



Guiding the First-Year Student Entrepreneur: A Conceptual Map to Nudge Towards the Reversal Effect in Learning

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1 INTRODUCTION

In the process of legitimising itself as an academic subject, entrepreneurship education has come a long way over the last forty years (Fayolle et al., 2016; Gabrielsson et al., 2020). Nevertheless, the challenge of how to structure and develop sound theoretical foundations for learning entrepreneurship in higher education through a cross-fertilisation of educational science and educational psychology is still at an infant stage (Hägg & Gabrielsson, 2020; Pittaway & Cope, 2007; Rideout & Gray, 2013). The call to strengthen these ties has been made by several scholars over the decades, but so far little agreement and unity has been achieved.

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We know that entrepreneurs learn through and from experience (Politis, 2005), but when we take these insights into the educational process and meet a different group of individuals, the playing field is no longer the same. Hence the experiential learning process of practicing entrepreneurs requires modification (Hägg & Kurczewska, 2020b) to fit the educational context and the characteristics of student entrepreneurs, often positioned in the phase termed emergent adulthood (see Cohen et al., 2020 for an interesting method that discusses the difference between novice and expert).

Taking it one step further, we know from Cognitive Load Theory (Sweller, 1988, 2016) and evolutionary educational psychology (Geary, 2002, 2007) that learning subject matter is based on biologically secondary knowledge (i.e. developed through cultural artefacts over time) that differs greatly from biologically primary knowledge that is learnt epigenetically (such as learning to talk). Learning subject matter such as entrepreneurship requires more structured processes and instructional clarity in the initial stage until the tipping point has been reached, known as the reversal effect in learning, which is when instructions no longer advance learning but rather impede a learner in their development.

Based on the above arguments, there has been a recent call for a term such as odigogy, meaning to guide, in entrepreneurship education (see Hägg & Kurczewska, 2019, 2020a). The idea of guidance is not a completely new phenomenon nor is it something exclusively associated with entrepreneurship education, but rather a universal thought practiced both in ancient forms of adult learning (e.g. Aristotle and Socrates) and in progressive views on schooling (Dewey & Dewey, 1915). The role of guidance has also been addressed in other ways related to the balance between pedagogy and andragogy as well as between teacher- and student-led learning (Jones et al., 2014, 2019; Lackéus et al., 2016; Robinson et al., 2016). Without casting a shadow on previous thoughts that have greatly advanced our thinking about balance and guidance in entrepreneurship as well as enterprise education, odigogy is an attempt to raise the importance of guidance and potentially position its conceptualisation on a par with terms such as pedagogy and andragogy as well as the more contemporary development of heutagogy. Given the development in research on how learners accumulate knowledge and the distinctions between adolescents, emergent adults and adults in developmental psychology, there is a need to acknowledge that the traditional division into andragogy and pedagogy no longer fully fills the blanks

left by recent research knowledge on student characteristics. As a key part of the discussion on odigogy is based on understanding the student entrepreneur, a potential next step in its evolution is to address novice learners, in particular the first-year student exposed to entrepreneurship education. It is at this stage that the first seeds of knowledge and understanding of higher education and the academic learning process become apparent.

Consequently, the purpose of this chapter is to respond to the call to develop odigogy and conceptualise a potential map for how to reason and teach when facing first-year student entrepreneurs and the challenges they encounter when entering higher education. The goal is not to provide a toolbox that can be placed in the classroom, as that is contextually impossible and would be imprudent due to lecturers' academic freedom in managing classroom activities. Instead, we offer a conceptual map that might serve as an inspiration for refining learning processes for novice learners. Hence, we hope to further contribute to the discussion on how to synthesise knowledge from different educational theories when developing our understanding of how to create conducive and progressive learning environments in entrepreneurship education tailored to novice learners, i.e. first-year students. To achieve this we start by providing a theoretical backup to highlight unique features of novice students, which leads us to the conceptual map addressing the reversal effect in learning and ends with conclusions and implications for entrepreneurship education theory and practice.

