Threshold Concepts in Entrepreneurship Education and their Implications for Teaching and Learning

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Abstract In view of the continuing growth and importance of entrepreneurship education within the educational landscape, there remains a significant demand for theoretical as well as practical approaches. In particular, there is a demand for approaches that shed light on the interplay between course design and individual learning. This chapter draws on the threshold concept approach, which is becoming an increasingly important perspective in educational research. Whilst the threshold concept approach has been applied usefully to develop the pedagogy of various academic disciplines, for example, economics, healthcare and information literacy, they have so far received little attention in the context of entrepreneurship education. The threshold concept approach addresses the question of how learners can practise an exploratory, reflexive approach to discipline and subject-area-specific ways of thinking and practising. The contribution of our chapter is twofold: firstly, we want to show that the threshold concept approach offers a new perspective for theory and practice in entrepreneurship education through its focus on bridging a disciplinary way of thinking and practising, on the one hand, and a subjective view of entrepreneurial phenomena, on the other hand. Secondly, in order to enrich entrepreneurial

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teaching and learning conceptualizations, this chapter presents a review of the candidate entrepreneurial threshold concepts which have appeared in the literature to date, in order to characterize them as a potential starting point for a promising field of research.

Keywords Threshold concepts · Entrepreneurship education · Entrepreneurial learning

1   Introduction

Whilst entrepreneurship education is becoming increasingly important within the high school and higher educational landscapes (Nabi et al., 2017; Kuckertz, 2021), there is still a lack of learning theory and pedagogical approaches in the practical design and scientific investigation of appropriate teaching-learning formats (Fayolle, 2013; Thrane et al., 2016). Systematic consideration is needed to discern how the micro-level (individual courses) and macro-level (curricula) can be designed to enable learners to intensively develop entrepreneurial ways of thinking and practising.

Following this need, we draw on the threshold concept approach (Meyer & Land, 2003a; Land et al., 2005), which is becoming an increasingly important perspective in educational research. Threshold concepts can be defined as those disciplinary concepts that are essential to the nature of a discipline, encompass characteristic ways of thinking as well as practising and provide learners with access to a new world of ideas or new ways of doing things associated with a certain disciplinary knowledge and content base (Meyer & Land, 2003b). The integrative characteristic of threshold concepts reveals meaningful relationships between further disciplinary concepts, but the process of understanding them can also contain difficulties for learners due to their transformative potential. Aligned with a focus on learner autonomy and a subjective perspective of entrepreneurial phenomena, they follow a constructivist view of individual learning—a perspective that is regarded as important within entrepreneurship education research (Robinson et al., 2016). Whilst the threshold concept approach has been applied usefully to develop the pedagogy of various academic disciplines, for example, economics (Barradell & Peseta, 2017), health and social care (Barradell & Peseta, 2017) and information literacy (Townsend et al., 2016), they have so far received little attention in the context of entrepreneurship education. Certainly, the popularity of the threshold concept approach appears to be more evident in comparatively newer subject areas and could be perhaps associated with their respective need to establish disciplinary identity. Therefore, the following research question arises: what contribution can the threshold concept approach make to entrepreneurship education?

In order to enrich entrepreneurial teaching and learning conceptualizations, this chapter presents a systematic overview of the candidate entrepreneurial threshold concepts appearing in the literature to date. After a theoretical introduction to the threshold concept framework and its relevance for entrepreneurial teaching and

learning, existing research approaches used to identify candidate threshold concepts in entrepreneurship are set out, and a systemic overview of the candidate entrepreneurial threshold concepts published so far is presented. Finally, implications for the practical integration of candidate entrepreneurial threshold concepts in entrepreneurship curricula are considered and research into entrepreneurship education using the threshold concept approach is discussed.

2   The Threshold Concept Approach

The threshold concept approach, which can be traced back to Meyer and Land (2003b), is gaining increasing recognition in the context of general as well as discipline-specific teaching and learning considerations. Threshold concepts are understood to be concepts that function in a similar way to 'portals' which allow learners to access a new, previously hidden view of disciplinary phenomena (Meyer & Land, 2003a, 2006a). They are associated with an expert perspective and function as 'jewels in the curriculum' because of their significance to a learner's journey (Land et al., 2005). Like a doorway, tunnel or bridge, threshold concepts enable a fundamentally changed and transformative perspective of a discipline. Threshold concepts can consequently involve troublesome knowledge which may not be readily accessible to novices as a result.

