THE APPLICATION OF THE EFFECTUATION LOGIC TO ENTREPRENEURSHIP TRAINING

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1. Introduction

Entrepreneurship teaching is changing in recent years. This movement is particularly evident after the publication of Lean Startup (Ries, 2011) and Canvas (Osterwalder & Pigneur, 2010) and more recently the Customer Development (Blank & Dorf, 2014). These approaches propose a more iterative process of company creation and development. In the same path, the Effectuation logic (Sarasvathty, 1999) fosters a new way of thinking entrepreneurship by changing the focus from planning activities to acting through contingencies.

The educational field has embraced Effectuation logic by replacing or complementing the prevailing logic that focuses on teaching how to plan. The new entrepreneurship teaching focuses on the efforts to guide the students in developing a venture using the principles of Effectuation. This means that, when students face the situation of creating a fictitious new company, they will not be exclusively guided through a causal logic (of planning based on a predicted future), the most recommended path by researchers and experts in entrepreneurship years ago.

However, although prior publication seeks to assist people who want to use Effectuation as a teaching strategy (Sarasvathy, 2006), it is not yet described how the theory is being applied, especially considering the experiential learning approach, which engages participants in entrepreneurial activities in practice. This empirical view of effectuation application can help scholars to go beyond the theory of how successful startups were created to verify its actual application on teaching how to launch a new venture, which might be the basis for new endeavors. In addition, it helps to create a framework for entrepreneurship training.

Thus, despite Effectuation logic is being applied as a framework for entrepreneurship action in practice, its application as a teaching methodology is not described so far. This study expects to fill this gap by describing the application of effectuation in entrepreneurship teaching. The following question guides this study: *How effectuation approach is applied to entrepreneurship teaching*?

2. Entrepreneurship teaching

Although entrepreneurship is about creating new opportunities and executing them in an uncertain environment, predictive and adaptive rationality are still dominant in entrepreneurship training (Neck & Greene, 2011). The traditional pedagogy in entrepreneurship training grounded on predictive and adaptive rationality promotes the Causation logic. The causation entrepreneur attempts to control the future in the pursuit of previously established objectives. To do so, entrepreneurs collect information to make decisions and seek to explore, among the existing business opportunities, the one that presents the best evaluation. The use of business plans as a planning tool is linked with this approach.

Diverse types of teaching methodologies are been used in current entrepreneurship courses to foster student engagement, independently of the logic being trained (causation or effectuation). The teaching methods comprise simulations, case studies, and incubators (Sirelkhatim & Gangi, 2015). Huq and Gilbert (2017) reported the use of cooperative learning and constructivism with affective learning, humour, and role-play as learning tools and methods combined with traditional lectures in entrepreneurship training. Kuckertz (2013) pointed out that some educators, to foster an entrepreneurial attitude in their students, are increasing the vision of entrepreneurship as a career option. They promote opportunities to enhance entrepreneurial behavior, working with project-based learning and learning by doing, as well as promoting the

interaction between students and successful entrepreneurs. New approaches, as experiential learning, claim to close the gap between theory and practice encompassing problem-based learning (Tan & Ng, 2012), students business start-ups, live cases, and simulations (Kassean, Vanevenhoven, Liguori, & Winkel, 2015).

Effectuation brings a new logic to entrepreneurship. The core principle lies in the idea that entrepreneurs focus on the means and not the aims they have, seeking to start a business project based on three initial questions: Who am I? What do I know? Who do I know? (Sarasvathy, 2001). Sarasvathy, Dew, Read, and Wiltbank (2008) created an interesting metaphor to explain the causation and effectuation approach. Causal logic is related to a jigsaw puzzle metaphor. The decisions theories in this logic focus on prediction, where the main goal is uncovering the next billion-dollar business opportunity. In this jigsaw puzzle of the environment, the market opportunity already exists, and the entrepreneur has to discover and combine the right pieces to design to fit, rather than to design to transform, the current market context. Yet, the effectual logic proceeds more like a quilter. Quilting is different from a jigsaw puzzle since it requires a problem-solving approach to deal with unexpected contingencies. The quilter can choose the colours and juxtapositions that s/he personally finds pleasing and meaningful. The quilt has a proposal that transcends pleasure and meaning, it has to keep human bodies warm. The quilt metaphor (effectual logic) has a transformational design essence that opposes the jigsaw puzzle metaphor (causal logic), which focuses on predictive and adaptive design.

