# How Learning Spaces Matter in Entrepreneurship Education
## Introducing the Concept of Topopraxis

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# How learning spaces matter in entrepreneurship education: introducing the concept of topopraxis

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**ABSTRACT**

Research into entrepreneurship education has explored content, audience and pedagogy but much is still to be studied when it comes to the spatial dimensions of learning – that is, where entrepreneurship is taught, how this matters for pedagogies used, and the implications for learning. We seek to strengthen a theoretical foundation for understanding learning spaces and the spatial dimensions in entrepreneurship education (EE). We extend the teaching model framework by Fayolle and Gailly, to develop a conceptual model that relates place and pedagogy into learning spaces in EE, informed by recent pedagogical trends in experiential learning and design pedagogy. The model concerns the where-how, the topopraxis, of two types of learning spaces in team-based EE that are grounded in theory on the spatial dimensions of social interaction pertaining to team 'territory', and stakeholder proximity. The model proposes that topopraxis in EE programmes will impact learning processes and outcomes in the form of team relationship building, conceptual development , and student identity formation. To illustrate the applicability of the model, we analyse two cases of EE programmes, both conducted in studio environments, but differing in topopraxes and learning outcomes. Finally, we offer implications for EE research, and for the design of entrepreneurship programmes.

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## Introduction

The literature on entrepreneurship education (EE) provides us with a solid understanding of who teaches, what they teach (content), for whom they teach (audience) and how they teach (pedagogy) (Hägg and Gabrielsson 2020). However, little research attention has been devoted to the spatial dimension of learning in entrepreneurship education: the question of *where* entrepreneurship is taught. This paper aims at introducing a conceptual model for how learning spaces matter in EE. Despite calls for research (Pittaway et al. 2009), studies of entrepreneurship learning spaces remain scarce (Pittaway and Hannon 2008; Fayolle 2013; Nabi et al. 2017), particularly with respect to the impact of learning spaces on the learning process, and how this impact is achieved. In a review of the EE literature across four decades, Pittaway (2021, 49) concluded that there '… is a nearly complete absence of research on educational infrastructure'. Our model builds on a general teaching framework for conceptualizing entrepreneurship education (Fayolle and Gailly 2008), recent discussions of the role of the spatial in entrepreneurial learning (Hahn et al. 2017; Shirokova, Osiyevskyy, and Bogatyreva 2016; Zozimo, Jack, and Hamilton 2017; Verzat, O'shea, and Jore 2017), and the

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observation that the role of the social environment has not been considered in the entrepreneurship learning process (Toutain et al. 2017).

In the past, EE, as taught at universities and business schools, has rarely enjoyed specialized or dedicated places for learning, and usually has taken place in lecture halls or classrooms (Pittaway 2021). Recent trends in entrepreneurship pedagogy have changed this, and universities and business schools now seem to have a genuine desire to provide dedicated places for EE (Belitski and Heron 2017), and varying forms and types of learning places are now spreading across the university landscape (Greene and Rice 2011; Morris, Kuratko, and Cornwall 2013; Pittaway et al. 2020; Pittaway 2021). There seems to be multiple causes for this development, but one root is the surge in design thinking (Morris, Kuratko, and Cornwall 2013). This development has led to a rise in venture creation programmes, accelerator programmes focussed on venture growth, and open innovation labs focussed on assisting prototype development (Pittaway 2021). In a pioneering study, Pittaway et al. (2020) examined 57 entrepreneurship spaces at US universities from the point of view of how universities designed, funded, and built them. They created a typology of the spaces, with five types reflecting current trends: 1) Ideation spaces for idea gestation and sharing, 2) Incubators, 3) Materialization spaces, 4) Integrative spaces, and 5) Entrepreneurial Dorms. Today, a majority (64%) of university departments and entrepreneurship centres have dedicated spaces for brainstorming and ideation, and a minority (34%) have spaces for prototyping (Sarooghi et al. 2019). Advancing on the strides made by Pittaway et al (2019), we raise the question of how learning spaces, and the entrepreneurial pedagogical approaches and activities they enable, matter in the entrepreneurial learning processes. We introduce the concept of *topopraxis* (meaning 'where-how') of EE to better analyse how certain places are used pedagogically in ways enabling and accelerating entrepreneurial learning.

Looking across the typology of entrepreneurship spaces identified by Pittaway et al (2019), it seems that the types draw upon several underlying dimensions qualifying space as part of entrepreneurship learning: space as resource access, space as network mobilizing, and space as organizational home-building for the learning process. Our aim with introducing a conceptual model that includes *topopraxis* for describing and analysing entrepreneurship education is to disclose and unpack these underlying spatial dimensions, to theorize how they may affect EE learning outcomes.

Our conceptual model is developed from a studio-based learning context, but we argue that the model's focus on topopraxis is applicable for theorizing the relationship between space and entrepreneurship learning processes more generally, and that it supports future thinking going into designing entrepreneurship education. The inspiration for a studio-based approach to EE stems from architecture- and design education, where studios have been at the centre since the early 20$^{th}$ century (Barry and Meisiek 2015). The studio makes possible a more *entrepreneurial* entrepreneurship education (in the sense creative, opportunity- and value creating, hands-on; Hjorth and Johannisson 2007) by encouraging students and teachers to collectively experiment and visualize more and in this way co-create learning spaces, inspiring novel ways of thinking and practicing (Fayolle 2013). The studio in this paper is understood both as a place for entrepreneurship education (a *where, topo-*) where it is possible to create space for certain *entrepreneurial* approaches to learning entrepreneurship (a *how, -praxis*).

Following a review of recent pedagogical trends in EE and a theoretical discussion of space and place, we present our conceptual model of topopraxis that relates *where* to *how* in intricate ways in the collective learning results. The applicability of the model is then illustrated by contrasting two distinct EE programmes, both utilizing Studio-Based Learning, but differing in their types of topopraxes and consequently their learning outcomes.