According to Ashwin (2008) and Mead and Gray (2010), threshold concepts can be understood as objects, ideas and patterns of thought that share common properties. For example, the market concept hypothesized as an economic threshold concept (Ashwin, 2008) includes different categories such as the labour market, the financial market or the resource market, but has common characteristics such as demand, supply or price-quantity combination. In addition to this categorizing form, disciplinary ways of thinking can also be referred to as procedural threshold concepts (Davies & Mangan, 2006), if they are specific to a discipline and support the development of disciplinary contexts and models. For example, procedural threshold concepts in economics could be equilibrium considerations or the marginal principle.

Whilst not claiming theoretical status in the strictest sense, the threshold concept approach is in the tradition of cognitivist-constructivist learning theories such as cognitive development (Piaget, 1978), conceptual change (Strike & Posner, 1982) and transformative learning (Mezirow, 1991), which also occupy a central position within entrepreneurship education research (Geiger, 2022). What these theories have in common is that learners self-determine and actively co-create their own learning paths. The threshold concept approach bridges the gap between a disciplinary conceptual level, which is particularly concerned with the scientifically based development of specialized knowledge, and a subjective conceptual level, in which learners describe specialized phenomena from their individual perspective. Bringing together disciplinary and individual conceptual change is a critical step in better understanding and targeting the interplay between learning arrangements and

individual learning trajectories. This is probably one of the main reasons why the threshold concept approach has gained importance in the theory and practice of teaching and learning and is becoming increasingly relevant in various disciplines (Land et al., 2016).

2.1 Attributes of Threshold Concepts

Across a range of subject contexts, threshold concepts can be characterized by their transformative, irreversible, integrative, bounded, troublesome, discursive and reconstitutive attributes. These attributes are described in further detail in the following.

If a specific concept is to be called a threshold concept, it must be transformative. Once understood, its potential effect on a student is to bring about transformational learning that includes a significant change in how the student perceives the discipline (Meyer & Land, 2003b; Meyer & Land, 2005). Threshold concepts not only transform epistemologically but also lead to a transfiguration of identity and the adoption of new external discourse. Grasping a threshold concept 'involves an ontological as well as a conceptual shift. [...] New understandings are assimilated into our biography, becoming part of who we are, how we see and how we feel' (Cousin, 2006, p. 4). This process of transformation can be likened to the learner adopting a fluid state as they pass across, along and through the portal. It is a chaotic journey across conceptual terrain (Cousin, 2006), which involves changes in ways of knowing, becoming and being, where the latter represents the agency to think in the subject (Timmermans & Meyer, 2019).

Corresponding with their transformative potential, threshold concepts fulfil an integrating function. When a person grasps a threshold concept, what formerly appeared to be different and dissimilar elements are brought into a coherent relationship (Cousin, 2006; Baillie et al., 2013). The experience can be likened to adding a particular jigsaw piece that completes the picture to enable a new and meaningful perspective of the whole. Students become aware of 'the previously hidden interrelatedness' of concepts, beliefs and theories (Meyer & Land, 2005, p. 373). Threshold concepts provide them with a 'window' that assists them in understanding the disciplinary dimensions of a subject and its underlying structures. Mastering a threshold concept enables individuals to make connections that were hitherto hidden from their perspective (Cousin, 2006).

The learning and transformations involved in fully grasping or understanding a threshold concept are irreversible. Once learned, a threshold concept would be very 'unlikely to be forgotten or unlearned only through considerable effort' (Meyer & Land, 2005 p. 373). This characteristic reflects the cognitivist-constructivist theoretical basis that assumes that individual world views are robust and resistant to external perturbations (Geiger, 2022). Baillie et al. (2013) contend that 'once understood the concept cannot become "not-understood"' (p. 229). This may be part of the reason why some experts find difficulty in accepting why some students

do not understand what seems blindingly obvious to them (Meyer & Land, 2003b). Expert practitioners looking back across thresholds they have personally long since crossed find it difficult to understand (from their own transformed perspective) the difficulties faced by students from the student's (untransformed) perspectives (Meyer & Land, 2005).