So, Effectuation brings a new approach to the teaching of entrepreneurship, but it is not unique. It is part of a new movement that seeks to see the teaching of entrepreneurship as something that emphasizes the individual and sees him or her as part of a process of trial and error, rather than a structured and planned process. Despite the basis of this new approach is well understood, the teaching methodologies are not described so far.

3. Methodology

To understand how effectuation is being applied in entrepreneurship training this study was developed in two stages. The first one was a desk research analyzing the curriculum of some recognized high-end universities that mentioned Effectuation Theory in their programs. The second was a case study of a training program that applies effectuation as their core methodology for entrepreneurship training.

3.1 Desk research

In this study, an entrepreneurship course or training has an effectual approach as long as it deals with some of the five principles of Effectuation. Two types of training were considered: entrepreneurship courses part of higher education (name high-growth) and the ones not associated with an academic degree (underserved).

The desk research was based on indications from entrepreneurs' professors in Brazil, indications from an international organizational that focus on youth training in entrepreneurship all over the world and prior studies that identified some courses applying effectuation program (Salusse and Andreassi, 2014; 2016; McCallum, Weicht, McMullan and Price, 2018). It is worth pointing out that there are thousands of entrepreneurship courses in the world with different audiences and different approaches. This desk research did not aim to identify all of them but rather to verify some initiatives and verify how effectuation is being applied in a certain group of cases.

3.1.1 Case study

To develop a deeper understanding of how to apply effectuation in entrepreneurship training, a case study was conducted in a Brazilian organization that has been using Effectuation logic as

a basis of their entrepreneurship training. This organization focuses on the underserved segment, has been applying the training program for seven years and is spreading its methodology to other organizations in Brazil and other countries.

To describe how Effectuation logic is being used in this context, the case study was evaluated through the lens of Effectuation reasoning principles, as illustrated in Figure 1. This means that data was classified and then described by each principle.

Data in this case study comprises evaluating course programs, materials and pedagogical activities. Data was collected through documents, three one-hour interviews with course managers and participation in a four-hour training activity. The course materials are well detailed, as instructors have to follow all the steps of each activity. Thus, this material was used as the main data source.

Figure 1. The framework of the study
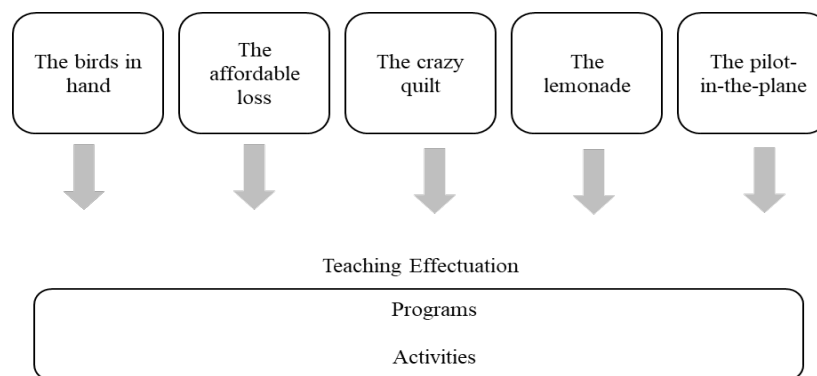
Source: Authors

4. Findings

4.1 Desk research: high-growth and underserved segments

The basis for analyzing Effectuation in higher education training was the method developed on by Babson College, as this institution is a reference in entrepreneurship education. In Babson's approach, the entrepreneur needs to act first, then analyze and learn, as they work in an unpredictable context (Schlesinger, Kiefer and Brown, 2012). The method envisages teaching students predictive reasoning, which is similar to causal thinking, and creative reasoning, which is associated with Effectuation. It means that causation logic is used combined with effectuation, which is associated with the application of emerging methodologies in the teaching of entrepreneurship (Salusse & Andreassi, 2016), such as Canvas (Osterwalder & Pigneur, 2010); Customer Development (Blank & Dorf, 2014) and Lean Startup (Ries, 2011).

The logic of teaching entrepreneurship to the underserved public is not different from what occurs to the high-growth public. At the beginning, it was especially focused on designing a business plan that would increase the chances of success and avoid possibilities of failure along the way, especially for people who lacked resources. The changing paradigm of entrepreneurship education, however, has also affected this audience. Several initiatives have begun to realize the need to shift the focus from traditional business plan teaching (a concept that is difficult to understand and applied by this audience) to a more hands-on approach, focused on practice and resources that the entrepreneur already has. This will be exemplified by the cases described below.