2 STREAMS OF LITERATURE

To highlight the specificity of novice learners and its implications for learning and teaching practice, in the following sections we will address some insights from developmental psychology. In particular, we will explain the emerging adulthood concept and its relevance to first-year students of entrepreneurship, as well as the foundation of Cognitive Load Theory that will help us to grasp the process of moving from novice to expert learner, where odigogy could facilitate the transition from an instructional perspective. We will also discuss the recent developments in entrepreneurship education for undergraduate students to better understand the main challenges it entails and end with a short discussion on

odigogy, which is followed in the next section by the conceptual map illustrating a typical classroom situation, where entrepreneurship constitutes a new domain-specific knowledge.

Emergent Adult and the First-Year Student

Entrepreneurship education research has tended to focus more on student learning and pedagogical methods than on the developmental stages of students taking courses in entrepreneurship (Hägg & Kurczewska, 2019). The limited attention to student characteristics and their relation to developmental psychology is, however, natural as the field is young and still seeking boundary conditions for the subject domain as well as legitimacy (Fayolle et al., 2016). Nevertheless, understanding cognitive development and its dynamics and characteristics in relation to how young individuals learn skills and develop attitudes seems promising for the creation of a progressive and supportive learning environment in entrepreneurship education (2020a; Hägg & Kurczewska, 2019). In particular, knowing more about who we really have in the classroom from the perspective of cognitive studies could be beneficial. Therefore, we start our theoretical discussion with the culturally constructed concept of emerging adulthood established by the developmental psychologist Jeffrey Arnett and presented in the “American Psychologist” in 2000 (Arnett, 2000). The phase of emerging adulthood concerns a specific period of human development between adolescence and adulthood and includes alterations related to demography, subjectivity as well as identity exploration (Swanson, 2016). The period of emerging adulthood occurs between the ages of 18 and 29 years (Arnett et al., 2014) and refers to a transition full of turbulence, where complex forms of thinking, including self-reflection, are developed (Arnett, 2006). It is the distinct time when young people usually enter higher education, leave their family homes to live alone, take up their first job and begin a more independent life. During this phase the emerging adult faces many new problems and needs to learn how to make more enduring choices (Arnett et al., 2014). Young individuals, still being relatively independent from social roles and normative expectations (Arnett, 2000, 2015), tend to use this phase of transition to explore and experiment to determine their roles and identities when entering the phase of adulthood. Therefore, emerging adulthood is characterised by instability, a feeling of being in-between and ambiguity but also self-focus and checking out various life options to seek “true selves”.

The development of emerging adulthood is explained by the fact that “longer and more widespread education, later entry to marriage and parenthood, and a prolonged and erratic transition to stable work have opened up a space for a new life stage in between adolescence and young adulthood” (Arnett, 2015, p. 8). On the educational level, the suspension between being an adolescent and an adult often means that students need to take more responsibility for their learning and become accustomed to a less structured form of education. In the context of this chapter’s research question, we may consider the characteristics of today’s first-year students as emerging adults. With high probability, many of our students on entrepreneurship courses, particularly in their first years of study, are emerging adults and therefore face a quite dynamic and transformative period in their lives. This stage of development requires understanding from the instructor/teacher as well as careful and well thought-out guidance to facilitate learning and allow more complex forms of thinking to grow and materialise. Students need more “anchors” that they can refer to and more support that they can reach for. The instructor/teacher should be available with guidance related to the merits of the entrepreneurship domain but also in terms how to learn in a more mature and independent way.

