY, Sage.

Huang, L.Y., Yang Lin, S.M. and Hsieh, Y.J. 2021. Cultivation of intrapreneurship: a framework and challenges, *Frontiers in Psychology*, 12, 731990. doi: 10.3389/fpsyg.2021.731990

Hubner, S.V. and Baum, M. 2018. Entrepreneurs' human resources development, *Human Resource Development Quarterly*, 29, 357–381. doi: 10.1002/hrdq.21328

Hytti, U. (Ed.) 2002. *State-of-Art of Enterprise Education in Europe – Results from the Entredu Project*, Turku, Leonardo da Vinci – programme of the European Commission.

Hytti, U. and O'Gorman, C. 2004. What is "enterprise education"? An analysis of the objectives and methods of enterprise education programmes in four European countries, *Education + Training*, 46(1), 11–23. doi: 10.1108/00400910410518188

Hytti, U., Stenholm, P., Heinonen, J. and Seikkula-Leino, J. 2010. Perceived learning outcomes in entrepreneurship education: the impact of student motivation and team behaviour, *Education and Training*, 52(8/9), 587–606. doi: 10.1108/00400911011088935

Jamieson, I. 1984. Education for enterprise, In *CRAC*, Eds A.G. Watts and P. Moran, pp. 19–27, Cambridge, Ballinger.

Jones, C. and English, J. 2004. A contemporary approach to entrepreneurship education, *Education and Training*, 46(8/9), 416–423. doi: 10.1108/00400910410569533

Kanfer, R., Beier, M.E. and Ackerman, P.L. 2013. Goals and motivation related to work in later adulthood: an organizing framework, *European Journal of Work and Organizational Psychology*, 22(3), 253–264. doi: 10.1080/1359432X.2012.734298

Karlan, D. and Valdivia, M. 2011. Teaching entrepreneurship: impact of business training on microfinance clients and institutions, *The Review of Economics and Statistics*, 93(2), 510–527. doi: 10.1162/REST_a_00074

Keith, N. and Frese, M. 2008. Effectiveness of error management training: a meta-analysis, *Journal of Applied Psychology*, 93(1), 59–69. doi: 10.1037/0021-9010.93.1.59

Kelley, D., Brush, C., Greene, P., Herrington, M., Ali, A and Kew, P. 2015. *Global Entrepreneurship Monitor Special Report: Women's Entrepreneurship 2015*. Babson: Universidad del desarrollo, University Tun Abdul Razak, Tecnológico de Monterry.

Kolvereid, L. and Moen, O. 1997. Entrepreneurship among business graduates: does a major in entrepreneurship make a difference? *Journal of European Industrial Training*, 21, 154–160. doi:10.1108/03090599710171404

Kotter-Grühn, D. and Smith, J. 2011. When time is running out: changes in positive future perception and their relationships to changes in well-being in old age, *Psychology and Aging*, 26(2), 381–387. doi: 10.1037/a0022223

Kourilsky, M. 1995. Entrepreneur education: opportunity in search of. curriculum, *Business Education Forum*, 1–18.

Kuratko, D.F. 2005. The emergence of entrepreneurship education: development, trends, and challenges, *Entrepreneurship Theory and Practice*, 29(5), 577–597. doi: 10.1111/j.1540-6520.2005.00099.x

Leffler, E. and Svedberg, G. 2005. Enterprise learning: a challenge to education? *European Educational Research Journal*, 4(3), 219–227. doi: 10.2304/eerj.2005.4.3.6

Liguori, E., Bendickson, J., Solomon, S. and McDowell, W.C. 2019. Development of a multi-dimensional measure for assessing entrepreneurial ecosystems, *Entrepreneurship and Regional Development*, 31(1-2), 7–21. doi: 10.1080/08985626.2018.1537144

Lindh, I. and Thorgren, S. 2016. Entrepreneurship education: the role of local business, *Entrepreneurship and Regional Development*, 28(5–6), 313–336. doi: 10.1080/08985626.2015.1134678

Liu, Z., Venkatesh, S., Murphy, S.E. and Riggio, R.E. 2021. Leader development across the lifespan: a dynamic experiences-grounded approach, *The Leadership Quarterly*, 32(5). doi: 10.1016/j.leaqua.2020.101382

Lu, Y. and Jover, G. 2019. An anthropocosmic view: what Confucian traditions can teach us about the past and future of Chinese higher education, *Higher Education*, 77, 423–436. doi: 10.1007/s10734-018-0280-z

Manning, T.T. 2003. Leadership across cultures: attachment style influences, *Journal of Leadership and Organizational Studies*, 9(3), 20–30. doi: 10.1177/107179190300900304