UNIDO in Africa

UNIDO (United Nations Industrial Development Organization) is a United Nation institution for youth entrepreneurs training that supports initiatives by local governments to develop materials and training teachers (among other things) for an entrepreneurship curriculum (McCallum, Weicht, McMullan and Price, 2018). Their curriculum is action-oriented as more than 50 per cent of the program's time consists of practical research that focuses on identifying business opportunities, assessing resources for setting up and steering the business, and learning from successful entrepreneurs in their companies and in the classroom (Unido, 2016).

Although it does not make any formal reference to the use of Effectuation, the project proposes the creation of programs that are based on action and business development from the potentialities (What I have) of each participant. In the scope of this study, we will not go into details of each of the UNIDO-supported programs so as not to overstretch our desk research, but they may be seen in the "Fostering Entrepreneurial Youth" report (Unido, 2016).

NGO in Mozambique

To better know the NGO work, we interviewed one of the Executives of the institution. For him, getting to know Effectuation was very interesting because it allowed him to give a name to what they already did empirically and, thus, validated their approach based on a theory.

This Executive understands that the methodology emphasizes the principle of bird-in-hand and the crazy-quilt, trying to identify who the person is, what and whom the person knows and later encouraging the search for new relationship networks. The other principles are left out. Finally, he points out that in many cases it is also necessary to work with financial knowledge, such as cash flow and pricing, so at a certain moment it is necessary to work on some more causal concepts.

NGO in Netherland

The institution is based in the Netherlands and provides microcredit for entrepreneurs from the Netherlands and other countries. Some of the entrepreneurs who receive microcredit undergo training and participate in coaching programs.

According to the International Relations Manager of the institution, they have recently discovered the Effectuation method and are trying to apply it in their activities. However, this initiative is very recent. They gave training on the concepts of Effectuation to coaches, but they have still not received feedback from their working together with entrepreneurs. The initial evaluation (without practical experience) pointed out that some of the coaches liked the approach and others were skeptical about it.

It is interesting to note that, as the entrepreneurs seek microcredit, they will, in any case, have to prepare a financial plan to be able to identify their needs and demonstrate their possibilities of payment, that is, to work with the logic that it is possible to predict with some future precision, something that cannot be considered Effectuation.

However, the Manager interviewed pointed out that he believes that Effectuation can bring interesting insights to deal with beginning entrepreneurs and in particular to help them meet and seek to build their network.

NGO in Spain

The institution works, among other things, with assistance to underserved entrepreneurs in Spain. According to one of the Executives they discovered Effectuation at a meeting with an international organization for entrepreneur development and began to study the theory to verify how it could be useful to improve what they already did. They already used much of what is in

Effectuation, before they got to know the theory, which brought a theoretical basis to what was done empirically.

Before discovering Effectuation as a theory, they already worked with the concept of starting a business without using all the resources, so that if everything goes wrong there is still another chance, which is very similar to affordable loss principle.

4.2 The Selected Case Study

The case study selected to a deeper understanding on the methodology used in entrepreneur teaching is a non-governmental organization (NGO) focused on supporting companies, social organizations and government to develop inclusive business models and projects to support low income entrepreneurs.

The NGO was founded in 2005 by a group of undergraduate students from Brazil to support small entrepreneurs to develop their business. Since then, it expanded its work to other places in Brazil and built partnerships to help this expansion. Nowadays, it has various services in its portfolio and has partnerships overseas. One of the services it provides is named Entrepreneur journey, which was explored in this study.

The NGO declares that their methodology relies mostly on Effectuation logic and thus, they were selected to be part of a deeper investigation.

4.2.1 The training methodology

The NGO story does not start with Effectuation as the teaching logic. It starts with the aim of teaching underserved entrepreneurs. One of the managers interviewed informed that, in the beginning, their pedagogical approach was similar to methods used in business courses in colleges. However, after some training programs, the board realized that entrepreneurs were not applying many of the tools learned in the courses and were anxious to have a more practical approach to solving the challenges and doubts, they had. A business plan, for example, was too far from their immediate reality and was frequently not used, or just a small part of it was considered. Bearing this in mind, they found in Effectuation logic a more practical approach that could help solve the daily challenges, which could also help to identify opportunities for entrepreneurship in any person through a process of self-discovery, which could be important as a motivational approach in this underserved segment.