3 COGNITIVE LOAD THEORY

Drawing from developmental psychology also leads us to Cognitive Load Theory (CLT) that addresses a cognitive approach to instruction for creating a prosperous learning process. The rationale behind CLT, developed by the psychologist John Sweller, is a need to create learning content suited to the learner’s pace, level and absorptive capacity (Sweller, 1988, 1994). Creating such learning content requires interplay between long-term and short-term/working memories. Information gained through learning is constructed in the short-term memory but kept in the long-term memory due to the mental structures (schemas), enabling better organisation of knowledge. However, novice learners who possess limited prior knowledge and less developed schemas in the long-term memory rely heavily on processing new information in the working memory, which is not only short-term but also quite limited (Cowan, 2001). Therefore, learning might become inefficient if its contents block learners’ working memory, leading to cognitive overload and a reduction of transfer to the unlimited long-term memory (Sweller, 1994, 2016).

In contrast, reducing the load on the working memory and using the long-term memory make learning more powerful and productive. The mental processing power (cognitive load) depends on the complexity of concepts, instructional design and effort to process and construct schema (Sweller). Thus, CLT provides more understanding of how various stages of development impact learners and how different levels of instruction are important when tailoring and developing a conducive educational learning environment for student entrepreneurs, especially in the initial formative part of higher education studies.

When translating CLT into the entrepreneurship education context, the risk of cognitive overload is a particular concern for novice learners, such as first-year students, due to new content as well as new forms of instruction (Kirschner et al., 2006). Learners exposed to entrepreneurship education for the first time are often confronted with a progressive and student-centred type of teaching (Robinson et al., 2016) that requires more action and higher degrees of independence when making decisions in problem-solving situations. They do not have many, if any, (entrepreneurial) experiences (Cohen et al., 2020; Hägg & Kurczewska, 2019) to lean on in learning activities in order to grasp the process (Kalyuga et al., 2003). Hence, in relation to CLT one could argue that first-year students in entrepreneurship education lack appropriate cognitive schemas for processing information. Therefore, to make learning entrepreneurship effective, novices in the field require more precise instruction and guidance. However, the instructor/teacher needs to be aware that when students increase their domain-specific knowledge and expertise (i.e. develop schemas in their long-term memory), instruction-based learning becomes less efficient and may lead to a slowdown of the learning process, known as the expertise reversal effect (Kalyuga et al., 2003).

4 ENTREPRENEURSHIP EDUCATION—WHAT DO WE KNOW ABOUT UNDERGRADUATE STUDIES?

In general, entrepreneurship education research concerning university level does not differentiate to any great degree between undergraduate and postgraduate studies in terms of what and how to teach (although the various chapters in the present book are seeking to change this), which means that the maturity of learners as well as the diversity and depth of their experiences has received less consideration (see, e.g., Cohen

et al., 2020; Hägg & Kurczewska, 2020b). Undergraduate studies alone, if discussed at all, appear more as a context of research (for example, a review of top programmes in experiential entrepreneurship education by Mandel and Noyes (2016), or the review of entrepreneurship education programmes by Myrah and Currie [2006]), not as a subject of investigation of some specific characteristic, nor as an entry point to discuss the profile of learners. More attention has been focused on outcomes such as entrepreneurial intentions, where large cohorts of students are often found at undergraduate level (Kassean et al., 2015), but less of an attempt is made to differentiate the progressive nature of learning that most likely impacts on how to organise curricula and the educational process from freshman towards postgraduate studies. This is surprising, as at the same time entrepreneurship education is seen as drifting towards a student-driven approach and a constructivist perspective on learning (Krueger, 2007; Löbner, 2006). The studies acknowledging the division between undergraduate and postgraduate studies do not describe a particular difference between the levels (Pittaway & Edwards, 2012). In the rare studies concerning only the undergraduate level of entrepreneurship education, such as Katz et al. (2016), the authors try to suggest a direction for the development of undergraduate curricula in entrepreneurship and make some recommendations for its modelling. However, even in these studies, the focus is placed on the content and method, not on the learners and their abilities or entry level characteristics for learning.

