Teaching Entrepreneurship to Undergraduates: A Vygotskian Perspective

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1 Introduction

Unequivocally, entrepreneurship is rapidly evolving as a standalone or supplementary subject embedded in curricula of all educational levels. As a distinct teachable subject, it currently encounters Katz's (2007) remarks for a "third wave" of expansion. Gabrielsson et al. (2020, p. 1063), who recently reviewed the field, contend that "entrepreneurial education has evolved into a distinct research field in its own right". Through the correspondent educational research along with bibliometrics (e.g. Durán-Sánchez et al., 2019; Fellnhofer, 2019; Hägg & Gabrielsson, 2019; Kakouris & Georgiadis, 2016; Nabi et al., 2017), a consensus has emerged whereby after teaching entrepreneurship initially focused on the relevant notions, it was realigned more closely with the content

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so it now systematically confronts the teaching methods (i.e. the pedagogy). As well-documented in Hägg and Gabrielsson (2019), a move from "teachability" to "learnability" has taken place within the field. Ergo, a theoretical reflection on how entrepreneurship is taught within universities is timely since disparate implementations have taken place over two decades. Hindle (2007, p. 111) has noted early that "For an entrepreneurship education program to be truly worthy of a university setting, it needs some intellectual challenges that take it beyond mere training and give it claim to being education".

From the educational perspective, it has been maintained by the authors (Kakouris & Morselli, 2020) that entrepreneurial pedagogies have to be grounded on well-established learning theories in order to articulate concrete objectives that can be materialised by the educators. Such a connection of practice to theory enables the systematic evaluation of entrepreneurship education and its impact that has been an underdeveloped subject in the literature so far (e.g. Duval-Couetil, 2013). Therefore, different learning theories have been recommended as more suitable to inform the pedagogy in different levels of education. For tertiary settings, Kolb's experiential learning along with Dewey's learning-by-doing have dominated the entrepreneurial pedagogy (Fellnhofer, 2019). These theories emanate from the general standpoint of constructivism, thus pointing out the active role of the learner in constructing his or her own knowledge.

Unlike entrepreneurship in secondary education and in lifelong learning settings, addressed elsewhere, the present chapter focuses on undergraduates as a separate audience that needs specific attention for the implementation of entrepreneurial teaching and courses. University studies are highly structured through curricula which aim to provide scientific knowledge on specific disciplines attested by certificates. Thus, learning in universities is institutionalised and consequently, in such environments entrepreneuring may be considered academically illegitimate (e.g. Fayolle & Gailly, 2008; Johannisson, 2016; Kuratko, 2005). A driver on how entrepreneurship is taught, or ought to be taught, in universities can be based on the early remarks of Hindle (2007) who clearly dissociates entrepreneurship from the Business School paradigm requiring the presence of the "vocational component" in entrepreneurial teaching. Entrepreneurship in economics and business studies, for instance, has always been met in its informative manifestation, such as how it relates to macroeconomic indices, how it conforms with the theory of the firm, how

businesses are financially managed, how corporations organise resources to create value, etc.; called as the "about" mode of entrepreneurship education. This type of instruction is significantly cognitive, which is a characteristic consistent with how it is addressed in many other disciplines.

Nonetheless, entrepreneurship education in the 2000s departed from the previous traditional teaching by embracing broader perspectives; that is to cultivate skills and affect attitudes capable of resulting in more entrepreneurial alumni (Kakouris & Liargovas, 2020). It has also embraced social entrepreneurship, sustainability and social responsibility. To this end, the adopted pedagogies pursue, to an extent, the learning paradigm of constructivism (Hägg & Gabrielsson, 2019) whilst the relevant courses penetrate different disciplines and appear in the last two years of study. In this way, basic entrepreneurial knowledge has to be constructed from the extant scientific knowledge of students, following a cognitive constructivist logic. Further, entrepreneurship needs to be considered through a social constructivist lens, that it can be socio-culturally mediated through scheduled interventions from educators. Whilst cognitive constructivism embraces different types of learning, introduced by Piaget in the process of equilibration, social constructivism introduces the Vygotskian concepts of zone of proximal development and mediated act. Both these learning paradigms are useful in undergraduate entrepreneurial teaching depending on the level and scope of the implemented entrepreneurial teaching. The present chapter focuses on the Vygotskian theory of learning for teaching entrepreneurship to undergraduates. The impetus to focus on social constructivism pursues cross-national studies which indicate that students' entrepreneurial intentions and motivations conform with national cultures and local social norms (Fleck et al., 2020).