Since 2011, Effectuation logic has become the main approach of this ONG`s training programs, according to one of the managers of the Organization. However, they also recognize that it is not an exclusive approach as Causation logic is also part of the training tools. They emphasize that Effectuation has an important role for self-discovery, to empower the entrepreneur and to develop the idea of learning by doing.

More than the rationality behind the entrepreneurship teaching, there was a need to identify how to design a class to teach entrepreneurs or potential entrepreneurs in this segment. Andragogy, whose main strength, according to an ONG's manager, was related to its practical logic, seems to bring the ideal approach.

4.2.2 Programs

The ONG has three programs in the Entrepreneurship Journey. Each program has a diverse structure, according to the kind of target audience. The first stage program is developed for anyone who wants to be an entrepreneur but is not sure about his or her idea. The second stage program was developed for those that already have a business. And the third stage is for their Alumni that want to follow a continuous development. All programs are designed to have a practical approach with a lot of interaction between all the participants. Each program has a

specific curriculum, with a different number of meetings, but each meeting is three hours. There is no need for the entrepreneur to take part in all programs. The kind of program to be involved depends on the entrepreneur's level in terms of having or not a business and its needs.

a.   The first stage program

Focusing on those who do not yet have a business, the first stage program will help the process of self-discovery, in which business opportunities that can be developed by the potential entrepreneur will be identified. After this initial phase, the idea (or various ideas) will be developed and improved in the process of interacting with other colleagues in the class. The next step after broadening the idea involves certain activities to identify the needs that the entrepreneurs will have, for example, through partnership within his or her or her network, will be developed. To identify challenges and ways to improve his or her idea, entrepreneurs are encouraged to try their project in real life, with the resources they have. Through this experience, entrepreneurs can improve the idea of working on the feedback they have had and think about the business model they want to use. A final stage where the entrepreneur presents his or her project to a diversified audience (specialists, other entrepreneurs, for example) will help to keep improving the idea, using the feedback received.

Figure 2 describes the program in 5 phases, considering the main goal of each and the activities developed. The phases do not represent meetings as the content is spread over eight meetings of three hours each.

Figure 2. The first stage program
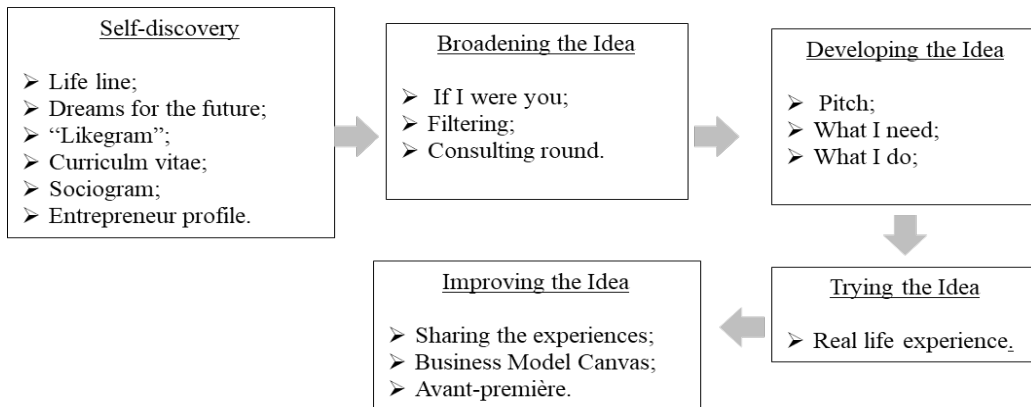
Source: Authors

b.   The second stage program

This program expects to help individuals that already are entrepreneurs to develop their businesses. The program has a group of types of content that can be developed according to the challenges faced by each group of entrepreneurs. Bearing in mind that the challenges that one class faces can be different from another, the number of hours for this program can vary from 21 hours to 84 hours, with 3 hours per meeting.