5 ODIGOGY—AN INTERMEDIARY PHASE FOR MEETING THE EMERGING ADULT

Drawing from developmental psychology, namely the concept of emerging adulthood and Cognitive Load Theory but also by synthesising previous research output on entrepreneurship education during undergraduate studies, we infer that, firstly, novice students possess some unique cognitive characteristics and require adequate attention from their teachers/instructors. Secondly, the role of guidance is greater than commonly acknowledged both in entrepreneurship education literature and as a classroom practice. Thirdly, the undergraduate level of entrepreneurship education has been marginalised in research and mainly treated without appropriate attention to the progressive nature that is ingrained in the higher education process, where a focus on seeing entrepreneurship from a method perspective has perhaps reduced the

process perspective that underpins learning. Thus, the idea of odigogy has a particular meaning for learning and teaching entrepreneurship among novice learners. Its further conceptual development is captured in the following section in relation to first-year students.

Building further on the conceptualisation by Hägg and Kurczewska (2019, 2020a), odigogy implies a constant guiding process in-between the continuum of pedagogy and andragogy. As Hägg and Kurczewska (2020a, p. 771) argue: “Odigogy explains this continuum for students who are in a transitional stage between adolescence and adulthood”. Like pedagogy and andragogy, odigogy departs from a specific group of individuals. In the same way as pedagogy departs from and builds its assumptions on how to teach children and adolescents, and the learning process in andragogy is based on adults, odigogy departs from the assumption of emergent adults and their specific characteristics. Being placed in the higher education context, odigogy neatly targets the needs of emerging adults. To highlight its characteristics, Hägg and Kurczewska (2020a) contrast it with pedagogy and andragogy in terms of educational context (higher education), features of learning (guided) and how knowledge is developed (as explored), role of teacher (as a guide), motivation to learn (as being both external and internally driven), as well as responsibility for learning (reversal effect). If odigogy is applied to education, the learning process is developed through tailored guidance by teachers throughout the learning process by employing instructional design and content expertise. Students are encouraged to immerse in educative experience through which they accumulate knowledge and motivation for learning moves from external to internally driven. In this sense, knowledge is discovered and co-created by students and teachers. Also, responsibility for learning is shared between student and teacher but shifts with proficiency level as part of the learning process.

The initial paper by Hägg and Kurczewska (2019) addressed the void in the continuum of pedagogy and andragogy and the importance of tailoring learning activities, as well as adopting learning theories that take account of student characteristics and proficiency level. This was then followed up in the next study by Hägg and Kurczewska (2020a), where four main assumptions were proposed to demarcate the scope of the term. In the present chapter, the initial stage of how to approach first-year students (emergent adults) is further discussed, where the following section seeks to describe the attempts to model a map to aid in developing the initial phase of entrepreneurship studies in higher education.

6 A CONCEPTUAL MAP TO NUDGE FIRST-YEAR STUDENTS TOWARDS THE REVERSAL EFFECT

We are surrounded by a highly constructivist paradigm of teaching and learning, where the mixture and functions of pedagogical, andragogical and to some extent also heutagogical views on learning are superimposed in the discussion of best practices for educating entrepreneurial individuals. In the previous sections we have sought to address a number of theoretical streams that together could cast light on this conundrum that has materialised in the search for, in the absence of a better term, “the holy grail” for how to teach. We are not going to argue that the conceptual map is a contender for “the holy grail” as that would be thoughtless. But we are arguing that, given what current research has achieved in developmental psychology and also in CLT, the role of guidance has an important place when considering first-year students lack of knowledge in the subject and have little insight into the educational process in higher education.

We propose a conceptual map that might serve as an inspiration for developing learning processes for novice learners. Although it helps us to find a direction and guides us when we feel lost, it does not do the job for us and should not be treated as the only tool to use. Here, the academic freedom of deciding what to teach becomes the lifeblood of the individual lecturer and something beyond the map. The map focuses on achieving the reversal effect in learning (which in some sub-processes might be fast and in others could take months or even years). The reversal effect is attentive to the development of the learner and focuses on the shift in responsibility for the learning process. In accordance with the ideas of CLT, we posit that working closely with explicit instructions, worked examples and from the start transferring the authority for the learning process create a fruitful foundation that accelerates the learning process and the ability to take responsibility for one’s own learning.