Threshold concepts tend to be experienced as troublesome. They may represent, or lead to, what Perkins (2006) describes as 'troublesome knowledge'. This is knowledge that is conceptually difficult because of its counterintuitive nature which may be subversive, alien (emanating from another culture or discourse) or incoherent (where discrete aspects are unproblematic but there is no obvious organizing principle). Threshold concepts might not be easily assimilated or accommodated within one's existing frame of meaning. As such, they can often be troublesome as they entail a letting-go of earlier, comfortable positions and encountering less familiar and sometimes disconcerting new territory that transforms the learning of a person (Meyer & Land, 2003b; Cousin, 2006). The transformation, though necessary for progress within the subject, may prove 'personally disturbing and disorienting, leading to hesitancy or even resistance in learners' (Meyer & Land, 2003b, p. 3). It is through encounters with troublesome knowledge that students can revise their prevailing conceptions, consider matters differently, think otherwise and see anew. This can be exhilarating and liberating, but it can also prove unsettling and uncomfortable. However, without a certain amount of anxiety and risk, there is a limit to how much learning occurs: 'One must have something at stake. No emotional investment, no intellectual or formational yield' (Shulman, 2005, p. 22).

Threshold concepts may also be bounded in conceptual spaces that have terminal frontiers (Meyer & Land, 2005). Such boundedness may in certain instances serve to constitute the demarcation between disciplinary areas and define academic territories. The establishment of such boundaries may raise issues relating to hierarchy and relations of power within learning environments and epistemic communities (Cousin, 2006). One should be aware, for instance, that since a threshold concept can be a form of disciplinary property, its presence in a curriculum 'may carry an inherent tendency to invite congealed understandings' (Cousin, 2006, p. 4). One mitigation implicated by this tendency is to adopt an attitude of questioning the concepts themselves, perceiving their explanatory capacity as provisional, temporal (in that it is being continually socially (re)constructed) and contextual.

Meyer and Land (2005) also posit discursive and reconstitutive attributes of threshold concepts and suggest that learning a threshold concept will necessarily incorporate an enhanced and extended use of language. They contend that 'it is hard to imagine any shift in perspective that is not simultaneously accompanied by (or occasioned through) an extension of the student's use of language' (p. 374). Besides leading to a transfiguration of identity, threshold concepts facilitate the adoption of a more elaborate discourse and the capacity to meaningfully participate in the high-level narratives of a subject that express and reflect a new level of thinking in the discipline (Baillie et al., 2013). These aspects indicate a person who belongs to an epistemic community.

2.2   Importance of Threshold Concepts Framework for Entrepreneurship Education

A major concern in entrepreneurship education research is a lack of identified approaches with the potential to make significant contributions to learning theory and pedagogical issues (Fayolle, 2013). This may be explained by the fact that entrepreneurship education has attracted scholars from many different disciplines and become a highly multidisciplinary field, which has led to a very fragmented scholarly community. Legitimacy for entrepreneurship in academia has been anchored in 'external stakeholders' (practitioners, policymakers and politicians) (Landström & Harirchi, 2018). Without a conceptual framework or clear theoretical grounding, the academic identity of entrepreneurship is especially susceptible to external forces, such as genericism, market and economic trends (Hatt, 2020); hence, its identity as an academic subject is fragile and vulnerable. When entrepreneurship education is defined by its measurable usefulness in application, it loses sight of its core purpose and becomes pulled in many different directions, destined to fail. Not having evolved from other academic disciplines, entrepreneurship is still in search of its academic identity (Wiklund et al., 2019). The boundaries of entrepreneurship as an academic subject require definition, so both what it is and what it is not are clear. The threshold concept approach addresses these issues and offers the opportunity to define entrepreneurship as being about who the learners become and also about what knowledge they come to possess.

