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Effectuation theoretical debate: systematic review and research agenda

Effectuation
theoretical
debate

Suzi Elen Ferreira Dias and Edson Sadao Iizuka
Centro Universitário da FEI, São Paulo, Brazil, and

Eduardo Pinto Vilas Boas
*Escola Superior de Empreendedorismo, São Paulo, Brazil and
 Escola Superior de Administração e Gestão, Santo André, Brazil*

41

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Abstract

Purpose – The purpose of this paper is to understand the theoretical discussion of effectuation since the seminal paper in 2001 and to propose an agenda for future studies.

Design/methodology/approach – Systematic literature review and content analysis of 71 papers.

Findings – Most papers performed a replication of the concepts empirically, and few studies proposed to understand theoretical aspects of effectuation, among them, some authors presented theoretical advances to improve the approach and others participated in an ongoing debate that shows there is no consensus on whether the approach is theory or if considered, appears to be under construction at a rudimentary level or being questioned.

Research limitations/implications – The method requires authors to make choices, so the database used and the criteria defined for searching papers that were analyzed are the main limitations of this research.

Practical implications – The authors suggest that researchers, teachers and practitioners use effectuation analytically and reflectively.

Social implications – The authors present and analyze the current theoretical debate on effectuation. Results suggest the need for new discussions about the concepts, as well as new theoretical efforts of the researchers to analyze the potentialities and limitations of this approach.

Originality/value – Among empirical and applied research, with replications of the concepts of effectuation, this research contributes to a theoretical discussion based on a systematic literature review, seeking to bring new reflections about this approach. Additionally, the authors present an agenda of theoretical gaps for the development of future research.

Keywords Literature review, Academic production, Effectuation limitations, Research agenda

Paper type Literature review

1. Introduction

The seminal work on effectuation (effectual logic) resulted from Saras Sarasvathy's doctoral dissertation in 1999, in which, comparing a group of bank managers and entrepreneurs, the



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author analyzed the differences in the decision process during the hypothetical construction of a company (Saravathy, 2001). From the results found, the author proposed a new look at the way entrepreneurs make choices and decisions.

Given the premise of market uncertainty, it is impossible or, at least, difficult to make estimates for business. Thus, entrepreneurs focus on the logic of control. At that time she termed the approach as a “rudimentary theory of processes in business” as opposed to the existing traditional decision model, causation (or causal logic), in which decision processes focus on forecasting logic through estimates (e.g. costs and expected returns) that support decision-making (Saravathy, 2001, p. 249).

Over time, researchers have devoted themselves to the theoretical and empirical understanding of effectuation. In this context, Read, Song and Smit (2009) and Werhahn *et al.* (2015) worked on building quantitative models from empirical foundations of organizations. On the other hand, Perry, Chandler, and Markova (2012), Ghorbel and Boujelbène (2013), Pawêta (2016) and Matalamäki (2017) devoted their attention to understanding effectuation’s academic production by focusing on specific topics such as understanding in the corporate environment or the field of international entrepreneurship.

Previous studies have focused on the replications of the effectuation principles. Therefore, articles with a theoretical and analytical perspective are less frequent. Furthermore, they have not understood the theoretical perspective analytically and systematically.

Given this, this article aims to fill this gap, that is, to understand the theoretical discussion about effectuation, since the seminal article in 2001 and to propose a research agenda for future studies. For this, we investigate the following research questions:

- RQ1. From the seminal article, what is the current state of the theoretical debate on effectuation?
- RQ2. What were the academic researchers’ efforts to understand, analyze or construct the concepts of effectuation?
- RQ3. What are the theoretical gaps for future studies? To answer these questions we started with a systematic literature review to understand the research opportunities.

This investigation contributes to the advancement of knowledge through the presentation, consolidation and analysis of the theoretical discussion about effectuation that indicates the need for new reflections and academic debates around the concepts. Additionally, it offers some provocation so that studies can go beyond mere empirical replication and additional theoretical efforts. Some researchers indicate the need to question effectuation as a theory, and others indicate that the concepts presented need further explanation and are insufficient to explain the phenomenon. Moreover, this research encourages researchers, professors and practitioners to seek to use effectuation analytically and reflexively.