Our research seeks to make the following contributions. First, we seek to develop a conceptual understanding and positioning of how learning spaces matter in entrepreneurship education. Our approach builds upon Fayolle and Gailly's (2008) general framework for analysing EE, which include *why* (objectives), (2) *what* (content), (3) *for whom* (target audience), (4) *for which results* (how to assess

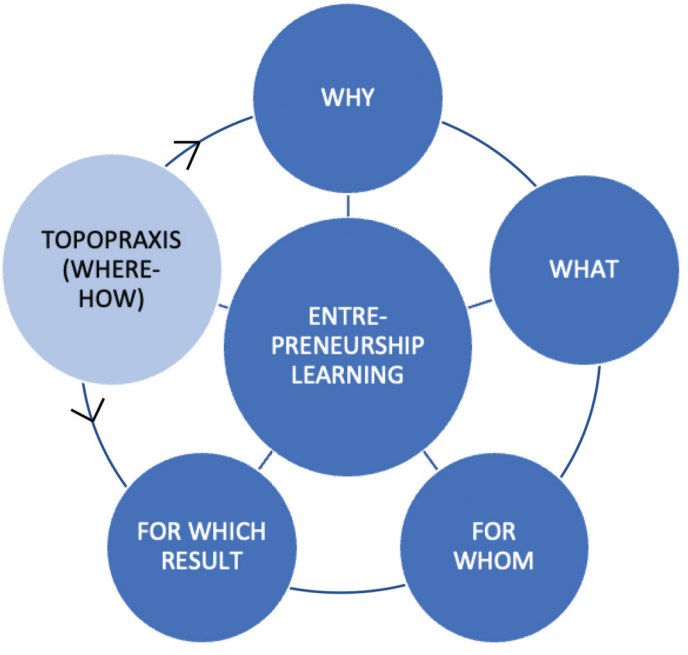


**Figure 1.** Developed teaching model for entrepreneurship education (based on Fayolle and Gailly 2008).

effectiveness and evaluate), and (5) *how* (methods, pedagogies). However, we extend this general framework to include the concept of topopraxis (*where-how*) (see Figure 1).

Second, we develop a specific and nuanced conceptual model of types of topopraxes in team-based EE grounded in theory of the spatial dimensions of social interaction. Here, we show how the concept of topopraxis is based on an understanding of the relationship between pedagogical approaches and the activities they enable in light of our conceptualization of space. We reason that there are two important types of learning spaces that are potentialized through properties of the place in which they come into existence, and with their distinct impact on entrepreneurship learning outcomes through certain pedagogical approaches. Third, we apply the conceptual model to analyse and compare two Scandinavian EE programmes using studios as a place for learning, illustrating how distinct topopraxes influence EE learning outcomes. Our contributions suggest that attention to topopraxis will help us design and run more entrepreneurial entrepreneurship education programmes in the future.

## Entrepreneurship learning spaces and places

In embarking on our quest to develop a conceptual model of learning spaces in entrepreneurship education, we need to clarify the concepts of *place* and *space*. We distinguish between *place* and *space* when analysing the spatial in entrepreneurship education and learning. Over the course of the learning process, learners arrive at new ways of relating to the world and adding to it. Different places make the creation of space more or less likely. With inspiration from Certeau (1984) *place* is conceptualized as a physical location, defined in this case by floors, ceilings and walls. A classroom is a room in the sense of a place that remains when we have left the building, and that receives its particular quality – classroom and not simply a room – by the social script that ascribes this to it. *Spaces*, on the other hand, are abstract temporary achievements defined by vectors of direction, movements, ambience, aura and atmosphere. A space is 'actuated by the ensemble of movements deployed within it' (de Certeau 1984, 117), meaning also that *space is a practiced place*. What makes

a place into a great space for learning is how it is enacted, with pedagogies, as a space-of-something: e.g. reflection, teaming, experimenting. How places are practiced, what topopraxes they enact, we propose is a question of the quality of the place and the pedagogy that place enables. Spaces produce and are produced by how the learning process activates space in a certain place. By this we mean that a certain topopraxis is made possible only in a certain place (such as studios), and activation of space in such places can transform it into a great space for learning.

If we see learning as a process that is related to spaces (as created in places), this suggests our understanding of education (the result of learning) benefits from better understanding the spatial dimension. Following our distinction between space and place, Pittaway et al's (2019) typology of 'university spaces for entrepreneurship' is to be considered a typology of *places*. Well-designed places should potentialize the creation of learning spaces increasing the likelihood of learning happening in those locations, however with no guarantees of it occurring. In our conception, learning spaces are intimately tied to pedagogical approaches and learning activities (the how, the praxis). Learning moves the student, cognitively, emotionally, socially, and in terms of identity (Ellis and Goodyear 2016), and is as such tied to the creation of space. In EE, learning can enact spaces in a variety of places. Students can enact a space-for-learning (Hjorth 2005) in a given location because that location (as a place) has resources and tools for facilitating certain activities, it invites exploration or serves as a point of departure for venturing activities, it can serve as a 'home' for a group of students engaged in establishing a social group or organization and so on. In entrepreneurship learning, the spatial context is not static or inflexible but varies dynamically over time with the type of activities students are engaged in, and learning need not be bound by the physical extension of the University campus. When learning stops, there is 'just' a location (*place*) and, possibly, traces of learning.

## From *How* to *Where-How* in entrepreneurship pedagogy

While EE pedagogy has traditionally been practiced in traditional higher education classroom or lecturing hall settings, recent trends in EE pedagogy have helped to highlight the need to extend entrepreneurship teaching beyond these places (Pittaway et al. 2020; Pittaway 2021). We review in this section two important recent EE pedagogies that implicate learning spaces in new ways.

Research has shown that the pedagogical approach used in entrepreneurship education is an important moderator for the impact of university education on a student's learning (Balan, Maritz, and McKinlay 2018; Johannisson, Landström, and Rosenberg 1998; Fayolle, Gailly, and Lassas-Clerc 2006; Hahn et al. 2017). Nabi et al. (2017) reviewed the relationships between EE pedagogy and entrepreneurial outcomes in higher education, finding that pedagogical models promoting *social interaction* and *deeper learning* through investigation of real-life entrepreneurial problems seemed to have positive short-term effects (e.g. on entrepreneurial intention) and long-term effects (e.g. on business startups and performance; Vincett and Farlow 2008; Gilbert 2012). Hägg and Gabrielsson (2020) outline the evolution of pedagogical approaches in EE, describing a shift in the 2010s towards a largely learner-centric approach, with teachers serving as facilitators rather than instructors or role models. Two of the major recent pedagogical trends in entrepreneurship education pertain to *experiential learning* (Hyams-Ssekasi and Caldwell 2018; Hägg and Kurczewska 2020), and *design pedagogy* (Linton and Klinton 2019) respectively.