Model one illustrates our previously presented thoughts on how to nudge a novice learner towards the very basic ability to digest academic reading, which is not a self-explanatory process but most likely requires explicit instructions and clear guidance. The model outlines what to pay attention to, how to focus one’s reading and why different academic texts require diverse forms of understanding from the reader. This basic activity of nudging a novice learner in higher education creates a first step for how to orchestrate other learning activities, as student characteristics differ due

to the difference in their previous knowledge. Creating an equal starting point for continued guidance in the learning process provides opportunities for blended and experiential learning processes, where less attention may need to be given to covering the content, instead focusing on developing the how and the why in order to find the balance between theory and practice. This thought accords with the idea from experiential education on teaching people, not content (Roberts, 2015). Although content is necessary to develop domain-knowledge, it can be covered in many different ways. By developing understanding in the early stage of, for example, how to read in order to digest the content of academic articles, the focus can be altered towards working with the content and developing skills and understanding how to apply it and also why and when to use content in different situations. Although the example is prosaic in scope, we believe it is essential to free up time for more experiential and deeper learning activities where the responsibility of the learner is higher (Fig. 1).

To help read the map, we provided a very simple example of how to engage with academic reading and understanding key concepts related to the discovery or creation of opportunities. Although it might sound like a very ordinary example, it is also essential when starting entrepreneurship education. In the first place, the idea of guiding the novice learner with clear instructions on how to read an academic article enables her/him to understand the process, thus reducing the uncertainty about what to do, how to do it and why. But it is also a key to nudging the novice learner towards the next step to becoming proficient and achieving the reversal effect, perhaps in the long run becoming a self-directed expert learner (Dreyfus, 2004; Ertmer & Newby, 1996). The map and the example also address the importance of meeting the learner at her/his level and being aware of the fact that what is clear and simple for one learner might be fuzzy and unclear for another, given that most learners come with different backpacks of prior experience, thus creating a common ground from which to move forward. This is also an important difference between odigogy and andragogy when it comes to creating a starting point for the experiential learning process. The map could be used when thinking about how to create understanding for the novice learner and also to nudge them towards taking more responsibility. This is especially important in the context of experiential learning, as it is a learning context that emphasises individual responsibility through the interplay between