2. Effectuation review: previous studies

To address the existing research gaps, as a first step, we sought to understand the academic production of effectuation. We do this by analyzing the studies that conducted a review of the theme.

For this, we used the Publish or Perish software version 5 because it has an interface to different databases. We searched for articles that contained the terms “effectuation and review” in the titles; also, “effectuation or effectual” in the title and “extensive literature review” or “systematic literature review” or “systematized literature review” in the full text.

We found 28 documents published between 2001 and September 2017. We then apply a filter based on the 2016 Journal Citation Reports (JCR) index, equal to or greater than one, to analyze qualified studies and peer-reviewed articles from the Business and Management areas.

We found six academic articles that met these criteria, being four systematic reviews on effectuation, one meta-analysis, and one concept review, development and scale validation study. Thus, since the seminal article in 2001, only four studies have proposed to understand the academic production of effectuation through studies of systematic literature review.

Among these studies, [Perry et al. \(2012\)](#) focused on understanding the empirical studies about effectuation. The authors concluded that the research is in the transition to an intermediate stage. Additionally, the authors acknowledged that effectuation helps to understand entrepreneurship, but there is a need for more empirical testing, so the authors offer a research agenda for rigorous further studies.

[Ghorbel and Boujelbene \(2013\)](#) classified and summarized relevant research on effectuation and suggested directions for future studies. The authors stated that entrepreneurs differ from managers because they use effectual logic and suggested more empirical research, as well as analysis of the theoretical aspects of the approach.

[Pawêta \(2016\)](#) systematized the international entrepreneurship literature with an interface with effectuation and found that they recognize the use of different causal and effectual logic. Thus, the author indicated the need for future empirical studies to analyze the intersection of effectuation and international entrepreneurship.

Finally, [Matalamäki \(2017\)](#) investigated the theoretical stage of development of the approach. The author found that effectuation studies are related to four types of themes such as innovation and product development, internationalization, effectuation and causation simultaneously and entrepreneurial expertise. Furthermore, the author also indicated that the approach is in an intermediate stage of development and that there is an inconclusive “battle” between convergent and divergent groups of researchers involved in a scientific debate on the concepts of effectuation, but not deepening in the theoretical discussion, it only indicates the need for further research to understand these issues on the subject better. [Table I](#) summarizes the analysis of these studies.

Therefore, since the seminal article published in 2001, different authors have carried out systematic review studies, but none of them aimed to understand the theoretical discussion about effectuation. That is, this is the central gap detected and the purpose of this research.

3. Methodological procedures

This article applies a qualitative methodology of systematic literature review that involves rigorous criteria from a comprehensive and unbiased search ([Tranfield, Denyer, & Smart, 2003](#); [Cronin, Ryan, & Coughlan, 2008](#)). This procedure allows the reduction of biases and increases the reliability of the research results, besides providing a relevant synthesis of the state of the art of the phenomenon ([Tranfield et al., 2003](#); [Cronin et al., 2008](#); [Gough, Oliver, & Thomas, 2017](#)).

In general, the structured review process consists of three phases: data collection, data analysis and synthesis. Scientific accuracy is required to achieve a quality review ([Briner & Denyer, 2012](#)).

In the stage of data collection, we defined the criteria for searching the articles [Harzing & Van der Wal \(2008\)](#) observed that in general, systematic literature reviews are made using the Web of Science database. However, the authors suggested the use of Google Scholar because it is free and allows searching in different databases. There is no evidence of