### *Experiential learning*

In the shift away from a 'supply' model of entrepreneurship education, experiential learning theory has been promoted as a promising avenue for EE. The aim is to foster more action-oriented learning (Rasmussen and Sørheim 2006; Cope 2005; Minniti and Bygrave 2001) by doing entrepreneurship (Pittaway and Cope 2007; Mandel and Noyes 2016; Nabi et al. 2017; Fayolle 2013; Neck and Corbett 2018; Krueger et al. 2016; Hägg and Gabrielsson 2020; Fiet 2001; Maritz and Brown 2013; Politis 2005;

Hägg and Kurczewska 2020). Experiential learning theory (Kolb, Boyatzis, and Mainemelis 2000) builds on the works of Dewey (1938), who famously devised a philosophy of education based upon his 'theory of experience'. Dewey emphasized that curiosity, imagination, and experimentation – factors important in entrepreneurship education – were key to learning. Notable scholars such as Kurt Lewin, William James, Lev Vygotsky, and Paolo Freire outlined the importance of experience for the development of a holistic model of dialogically created learning (Kolb 1984). Mandel and Noyes (2016) examined the experiential entrepreneurship education ($E^3$) offerings from the top 25 US undergraduate schools and found that they focused on exploring and acting proactively in uncertain and ambiguous situations, managing social interactions with team members and relationships with customers and suppliers, engaging entrepreneurs or tutors as mentors, and reflecting on the success or failure of activities. Sample activities included in $E^3$ involve venture creation, generating ideas and brainstorming, consulting, running simulations, studying real-life cases, interviewing entrepreneurs and pitching (Kassean et al. 2015). Often, $E^3$ combines action-orientation with stakeholder- or user co-creation experiences for learning-through-creating-value-for-others (Lackéus, Lundqvist, and Williams Middleton 2016). Such co-creative experiences creates dialogic spaces and interactive spaces with users and customers, where companies and customers jointly develop value and share equity in the marketplace (Prahalad and Ramaswamy 2004). Although much of $E^3$ has focused on action and trial-and-error, a component of reflection is needed to process experiences and generate knowledge (Hägg and Kurczewska 2020; Neck and Greene 2011). Such reflective practices are key in successful $E^3$ and may appear in the form of on-the-spot reflections with teachers and student teams (Maritz and Brown 2013) or scheduled team-based reflective sessions, sometimes involving peer-to-peer (or team-to team) encounters and feedback.

It has been argued that experiential learning needs to be understood in the context of learning spaces (e.g. Larty 2021). Kolb and Kolb (2005) drew on Kurt Lewin's concept of life-space and Urie Bronfenbrenner's social ecology of human development in arguing for the establishment of learning spaces for experiential learning. They maintained that the philosophy of experiential learning demands that the total life space of the learner be involved, including physical and social environments and relationships that extend well beyond the boundaries of the classroom. As such, learning through experience occurs in a variety of spaces, decentring the historically mediated normality of the classroom or lecturing hall as the site where learning happens. Kolb and Kolb (2005) developed a set of principles for the establishment of experiential learning spaces that include beginning with the learners' experience, allowing the learner to take charge of their learning, making a space for conversational learning, and allowing for the development of expertise.

### *Design pedagogy*

Over the past decade, a surge in articles embracing design approaches, and notably design thinking, have pointed to experiential and action-oriented methods suited for entrepreneurship education (e.g. Dunne and Martin 2006; Garbuio et al. 2018; Glen, Suciu, and Baughn 2014; Kassean et al. 2015; Mandel and Noyes 2016; Maritz and Brown 2013; Neck and Greene 2011; Nielsen and Stovang 2015). Lackéus (2015) described $E^3$as pedagogically similar to traditional design education: it is problem- and opportunity-oriented; features long-term projects; delivers value to external stakeholders; involves iterative experimentation; and demands real-world interactions with stakeholders, users and team members. While these descriptors differentiate $E^3$ from other entrepreneurial learning approaches (Pittaway and Cope 2007; Neck and Greene 2011), they are intimately related to design- and architectural pedagogy. Furthermore, business models are now theorized as basic organizational frameworks to be 'artfully' generated through design processes (Teece 2010) utilizing visualization methods such as the Business Model Canvas (Osterwalder, Pigneur, and Clark 2010).

Studio-Based Learning (SBL) is a well-established design education approach that helps design- and architecture students progress from novices to proficient (Cross 2018). The design studio is not just a place (*where, topo-*), it is a way of thinking and learning (*how, -praxis*) (Maitland 1998). SBL

engages students in project-based learning-by-making involving iterative hands-on creative experimentation (e.g. prototyping) followed by situated reflection with supervisors, often in dedicated studio environments (Hetland et al. 2013; Brocato 2009). The design studio is a place where students are surrounded by materials (e.g. sketches, images, models) and engage in dialogue with the studio master. In many design schools, each student is offered a work-place that is 'owned' and made personal for the duration of the semester. During intense periods, the design students will work there throughout the day and often well into the night. Historically, SBL originated in early 20th-century design- and architectural education. Some researchers single out the École des Beaux Arts in Paris and Bauhaus School of Design in Weimar as the birthplaces of the studio approach (Lackney 1999). Variants of SBL are now found in STEM education (Carter and Hundhausen 2011) and business schools (Barry and Meisiek 2015). These studio variants do not, however, look and feel quite the same across academic divides.

Taken together, design pedagogy and experiential learning trends share an emphasis on learning through the making of value for others. They focus on immersive, visualizing, experimental, and action-oriented hands-on team experiences, where both the team and the concept being developed undergo a collaborative and co-creative process. These pedagogies implicate the spatial in new ways in EE, either through an increased emphasis on learning experiences beyond the classroom, or by connecting pedagogy to specialized learning environments (e.g. studios). What remains under-explored, however, is a conceptual understanding of the types of learning spaces emerging from teams engaged in experiential processes, and how they add to the overall learning outcomes. In the next section, we present and argue for our conceptual model of topopraxis.

## Types of experiential entrepreneurship learning spaces

These recent trends in entrepreneurship pedagogy reviewed above converge on the crucial importance of team experiences (Hytti et al. 2010; Karlsson and Nowell 2021), especially those stemming from encounters and dialogue (both within the team and with stakeholders and users) in learning (Fink 2002; Hjorth and Johannisson 2007; Landström et al. 2022). This places experiences of *social interaction* (e.g. *the meeting)* centrally in these pedagogical approaches. We note that team social encounters, as an experience, extend through time and space. A social encounter may be sought or initiated in one place and at one time, to be conducted later somewhere else, finally to be subsequently reflected upon. It is this extension across time and place that constitutes the *learning space* of a meeting. This conception implicates spatial movement towards and departing from encounters, as well as the place of the encounter, in the learning space.