Although entrepreneurship education can build on several constructivist learning theoretical considerations such as cognitive development or transformative learning, there is still a lack of understanding of the mechanisms that encourage learners to work on their individual opportunity nexus (Shane, 2003). It seems common sense that entrepreneurial learning may include different dimensions such as cognitive, emotional and motivational aspects that all have an impact on how and what is learned. For example, Mitchell et al. (2017) take a cognitivist perspective and draw attention to the development of individual entrepreneurial scripts during entrepreneurial learning. Arpiainen et al. (2013) study the importance of emotions in entrepreneurial learning processes, highlighting that emotional experiences during the learning event such as "joy" or "fear" can have an impact on the learning. However, there is still a lack of understanding of the interplay between these dimensions in entrepreneurial learning processes. In this context, Krueger (2017) draws attention to the fact that entrepreneurial learning can be understood as a transformation process from a novice perspective to an expert perspective of entrepreneurial phenomena such as founding or innovating. The encounter with 'critical developmental experiences' (Krueger, 2017) is identified as a learning opportunity that can lead to an updating of subjective beliefs regarding entrepreneurship and is characteristic of the novice-expert transformation. In this, there are striking parallels to the threshold concept approach, within which the encounter with threshold concepts can trigger such an exploration and actualization of subjective beliefs and associated behaviours. It is especially the transformative character of threshold
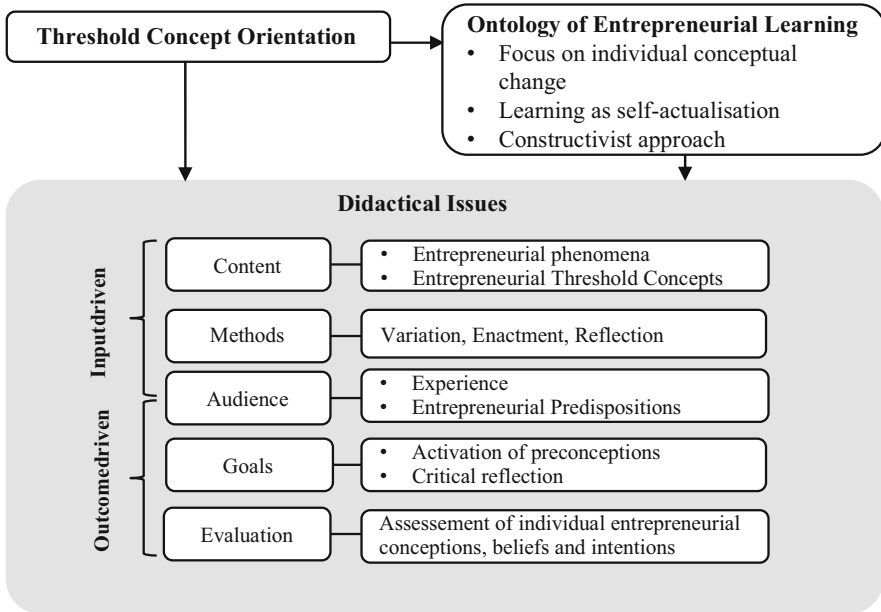
Fig. 1 Implications of the threshold concept framework for entrepreneurship education

concepts that implies that not only an accumulation of knowledge takes place, but that learners shape this process independently and construct their own knowledge and identity.

Beside the ontology of entrepreneurial learning, threshold concepts inform different didactical aspects of entrepreneurship education (Fayolle, 2013). With regard to curricular integration, the threshold concept framework proposes content that is suitable for an approach to phenomena which are typical of a discipline. The aim is always to enable learners to relate this content to their own lifeworld and to question their previous perspective of disciplinary phenomena. With regard to the methodological dimension, educators should vary those phenomena to enable learners to recognize them in different contexts. Value creation, for example, may occur in profit-oriented firms as well as in non-profit-orientated social enterprises (Geiger, 2022). With regard to the learners, learning goals and the evaluation of learning, threshold concepts enable a focus on the individual perception of entrepreneurial phenomena. Thus, this approach differs from others that, for example, aim at the development of beliefs, behavioural intentions or competencies of learners. The subjective nature of threshold concept learning requires the use of appropriate diagnostic instruments such as concept maps, which can be used to capture individual perceptions. Figure 1 illustrates how the threshold concept framework may inform different aspects of entrepreneurship education.

The threshold concept approach offers a deeper understanding of how learners shape their individual transformation process. It is the potentially troublesome

knowledge that can be hidden in threshold concepts that can cause previous thinking patterns to consequently prove dysfunctional, for example, existing routines in entrepreneurial decision-making (Cope, 2003), and for learners to disengage from them. As they start to understand a threshold concept, learners enter a liminal space within which they test new thinking patterns. In coping with this mental suspension phase, positively or negatively valenced emotions can occur, which can support or inhibit learners in pattern testing. The threshold concept approach offers potential for connection here in two ways. Firstly, the transformative, arduous potential of threshold concept understanding can trigger such critical learning phases within the individual learning process, and secondly, threshold concept characteristics offer criteria by which individual learning progress can be operationalized (Geiger, 2022). For example, it can be assumed that a person with entrepreneurial expertise uses language differently to novices. This could be an alternative to operationalizing expertise, which has so far often been operationalized through measuring the duration of a particular activity.