Authors	Objective	Study	Main findings
Perry <i>et al.</i> (2012)	Review the literature on effectuation and propose to conduct rigorous future empirical studies	Systematic literature review (29 papers)	Research is in the transition to an intermediate stage Effectuation helps to understand entrepreneurship but there are few empirical tests, despite having a theoretical model The authors propose a research agenda for rigorous empirical studies
Ghorbel and Boujelbene (2013)	Classify and summarize relevant research and identify future directions	Systematic literature review (122 papers)	Entrepreneurs differ from managers because they use effectual logic Researchers should develop more empirical research, as well as theoretical analysis
Pawêta (2016)	Systematize the literature of international entrepreneurship with interface with effectuation	Systematic literature review (94 papers)	Both works of literature recognize the use of different causal and effectual logic Future empirical studies need to analyze the intersection of effectuation and international entrepreneurship
Matalamäki (2017)	Investigate the theoretical development stage of effectuation	Systematic literature review (81 papers)	There are four types of related themes: innovation and product development; internationalization; effectuation and causation simultaneously; and entrepreneurial expertise. There is an inconclusive “battle” with different points pointed out by the researchers
Read, Song, and Smit (2009)	Measure the relationship between effectual principles and the performance of new ventures	Meta-analysis (9,897 companies)	The authors review the concepts of effectuation principles Performance is positively related to “what I know,” “who I am” and “whom I know”
Werhahn <i>et al.</i> (2015)	Develop the concept and propose a scale for measuring the level of effectual guidance	Extensive literature review, scale development and validation (1,837 companies)	Through an extensive literature review, the authors define the concept of effectual orientation from a strategic perspective The authors develop a multidimensional model that measures effectual orientation

Table I.
Effectuation review studies

Source: By the authors

differences between Google Scholar, Web of Science and Scopus (De Winter, Zadpoor, & Dodou, 2014; Martín-Martín, Orduna-Malea, Thelwall, & López-Cózar, 2018). These authors also recognized that documents cited in Google Scholar are necessarily a collection of Web of Science, Scopus and other databases.

Therefore, in this research, we chose to use Publish or Perish software version 5 with Google Scholar interface as a reliable and plausible means of investigation due to its accessibility and breadth of the search for articles (Harzing, 2011).

The next step was the selection of keywords that needed to be “carefully considered” to search the articles in the databases (Cronin, Ryan & Coughlan, 2008, p. 40). We tested different possibilities based on the data accessibility offered by the search engine. After numerous tests, knowing that Sarasvathy’s (2001) seminal article uses the term “theory of effectuation” and given the purpose of this study to understand the theoretical discussion on the subject, we chose to use two keywords for the search of articles: “effectuation theory” and “theory of effectuation.” The publication period was between 2001 and September 12, 2017.

In this search, we found 1,188 documents (including articles, books, dissertations and theses). We have chosen to base only peer-reviewed scholarly studies published in journals qualified by the JCR 2016 impact factor equal to or greater than one, and areas of business and management. Thus, 127 articles were selected, already excluding those that appeared in duplicate (20 papers).

In the next step, we applied the content analysis technique, which assumes three steps:

- (1) pre-analysis (material organization);
- (2) material exploration (definition of analysis categories); and
- (3) treatment of results through critical and reflexive analysis (Bardin, 2009).

This technique allows us to explore information in a structured way using qualitative databases (Cronin *et al.*, 2008; Gaur & Kumar, 2018; Haapanen & Tapio, 2016) built from the collection of abstracts, main findings, conclusions and research gaps presented by the studies. For method validity, all authors read each article, taking into account the questions raised.

4. Analysis and discussion of results

The 71 articles analyzed are distributed in 28 journals, with 10 journals concentrating 65 per cent of the publications, which focused on entrepreneurship (6 journals published 32 articles) and management (4 journals published 13 articles), as can be seen in Table II.

We observed that 78 per cent of the authors engaged in empirical replication, either in the application of concepts or in support of explaining different phenomena. A small group of authors (15 articles) proposed to analyze and understand the theoretical aspects of effectuation, summarized in Table III.

From the studies that replicated concepts empirically, there is a group of authors who agree on simultaneity of the use of effectuation and causation. These studies address some situations that favor the choice between approaches. However, they do not offer an integrated analysis of under what aspects and under what conditions. Other studies only use effectuation as support to explain different phenomena. Finally, a small group of authors proposed to understand the theoretical aspects of effectuation.

4.1. Research proposals to understand theoretical aspects of effectuation

There are two different groups of authors who proposed to understand the theoretical features of effectuation. A group of authors who contributed with theoretical advances obtained results and directions for the improvement of the theory. Another group offered points for debates on the concepts of effectuation, some authors made criticism or pointed limitations to the approach and others make arguments in its defense.