A place may potentialize the coming-into-existence of a learning space through the enabling of *social encounters*. Interpersonal proximity is one key spatial enabler of chance and planned encounters leading to social encounters. For example, it matters to the likelihood of user and consumer encounters whether the university campus is next door to a shopping mall. On campus, we see this type of learning space being supported through places for e.g. acceleration of startups. Accelerators (and incubators) bring startups in direct contact with their key stakeholders and supply dynamic and flexible resource environments where startup teams can refuel, get advice, reflect, and capitalize on failures (Allen and McCluskey 1990; Autio and Klofsten 1998; Dee et al. 2011; Hackett and Dilts 2004; Hjorth 2013). The place for the encounter matters for the quality of the learning experience and outcomes. For example, it matters to the experience whether an investor pitch is carried through in a classroom setting, or at the investor's downtown office. It matters to the qualities of the conversation whether a business model development session is conducted on the team's 'home-turf', or in some random shared and open social environment. On campus, we see this 'home turf' type of learning space being supported through the building of incubators, entrepreneurship dorms, and dedicated workplaces for entrepreneurship students (Pittaway et al. 2020). Two of the most important types of learning spaces for social interaction in entrepreneurship pedagogy are the *within team encounters (i.e. team meetings* where the members of an entrepreneurial team convene e.g. in order

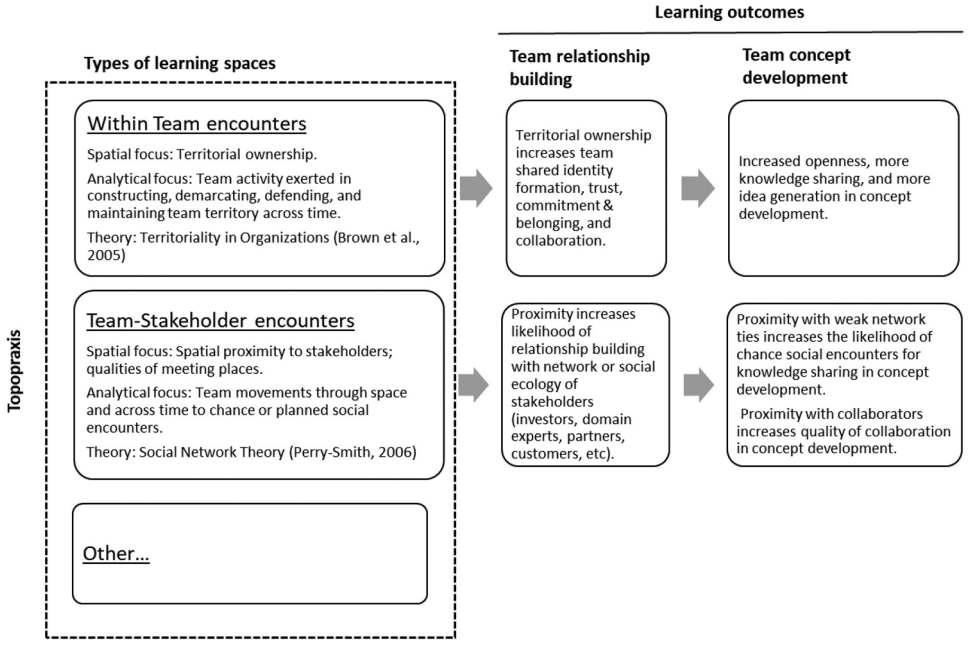


**Figure 2.** A conceptual model of topopraxis in entrepreneurship education: types of learning spaces, and their impact on learning outcomes.

to coordinate, grow as a team, generate or develop on their value proposition) and the *team-stakeholder encounters* (e.g. meetings with investors, users, customers, in order to co-create value, attract resources, sell offerings and so on). These two types of social encounters in team-based EE constitute crucial spaces for entrepreneurial value creation and – capture, and are central in our conceptual model of topopraxis (see Figure 2), which extends and specifies the entrepreneurship teaching model by Fayolle and Gailly's (2008).

Each type of learning space has differential spatial and analytical foci, with within-team encounters focussing on how the place+pedagogy potentiates the construction of team territory, whereas team-stakeholder encounters focus on how place+pedagogy potentiates chance or planned stakeholder collisions through team movement in space as well as the qualities of the place that impact on the social encounters. Both types of learning spaces impact learning processes in the form of team relationship building and conceptual development, albeit in different ways. These two types of important learning spaces (within-team and team-stakeholder encounters) will occupy us here, but we note that several other types also exist. Another learning space type that deserves a mention is the team-supervisor encounter, where place may also potentiate the quality of this supervisory learning space. For example, different types of EE supervision (e.g. concept development vs. reflection on team formation and organization) tend to be best supported by different locales: Supervising on concept development is best supported by the availability of resources to support shared understanding (e.g. visualization, prototypes, models, materials), whereas supervising on team formation and development is best supported in undisturbed reflective sessions with an absence of visual distractors.

Below we theoretically explicate and argue for our proposed conceptual model of topopraxis, by conceptualizing how *team territory*, *team movement* and *stakeholder proximity* are implicated in experiential learning activities, and how they may affect the likelihood of social encounters to occur, the quality of these meetings once they take place, and the learning process.

### Team territory

Within team encounters constitute a primary learning space in EE, helping students learn how to form startups and handle interpersonal dynamics (Mandel and Noyes 2016). Students consider team-based entrepreneurship among the most engaging elements in entrepreneurship education (Balan, Maritz, and McKinlay 2018). Not only is team-formation crucial for the success of a startup (Lazar et al. 2020), if we define entrepreneurship as organization-creation, students must learn to create and organize startup teams in order to proceed with entrepreneurial ventures (Gartner 2012). The experience of team activities implicates a territorial learning space wherein these team meetings take place. Life in organizations is fundamentally territorial, and territoriality of physical space has been shown to engender a sense of belonging to social groups (Brown, Lawrence, and Robinson 2005). Territorial behaviour is conceptually linked to psychological ownership, which has its roots in three fundamental drives towards controlling their environment, communicating their identity, and having a place of their own. In organizations, much behaviour is expended towards the marking and defending of territory, and this is no less the case (or perhaps even more the case) in newly established teams or start-ups, where spatial organizational boundaries are in their making and hence contested.

Territorial behaviour can have significant positive effects for organizations, by increasing commitment of the members to the organization through their shared identity marking behaviours as well as personal investments into creating and maintaining the territory (Brown, Lawrence, and Robinson 2005). Territorial behaviours that increase shared social identity in turn have positive impact on the likelihood of knowledge sharing within the organization (Kane 2010). Further, territorial behaviour can also reduce process conflict by making territorial boundaries clear to others, thereby potentially increasing morale, effectiveness, and productivity (Jehn, Northcraft, and Neale 1999).

By engaging in territorial marking and defending behaviour, the entrepreneurial learning team increases shared identity formation, team trust, group coherence, and a sense of commitment and belonging to the team. As such, territorial marking and defending may serve as a vehicle to achieve team formation. Teams characterized by the members' strong sense of belonging will also affect the team's willingness to openly and increasingly engage in the sharing of knowledge and new ideas in concept development. For entrepreneurial learning, territorial behaviour points to the importance of a sense of belonging to a team such that it can move as one, sharing identity, trust, and thus knowledge and ideas. Territories are spaces made and the concept adds to the importance of placing greater attention to the spatial dimension of entrepreneurship learning.