The content of the program was classified into seven phases, as showed in Figure 3. The first phase will define the number of meetings that one specific group of entrepreneurs will have. This diagnosis phase focuses on identifying challenges the entrepreneur faces, after some activities of thinking about the business. During this phase, entrepreneurs will define what they expect of the future of their business (vision), then they will define goals to achieve this vision. Other traditional approaches used in business classes are applied in this phase, such as the SWOT analysis, which will help to identify the main challenges to be explored in another meeting. After having a group of challenges, each meeting will explore one specific issue, for

example, challenges related to marketing. For this issue, the entrepreneurs will discuss the challenges they face with the colleagues, interacting with the knowledge of the instructor, and solutions to solve these challenges will be created by the group, and then described in an action plan (the next phase). The challenge is the core of each meeting and moving forward on how to solve it gives progress to the program. This solution can be through discussing with the group or identifying who, from the entrepreneurial network, can help to find or implement the solution. Moving forward in the program, the entrepreneur is invited to try to solve the challenge over the week and bring his or her lessons learned to the next meeting. The last meeting focus on helping the development of the practice of using feedback as a tool to improve oneself.

As explained, diverse challenges can emerge from the group; however, the program already considers that knowledge in Finance should be developed in any group of entrepreneurs. So, Finance is a fixed issue that is developed through cases and exercises in class.
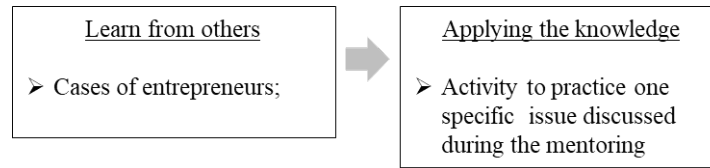
Figure 3. The second stage program
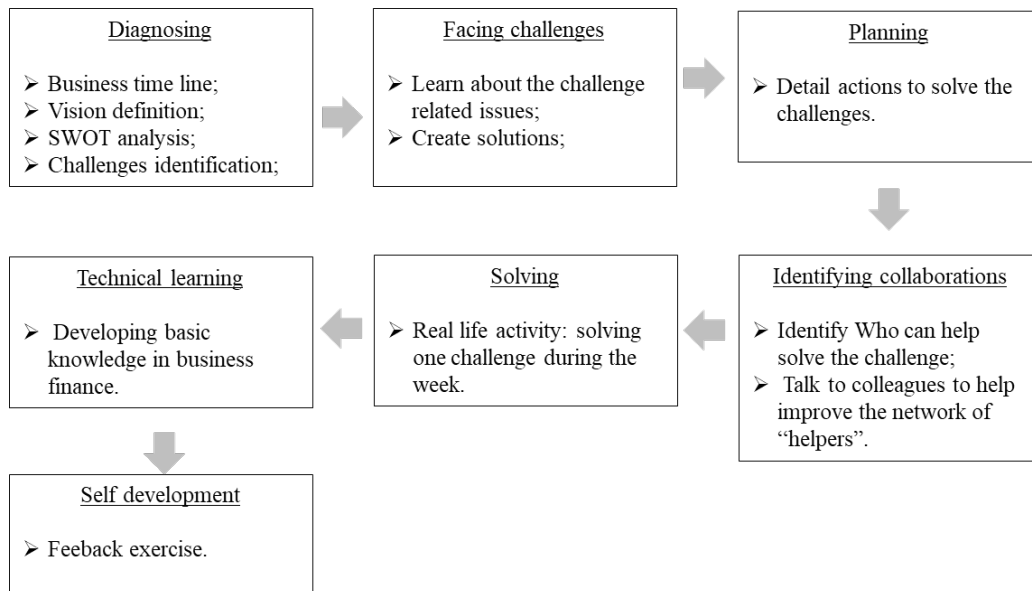
Source: Authors

c.   The third stage program

This program has a different structure from the other two programs. There is no defined number of meetings or a fixed group of entrepreneurs. The main goal in this program is to help entrepreneurs to have ideas and be inspired to solve their challenges by hearing another entrepreneur's history. This program usually takes place after a cycle of the other programs. It is called "Collective mentoring" as it is more like an informal talk and discussion of an issue. The discussion can be followed by a practical activity to think about the issue discussed in his or her own context.