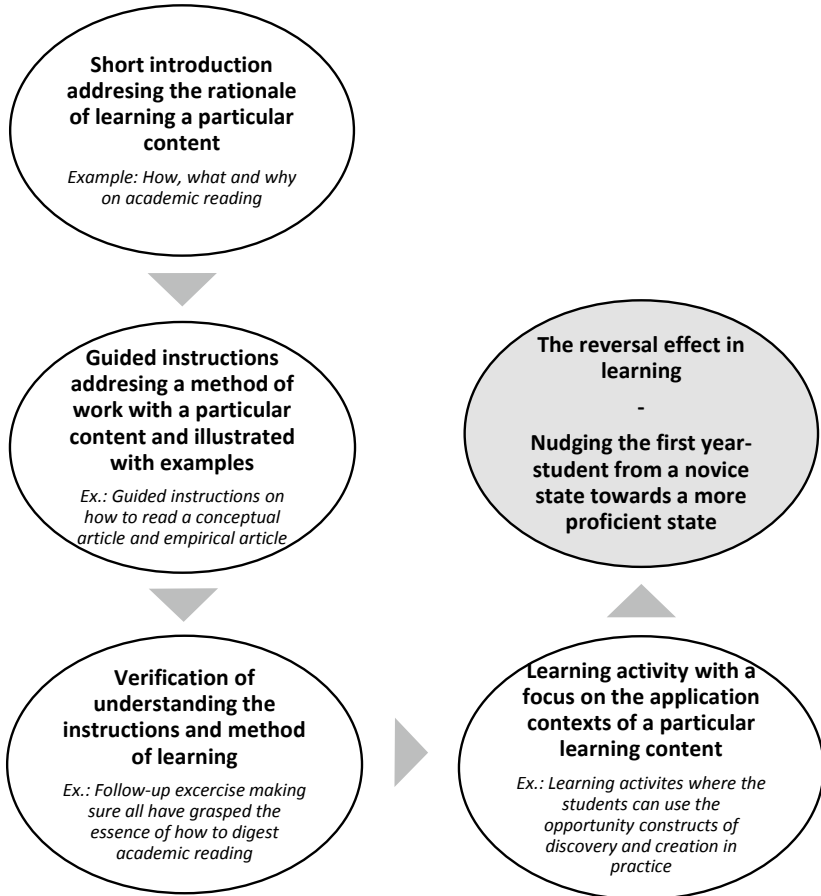


Fig. 1 A conceptual map to nudge first-year students towards the reversal effect (*with an example of how to engage students in academic reading and enable them to understand key concepts related to the discovery or creation of opportunities*)

knowing and doing. Odigogy and the guiding assumption that underlies it are sprung from the interplay between instructional design and experiential education literature (see Hägg & Kurczewska, 2020a).

7 CONCLUDING THOUGHTS AND IMPLICATIONS

The idea of this chapter was to respond to the call to further develop the term odigogy (Hägg & Kurczewska, 2020a) and conceptualise a map to help guide first-year student entrepreneurs despite the many challenges they encounter as students when entering higher education and beginning the process towards adult life. We achieved that by making use of insights from developmental psychology, but also by investigating research on entrepreneurship education for undergraduates. They all led us to the conclusion that balancing guidance and support for learning becomes essential when structuring an educational environment in entrepreneurship for emerging adult undergraduate students. We highlighted the role of guidance when first-year students start as novice learners and develop their proficiency towards becoming competent and even sometimes expert learners (Dreyfus, 2004; Ertmer & Newby, 1996). The guidance provided to novice students requires taking their cognitive development, proficiency and knowledge of entrepreneurship into consideration, but also their inclination to explore and experience as a result of the transformational phase they are going through as emergent adults.

From the discussion of the conceptual map, we argue that first-year students are particularly prone to overload in their working memory. To reduce this, a focus on explicit instructions can serve to decrease the uncertainty of the educational process and create an understanding of why and how to approach learning activities that often have a high degree of uncertainty built into them. Furthermore, the conceptual map reminds us about the importance of knowing the students and when to shift responsibility from the facilitator (the guide) onto the students, i.e. the reversal effect in learning (Kalyuga et al., 2003), to increase the accumulation of knowledge. Finally, the conceptual map is not an educational tool for classroom practice in itself, but should be viewed as a mental model when thinking about how to develop a learning process by keeping the student characteristics in mind on a par with learning theories and various experiential learning activities that have been acknowledged as foundational for teaching entrepreneurship.

By writing this chapter we hope to start a more thorough discussion on how to design teaching when engaging students in entrepreneurship education at undergraduate level. Highlighting well-grounded theoretical backup, we further theorise around the concept of odigogy, but

also make it more applicable. Therefore, as far as practical implications are concerned, the discussion in this chapter might be helpful for entrepreneurship teachers/instructors, where the proposed conceptual map may stimulate the development of teaching. Furthermore, signalling the need to consider odigogy in teaching and the significance of guidance for novice learners with characteristics typical of emerging adults could help to define the role of the teacher/instructor as the process evolves. It also contributes to the ongoing discussion on the balance between pedagogy, andragogy and heutagogy that is currently being voiced in research discussions in entrepreneurship and enterprise education (e.g. Hägg & Kurczewska, 2020a; Jones et al., 2019; Neck & Corbett, 2018).