### Team movement and stakeholder proximity

Within and across organizational settings, inter-personal proximity is a main driver of knowledge exchange, and spatial proximity serve as a crucial enabler for frictionless organizing and co-creation (Boschma 2005). This is no less the case in entrepreneurship learning, where more or less loosely connected stakeholders and users are implicated in the team's efforts to iteratively develop value through the establishment of a multitude of collaborative encounters. Here, team movement and stakeholder proximity are crucial enablers of learning spaces. Proximity exerts its influence on relationship building and knowledge exchange mainly through face-to-face contact frequency, and the nature of the content of the communication (Khazanchi et al. 2018). Holdt Christensen and Pedersen (2018) found that inter-personal proximity influences the frequency of knowledge transfer, both directly, as well as indirectly mediated through social relationships. Knowledge transfer in collisions with weaker network ties, have been found to be especially conducive for creativity: Perry-Smith (2006) combined social network theory with creativity theory, and found that encounters with weaker network ties were beneficial for creativity, whereas stronger ties have neutral effects. As such, stakeholder proximity in daily operations to a multitude of weak network ties is likely to foster chance collisions leading to relationship building, and creative knowledge exchange.

Stakeholder proximity in team daily operations is thus likely to increase the likelihood of chance collisions leading to relationship building with new network ties, as well as co-creative conceptual development on-the-spot.

Stakeholder proximity is often, however, within behavioural control with a bit of planning, and so an active approach also leads to encounters by, for example, bringing stakeholders in for co-creative ideation sessions. Given the importance of relationship building for concept development in the entrepreneurship process, actively managing inter-personal proximity is of upmost importance. Networking often shows to be the key 'asset' in the entrepreneurship process, placing you in the right place at the right time: either by chance, as with weak network ties such as conferences, trade-shows, work environments, or through actively seeking out co-creative meetings with potential collaborators and stakeholders (Johannisson 1987).

The social ecology for the student entrepreneur includes stakeholders such as investors, suppliers, partners, legal advisors, competitors, and role models (Rasmussen and Sørheim 2006). EE involves complex social contexts (Toutain et al. 2017), and cooperation with stakeholders and clients can require significant voluntary resources. Thus, proximity to a local entrepreneurial milieu has a huge impact on the quality of EE through increasing the likelihood of encounters and hence creation of learning spaces. For entrepreneurial learning, the proximity dimension highlights the wider social ecology of stakeholders, mentors, experts, customers and users, many of which are not physically proximate to university campus. Given the importance of engaging with such distributed social networks through face-to-face encounters, the university (as place) at times becomes a mere base-camp for ventures to social interactions outside the borders of the university. Networking constitutes a crucial skill for the entrepreneur as a bridge-builder between the local and non-local contexts (Spinosa, Flores, and Dreyfus 1999; Müller and Korsgaard 2018). The learning space of the entrepreneurship student can thus be enacted and extended well beyond the location of the university through stakeholder encounters, furnishing a social space for entrepreneurial learning (Zozimo, Jack, and Hamilton 2017). Learning to network will thus mean the students expand their space for learning well beyond the classroom.

To illustrate how the conceptual model of topopraxis can lead to a better understanding of how place and pedagogy interact and impact the learning outcomes in EE, we present now a comparative case analysis of topopraxes, based on our own experiences with designing and running two distinct EE Studio-Based Learning programmes.

## Methods

### *An enacting research approach to entrepreneurship education*

Given that our research question pertains to how the spaces, and the entrepreneurial pedagogical approaches and activities they enable, matter in entrepreneurial learning, we adapted an 'enacting research' approach (Fletcher 2011; Johannisson 2002). This research approach is appropriate given our aim to study experienced and socially situated entrepreneurial processes that extend across time to include learning outcomes, and that also take the physical context of learning into account. Enactive research sees reality as socially sedimented, shared and created by interacting individuals; acknowledges the researcher's pre-conceptions in the domain studied; allow for the tracing across time of the activity studied (typically venturing); aim to enhance understanding of a social phenomenon, such as an entrepreneurial process; and is concerned with the material and physical (Fletcher 2011; Johannisson 2002). Enactive research draws primarily on autoethnography and action research, with a key objective to track an entrepreneurial process through the experiences of the researcher, whilst accounting for the social world of others often by drawing upon ethnographic fieldwork (Fletcher 2011). Enacting research may privilege (multiple) context(s) of the actors in real-time studies of the flow of interrelated contextualized activity. As we are proposing that in EE

a 'where' enables a 'how' that in turn is central to what kind of space that is collectively and socially constructed in activity and dialogue, an enactive research approach is appropriate.

While enactive research is sensitive to many types of contextual factors in entrepreneurial ventures, we zoom in specifically on the importance of the physical learning context in EE in the form of how learning spaces are created and enacted in EE learning processes. We focus specifically on the types of learning spaces identified in our conceptual model, and the impact we have experienced that they have on learning outcomes in the form of team relationship building, identity formation, and conceptual development processes (see Figure 2).

To address our research aims, we applied a comparative case study research design (Eisenhardt 1989) that stem from our own participation in the design and running of two different EE programmes at a larger Scandinavian Business School. This is thus our basis for describing this as enactive research: we have been part of designing the two programmes. The case comparison seeks to investigate the ways in which distinct programme places+pedagogies translate into learning spaces and student learning processes. These choices in research design facilitates cross-case comparisons of topopraxes in two distinct studio-based EE programmes with which we have extensive personal experiences as researchers, thereby enabling the detailed exploration of how learning context and programme pedagogy interacts to produce learning processes and outcomes.

### *Sampling process and case description*

We provide here direct personal accounts of our experiences with the designing and running of two studio-based EE programme. In enacting research, the researcher becomes part of the process (Johannisson 2002). While the claim to the importance of personal experience in understanding entrepreneurial processes has mainly been made in the context of business venturing processes, we apply it here to our own experiences in EE learning processes. One of the authors has 25+ years of experience of teaching entrepreneurship at the university, and one is in charge of the studios and has a long experience of working with design, entrepreneurship and creativity in teaching. We have been involved in the design (programme A started in 2009, and programme B in 2019) of both university programmes that serve as cases below, and we continue to serve as course coordinators and studio teachers in both programmes. We have spent countless hours engaged in EE Studio-Based Learning many of which were in these very case programmes. We add to our experiences each year extensive and direct studio teaching; engaging in class teacher-student encounters and observing within team encounters; and engaging in team project supervision covering encounters with external stakeholders (e.g. clients, users). We will thus draw upon a decade of experiences from studio-based entrepreneurship education both in and out of the studios to conceptualize what the programmes + places makes possible for those engaged in learning entrepreneurship.