Figure 4. The third stage program

Learn from others	Applying the knowledge
➢ Cases of entrepreneurs;	➢ Activity to practice one specific issue discussed during the mentoring

Source: Authors

5. Discussion

In general, Effectuation logic is explained by emphasizing that the program is focused on the experiential learning approach and by the development of the entrepreneur in three areas: Who I am (entrepreneur profile), What I know (the general knowledge the entrepreneur has), Who I know (entrepreneur network). Another two areas were added according to the specific program focus: What I do (definition of goals and action plan) in the *second stage* program, and What I have (available resources) in the *first stage* program. By this quick explanation in the material, we can already realize that, in general, there is a greater focus on one of the principles of Effectuation that is The-bird-in-hand. In addition, Effectuation is associated with a practical approach, which seems to help to create a higher engagement with the target audience. This practical approach has been a common one in entrepreneurship training, including training that does not recognize Effectuation as its basis.

In the following analysis, we attempt to make a deeper discussion of the principles of each of the programs.

(i) First stage program

In this program for beginners, Effectuation might be summarized as *The bird-in-hand* principle. The program has a self-discovery focus where the assumptions of this principle (Who I am, Who I know, What I know) is explored through reflective and experiential activities, such as building an entrepreneur lifeline, thinking about the dreams an entrepreneur has for his or her future, identifying things he or she likes to do and has the abilities for. During this process of self-discovery, entrepreneurs are invited to create some business ideas based on their profile. Here, there is no predictive or planning process, but the program rather encourages the entrepreneur to try his or her idea (*The pilot-in-the plane*) with the resources he/she has, making partnerships and taking it to market very quickly to the customer he expects to attract (*The crazy-quilt).* During the whole program, entrepreneur works on feedback he or she received, such as that from his or her customers in the idea trial, from colleagues during the program and from some specialists in a final stage of the program (*The lemonade*) (Table 1and Table 2).

Table 1. Effectuation principles in the first stage program

Dimensions	Effectuation Principles		
	The bird-in-hand	The affordable loss	The crazy quilt
Approach	This principle is the most emphasized in the program. Some activities are made to stimulate potential entrepreneurs to think about Who they are; What they know and Who they know.	There is no discussion or activities about "affordable loss".	After describing "Who they know", a sociogram is presented as a source of resources. The sociogram is accessed at diverse moments of developing the idea.
Teaching tools	Individual activities focusing on building life line, dreams for the future, evaluate like/dislike issues in their life journey, build a "curriculum" to help identification of abilities and a sociogram. Each activity is detailed in a Guide Book for the instructor.		Individual activity: Before developing business ideas, entrepreneur builds their sociogram. When they already have some ideas, the sociogram is accessed to evaluate who can be a source of certain types of resources.

Table 2. Effectuation principles in *first stage* program - Continued

Dimensions	Effectuation Principles	
	The lemonade	The pilot-in-the-plane
Approach	There is an experimentation phase where the entrepreneur goes to the market to do a pilot of his business to feel it and makes changes in it.	During the course, the entrepreneur will create a business idea and will try it, being opening to feedback to improve it.
Teaching tools	Feedback meeting; Business Model Canvas; Partner monitoring (colleagues are in touch to discuss the experience) and Consultancy "ticket" (access to individualized talk with the instructor).	Videos showing other entrepreneurs' testimonials help to show real examples of entrepreneurs that started like those in the classroom. The experimentation also helps them realize that they can be entrepreneurs.

Source: Authors

So, in general, Effectuation principles can be identified in the program through activities that help the entrepreneur realizes that with his or her own means he or she can move forward in entrepreneurship. *The bird-in-hand* principle dominates the whole program to empower the

entreprenuer. The only principle in which we did not identify any initiative is *The affordable loss.* One could argue that this principle is intrinsic to the logic of working with the means the entrepreneur has; however, it is broader than just that. The affordable loss brings the idea of what the entrepreneur is willing to lose. For example, no self-reflection is proposed to make the entrepreneur aware of what he or she is willing to lose when considering the idea, he or she is engaged in.

Broadening the idea is one important step throughout the program and is deeply related to Effectual logic as the entrepreneur is involved in an activity to think about diverse ways to explore his or her means. Ideas generated are discussed and can be recombined or new ideas can emerge from presenting the means the entrepreneur has and then interacting with other classmates' feedbacks.

Despite the focus of the program being on empowering the entrepreneur with his or her own means and to go quickly to the market to try out the idea, some planning activities are also used to help the entrepreneur identify the resources he or she needs. In this case, considering that there is a goal to be achieved (to put the idea into practice), Causation is the thinking logic. However, behind this planning process, there is no predictive work. The planning process organizes the means the entrepreneur has (*The bird-in-hand*) and help him or her identify what he or she will need to look elsewhere, mainly in his or her network through partnerships, which is *the crazy quilt* principle.