Table II.
Publication on
impact journals (JCR)

#	Journal	JCR	Year of publication			Total	(%)
			2001-2010	2011-2017			
1	Entrepreneurship Theory and Practice	4,916	4	7	11	15	
2	Journal of Business Venturing	5,774	2	6	8	11	
3	Academy of Management Review	9,408	0	6	6	10	
4	International Small Business Journal	3,677	–	4	4	6	
5	Small Business Economics	2,421	1	2	3	4	
6	Journal of Small Business Management	2,876	–	3	3	4	
7	Entrepreneurship and Regional Development	1,776	1	2	3	4	
8	Journal of Management Studies	3,962	–	3	3	4	
9	Management International Review	1,516	–	2	2	3	
10	Journal of Product Innovation Management	3,759	–	2	2	3	
11-28	Other journals	–	4	22	26	36	
Total		–	12	59	71	100	

Source: By the authors

The first group of authors is responsible for three articles. In the first, [Steyaert \(2007\)](#) makes a 20-year analysis of entrepreneurial process theories. The authors approach effectuation based on practice, which tries to explain the entrepreneurs' way of acting, and promising in the field of entrepreneurship due to being a creative process and different from existing ones.

In the second article, [Fisher \(2012\)](#) connects Bricolage with effectuation. The author presents commonalities; however, he does not explain the difference between the approaches. Additionally, he proposes that effectuation is abstractly described to entrepreneurs' understanding, suggesting that focusing on behaviors may help to clarify. It is necessary to identify when it is best to use each approach or even a combination of them.

In the last article of this group, [Perry et al. \(2012\)](#) make a bibliometric review of the publications that appeared between 1998 and 2012 on effectuation to verify the maturity of the theory. Thus, the authors point out that although there are several theoretical and empirical publications, the approach can still be considered as an incipient theory indicating directions for future studies.

The second group of authors is responsible for three theoretical debate articles, which present criticisms, limitations or defense arguments to effectuation. [Goel and Karri \(2006\)](#) start the first debate by proposing that entrepreneurial personality characteristics, combined with effectual logic, increase the chance of developing overconfidence, which may increase the company's risk. In response, [Sarasvathy and Dew \(2008b, p. 734\)](#) say that overconfidence has a relevant concept in causal logic. However, it is "largely irrelevant in effectual logic," knowing that entrepreneurs behave differently according to the approach used. [Karri and Goel \(2008, p. 746\)](#) then respond that [Sarasvathy and Dew \(2008b\)](#) approach "alternative behavioral assumptions" in an underdeveloped way and do not clarify how these points contest the arguments presented. [Karri and Goel \(2008, p. 746\)](#) conclude the article by reaffirming the initial position and saying that [Sarasvathy and Dew \(2008b\)](#) presented "assumptions that are restrictive and unnecessary for the advancement of effectuation theory and that these assumptions do not meet the parsimony criterion in the development of theory".

[Chiles, Bluedorn, and Gupta \(2007\)](#) start the second theoretical debate proposing the use of Lachmann's works by entrepreneurship authors. The authors state that [Sarasvathy \(2001\)](#) already uses the economist's ideas, but without direct reference to him. In response,