Our two cases are distinct EE programmes at the Scandinavian Business School. Both programmes focus on the training of entrepreneurship, innovation, and design processes (see Table 1). They both emphasize training for innovation/design management and business venturing post graduation. Both cases concern experiential and team-based entrepreneurship education programmes, at the same degree level, and both are inspired by design pedagogy and conducted in a studio setting. The two EE programme cases are thus similar in both general pedagogical approach (*how*) as well as type of place (*where*) they are mainly taught, which allows us to zoom in on the similarities and differences of their combination (*topopraxis; where-how*), as well as how this in some cases leads to differential learning processes and outcomes for the students.

To provide the reader an understanding of the place of learning, we describe below the studios 'where' much of the learning in the two programs takes place, as a step towards the where-how analysis to follow. Program A is taught at business school studio facilities, while Program B teaching mainly takes place at studios located at an Arts Academy. The two types of studios (Business School vs Art Academy), look and feel quite different as places for learning (see Figure 3).

**Table 1.** Contrasting two entrepreneurship education programmes using studio-based learning.

| | Program A | Program B |
|---|---|---|
| WHY is this taught | Business school program, taught by business school faculty.<br>Students should acquire the necessary skills to start a business, create innovations, manage change and resources, and lead others in the process of turning a new idea into a viable business | Collaboration between a business school and an Arts Academy. Co-taught by business and design faculty.<br>Students should work generatively with designers from a managerial perspective as well as should become prepared for *design* related business entrepreneurship |
| WHAT is taught | Focus on processes for designing and managing entrepreneurship and innovation in organizational settings. Focus on entrepreneurship and innovation processes at the societal, organizational, and individual levels. | Focus on enabling students of both institutions to learn about how management and design practices come together to benefit development. Focus on the processes for strategic designing and managing entrepreneurship. |
| WHO is taught | Approx. 80 students in a cohort, with a diverse international social science bachelor background. | Approx. 50 students in a cohort, with either a business bachelor or a design bachelor background (ratio: 50/50 exactly). |
| WHERE-HOW is it taught? | All mandatory courses are taught in designated business studios on the Business school campus, where work areas are temporary, but with materials ready for work every session. Courses employ a studio-based pedagogy. | Courses are taught in designated design studios on the Arts Academy campus, where students have their own individualized studio spaces for the entirety of the semester. Courses employ a studio-based pedagogy. |
| . . . for WHICH result | Training for innovation/design management and business venturing post graduation across domains.<br>Graduates gain a social science masters degree.<br>Learning outcomes to be assessed focus on social science objectives (e.g. analyse, evaluate, create). | Training for innovation/design management and business venturing post graduation within design related business entrepreneurship.<br>Design students obtain a design degree, and the associated identity of a professional designer, while the business students obtain a social science degree.<br>Learning outcomes to be assessed focus on both social science objectives (e.g. analyse, evaluate, create), as well as design objectives (e.g. aesthetics, form). |

**Figure 3.** Pictures from entrepreneurship education team activity in studios. Business studio (left) and Arts Academy studio (right).

Since 2011, the business school has offered studios as specialized learning contexts or places where primarily entrepreneurship and innovation courses are run. For Program A students, almost all classes are taught at the business school studios, and they are the only program at the business school that consider these studios their 'home'. These business studios are teaching rooms bookable for a class of typically 3 h to a full day, with flexible interior and furniture suitable for team-based learning and visualization. The business studios have wall-space or whiteboards available, as well as multiple projectors, Post-Its, and board markers for all teams in a class to be used for team-visualization, with generic additional building material available for prototyping (e.g. Lego, paper-based). Business school studios are emptied after each class, allowing the next class to enter a clean, white-walled environment. Due to the physical layout of the studios, with wall dividers, the rooms are unsuitable for other types of university pedagogy, such as lecturing, but highly suited for experiential, team-based interaction with visual- and prototyping-support materials. The studios fit

classes up to 108 people, organized in up to 18 teams. Three studios cover approximately 1,200 m2, in which more than 1,500 students, across classes, are taught each semester. Outside class hours, program A students often work in the studios.

Art Academy studios (where program B students are taught) are learning environments with multiple individual or group workstations that are assigned for the duration of a full semester. The workstations are located in open floorplans, and each station include space to craft and store materials and models in multiple iterations from initial conception to final detailed material outcome. The studio building for the Architecture program alone covers 7,800 m2 across 4 floors, housing most of the 900 architecture students. The Art Academy studios contain or are adjacent to multiple dedicated model- and workshop areas (e.g. metal workshop, welding room, plastic workshop, painting room, wood, and digital workshop). The Academy studios are located on Academy campus in an urban area. Each program B team is assigned a team workstation for the duration of the full semester, and they work there alongside other Academy students, individualizing that station as 'their own', finding it each day as they left it the day before.

### *A 3-stage analysis guided by learning space types and case juxtaposition*

We carried out a comparative case analysis in three main stages. As a first stage towards understanding the cases and their differences, we analysed the cases using a general teaching model framework. We applied Fayolle and Gailly's (2008) proposed framework to compare and identify what kind of teaching the programs involved. The framework centres on: (1) why (objectives), (2) what (content), (3) for whom (target audience), (4) for which results (how to assess effectiveness and evaluate), and (5) how (methods, pedagogies). This analytical approach is intuitive and broad enough to provide structure for the subsequent topopraxical analysis (see Table 1). Fayolle and Gailly's teaching framework, however, leaves out the 'where' (topo-), and therefore in the subsequent analytical steps, we focussed our analysis on understanding how the 'where' became tied to the pedagogy available, the how (–praxis). Thus, our conceptualization of types of learning spaces (see Figure 2) was activated in the subsequent analytical steps in the comparative analysis.

Our cases serve to illustrate the advantage of thinking pedagogy as connected to place for each of the two broad types of learning spaces we focus on here: within team encounters, and team-stakeholder encounters. By focusing our analysis on the *where-how* (topopraxis) of the educational programs, we aimed to illustrate key similarities and differences in their approach to learning spaces; how these learning spaces are differentially implicated in team territorial behaviour, stakeholder proximity, and team movement; and how the learning spaces in turn affect student learning outcomes (team relationship building, professional identity formation, and conceptual development processes). In short, this 3-stage analysis aimed to substantiate the importance of the relationally constituted dynamic where-how relationship, i.e. what we refer to as the topopraxis, and that this enables better designed and practiced entrepreneurship learning processes in entrepreneurship education.