Despite all efforts, our line of thought has some limitations. The key limitation concerns the fact that our reasoning is not universal in the sense that it is only useful for a limited group of students who are emerging adults. The emergent adult is fairly typical of the Western part of the world and not all students in the classroom might be this specific type of student (Hendry & Kloep, 2010). However, the phenomenon of emerging adulthood is spreading and together with the growing trend towards experience-based, constructivist, inquiry-based education as well as the progressive trajectory in entrepreneurship education offerings around the world, legitimises the introduction of odigogy into entrepreneurship education. We are also aware that the reasoning presented in this chapter relates to the quite narrow context of undergraduate studies and novice learners. However, odigogy is not supposed to be a generic term fitting all aspects of entrepreneurship education, but more a helpful way of thinking when designing learning environments for students and considering the progressive nature of the educational process (Hägg & Kurczewska, 2019). In this study, we justified its rationale for a specific context and hopefully opened the door for future empirical verification.

REFERENCES

- Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist*, 55(5), 469–480.
- Arnett, J. J. (2006). Emerging adulthood in Europe: A response to Bynner. *Journal of Youth Studies*, 9(1), 111–123.
- Arnett, J. J. (2015). *Emerging adulthood: The winding road from the late teens through the twenties* (2nd ed.). Oxford University Press.

- Arnett, J. J., Žukauskienė, R., & Sugimura, K. (2014). The new life stage of emerging adulthood at ages 18–29 years: Implications for mental health. *The Lancet Psychiatry*, 1(7), 569–576.
- Cohen, D., Hsu, D. K., & Shinnar, R. S. (2020). Identifying innovative opportunities in the entrepreneurship classroom: A new approach and empirical test. *Small Business Economics*, 1–25.
- Cowan, N. (2001). Metatheory of storage capacity limits. *Behavioral and Brain Sciences*, 24(1), 154–176.
- Dewey, J., & Dewey, E. (1915). *Schools of tomorrow*. E. P. Dutton & company.
- Dreyfus, S. E. (2004). The five-stage model of adult skill acquisition. *Bulletin of Science, Technology & Society*, 24(3), 177–181.
- Ertmer, P. A., & Newby, T. J. (1996). The expert learner: Strategic, self-regulated, and reflective. *Instructional Science*, 24(1), 1–24.
- Fayolle, A., Verzat, C., & Wapshott, R. (2016). In quest of legitimacy: The theoretical and methodological foundations of entrepreneurship education research. *International Small Business Journal*, 34(7), 895–904.
- Gabrielsson, J., Hägg, G., Landström, H., & Politis, D. (2020). Connecting the past with the present: The development of research on pedagogy in entrepreneurial education. *Education+ Training*, 62, 1061–1086.
- Geary, D. C. (2002). Principles of evolutionary educational psychology. *Learning and Individual Differences*, 12(4), 317–345.
- Geary, D. C. (2007). Educating the evolved mind: Conceptual foundations for an evolutionary educational psychology. In J. S. Carlson & J. R. Levin (Eds.), *Educating the evolved mind: Conceptual foundations for an evolutionary educational psychology* (pp. 1–100). Information Age Publishing.
- Hendry, L. B., & Kloep, M. (2010). How universal is emerging adulthood? An empirical example. *Journal of Youth Studies*, 13(2), 169–179.
- Hägg, G., & Gabrielsson, J. (2020). A systematic literature review of the evolution of pedagogy in entrepreneurial education research. *International Journal of Entrepreneurial Behavior & Research*, 26(5), 829–861.
- Hägg, G., & Kurczewska, A. (2019). Who is the student entrepreneur? Understanding the emergent adult through the pedagogy and andragogy interplay. *Journal of Small Business Management*, 57(S1), 130–147.
- Hägg, G., & Kurczewska, A. (2020a). Guiding the student entrepreneur—Considering the emergent adult within the pedagogy–andragogy continuum in entrepreneurship education. *Education+ Training*, 62(7/8), 759–777.
- Hägg, G., & Kurczewska, A. (2020). Towards a learning philosophy based on experience in entrepreneurship education. *Entrepreneurship Education & Pedagogy*, 3(2), 129–153.
- Jones, C., Matlay, H., Penaluna, K., & Penaluna, A. (2014). Claiming the future of enterprise education. *Education+ Training*, 56(8/9), 764–775.