Categories	Subcategories	Authors
Empirical replication or support to explain other phenomena (56 papers)	Empirical effectuation replication in different business contexts (37 papers)	Concurrency between effectuation and causation General entrepreneurship: Sarasvathy & Dew (2005), Chandler <i>et al.</i> (2011), Berends <i>et al.</i> (2014), Blauth, Mauer, and Brettel (2014), Agogue, Lundqvist & Middleton (2015), Daniel <i>et al.</i> (2014), Guo, Cai, and Zhang (2016), Smolka <i>et al.</i> (2016) and Ortega (2017) International entrepreneurship: Gabriellsson & Gabriellsson (2013), Kalinic, Sarasvathy, and Forza (2014), Nummela <i>et al.</i> (2014), Galkina & Chetty (2015), Laine & Galkina (2017) and Yang & Gabriellsson (2017) New business creation: Reymen <i>et al.</i> (2015), Alsos <i>et al.</i> (2016) and Laskovaia, Shirokova, and Morris (2017) Wiltbank <i>et al.</i> (2009), Fischer & Reuber (2011), Gabriellsson & Politis (2011), Brettel <i>et al.</i> (2012), Evers, Andersson, and Hannibal (2012), Nielsen & Lassen (2012), Politis, Winborg, and Dahlstrand (2012), O'Connor & Rice (2013), Sarasvathy <i>et al.</i> (2014); Lam & Harker (2015), Werhahn <i>et al.</i> (2015), Akemu, Whiteman, and Kennedy (2016), Velu & Jacob (2016), York, O'Neil, and Sarasvathy (2016), Cai <i>et al.</i> (2017), Chandra (2017), Engel <i>et al.</i> (2017), Futterer, Schmidt, and Heidenreich (2017) and Nemkova (2017)
	Effectuation as support to explain different phenomena (19 papers)	Fiet, Piskounov, and Patel (2005), Mitchell <i>et al.</i> (2007), Brinckmann, Grichnik, and Kapsa (2010), Neck & Greene (2011), Dacin, Dacin, and Tracey (2011), Sharma & Salvato (2011), Lusch & Vargo (2012), Watson (2013), Fayolle & Liñan (2014), McCaffrey (2014), Pruthi (2014), Spedale & Watson (2014), Selden & Fletcher (2015), Knight & Liesch (2016), Markman <i>et al.</i> (2016), Sieger <i>et al.</i> (2016), Korsgaard <i>et al.</i> (2016), Nowiński & Rialp (2016) and Packard (2017)
Theoretical aspects (15 papers)	Theoretical advances (3 papers)	Steyaert (2007), Fisher (2012) and Perry <i>et al.</i> (2012)
	Theoretical debate (12 papers)	Goel & Karri (2006), Chiles, Gupta, and Bluedorn (2008), Chiles, Gupta, and Bluedorn (2008), Karri & Goel (2008), Sarasvathy & Dew (2008a, 2008b), Arend, Sarooghi, and Burkemper (2015), Garud & Gehman (2016), Reuber, <i>et al.</i> (2016), Arend, Sarooghi & Burkemper (2016), Read <i>et al.</i> (2016) and Gupta, Chiles, and McMullen (2016)

Table III.
Categorization of
results

Source: By the authors

Sarasvathy and Dew (2008a) disagree with the arguments and claim that the authors have different interpretations and perspectives on how effectuation works and its relationship with Lachmann. Finally, Chiles, Gupta and Bluedorn (2008) answer reaffirming the effectuation relationship with Lachmann's proposals and clarify some of their views.

In the third theoretical debate, [Arend, Sarooghi and Burkemper \(2015\)](#) question effectuation as a theory by analyzing the concepts of structure experience, explain, and establish (3E). The authors conclude that effectuation is underdeveloped as a theory of entrepreneurship, as it does not meet the researcher's experience criteria through observation and literature review; explanation of the phenomenon; and establishment as to the viability and value of the theory. Moreover, they question novelties that effectuation, as for them many of the characteristics that describe phenomenon had already been presented in the entrepreneurship literature, thus they criticize non-recognition of previous works, including benefits of causation. From this study emerge four articles as answers to the arguments presented and a replica article by [Arend et al. \(2016\)](#).

[Read et al. \(2016\)](#) write the first article to defend effectuation in response to [Arend et al. \(2015\)](#). They do not agree with the arguments presented, classifying them as a positivist analysis. They state that the authors failed to analyze much of the existing literature. They present a table with the consolidation of previous studies to answer the three main criticisms: construction without connecting with previous studies, lack of empirical observations and lack of adoption by educators and practitioners. They also state that [Arend et al. \(2015\)](#) seek to understand the validity of effectuation when the most relevant is to understand the utility. Finally, the authors agree with [Arend et al. \(2015\)](#) that critical reflection on effectuation may indicate opportunities for empirical research and may even improve concepts. However, they disagree with the directions presented and indicate new opportunities for future studies.

In the next defense article, [Reuber, Fischer and Coviello \(2016\)](#) agree in part with the previous two articles. It means further theoretical advances are needed for effectuation to evolve into a theory. However, they believe that the criticism presented by [Arend et al. \(2015\)](#) should be more constructive and less destructive. For [Reuber et al. \(2016\)](#), the most important point would be to understand effectuation as an evolving theory, and from that to understand the concepts that are stable and consistent, as well as, which deserve to be improved.

[Gupta, Chiles and McMullen \(2016\)](#) reinforce the arguments of [Read et al. \(2016\)](#). They criticize the way effectuation was analyzed and claim that it should be viewed as a process theory, so it does not fit the analysis of 3Es by [Arend et al. \(2015\)](#).