## Analysis of topopraxis: within-team encounters

Both programs were designed to entail semester-long immersive team-based EE projects conducted mainly in a studio environment. Further, both programs place significant emphasis on the training of team collaborative skills, team roles, and the matching of individual competences to tasks, and project management. However, one notable distinction between the two types of programs is what workplace is offered to the student teams. In program A, students learn exclusively in a business school studio environment, with a setup for team interaction, experimentation, and visualization. In the studio place, they have to create their own work-spaces for each class, since there is no individual or dedicated places for them as they enter the studio. Furthermore, the studio is also used for other classes, forcing program A students to re-locate elsewhere, possibly to return after class hours where

they may again create a space. A consequence of this ephemeral nature of the learning space is that the experience of any team meeting both starts and ends 'white-walled', that is, with visuals and developed materials cleared and cleaned, leaving no historical traces behind. Space cannot therefore be appropriated by student teams as place-for-them. They cannot hold on to a place, but need to create a space that they know disappears when activity stops (de Certeau 1984). It also implies that the students know that any team encounter needs to end within hours, when the studio needs to be handed over to the next class, thus also serving to support a shift in team activities to possibly go elsewhere in pursuit of other types of encounters. Student team territorial marking and defending processes thus take place within very brief timeframes before relocation is necessary. The studio space is often utilized for material making, prototyping and concept sketching. However, the studio mainly supports generic tool use, such as Post-It notes, Lego and paper-based prototyping, making it suitable mainly for the early conceptual phases of making, for team-formation and collaborative work- and learning processes.

By contrast, in program B we offer student teams a dedicated workstation for a full semester: a space appropriated by the student teams, making it a place of their own. They are free to use the studio at any time, and the place in addition serves as storage for models and materials, making it a visual representation of the history of the team's iterative concept development processes (see Figure 3). Program B students engage in personalizing their place across the semester, decorating their learning territory with visuals rudiments from their process, like mood boards, models and mock-ups. As a consequence, the students return to that place, looking like they left it the day before. Making the space into a personalized place carries a significant meaning to team identity. The space may be used for material making throughout both conceptual and detailed design, since a wide variety of materials and workshop spaces allow for carrying a design to its detailed completion. The teams can often be found at these work-stations for full days, sometimes working into the night, in processes that support the team's full focus over long stretches of time, and shield them from outside 'intrusions' and 'interruptions'. The long hours in effect also fosters a view that it is the team's 'inner expression' of *their* ideas that is important. The extensive temporal personal investment into concept development also implies that the output concepts and designs become carriers of team identity, to be defended in the obligatory critique sessions central to the pedagogy of the program. For program B students, the dedicated team learning space support the creation of a shared social identity tied intimately in with both space and the material project outcomes that the team produces through creative processes. In this way, the establishment of a team's appropriated space, a place of their own, means their learning space is more focused on the team's inner life, building trust and commitment. Team territorial marking and defending activities serves to support team formation, and tie in team identity with both the space itself, as well as the objects generated within it. The more ephemeral space in program A tend to lead to both a different type of process with faster iterations, focused on the early phases of design, and leading to a lower degree of felt ownership and identity with the outcomes. The choice to offer vs not offer dedicated work spaces for the student teams in the two programs mirror the differential pedagogical aims of the programs, with program A focussed on designing for potential customers, and not primarily – as with program B students – from a focus on developing an identity they want to express, through their conceptual work, to a client.

## Analysis of topopraxis: team-stakeholder encounters

In both programs, we emphasize encounters with stakeholders and users as vehicles for project- or venture progress. However, the types of stakeholders that the programs focus on, and the nature of these meetings differ.

Program A aligns with Design Thinking approaches, and as such value is created for users and customers, as the ones ultimately capturing that value (e.g. at point of sale). Program A instead emphasizes social processes aimed at creating an organization through which new and/or superior

value is offered. This organization emerges (Katz and Gartner 1988) out of encounters in and among teams, stakeholders and teachers. Importantly, this social dimension highlights the need for social infrastructure to be established so that students can engage in training dialogues. As a teacher, your role is here one of setting up the primary studio-context, engage with teams to secure continuous momentum by stimulating discussion, and to serve as the primary dialogue partner in reflecting on the analytical dimension of the process: e.g. how to process data, how to design the next step of the process (Simon 2006; Hargadon and Bechky 2006; Hjorth 2011). To increase the likelihood of an offering being well received, and to tie users into the experience of co-creation of this value before being offered, teams in program A are required to engage repeatedly with users and customers in the process from the early phases of the project and throughout. As such, student teams will often leave the studio, heading to streets and shopping malls close by in pursuit of encounters with users and customers, for example to engage them in user empathy map exercises where the team aims to understand users' needs, activities, values and ways of interacting. Sometimes teams bring users from the street or the campus into the studio for ideation sessions or prototyping, making proximity to and availability of such social encounters crucial as a driver of learning opportunities. And once the project takes a more final form, student teams will ask users and customers to play key roles in documenting the value created through their assessments. In program A every student is formally required to conduct 20 interviews, approximately five interviews per week. Early in the course, interviews will be centred on empathizing with potential users or customers, and towards the end of the course, interviews are more often done with industry experts or potential stakeholders. In later phases of the program, the teams are required to expand on their sets of stakeholders to then include investors, experts, and role model entrepreneurs, with team encounters placed both on and off-campus. On campus the student teams may scout hallways for domain experts to interview though door-knocking, and off-campus encounters with potential investors or role model entrepreneurs may be sought. Face-to-face encounters is encouraged, making proximity to these encounters crucial enablers of learning spaces with stakeholders. Teachers establish learning events where a multitude of stakeholders are brought into the studio learning-space to increase the availability of stakeholder encounters, for example in the form of student 'trade-shows' to enable multiple team-stakeholder encounters in quick succession.

In program B, we emphasize the learning of the dual value in project outcomes of both having artistic/design qualities, while at the same time serving strategic business goals. Through design training, student teams are expected to develop individual styles and a personal brand. This dual purpose entails that the students simultaneously need to cater to aesthetic design qualities, while also considering 'what the client wants', including its commercial value. This dual set of design aims create tension between the artistic and commercial interests in a team project, ultimately becoming a driving force for learning activities throughout the program. While the stakeholders that teams engage with include users of the final designs, the main stakeholder interaction emphasized in the program pertains to client encounters. Throughout a full semester, student teams are each assigned a client organization (a mix of design agencies, public and private institutions, and design start-ups) they need to work with in a process initiated with the exploration and re-formulation of a client design brief, through contract negotiations, to iterative design proposals, to the final design being pitched to the client. Client meetings usually take place in client's offices off campus, bringing a markedly different team experience, that in effect underscores the student's emerging sense of professional identity. Teams engage with clients at select time points in the process, balancing client input (client encounters) with the team's own artistic expression (within-team encounters in the studio) in pursuit of a design proposal that may satisfy both commercial and artistic learning goals. The team is careful in planning how and what they communicate to the client, and a lot of time is invested in the pre-planning and post-reflection of client-team encounters. This means that while program B teams consider the client meetings to be crucial learning spaces, they also need to avoid becoming too engaged through repeated interactions with the client, to avoid immersing themselves too much in the client organization at the expense of the team's own creative expression. This

makes client interactions a balancing act in program B, and one that needs to be managed well by the students (which is a learning objective), in order to ensure that neither artistic nor commercial interests 'take over', but that the two can be manifested simultaneously in the final strategic design. At client meetings, the team is attentive to these tensions, and they serve as cause for reflections after each client interaction with course instructors. For the team, the dual value in their proposals is learned and documented in distinct ways, with artistic value captured mainly through studio critique sessions (encounters with experienced studio teachers and other student teams) and at the final exam with course instructors, while the commercial value is captured through evidence of client approval at client encounters, with the excellent strategic design entailing a synergistic merging of the two. The great project in program B is one the team takes professional pride in and can 'identify with and recognize themselves' in, while it at the same time brings enthusiasm and satisfaction to the client.