- Jones, C., Penaluna, K., & Penaluna, A. (2019). The promise of andragogy, heutagogy and academagogy to enterprise and entrepreneurship education pedagogy. *Education+ Training*, 61(9), 1170–1186.
- Kalyuga, S., Ayres, P., Chandler, P., & Sweller, J. (2003). The Expertise reversal effect. *Educational Psychologist*, 38(1), 23–31.
- Kassean, H., Vanevenhoven, J., Liguori, E., & Winkel, D. E. (2015). Entrepreneurship education: A need for reflection, real-world experience and action. *International Journal of Entrepreneurial Behavior & Research*, 21(5), 690–708.
- Katz, J. A., Hanke, R., Maidment, F., Weaver, K. M., & Alpi, S. (2016). Proposal for two model undergraduate curricula in entrepreneurship. *International Entrepreneurship and Management Journal*, 12(2), 487–506.
- Kirschner, P. A., Sweller, J., & Clark, R. E. (2006). Why minimal guidance during instruction does not work: An analysis of the failure of constructivist, discovery, problem-based, experiential, and inquiry-based teaching. *Educational Psychologist*, 41(2), 75–86.
- Krueger, N. F. (2007). What lies beneath? The experiential essence of entrepreneurial thinking. *Entrepreneurship Theory and Practice*, 31(1), 123–138.
- Lackeus, M., Lundqvist, M., & Middleton, K. W. (2016). Bridging the traditional-progressive education rift through entrepreneurship. *International Journal of Entrepreneurial Behavior & Research*, 22(6), 777–803.
- Löbler, H. (2006). Learning entrepreneurship from a constructivist perspective. *Technology Analysis & Strategic Management*, 18(1), 19–38.
- Mandel, R., & Noyes, E. (2016). Survey of experiential entrepreneurship education offerings among top undergraduate entrepreneurship programs. *Education+ Training*, 58(2), 164–178.
- Myrah, K. K., & Currie, R. R. (2006). Examining undergraduate entrepreneurship education. *Journal of Small Business & Entrepreneurship*, 19(3), 233–253.
- Neck, H. M., & Corbett, A. C. (2018). The scholarship of teaching and learning entrepreneurship. *Entrepreneurship Education and Pedagogy*, 1(1), 8–41.
- Pittaway, L., & Cope, J. (2007). Entrepreneurship education a systematic review of the evidence. *International Small Business Journal*, 25(5), 479–510.
- Pittaway, L., & Edwards, C. (2012). Assessment: Examining practice in entrepreneurship education. *Education+ Training*, 54(8/9), 778–800.
- Politis, D. (2005). The process of entrepreneurial learning: A conceptual framework. *Entrepreneurship Theory and Practice*, 29(4), 399–424.
- Rideout, E. C., & 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(3), 329–351.

- Roberts, J. W. (2015). *Experiential education in the college context: What it is, how it works, and why it matters*. Routledge.
- Robinson, S., Neergaard, H., Tanggaard, L., & Krueger, N. (2016). New horizons in entrepreneurship: from teacher-led to student-centered learning. *Education+ Training, 58*(7/8), 661–683.
- Swanson, J. A. (2016). Trends in literature about emerging adulthood: Review of empirical studies. *Emerging Adulthood, 4*(6), 391–402.
- Sweller, J. (1988). Cognitive load during problem solving: Effects on learning. *Cognitive Science, 12*(2), 257–285.
- Sweller, J. (1994). Cognitive load theory, learning difficulty, and instructional design. *Learning and Instruction, 4*(4), 295–312.
- Sweller, J. (2015). In academe, what is learned, and how is it learned? *Current Directions in Psychological Science, 24*(3), 190–194.
- Sweller, J. (2016). Working memory, long-term memory, and instructional design. *Journal of Applied Research in Memory and Cognition, 5*(4), 360–367.