Martin, B.C., McNally, J.J. and Kay, M.J. 2013. Examining the formation of human capital in entrepreneurship: a metaanalysis of entrepreneurship education outcomes, *Journal of Business Venturing*, 28(2), 211–224. doi: 10.1016/j.jbusvent.2012.03.002

Melyoki, L.L. and Gielnik, M.M. 2020. How action-oriented entrepreneurship training transforms university students into entrepreneurs: insights from a qualitative study, *Journal of Small Business and Entrepreneurship*. doi: 10.1080/08276331.2020.1832831

Mitchelmore, S. and Rowley, J. 2010. Entrepreneurial competencies: a literature review and development agenda, *International Journal of Entrepreneurial Behavior and Research*, 16(2), 92–111. doi: 10.1108/13552551011026995

Murphy, S.E. and Johnson, S.K. 2011. The benefits of a long-lens approach to leader development: understanding the seeds of leadership, *The Leadership Quarterly*, 22(3), 459–470. doi: 10.1016/j.leaqua.2011.04.004

Nabi, G. and Holden, R. 2008. Graduate entrepreneurship: intentions, education and training, *Education and Training*, 50(7), 545–551. doi: 10.1108/00400910810909018

Nabi, G., Liñán, F., Fayolle, A., Krueger, N. and Walmsley, A. 2017. The impact of entrepreneurship education in higher education: a systematic review and research agenda, *Academy of Management Learning and Education*, 16(2), 277–299. doi: 10.5465/amle.2015.0026

Nabi, G., Walmsley, A. and Akhtar, I. 2021. Mentoring functions and entrepreneur development in the early years of university, *Studies in Higher Education*, 46(6), 1159–1174. doi: 10.1080/03075079.2019.1665009

Nguyen, T.V., Bryani, S.E., Rose, J., Tseng, C-H. and Kapasuwan, S. 2009. Cultural values, market institutions, and entrepreneurship potential: a comparative study of the United States, Taiwan, and Vietnam, *Journal of Developmental Entrepreneurship*, 14(1), 21–37.

Penchev, P. and Salopaju, A. 2011. *Entrepreneurial Competencies Needed by Managers in Their Work*. Master thesis, Jönköping International Business School, Jönköping University, Jönköping.

Pepin, M. and St-Jean, É. 2019. Assessing the impacts of school entrepreneurial initiatives: a quasi-experiment at the elementary school level, *Journal of Small Business and Enterprise Development*, 26(2), 273–288. doi: 10.1108/JSBED-07-2018-0224

Pittaway, L. and Cope, J. 2007. Entrepreneurship education: a systematic review of the evidence, *International Small Business Journal*, 25(5), 479–510. doi: 10.1177/0266242607080656

Ratten, V. and Jones, P. 2021. Covid-19 and entrepreneurship education: implications for advancing research and practice, *International Journal of Management in Education*, 19. doi: 10.1016/j.ijme.2020.100432

Ratten, V. and Usmanij, P. 2021. Entrepreneurship education: time for a change in research direction? *The International Journal of Management Education*, 19(1). doi: 10.1016/j.ijme.2020.100367

Rauch, A. and Frese, M. 2007. Let's put the person back into entrepreneurship research: a meta-analysis on the relationship between business owners' personality traits, business creation, and success, *European Journal of Work and Organizational Psychology*, 16(4), 353–385. doi: 10.1080/13594320701595438

Rideout, E.C. and Gray, D.O. 2013. Does entrepreneurship education really work? A review and methodological critique of the empirical literature on the effects of university-based entrepreneurship education, *Journal of Small Business Management*, 51, 329–351. doi: 10.1111/jsbm.12021

Roseberry, S., Hirsh-Pasek, K. and Golinkoff, R.M. 2014. Skype me! Socially contingent interactions help toddlers learn language, *Child Development*, 85(3), 956–970. doi: 10.1111/cdev.12166

Ross, H., Ross, M., Stein, N. and Trabasso, T. 2006. How siblings resolve their conflicts: the importance of first offers, planning, and limited opposition, *Current Directions in Psychological Science*, 13, 124–126. doi: 10.1111/j.0963-7214.2004.00289.x

Sagar, H. 2013. *Teacher Change in Relation to Professional Development in Entrepreneurial Learning*. Dissertation, Gothenburg, Department of Physics, University of Gothenburg.

Shane, S. 2010. *Born Entrepreneurs, Born Leaders: How Your Genes Affect Your Work Life*, New York, NY, Oxford University Press.