[Garud and Gehman \(2016\)](#) follow another path of argument and present the same results as [Gupta et al. \(2016\)](#). The authors state that the 3E framework applied by [Arend et al. \(2015\)](#) should not be used to evaluate nonlinear theories with observations of complex processes or phenomena. Additionally, [Garud and Gehman \(2016\)](#) presented a literature review with studies that sought to understand how to evaluate theory and demonstrate that there is no consensus on this topic in the management area.

Finally, [Arend, Sarooghi and Burkemper \(2016\)](#) present a reply to [Read et al. \(2016\)](#) and other authors. They reaffirm the assumptions made in 2015, and reinforce the validity of the arguments that were supported by previous studies that cite effectuation frequently. Furthermore, the authors refute the answers presented and reinforce their position regarding the use of the 3E framework. They claim that it is a robust theory evaluation tool that seeks to understand validity, but with great concern for pragmatism, so it applies to all theories.

[Arend et al. \(2016\)](#) explain that [Read et al. \(2016\)](#) present previous studies, but they neither explain the connection with previous theories nor how effectuation adds value to them. Additionally, most of these works consider effectuation as a logic, an approach, a construct, none consider it as a theory. None of these studies compared the approach with other modes of action; only one study proves the superiority of effectuation over causation

(Arend *et al.* 2016). The authors also reject the arguments presented by Read *et al.* (2016) about pedagogical adoption and popularity in the press, as they say that initial criticism was that effectuation did not add value to the student and understand that this point remains unexplained.

In response to Reuber *et al.* (2016), Arend *et al.* (2016) state that they recognize the evolution of effectuation and that structure 3E explicitly addresses the stabilization of constructs. Finally, Arend *et al.* (2016) state that Gupta *et al.* (2016) and Garud and Gehman (2016) do not offer evidence that effectuation fits the definition of process theory. However, the theoretical framework 3E is a theory assessment that can be applied to all valid observations, including complex observations and phenomena (Arend *et al.*, 2016).

Arend *et al.* (2016) say that advocates of the effectuation theory were not open to suggestions and critics. They could have been more constructivist, better accepting criticism and understanding that the theoretical debate may contribute to the evolution of the theory. Advocates claim that effectuation is part of a new reality, when in fact there is no consensus on what this new reality is. Additionally, they state that the 3E framework is not suitable for evaluation without offering a set of alternative criteria proving that it is a theory (Arend *et al.*, 2016).

The analysis of the theoretical debates shows three different prisms on effectuation:

- Authors who understand that effectuation offers theoretical contributions but have limitations in some respects (Chiles *et al.*, 2008, 2007; Goel & Karri, 2006; Karri & Goel, 2008; Reuber *et al.*, 2016);
- Most critical authors who question effectuation as theory (Arend *et al.*, 2016, 2015); and
- Authors who present arguments in defense of effectuation (Garud & Gehman, 2016; Gupta *et al.*, 2016; Read *et al.*, 2016; Sarasvathy & Dew, 2008a, 2008b).

Therefore, after more than a decade and a half and publication of different articles, the debate on effectuation remains open and inconclusive (Matalamäki, 2017). The authors who presented a critical analysis for the approach understand that different arguments presented remain unexplained and that the defenders of it seem to be closed to debate.

5. Final remarks

The systematic literature review indicates that since the proposition of effectuation in 2001, there has been a predominance of studies that seek to test effectuation empirically, either through the replication of concepts (Arend *et al.*, 2015) or to help explain other phenomena.

In this sense, few studies have proposed to analyze effectuation from the theoretical point of view, as a small group sought to understand conceptual aspects and contributed with theoretical advances to improve the approach.

A second small group of authors participated in theoretical debates that remain inconclusive, with different positions among the authors.

In this regard, some authors understand effectuation as a theory but have conceptual limitations. A more critical article questions effectuation as theory (Arend *et al.*, 2015). Finally, a group of authors presents arguments in defense of the approach, responding to the criticisms and limitations presented.