Entrepreneurial learning is conceptualized in this way both as acquisition and participation. Knowledge and understanding of entrepreneurship are both cognitively and socially constructed through research and practice. The objective of entrepreneurship education is then to further the knowledge and understanding of entrepreneurship in the students both in terms of what they know and who they are and to enable them to understand how an entrepreneur thinks and practises in the world (Hatt, 2020). Having set out the arguments for fruitful course design and curriculum development using the threshold concept framework, we now provide an overview of entrepreneurial candidate threshold concepts in the literature.

3   An Overview of Candidate Threshold Concepts in Entrepreneurship

Despite the growing attention to the threshold concept framework in manifold disciplines, there is little published work concerning threshold concepts and entrepreneurship. To our knowledge, only few studies, namely, Bolinger and Brown (2015), Vidal et al. (2015), Geiger et al. (2016), Hatt (2018), Hatt (2020) and Geiger (2022), explore threshold concepts in entrepreneurship education. From a disciplinary perspective, discussing potential candidate entrepreneurial threshold concepts is an interesting way to surface which concepts lie at the very heart of entrepreneurship. Entrepreneurial threshold concepts also offer a means to address pedagogical issues, as they describe a systematic approach for entrepreneurial course design as well as curriculum development.

Candidate threshold concepts in entrepreneurship hypothesized in the literature to date that we are aware of are as follows:

- *Corporate social responsibility, business ethics and sustainability*, hypothesized as threshold concept by Vidal et al. (2015).

- *Failure*, Bolinger and Brown (2015); *iterative experimentation,* Hatt (2018) and Hatt and Jarman (2021).
- *Effectuation*, established by Sarasvathy (2001a), hypothesized as threshold concept by Geiger et al. (2016).
- *Recognise their agency/taking action*, Hatt (2018) and Hatt and Jarman (2021).
- *Knowledge is always partial and often ambiguous*, Hatt (2018) and Hatt and Jarman (2021).
- *Entrepreneurship is a practice*, Hatt (2018) and Hatt and Jarman (2021).
- *Context is opportunity to create value*, Hatt (2018) and Hatt and Jarman (2021).
- *Value is defined by others*, Hatt (2018) and Hatt and Jarman (2021).
- *Business models*, hypothesized as threshold concept by Geiger (2022).

Threshold concepts are especially significant for disciplinary teaching and learning because they address specific phenomena and ways of thinking, and as a consequence their potential for entrepreneurship education must be highlighted. The listed concepts gain their threshold concept status potential by fulfilling the specific attributes as discussed in Sect. 2.1. In this section the subjective perception of entrepreneurial phenomena such as venture creation and innovation as well as the positioning of one's own person in relation to these phenomena will be discussed in particular.

All candidate threshold concepts from the list above have transformative potential with regard to the perception of entrepreneurial phenomena. Vidal et al. (2015) see 'corporate social responsibility, business ethics and sustainability' as a threshold concept that embeds entrepreneurial activity in a context that lies outside of classic shareholders such as owners. It becomes clear that corporate values can also be felt by people beyond shareholders and that companies can be part of a social ecosystem. This view expands classical profit considerations based on margin accounting and thus exhibits transformative potential for learners.

Whilst a lay perspective of 'failure' often has negative connotations, Bolinger and Brown (2015) observe that expert entrepreneurs have a much more complex conceptual structure in this regard and are more likely to interpret failure as a starting point for building expertise. In this way, it is possible to open up previously hidden contexts of meaning and to open up new conceptual spaces. Interpreting failure from such a perspective can be troublesome for learners. This is especially true when failure is accompanied by negative feelings and leads to resigned behaviour. In this respect, dealing with failure as a process of 'iterative experimentation' within entrepreneurship education can lead to learners reflecting on their own and others' failure moments (e.g. in the form of case studies) and understanding them as opportunities for learning and expertise building.