In summary, the program puts into practice most Effectuation principles using a very friendly environment to help the involvement of the participants. It is the first move in entrepreneurship to help to develop the consciousness that being an entrepreneur is not something far from their realities.

(ii) *Second stage* program

This program has a very different approach in comparison to the first stage program. Traditional approaches of planning (causation logic) are discussed from the beginning of the meetings as there is a diagnosis of the business, the definition of a vision, identification of challenges and then a planning process. However, behind these analytical methodologies lies the expectation of empowering the entrepreneur in solving the challenges he or she has (*The lemonade*) with his or her own means (*The bird-in-hand*). Furthermore, the entrepreneur needs to handle all of this in a short-range and learning quickly (*The pilot-in-the-plane*) by sharing his or her solutions with his or her network (such as the colleagues in the program or identifying "helpers" in his or her network) (*The crazy quilt*). Besides, the program builds the technical training content based on the most important knowledge the group needs to solve their challenges, helping the development of the "What I know" (one pillar of *The bird-in-hand*).

It is important to recognize that Effectual logic is developed together with causation logic in this program. When a planning process is developed with a view of the future (vision) there is a definition of an objective that will be pursued. This is a causation logic. Effectual logic is brought to this planning exercise by adding the limitation of the resources that the entrepreneur has and by not predicting the future, but by trying to apply possible solutions according to the entrepreneur's means.

The only principle in which no related activity was identified is *The Affordable Loss.* There is no discussion or activity regarding what the entrepreneur is willing to lose, nor regarding expected returns. The financial content, for example, focuses on control and cash flow.

In general, Effectuation principles are not discussed as a concept. When there is some presentation of Effectuation logic it is a quick overview. Principles are intrinsic to the activities

developed with entrepreneurs. Tables 3 and 4 describe the main goal and activities of each principle through the lens of the *Second stage* program.

Table 3. Effectuation principles in the Second stage program

Dimensions	Effectuation Principles		
	The bird-in-hand	*The affordable loss*	*The crazy quilt*
Approach	Identify challenges related to the business and to oneself and then identify pieces of knowledge and contacts that can help entrepreneurs solve the challenges and improve their business.	No discussion on affordable loss	Encourage entrepreneurs to think about who can help themselves solve a challenge or implement solutions.
Teaching tools	Printing materials to individual exercises (diagnosis)		Group interaction to identify potential 'helpers"

Table 4. Effectuation principles in the Second stage program - Continued

Dimensions	Effectuation Principles	
	The lemonade	*The pilot-in-the-plane*
Approach	Encourage entrepreneur to create solutions for challenges they identify.	In general, the program focuses on identifying challenges and working to solve it and not predicting results.
Teaching tools	Group discussion to share challenges and possible solutions. Printing material for project planning.	Real life activity focusing on solving a challenge through the week and learning by doing it.

Source: Authors

(iii) The *Third stage* program

This program helps entrepreneurs learn from others' experience, improving their network and enhancing their knowledge. In this sense it helps to develop entrepreneurial means. If the entrepreneur that is giving the speech has an Effectuation Logic, it could influence this kind of thinking logic. However, there is no evidence of the development of the Effectuation principle in the methodology.

6. Conclusion and implications

This study focused on describing the application of Effectuation Method (Sarasvathy, 2001) for teaching entrepreneurship. To achieve this aim, a case study helped to have a better understanding of the application of this theory for teaching young entrepreneurs. In addition, a desk research helped to have an overview of some entrepreneurship training applied in several countries, specially the ones focused on underserved segment.

Desk research allowed us to identify that entrepreneurship education is changing. Approaches that use experiential learning are gaining prominence in both the high-growth and the

underserved segment. In general, when interviewing organizations that used the logic of effectuation with the underserved public, it was possible to identify that they saw in Effectuation a way of justifying much of what they already did intuitively. Also, differently from the case study, Effectuation method is not the basis of the training provided by other organization interviewed but can be part of it. They usually do not emphasize the name of the theory but recognize that it can bring interesting insights.