During the 1960s and the 1980s there has been a growing interest in the Western World on the ideas of Lev Vygotsky, a psychologist and educator lived in Russia between 1896 and 1934, since his theories changed dramatically the prevailing theory of child development. According to Mecacci (2017), the first impulse came in 1962 when Vygotsky's masterpiece "Thinking and Language" was partially translated into English. However, in the 1980s Vygotsky's representation started to change to acknowledge that his work had been more far reaching than child psychology, whilst a larger number of his writings were translated into Western languages. A new phase of historical research started with the fall of the Soviet Union, thus showing the complex figure of a

politically engaged intellectual and the absence of a compact Vygotskian school. Such "revisionist phase" also identified a "neo-Vygotskian school" represented for example by Cole, Wertsch and Bruner. Nowadays, a new review of Vygotsky is called for in the light of the revisionist phase and the unpublished materials that are being discovered.

Accordingly, this chapter will review the main tenets of Vygotsky, which are: mediation in human interaction, the selection of the unit of analysis, the zone of proximal development (ZPD) and the principle of double stimulation. These concepts can be used differently according to the level of education, with undergraduate education seen as appropriation of existing tools and adult education seen as development of new tools. A literature review is included on Vygotsky's principles within the realm of entrepreneurship education. In line with the scope of this volume, most of the articles reviewed concern tertiary educational settings. Two practical examples with a potential for undergraduate teaching are subsequently described: a discourse on Pareto's 80/20 principle in entrepreneurship performed online and course on social entrepreneurship based on problem-based learning. The first example focuses on the appropriation of entrepreneurial tools, whilst the second on transformation (agency and creativity). The chapter closes with a discussion of implications for educators and researchers towards developing effective entrepreneurial teaching based on Vygotsky's theory at the undergraduate level.

2 The Basics of the Vygotskian Theory

The first reason to introduce a Vygotskian perspective is methodological (Kakouris & Morselli, 2020), to offer a strong alternative to the cognitive studies characterised by a Cartesian split between cognition and learning, thus depicting humans as a computer isolated from their cultural context (Engeström, 2015). The second methodological reason is that, whilst the cognitive studies were predominantly analytical and observational, the Vygotskian studies are characterised by an activist and interventionist legacy. Such transformational aim "to make the world better" is close to the meaning of entrepreneurship, on the one hand with its aim as value creation, and on the other hand to cultural entrepreneurship (Kyrö, 2005), with entrepreneurship allowing both new practices and breaking down old institutions and systems.

The ideas of Vygotsky can be summarised into three main tenets, these pertain to the mediated act as unit of analysis, the ZPD and double stimulation. For Vygotsky (1987) the selection of an appropriate unit of analysis was particularly important. If the analysis was based on single elements, the relationships between elements would be lost. Instead, an appropriate unit is based on a set of elements that maintains the property of the whole phenomenon. In the study of the relationship between thinking and thought for example, the content of thought is expressed through words, the unit of analysis is the meaning. The first idea of "mediated act" as unit of analysis (Vygotsky, 1978) embeds the fundamental idea that a human act cannot be considered a mere response (R) to an external stimulus (S). Instead, human behaviour is mediated by an auxiliary stimulus (X) that is drawn into the situation, and creates a new link between S and R. To be "drawn" here means the human is actively engaged in the establishment of the relationship which inhibits the impulse to react immediately. Following Marx, such unit of analysis represents an attempt to embed dialectic materialism into human action (Sannino, 2011), and in doing so, it overcomes the division between the individual and the societal structures: whilst the individual had to be understood in the light of cultural means, the society had to be understood with the individuals' agency which produces and uses artefacts (Engeström, 2015). This organisation is thus fundamental for all the higher psychological functions and allows humans to control their behaviour from outside with the help of auxiliary stimuli, allowing them to break away from biological determinism and creating new forms of psychological process based on culture. Vygotsky (1978) distinguished between two types of auxiliary stimuli in human behaviour: tools and signs. Whilst tools are oriented externally and aim to change the object of activity and ultimately to master nature, signs are part of psychological tools and aim to control the behavioural processes—own or someone else's. Examples of psychological tools are language, mathematics, writing, schemas, diagrams, maps, etc. Drawing from Vygotsky's mediated act S-X-R, Engeström (2015, p. 63) reconceptualised this relationship into a triangle connecting the subject, the mediating artefact (sign or tool) and the object to which a human activity is oriented.