'Effectuation' also harbours transformative potential, which lies especially in the orientation towards possible ends-means combinations. Effectuation itself is explicitly referred to as a 'theoretical shift' (Sarasvathy, 2001b) and offers a specific, contingency-based perspective of entrepreneurial phenomena. It also opens up new contexts of meaning insofar as a conceptual separation of plannability and control occurs. Effectual principles of action require a focus on controllable actions and thus

demand, for example, that existing means instead of abstract goals be made the starting point for entrepreneurial decisions or that competitors be simultaneously regarded as potential partners (Sarasvathy, 2008). The transformative potential of effectuation is only made possible by the inclusion of causal ways of thinking, so that these are particularly helpful for learners when they find their way into entrepreneurship education in a contrasted way, allowing learners to reflect on their perspectives (Geiger, 2022). This can, for example, fundamentally change the view of relationships with other people or existing resources. This small-step approach enables a new perspective of such entrepreneurial contexts, which are characterized by high degrees of freedom and are described in the research literature as 'uncertain', 'complex' or 'dynamic' (for overviews, see Liening et al., 2016; Liening (2017). For learners, adopting an effectual mindset may be fraught with difficulty, especially if they are oriented towards plannability and predictive logic. In this context, Dew et al. (2009) illustrate that an effectual approach involves awareness of abortion criteria ('affordable loss')—a fundamental contrast to decision criteria focused on profit maximization.

According to Bandura (2006), *human agency* is about intentionally influencing one's functioning and life circumstances. When an individual recognizes their agency, they see value creation as a self-organizing, proactive and self-regulating individual. They see the world as a person who reflects on their behaviour and learns from it, in order to contribute to their life circumstances. Personal efficacy is described by Bandura (2006) as a foundation of human agency, 'Unless people believe they can produce desired effects by their actions, they have little incentive to act, or to persevere in the face of difficulties' (Bandura, 2006, p. 170). Thus, 'Recognise their agency' can be explained as a combination of entrepreneurial intentionality, entrepreneurial forethought, entrepreneurial self-reactiveness and entrepreneurial self-reflectiveness. Entrepreneurial intentionality can be described as the intention to create value, including action plans and strategies for realizing action plans. Entrepreneurial forethought can be described as the setting of value creation goals and anticipating likely outcomes of prospective actions to guide and motivate efforts to these ends. Entrepreneurial self-reactiveness can be described as not only the deliberative ability to make choices and action plans with the aim of creating value, but also the ability to construct appropriate courses of action and to motivate and regulate their execution. Entrepreneurial self-reflectiveness can be described as the act of reflection on personal entrepreneurial efficacy, the soundness of associated thought and action and the meaning of entrepreneurial pursuits, making corrective adjustments as necessary. The importance of this threshold concept is highlighted by Jones (2019) as the aim of all entrepreneurship education globally. He described Entrepreneurial Agency as the 'essential capability argued to be the minimal outcome for EE [entrepreneurship education, t. a.]' (Jones, 2019, p. 244). Jones (2019) defines being entrepreneurial as being capable of self-negotiated action. He argues that self-negotiated action is prerequisite for and precedes value creation. 'Taking action' is taken to incorporate self-reactiveness, in particular both the making of and the execution of plans to create value.

'Knowledge is always partial and often ambiguous' also links to effectuation theory (Sarasvathy, 2001a). Sarasvathy (2001a) proposes that entrepreneurs are experts at exploiting contingencies that cannot be easily analysed or predicted and builds her theory on four principles which incorporate this idea of partial and ambiguous knowledge: affordable loss (contrasted with expected returns), strategic alliances (contrasted with competitive analysis), exploitation of contingencies (rather than exploitation of pre-existing knowledge) and controlling an unpredictable future (contrasted with predicting an uncertain future). Practitioners understand that you can still act even if the situation is not perfect, ideal or even favourable—but that the process of taking action is likely to lead to new situations, learnings and, ultimately, opportunities (Hatt & Jarman, 2021).

'Entrepreneurship is a practice' draws on a practice perspective from social science (De Clercq & Voronov, 2009), enabling a broader societal structure and the shared understandings that guide human behaviour, to be linked with a focus on the granular detail of everyday life. This construes people as improvisers whose identity and external environment are jointly and simultaneously co-created. Johannisson (2011, p. 136) signals a need for a framework that acknowledges entrepreneurship as 'an (everyday) hands-on practice, including routines as well as improvisation in order to cope with coincidence'. There is growing recognition that entrepreneurship is unlikely to be fully explained in the creation of a single venture (Wright et al., 1997) and some research has been done into the phenomenon of the 'serial' or 'habitual' entrepreneur, implying that value creation can be a habit and therefore contains transformative as well as irreversible potential. Others have emphasized the importance of habitual entrepreneurship, contrasting it with 'one-shot' entrepreneurship in scholarly efforts to build a comprehensive theory of entrepreneuring (Thorgren & Wincent, 2015).