In this way, the establishment of a stakeholder meeting as a learning space becomes a vehicle for conceptual development that interacts with the learning goals in the two programs. Program A is a more co-constructive space emphasizing user involvement, leading to quick and repeated user interactions throughout on the streets of the city or in the studio, to ensure use value in the outcome. A main point is to understand customer needs, pains and gains, and create a value offer that matches this in a novel or superior way. Program B emphasizes tension between team self-expression (within-team concept development encounters) and client wants (client encounters), with interactions being ones that need careful and reflective management to avoid overly emphasizing either artistic or commercial interests. Both program teams will be seen leaving campus to engage with stakeholders throughout the semester, but the number and types of such encounters differ significantly, and they play distinct roles in the pedagogy of the programs, with distinct implications for student learning. The establishment of learning spaces (*where-how*) thus arise from an interrelating of the potentialities of the place with distinct pedagogical aims in the two programs, and program differences in these emerging learning spaces in turn affect student relationship building, their professional identity formation, and conceptual development processes, in distinct ways.

## Two kinds of topopraxes

In summary, both programs are examples of entrepreneurship programs that kick students out of the normal classroom and lecturing halls, thrusting them into team territory and stakeholder encounters. Both programs emphasize the iterative interplay between learning spaces, moving between team territory and stakeholder engagements. However, the speed of these iterations, the type of stakeholders to engage with, and the time spent in each type of learning space, differ significantly with the pedagogical aims of the two entrepreneurship programs. The learning spaces that students in these two programs enter into thus differ significantly. The topopraxes of the two programs differ in fundamental ways, with program A centring on team co-created value through user interaction in open co-constructive learning spaces, while program B centres on team self-expression with some managed and balanced client input where the student teams spend relatively more time in team territory isolation. So, in choosing their path upon the exit from the classroom, program B students will more often move in the direction of the team's appropriated space, the individualized place of the team table in the studio, whereas program A students more often turn to the streets and need again and again to create space for work and learning.

These distinctions in topopraxes furthermore carries implications for team identity and felt concept ownership, with program B leading to more team identity and felt ownership tied in with the product itself, while program A shares equity and identity with the distributed set of users and stakeholders that helped co-create the value offer. Differences in topopraxis also implicates the qualities of the territorial boundaries of the learning space. In program A, a co-creative space leads to territorial boundaries that become ephemeral and distributed due to the multiple different stakeholders that are involved for shorter or longer periods. In program B, the search for unique team self-

expression implicates a dedicated team workspace that serves as a meaningful carrier of the history of both team concept development and consequently rudiments of their professional identity creation. These program distinctions help illustrate how our conceptual model of learning space types and their differential impact on learning outcomes, provides us with a new lens with which to analyse learning spaces in entrepreneurship education.

## Conclusion

Fueled by recent trends in entrepreneurship pedagogy (notably experiential learning and design pedagogy), parts of entrepreneurship education (EE) programs are moving out of standard lecturing halls and classrooms, thereby creating new learning spaces for EE. However, despite calls for research (Pittaway et al. 2009), studies of entrepreneurship learning spaces remain scarce, particularly in respect to the impact of learning spaces on the learning process, and how this impact is achieved.

We sought to address this research gap by introducing a conceptual model for how learning spaces matter in EE. Our approach builds upon Fayolle and Gailly's (2008) general framework for analysing EE (see Figure 1), but extended this framework to include the concept of topopraxis (*where-how*) to conceptually develop a model of how learning spaces (topo-) matter in EE, and how they may affect different kinds of EE learning outcomes (–praxis).

Our conception of topopraxis rest upon a distinction between place and space. What makes a place into a great space for learning is how it is enacted, with pedagogies, as a space-of-something. We propose a specified conceptual model of types of learning spaces in EE emphasizing social encounters in team-based EE (see Figure 2). What the model wants to do is to highlight both how learning spaces come into existence, which broad types there are, how each type may affect learning outcomes.

These types of learning spaces are potentialized through properties of the place in which they come into existence, and with their distinct impact on entrepreneurship learning outcomes through certain pedagogical approaches. Two important learning spaces are within-team encounters, and team-stakeholder encounters. We argued that territorial ownership, and stakeholder proximity are particularly important determinants of how a place may potentialize the coming into-existence of learning spaces in EE, and may carry implications for learning outcomes related to student identity creation, ownership, team relationship building, and conceptual development processes.

We believe that our conceptual model points to a new, spatially oriented, approach for entrepreneurship education research. An avenue for future research is to include topopraxis as a dimension into deliberations on results of the 'what', 'how', 'for whom', 'for which results', and 'why' of entrepreneurship education.

By applying our conceptual model in an 'enacting research' design approach, we comparatively analysed two illustrative cases of entrepreneurship education programs that we have been directly involved in designing and running – both conducted in a studio environment. Despite their similarity in pedagogy (how) and place (where; studios), we show that the experience of engaging in learning spaces (where-how) in these programs are quite different, and the topopraxis employed of said programs lead to different results on student identity, feelings of ownership, processes of relationship building within the team and towards stakeholders, and concept development. However, more research is needed in order to further evidence the proposed learning outcomes of the different types of learning spaces in different contexts and applying different pedagogical approaches.

The implication of our conceptual model is that what pedagogy to use, and how you can learn, is more dependent on the place for learning, and the learning-space constructed in such places, than research on entrepreneurship education has previously stressed. We thus propose that we need to better understand the role of topopraxis for entrepreneurship learning, and for designing and running entrepreneurship education. An implication of our conceptual model is that EE programs should be designed with place in mind. Our model and analysis suggest that spatial qualities of places used in EE pedagogy, such as degree of access and proximity to encounters with stakeholders,

allowance for team territorial ownership, the design of student team movement across places and time, and the available resources (e.g. for visualization; prototyping) of the place for social encounters, will impact the qualities of the resulting learning spaces. This suggests that a careful topopraxis design in EE is likely to impact on student learning outcomes. More research is needed to further develop a detailed understanding of other important types of EE learning spaces than the ones focused on in the present article (e.g. additional social encounters such as team-educator encounters; or learning spaces for student material interaction).

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