Through the mediated act as unit of analysis, Vygotsky (1978) argues that learning is social in nature, and that social learning anticipates the development of the individual mental functioning. This thinking leads to the second tenet, the ZPD, which is defined as "the distance between the

actual developmental level as determined by independent problem-solving and the level of potential development as determined through problem-solving under adult guidance or in collaboration with more capable peers" (p. 86). Whilst Vygotsky stresses the power of relationships with adults or peers to structure significative learning in pupils, Engeström (2015) has extended this concept to collectives when groups or even organisations engage in formative interventions to analyse and find solutions to the problems affecting their organisations seen as activity systems, and subsequently envision the ZPD of their organisation through novel concepts or models.

The third tenet of Vygotsky, important for entrepreneurship and probably the least researched (Morselli & Sannino, 2021), is double stimulation. Caused by an initial problem (the first stimulus), the second stimulus is an artefact that is turned into a sign, that is a connection between the external world and the human's psychological functioning (Sannino, 2015). Besides being a method, double stimulation is a principle of volitional action distinguishing higher psychological functions, with which humans wilfully change their behaviour and environment. This principle of volition should be considered as distinct from the mediated action described above, since it also entails a conflict of motives. Consequently, it is also a collision between antithetic tendencies or aspirations that happens in conditions of uncertainty and demands the audacity to take a deliberate decision. Hence, an action is considered volitional only when there are obstacles hindering its realisation.

In an experimental situation on double stimulation, Vygotsky (1978) gave a child a problem beyond her abilities, which is the first stimulus. What he frequently observed was that, when a neutral object was placed next to the child, she would draw it into the situation to solve the problem, and in doing so, the second stimulus became a meaningful sign that mediated the solution (van der Veer & Valsiner, 1991). However, the experimenter does not have necessarily to provide the subject with any ready-made second stimulus, since it is the subject who can build the second stimulus on their own (Engeström, 2007). Furthermore, double stimulation can be used in structured, collaborative problem-solving such as in formative interventions, and in this case the researcher or instructor could provide the participants with specific concepts, models or schemas. However, since this process can be hardly controlled externally, and in fact it is the basic mechanism for the genesis of the will, the participants end up by developing their own concept or model as an indicator of their agency.

3 Vygotskyan Concepts in Entrepreneurship Education

Whilst the ideas of Vygotsky have certainly represented a turnaround in education to overcome the cognitive view of the individual as separated from their cultural context, this chapter focuses on how his principles have been used in entrepreneurship education. A search in the literature with the keywords "Vygotsky" and "entrepreneurship" gave at least 50 articles citing his works. Although the following literature review is by no means exhaustive, it shows in our view the most interesting research that embedded Vygotsky's principles to entrepreneurship education.

Concerning Vygotsky's notion of mediation, it has only been applied by few authors. Drawing from Engeström (2015) reformulation subject-artefact-object, Thorpe et al. (2006) conceptualise the entrepreneurial activity as an artefact mediated activity: "a similar relationship holds between the identity of the entrepreneurs, the recognition of an opportunity and the pursuit within the activity of venture creation" (p. 236). Almeida and Duque (2017) highlight the importance of mediation of tools and artefacts for the development of entrepreneurial minds, whilst Lackéus et al. (2016) suggest the use of tools to bridge the rift between traditional-progressive pedagogies in entrepreneurship. Similarly, Lahn, Leif and Erikson (2016) conceptualise the development of entrepreneurial competence as an activity mediated by artefacts which allows the transformation of the object for certain purposes. Additionally, Holt (2008) makes use of the mediated act to understand the search of entrepreneurial opportunities. By using Engeström's (2015) reformulation of the mediated act, that is the relation between the subject, the object and the artefact, Holt (2008) suggests that "The opportunity recognition and pursuit can be understood as the skilful integration of prevailing and emerging objects and relations of business activity typically articulated through collaborative enterprise" (p. 52).