Opportunity recognition is a well-researched area in entrepreneurship literature (Baron, 2006) and can be described as consisting of three aspects of recognition: actively or passively searching for opportunities, alertness to opportunities and prior knowledge enabling opportunity recognition. The basic cognitive process of pattern recognition has also been highlighted by Baron (2006) as a possible explanation of entrepreneurs' abilities to recognize opportunities. Shane (2003) presents a theory of entrepreneurship at the nexus of enterprising individuals and valuable opportunities. 'Context is opportunity to create value' also draws on effectuation, and the ways in which thinking and practising like an entrepreneur mean assuming all contexts not only are the source of opportunity for the creation of value but also present the means with which to bring it to fruition. Practitioners habitually and constantly create and recognize opportunities within their own context to create value (Hatt & Jarman, 2021).

'Value is defined by others' is associated with design thinking (Brown, 2008) where innovation is derived from a thorough understanding of what people want and need in their lives and what they like or dislike about what they currently have access to. Brown (2008) associated design thinking with empathy and a 'people first' approach. It also relates to the marketing theories of market research, customer

value (Slater, 1997), market orientation (Jaworski & Kohli, 1993), customer development (Blank, 2013) and customer engagement (Harmeling et al., 2017).

The development of 'business models' as a threshold concept offers a consideration of the interplay of different aspects of organizational value creation (e.g., value proposition, revenue, cost) into a common architecture (Geiger, 2022). This makes it possible to consider the interplay of different aspects and thus to reflect on the value creation logic of organizations or to develop one's own. This opens up a perspective for learners that includes a development-oriented view of organizations (Teece, 2010). Business models can also be used in different contexts and allow for the consideration of organizations that operate in the non-profit sector. Here, too, value propositions, customer segments, expenditures and revenues exist without having to aim for profits. In this, there is a conceptual link to the corporate social responsibility concept mentioned above, which involves an expansion of value creation beyond monetary terms. Due to their complexity, which, on the one hand, lies in the multitude of value creation aspects and, on the other hand, in their interaction, business models can at the same time be transformative and troublesome for learners. The business model concept of Gassmann et al. (2013) comprises four, the business model concept of Osterwalder and Pigneur (2011) nine aspects that have to be brought into a meaningful context by learners. Business models have conceptual overlap with other lean approaches that are central to the development of business models and products, all of which take a small-step approach to developing business ideas (Shepherd & Gruber, 2020).

4   Discussion and Conclusion

The aim of this chapter was, firstly, to use the threshold concept framework to offer a new approach to investigating the interplay between entrepreneurship education, on the one hand, and individual learning paths, on the other hand. Its distinct feature is that it focuses on the subjective perception of disciplinary phenomena and therefore differentiated from other approaches such as competencies or behaviours and gives rise to important implications for the design of courses and curricula. Secondly, we have reviewed the current status of candidate threshold concepts hypothesized for entrepreneurship. Applying the threshold concept framework to entrepreneurship facilitates the planning and enactment of teaching and learning and assessment (Meyer & Land, 2003b; Baillie et al., 2013; Shanahan et al., 2006). Threshold concept can help educators explain the difficulties students encounter during the learning process, by providing links between the outcomes of learning and the deep or surface approaches to learning adopted by students. This can be used to better understand the impact on curriculum design and teaching approaches (Cousin, 2006) and assist reflection on what is being taught, how, why and when to streamline teaching and assessment approaches (Barradell, 2013).

The threshold concept framework can also be used as a lens to demarcate entrepreneurship, making a case for entrepreneurship as an academic subject in its

own right, as well as to improve the effectiveness of entrepreneurship curriculum. 'A threshold concept necessarily helps to define the boundaries of a subject area because it clarifies the scope of a subject community' (Davies, 2006a). Research using the threshold concept approach promotes the development of discipline and subject-specific pedagogies and situates learning, acknowledging contextual considerations (Cousin, 2008). If candidate threshold concepts in entrepreneurship can be suggested, the boundaries of entrepreneurship may be set. Then an understanding of the student perspective of what it is to think 'like an entrepreneur' may be sought and ways to educate students in how to think 'like entrepreneurs' may be developed.