Despite Effectuation is based on five principles the bird-in-hand is the one that dominates the curriculum in the case study developed in this paper. Other principles can be identified in the training activities, excluding Affordable loss. Actually, there is a general understand that the entrepreneurs can work with the means they have, with a great focus on empowerment. However, their training programs have diverse levels of applying Effectuation as the basis for teaching entrepreneurship. This logic is better explored for potential entrepreneur (the ones that do not have a business yet), while Causation logic dominates the program for current entrepreneurs. Experiential learning, by other side, is common in both programs.

Thus, Effectuation logic can have an important role in empowering the entrepreneurs as it helps them to articulate the resources they have. However, for the entrepreneurship training, the case study demonstrates a coexistence of effectual and causal logic in the process of building a new venture.

References

Blank, S., & Dorf, B. (2014). *Startup: manual do empreendedor*. Alta Books Editora.

Huq, A., & Gilbert, D. (2017). All the world's a stage: Transforming entrepreneurship education through design thinking. *Education + Training*, *59*(2), 155–170. https://doi.org/10.1108/ET-12-2015-0111

Kassean, H., Vanevenhoven, J., Liguori, E., & Winkel, D. E. (2015). Entrepreneurship education: A need for reflection, real-world experience and action. *International Journal of Entrepreneurial Behavior & Research*, *21*(5), 690–708. https://doi.org/10.1108/IJEBR-07-2014-0123

Kuckertz, A. (2013). Entrepreneurship education: Status quo and prospective developments. *Journal of Entrepreneurship Education*, *16*, 59–72. https://doi.org/10.2139/ssrn.1862295

McCallum E., Weicht R., McMullan L. & Price A. (2018). EntreComp into Action: get inspired, make it happen (M. Bacigalupo & W. O'Keeffe Eds.), EUR 29105 EN, Publications *Office of the European Union, Luxembourg*, 2018. Retrieved from https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/entrecomp-action-get-inspired-make-it-happen-user-guide-european-entrepreneurship-competence

Neck, H. M., & Greene, P. G. (2011). Entrepreneurship education: Known worlds and frontiers. *Journal of Small Business Management*, *49*(1), 55–70. https://doi.org/10.1111/j.1540-627X.2010.00314.x

Osterwalder, A; Pigneur, Y (2010) *Business Model Generation: A Handbook for visionaries, game changers, and challengers*. John Wiley & Sons

Ries, E. (2011). *The lean startup: How today's entrepreneurs use continuous innovation to create radically successful businesses*. Crown Books.

Salusse, M & Andreassi, T. (2014). O Ensino de Empreendedorismo com Fundamento na Teoria Effectuation. *XXXVIII Encontro da ANPAD*, Rio de Janeiro.

Salusse, M & Andreassi, T. (2016) O Ensino de Empreendedorismo com Fundamento na Teoria Effectuation. *Revista de Administração Contemporânea*, 20(3), 305-327. Retrieved from http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1415-65552016000300305&lng=pt&tlng=pt

Sarasvathy, S. (1999) *How do firms come to be? Towards a theory of the prefirm*. (Doctoral dissertation). Pittsburgh, PA: Carnegie Mellon University.

Sarasvathy, S. D. (2001). Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency. *Academy of Management Review*, v. 26, n. 2, p. 243-263, 2001.

Sarasvathy, S. (2006) *Effectuation: elements of entrepreneurial expertise*. Massachussets: Edward Elgar Publishing Inc.

Sarasvathy, S. D., Dew, N., Read, S., & Wiltbank, R. (2008). Designing organizations that design environments: Lessons from entrepreneurial expertise. *Organization Studies*, *29*(3), 331–350. https://doi.org/10.1177/0170840607088017

Schlesinger, Leonard A., Charles F. Kiefer &Paul B. Brown. (2012). New Project? Don't Analyze — Act. *Harvard Business Review, 90(3)*, p. 154–158.

Sirelkhatim, F., & Gangi, Y. (2015). Entrepreneurship education: A systematic literature review of curricula contents and teaching methods. *Cogent Business & Management*, *2*(1), 1–11. https://doi.org/10.1080/23311975.2015.1052034

Tan, S. S., & Ng, C. K. F. (2012). A problem-based learning approach to entrepreneurship education. *Education + Training*, *48*(6), 416–428. https://doi.org/10.1108/00400910610692606

Unido. (2016). *Fostering entrepreneurial youth.* Report United Nations Industrial Development Organization. Retrieved from https://www.unido.org/sites/default/files/2016-06/ECP_brochure_FINAL_0.pdf