Other authors focus on the social nature of cognition in tertiary settings, for example to understand the entrepreneurial learning process (Kakouris, 2017; Mueller & Anderson, 2014), to develop a framework for the delivery of experiential entrepreneurship (Bell & Bell, 2020), to nurture entrepreneurial women's insights (Rao, 2014) or to develop an innovative paradigm for entrepreneurship education (Gibb, 2011). Ementa et al. (2018) suggest that integrated web-based instructional

technology can promote learning through social interactions and collaboration in students, whilst Almeida and Duque (2017) contend that teachers, learners and entrepreneurs are active participants in understanding the concepts related to business. Philipson (2015) recommends that the teachers develop the caring aspects of the relationship with the students suggesting collaborative learning amongst students.

Drawing on the social origin of cognition, other scholars focus on the situational conditions to awaken students' motivation, problem-solving and creativity. Musa et al. (2019) suggest that teaching should build on students' interests, since learning happens only when there is novelty that awakens higher cognitive functions. To do so, entrepreneurial learning should happen in authentic contexts (Thorpe et al., 2006; Toutain et al., 2017). Similarly, for Hjorth and Johannisson (2007) the ideas of Vygotsky and Bakhtin (an influential Russian philosopher contemporaneous of Vygotsky) are fruitfully combined in problem-based learning (PBL). Most importantly, in line with the careful selection of an appropriate unit of analysis, it is noteworthy that the problems are selected in relation to a whole situation rather than fragmented and therefore without an appropriate context. In line with Vygotsky's idea that imagination is related to creativity, Kier and McMullen (2018) study venture creation through imagination and suggest that by learning to connect unrelated information, students imagine potential solutions.

Moreover, the ZPD had some fortune amongst the scholars writing about entrepreneurship education. Ehrlin et al. (2015) use the ZPD to highlight that children can collaborate with their peers and their community outside the school, whilst in higher education they suggest that programmes are broken down to fall within the students' ZPD, and that instructors should seek to identify the students' individual ZPD. In secondary education (Hietanen, 2015) and in tertiary education settings (Ibraheem & Aijaz, 2011; Menzies, 2011) the ZPD means that students need well timed support from both peers and the teacher to learn entrepreneurship. Additionally, from an historical perspective, the ZPD suggests that the hierarchical relation between teacher and students is reduced, and that entrepreneurship education promotes learning from peers (Hjorth & Johannisson, 2007). An interesting proposal to apply a social constructivist perspective (including ZPD) to entrepreneurship education comes from Man (2019), who suggests five leading principles to structure activities in university-based entrepreneurship centres. Hence, these centres: (1) have the participants experiment actively; (2) offer

authentic contexts; (3) provide many opportunities for social interaction; (4) develop in students a strong sense of ownership through participation; and (5) offer scaffolding support.

The following section discusses two case studies that show two different principles of Vygotsky applied to entrepreneurship education at the undergraduate level. The first example entails mediation, that is appropriation of entrepreneurial tools and concepts, whilst the second example focuses on nurturing innovation through the principle of double stimulation.

A case study is a contemporary, real-life event bound in space and time (Yin, 2009). For Blenker et al. (2014) case studies represent the favoured form of entrepreneurship research strategy since entrepreneurship education comprises entities and activities that can be easily identified despite their embeddedness in the context.

4 Case Studies

An Activity Based on Pareto's 80/20 Principle: The Appropriation of Entrepreneurial Tools and Concepts

Learning through the online environment of TeleCC (http://telecc.org/) can be considered an example of social learning in entrepreneurship. In Kakouris (2017) a specific TeleCC learning programme in Greece has been discussed seeking for incidents of reflection and critical thinking of individuals. In the present Vygotskian approach, the same example can be examined as the internalisation of new instruments, once internalised they can be externalised, thus mediating entrepreneurial action. The TeleCC project gathered more than 250 participants of different backgrounds all over Greece in five-month online courses. Two learning groups in entrepreneurship were formed of 70 attendees each, taught by one of the co-authors. The main goal of the programme was to introduce the attendees into entrepreneurship whilst the whole instruction had been organised through activities and asynchronous online discussions. The relevant learning tools (documents, videos, games, websites, etc.) were developed and introduced by the educator who was initiating the discussion after each scheduled experience. Later on, the educator simply facilitated the discussion, enabling peer-learning, and finally he summarised the conclusions. One of the performed activities (out of 15) is described in the sequel.