From a teaching and learning perspective, identifying threshold concepts in entrepreneurship is useful for entrepreneurship educators in a number of respects. Identifying some concepts as 'threshold' offers a way of differentiating between core learning goals which enable the learner to see things in a different way and other learning goals which do not have the same significantly enabling and transformative effect (Bolinger & Brown, 2015). This allows the educator to focus on the conceptual understandings that enable a fuller understanding of the subject and foster integration of knowledge, avoiding an overcrowded curriculum. Perhaps more importantly than designing the educational curriculum, the educator also has to be developed as an important stakeholder of the process. Entrepreneurial learning may include different dimensions like cognitive, emotional and motivational aspects. This also means it is not enough to know what has to be taught, but also how to teach it. Hägg and Jones (2021) urge entrepreneurship educators to tear down the inefficient walls and barriers with other professions and teaching settings by fostering a more open learning system that is tied to the community.

Knowledge of such threshold concepts can assist educators in developing and managing an entrepreneurship curriculum—employing a threshold concept approach for curriculum design (Cousin, 2006). It is in this sense that threshold concepts have been referred to as the 'jewels in the curriculum' because they help identify key areas that need mastery (Land et al., 2006). Hence, identifying what the threshold concepts are in entrepreneurship education is an important first step in curriculum design.

These threshold concepts can enable learners to better perceive the integrated nature of entrepreneurship. This is a major issue of teachers, that of helping students to 'get inside' the subject (Davies, 2006b, p. 76). The entrepreneurship curriculum should not be taught in isolated pieces but as an integrated part of a whole learning experience that encourages lifelong learning. Through a deliberate and conscious effort, educators can understand better the learners' experience in terms of how students learn a particular threshold concept and recognize when an 'aha' moment of understanding has been reached, but also how and why a student can get stuck in their learning journey.

A number of pedagogical issues can be considered when trying to support students in grasping entrepreneurship threshold concepts. Once a threshold concept has been hypothesized, educators are encouraged to provide students with basic concepts that may be open to variation (Meyer & Land, 2003b) but that form a foundation that can later be reworked when further teaching and learning takes place.

This should be a gradual process informed by learning variation and the creation of awareness among students that tolerating uncertainty is a common part of the learning process. In due course, the knowledge of variation will inform new forms of pedagogical practice (Baillie et al., 2013). Attention must be given to the manner in which students are initially introduced to threshold concepts (Davies, 2006b). If a teacher introduces a threshold concept too early, it might be rendered inaccessible by the student and only learnt in a rote fashion (Davies, 2006b).

Educators should be aware that there exists variation in how they think about and understand entrepreneurship threshold concepts. They tend to develop knowledge of, and strategies for teaching and learning that are related to the sociocultural structures and mediated by their personal epistemologies. Educators need also to be aware that not all students experience threshold concepts in the same way. This realization might prove transformational for teachers as it influences their approaches to designing instruction (Timmermans & Meyer, 2019). The degree of troublesomeness associated with a particular threshold concept encountered by individual learners will also vary (Meyer & Land, 2006b). Some learners are willing, or even eager, to enter the liminal space in the hope of emerging transformed or coming to a new way of understanding, whilst others pause at the entrance seemingly unable or unwilling to let go of their pre-existing understandings. There is also individuality in the timing of the actual threshold crossing; understanding might also frequently be sighted and rejected on several occasions and only gradually accepted, if at all (White et al., 2016). Educators need to create 'holding environments' to safely support students through their experiences of difficulty in order that they may move on and succeed (Meyer & Land, 2006b). To help students acquire entrepreneurship threshold confidence and cross a threshold, educators need to cultivate the affective dimension of threshold concepts and help the learners believe that they belonged on the other side' (Felten, 2016, p. 6). Timmermans and Meyer (2019) maintain that this affective component involved in threshold concepts learning is an area that requires much further research. Educators need to be conscious that encounters with threshold concepts tend to be emotionally charged. They need to cultivate supportive attitudes and classroom climates that emphasize the value of personal relationships and enhance a safe classroom environment where students can actively participate in the learning process (Mizzi & Bartolo, 2007; Mizzi, 2018).

The perspectives opened up in this chapter provide potential for further research. The threshold concept framework can usefully enrich the ongoing discussion of the essence of entrepreneurship as a distinct discipline, for example, in relation to possible entrepreneurial concepts in the context of the proposed attributes (transformative, troublesome, etc.). In addition, threshold concepts offer an idea of how a novice-expert transformation can be modelled. There is rich potential for further research to explore how threshold concept encounters provoke emotional, cognitive and motivational aspects within entrepreneurial learning and influence the learning process.

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