Singh, B., Verma, P. and Rao, M.K. 2017. Influence of individual and socio-cultural factors on entrepreneurial intention. In M. Manimala and P. Thomas (Eds.), *Entrepreneurship Education*, Singapore, Springer. doi: 10.1007/978-981-10-3319-3_8

Smith, B. and Morse, E. 2005. *Entrepreneurial Competencies: Literature Review and Best Practices*, Ottawa, ON, Small Business Policy Branch, Industry Canada.

Song, L. and Winkler, C. 2014. China's trans-regional entrepreneurship: a panel data analysis of 31 provinces, *Journal of Entrepreneurship in Emerging Economies*, 6(3), 202–222. doi: 10.1108/JEEE-06-2014-0020

Souitaris, V., Zerbinati, S. and Al-Laham, S. 2007. Do entrepreneurship programs raise entrepreneurial intention of science and engineering students? The effect of learning, inspiration and resources, *Journal of Business Venturing*, 22, 566–591. doi: 10.1016/j.jbusvent.2006.05.002

Stephan, U. and Uhlaner, L. 2010. Performance-based vs socially supportive culture: a cross-national study of descriptive norms and entrepreneurship, *Journal of International Business Studies*, 41, 1347–1364. doi: 10.1057/jibs.2010.14

Truxillo, D.M., Cadiz, D. and Hammer, L. 2015. Supporting the aging workforce: a review and recommendations for workplace intervention research. In *The Annual Review of Organizational Psychology and Organizational Behavior*. doi: 10.1146/annurevorgpsych-032414-111435

Vanevenhoven, J. and Liguori, E. 2013. The impact of entrepreneurship education: introducing the entrepreneurship education project, *Journal of Small Business Management*, 51(3), 315–328. doi: 10.1111/jsbm.12026

van Linden, J. and Fertman, C.I. 1998. *Youth Leadership: A Guide to Understanding Leadership Development in Adolescents*, San Francisco, CA, Jossey-Bass.

Vincett, P.S. and Farlow, S. 2008. Start-a-Business: an experiment in education through entrepreneurship, *Journal of Small Business and Enterprise Development*, 15(2), 274–288. doi: 10.1108/14626000810871673

Volkmann, C., Wilson, K.E., Mariotti, S., Rabuzzi, D., Vyakarnam, S. and Sepulveda, A. 2009. Educating the next wave of entrepreneurs – unlocking entrepreneurial capabilities to meet the global challenges of the 21st century, World Economic Forum, Geneva.

Yamaguchi, S. 2001. Culture and control orientations. In *The Handbook of Culture and Psychology*, Ed. D. Matsumoto, pp. 223–243, New York, NY, Oxford University Press.

Yi, S. and Duval-Coueil, N. 2021. Standards for evaluating impact in entrepreneurship education research: using a descriptive validity framework to enhance methodological rigor and transparency, *Entrepreneurship Theory and Practice*. doi: 10.1177/10422587211018184

Young, D. 2014. *Enterprise for All: The Relevance of Enterprise Education*, London, Department for Business, Innovation and Skills and Prime Minister's Office.

Zacher, H. and Frese, M. 2018. Action regulation theory: foundations, current knowledge, and future directions. In *The SAGE Handbook of Industrial, Work and Organizational Psychology: Organizational Psychology*, Eds D.S. Ones, N. Anderson, C. Viswesvaran and H.K. Sinangil, pp. 122–144, Sage Reference.

Author Query Form

Queries and/or remarks

[Q1]	Please check the placement of the section headings and correct if necessary.
[Q2]	The citation 'González-Serrano et al. (2017)' has been changed to match the author name in the reference list. Please check here and in subsequent occurrences, and correct if necessary.
[Q3]	Missing references: Refs "Jack and Anderson, 1999; Singh et al., 2010; Bandura, 1977; Chhabra et al., 2021" are not listed in the "References" section; please provide complete reference details.
[Q4]	The citation 'Hertel and Zacher, 2018' has been changed to match the date in the reference list. Please check here and in subsequent occurrences.
[Q5]	Uncited references: Refs "Brodmann and Polavieja, 2011; Singh et al., 2017" are not cited in text; please indicate where the citations should appear or delete these from the reference list.
[Q6]	Please check the edits made in Tables 1 and 2, and correct if necessary.

Non Print Items

Thomas Garavan
University College Cork, Ireland

Fergal O'Brien
University of Limerick, Ireland

Clare (Ruth) Power
Enterprise Ireland, Ireland

Gerri Matthews-Smith
Edinburgh Napier University, UK

Joan Buckley
University College Cork, Ireland