The specific activity aimed at introducing the Pareto 80/20 principle into entrepreneurship. This simple empirical law is met in management and economic studies but has scarce direct implementations to entrepreneurship. It implies that 20% of the factors result for the 80% of the results and could feature the mindset of some entrepreneurs. Hence, the authentic problem posed to trainees (subjects) is to optimise the resources of a company to achieve maximum performance (object). This purpose is considered as the working unit of analysis. It is holistic and meaningful to the trainees without pre-given answers. Trainees experimented with an online game (tool) where 100 units of resources can be delivered to 38 corporate processes (cells) organised through the Business Model Canvas template (Osterwalder & Pigneur, 2010) which is an important tool to mediate entrepreneurship. Some constraints are posed (e.g. a maximum number of resource units per cell, fill of all cells, etc.) whilst the system records the time everyone spends on the game along with the maximum performance she achieves. Each cell contributes with a hidden coefficient to the performance and the cell coefficients obey the Pareto 80/20 rule. According to Wartofsky (1979), tools can be primary, secondary or tertiary. The first category includes physical and tangible objects whilst the other two psychological and cultural. The TeleCC online platform and the specific business game are primary tools whereas the Canvas model is a secondary one. Tertiary tools involve the culture and the context and will be discussed below. The business game facilitates, as a mediated act, the internalisation process of the subjects (trainees) who are left free to practice solutions.

After the game was over, a discussion followed amongst the learners in the virtual classroom. The trainees were asked to externalise what they learned from their experience and to share this knowledge with their peers. The educator undertook the interventionist role to extract the shared knowledge. The trainees described different creative strategies to solve the problem. Some tried to solve it mechanistically, such as by way of a mathematical quiz, whilst others considered which specific Canvas domain each cell belongs to and accordingly, its significance to the company's performance. In this way the trainees learn from peers and from a more knowledgeable other (educator). A common result was that it was quick to achieve a 50% performance outcome but much more time consuming to attain higher levels. It came out, as scheduled, that those who achieved more than 90% had spent almost quadruple time online. At this point the Pareto 80/20 principle was presented triggering individual

reflections. The 80/20 principle had served as a mediating concept to be internalised by the students using it towards developing better solutions within their ZPD. Nonetheless, some contradictions arose which is a key-element for the learning process. Was the goal to achieve a 100% performance or to save time? Was the coefficient of each cell irrelevant to the Canvas domain and why? To resolve the different views, the context of entrepreneurship was used as a tertiary tool (i.e. another mediating concept). What does "maximum performance" mean for an entrepreneur and for an employee? How do people from different backgrounds and experiences understand a task to optimise the performance of something? Under the prism of entrepreneurship, an 80% outcome might be desirable if it preserves time. That said, such a realisation or interpretation has to do with the context of entrepreneurship and the cultural influences that students possibly carry. As a final stage of the discussion, the group expressed the view that Pareto 80/20 could be used creatively in the organisation of a new firm but which 20% of factors is important depends on the specific venture. Thus, the entrepreneur has to learn her own business during the first stages of its life. This conclusion indicates the externalisation process of the activity. Due to mediating concepts, the trainees invented own ways of how to integrate the Pareto 80/20 law into the optimisation process of a new firm. To this end, peer-learning in a social context under the interventions of the educator was crucial whilst the current example illustrates acquisition of extant mediating tools for entrepreneurship.

Course on Social Entrepreneurship for Social Educators: Towards Innovation Through Double Stimulation

The Bachelor for Social Educators at the University of Bolzano offers a course on "Methods of Groupwork" which is based on a challenge in context delivered by a local entrepreneur (see Korda, 2019; Morselli, 2019). The students work in small groups, and in few intensive weeks of work they develop their solution and eventually pitch it to the entrepreneur. The first step to design this part in the course entails finding an entrepreneur who has a real challenge that challenges their business, such as a strategic decision to take or how to increase sales. In one edition of the course, the challenge dealt with the formulation of a proposal for the families having kids suffering from hyperactive disorders in times of COVID-19 pandemic. In the previous edition, the challenge was to

formulate a proposal for an inclusive programme for both kids with and without learning disabilities to increase their learning to learn skills.

In line with a Vygotskyan approach: (a) the unit of analysis is preserved as holistic, that is the challenge that the students work out tackles a complex unit rather than scattered elements; (b) the challenge is real-life, as it comes from the entrepreneur's social environment and deals with the students' professionalism, and as such it is meaningful for the students, thus pointing out the social nature of learning. Students are then divided into small groups to start working on the challenge and find an innovative solution. However, learn does not proceed on its own without a guide, and this pedagogy implements the ZPD concept of progressive and structured learning in two ways.

Firstly, similar to the example of 4.1, the teacher provides tools and concepts for groupwork and innovation that the students appropriate. An example is the jigsaw for group work (Aronson & Patnoe, 2011), where through having several articles to read and summarise, the students realise the importance of cooperation and at the same time gain basic knowledge on the topic. Another example of tool conductive for entrepreneurship is Design Thinking (Kelley & Kelley, 2013), to develop a solution through cycles of ideation, prototyping and testing. The instructor can also provide mediating concepts through having students watching video and making consequent reflection and discussion, for example on how ideation works. Concerning the tools that mediate online cooperation and ideation, Google Jam-Boards helps the students brainstorm and keep track of their ideas. Moreover, whilst providing tools and concepts, the instructor also provides a structured setting and rules on how to work in groups, regarding how different roles and labour is divided between the group (timekeeper, coordinator, minute taker, etc.), so that the students progressively internalise the rules and tools on how to structure groupwork productivity.

Secondly, the teacher provides individualised support, and once a week meets the groups for share-out meetings. The format is the following: the students deliver a presentation on what they have done so far, what they have learnt, what they are doing next and what they are keeping in mind. After having listened to the presentation, the instructor answers the students' questions and gives them advice on what they could do. The social nature of learning is evidenced not only by the real-life challenge, but also by the groupwork, where students learn from each other. During the share-out meetings or the quick workshops, the students learn also

from a more knowledgeable other, the instructor. Progressively, thanks to the graduality given by the instructor guidance, increasingly structured groupwork, new tools and concepts, the challenge falls within the students' ZPD.

The fact that students have only few weeks to deal with the challenge makes it cogent, that is something must be done for the finals. All in all, the double stimulation works as a principle for problem-solving and agency development. The first stimulus is the challenge combined with the tight deadline that makes it a cogent motive. Concerning possible second stimuli, these are the entrepreneurial concepts and tools provided by the teacher, or even found by the students during their web searches or heard in other lectures. Students select one stimulus, or combine two stimuli to make a new one, or even create a new stimulus from scratch. This stimulus becomes their second stimulus: in Vygotskian terms, such stimulus from "neutral" becomes meaningful to tackle the first stimulus, that is the problematic situation (Engeström, 2011). During this process, the students design, enrich, prototype, and test their second stimulus, and finally pitch it to the social entrepreneur the day of the finals. Such learning process can be seen as a mini cycle of expansive learning (Rantavuori et al., 2016), where the participants learn something that is not yet there. The final presentation is another important learning experience, not only because it gives meaning to the students work, but also because the students get feedback on their proposal, its feasibility, potential and limitations.

This pedagogy calls the students to demonstrate more effort compared to other teaching methods such as lectures, as the students feel they are immediately "thrown" into the practice; they value, however, such hands-on approach where they work always in their small group, and consider the course almost "work experience", since it tackles real-life challenges related to their vocation. Furthermore, the social entrepreneur is often impressed by the students' solutions and finds that the pitches are delivered more professionally than the presentations delivered by the "alleged" experts. Sometimes the students are so confident about their idea that they decide to take further steps to its implementation to the market, which is an unusual outcome for second year's students in social education.

5 Conclusions

This chapter started by introducing the basic tenets of Vygotsky (1978, 1987), these are: the unit of analysis of the mediated act, the ZPD, and double stimulation. This chapter reviewed the most important articles that make use of Vygotsky's concepts in entrepreneurship education and found that six articles referred to the mediated act, whilst most articles (8) concentrated on the social nature of learning and the environmental conditions (5) promoting learning. Another six articles made use of the ZPD, whilst we could find no articles using double stimulation in entrepreneurship education.

A summary of the review on Vygotsky and entrepreneurship suggests that teachers should pay attention to the social nature of learning (Kakouris, 2017; Mueller & Anderson, 2014), having students working with their peers and cultivating social relationships (Man, 2019) to understand the entrepreneurship related concepts. Furthermore, the teacher should structure the working environment so that students can work within their ZPD (Ibraheem & Aijaz, 2011; Menzies, 2011). Concerning the selection of the unit of analysis, the students should tackle problems and challenges (Hjorth & Johannisson, 2007) that are meaningful for them, for example coming from their community (Musa et al., 2019); to do so, the course could tackle a problem holistically (Man, 2008, Thorpe et al., 2006; Toutain et al., 2017).

The results of this review are twofold. From one perspective, we found that most of the articles use only one concept rather than an integrated combination, which suggests that Vygotsky's thinking and principles could be better integrated to back entrepreneurship education. From another perspective, we were surprised by such flourishing of articles, most of them recent, which indicate a renewed discovery of Vygotsky. We hypothesise this trend has developed because scholars are becoming aware of the necessity of having a strong educational theory backing entrepreneurial learning, as we affirm in Kakouris and Morselli (2020).

Additionally, we described two cases that put into practice Vygotsky's principles in undergraduate education. The first case focuses on how specific tools and concepts (for example the Business Model Canvas and the Pareto 80/20 principle) can be internalised to mediate entrepreneurial action. The second case shows the power of double stimulation as a principle to develop agency and creativity. Through the

examples we highlighted the importance of mediation as appropriation of tools and concepts, which in entrepreneurship at the undergraduate level could be the Business Model Canvas (Osterwalder & Pigneur, 2010), Design Thinking (Kelley & Kelley, 2013) and the Lean LaunchPad (Blank et al., 2014) or other tools and concepts (e.g. Mansoori & Lackéus, 2020). Beyond appropriation of entrepreneurial tools and concepts, however, students could learn how to signify them to devise something new through double stimulation. The first stimulus is the cogent problem that the students have to tackle, and for which there are no ready-made solutions (Engeström, 2011). The tools and concepts provided by the instructors are second stimuli that help the students build their own and unique second stimulus, that is a model of solution, which is progressively enriched, prototyped and finally pitched to the social entrepreneur.

Consequently, we see Vygotsky's theory in undergraduate education at a first level as appropriation of entrepreneurial artefacts (tools and concepts) that once well-internalised can be externalised, thus mediating entrepreneurial action. However, beyond appropriation of tools, a second level of entrepreneurship education can be re-mediation through double stimulation, which brings innovation by creating new tools and concepts. The result of double stimulation is also the students' development of agency, which means that sooner or later learners end up developing their own solution which could take unexpected directions, and the teacher supports this process of agency development by acting as a coach, for example during the share out meetings. Whilst the second case study suggests that double stimulation is key for entrepreneurship education, in that it triggers creativity, problem-solving and commitment, the literature review shows that this concept has been rather unexploited. Despite much more research and practice are needed to show its potential, in our view it could become the key principle for scholars researching on entrepreneurship education. This is in line with Hindle's (2007) call to confront the "plus-zone challenge" in teaching entrepreneurship to undergraduates.

In sum, most of Hindle's remarks can be met once entrepreneurship education develops its own methods grounded on the pillars of educational theory. This is especially essential in university settings where entrepreneurship still seeks academic legitimacy. The experiential nature of teaching so far has infused the learning-by-doing approach of Dewey as an underpinning of pedagogy in various educational levels. Further adoption of theories like the social constructivism of Vygotsky, discussed here,

will make the art and practice of teaching entrepreneurship more comprehensive to academics who may feel a step behind the rapid evolution of the field and the increased demand for tertiary entrepreneurial courses.

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