The criticisms or limitations are related to the foundations on which effectuation was built (Arend *et al.*, 2015; Chiles *et al.*, 2008; Karri & Goel, 2008) and even to the elements that make it a theory (Arend *et al.*, 2015). Furthermore, if effectuation is a pragmatic theory, it has to be effective in practice, but so far there are not enough empirical elements to demonstrate its practical implications (Arend *et al.*, 2015).

Another limitation indicates that effectuation is very focused on the individual level and little concerned with the level of the organization (Werhahn *et al.*, 2015). Some authors even say that some effectuation points are subjective, which can make it difficult for entrepreneurs to understand (Fisher, 2012).

The theoretical debate on effectuation remains open, which indicates that the approach is open to discussion. Furthermore, it is worth mentioning that part of the authors who proposed to criticize the concepts of effectuation felt that the arguments presented were not answered and that the advocates of the approach are closed to the debate. This seems to indicate the lack of interest in theoretical and critical debate, and this kind of posture tends to limit theoretical advance.

Therefore, this study shows that there is no consensus on effectuation being theory or not. If considered a theory, it appears to be under construction, at a rudimentary level and it is being questioned. It is necessary to carry out further studies focusing on theoretical aspects.

5.1 Study limitations and future research agenda

The systematic literature review method with the content analysis technique requires the authors' choices to select a base of studies that can be thoroughly analyzed to answer the research objective. Thus, article base selected has limitations due to the choice and selection of the database, as well as the search criteria applied.

The authors participating in the debate addressed some theoretical gaps for future studies. Despite the differences of opinion, some authors present the same directions. It is necessary to understand the conditions that favor the simultaneity of effectuation and causation (Fisher, 2012; Read *et al.*, 2016). It is also relevant to understand who the effectuators are, as well as their competencies (Arend *et al.*, 2015; Read *et al.*, 2016). Table IV presents a summary of all the points presented by the authors.

Theoretical debates are essential for knowledge evolution, so we suggest that future studies return discussions about the approach. One way is to understand if effectuation is theory or not, as well as what it takes to be theory and what stage it is. To do this, some articles in management may be helpful (Corley & Gioia, 2011; Weick, 1995; Whetten, 1989). Furthermore, we suggest other opportunities for the search agenda:

- Empirical studies with analysis of theoretical concepts. We indicate that further studies go beyond a test of replication of concepts in different contexts, as indicated by Arend *et al.* (2015, 2016) and Ghorbel and Boujelbène (2013). In this regard, few studies have sought to understand the functionality and application of effectuation principles in the practice of entrepreneurs in different scenarios, so it is interesting to investigate this point. Moreover, some researchers note subjectivism in understanding some of the concepts and principles of effectuation (Arend *et al.*, 2015; Fisher, 2012), does it need to define the level of entrepreneurs that apply or make it more detailed in terms of organization (Werhahn *et al.*, 2015)?
- Many authors have indicated the simultaneity between causation and effectuation (Ferreira *et al.*, 2017; Laine & Galkina, 2017; Laskovaia *et al.*, 2017; Ortega, Garcia, & Santos, 2017; Yang & Gabrielsson, 2017; Guo *et al.*, 2016; Smolka *et al.*, 2016).



Category	Authors	Theoretical gaps
Theoretical advances	Steyaert (2007)	Study entrepreneurship from the perspective of other process theories or seek to explain it from the perspective of theories presented by the author
	Fisher (2012)	Identify when it is best to use effectuation, causation or the best combination of approaches
	Perry <i>et al.</i> (2012)	The authors suggest new types of questions, data collection methods, units of analysis and theoretical contributions
Theoretical debate	Goel and Karri (2006)	Understand which elements of effectual logic have the most significant effect on overconfidence
	Chiles, Gupta, and Blueborn (2008)	Understand effectuation based on Lachmann's thinking. Explore the Lachmannian view on entrepreneurship, for example, creating and exploiting opportunities
	Arend, Sarooghi, and Burkemper (2015)	Five ways as follows: explain the causes and effects of effectuation; explore performance influences or redefine boundaries; improve problem definition accuracy and understand benefits and risks; explain the differences regarding concepts similar to effectuation, existing in the literature before the seminal article; and understand who the effectuators are, how, when they applied, what worked, what went wrong, and how their skills improve
	Read <i>et al.</i> (2016)	Seven ways as follows: differentiate control as strategy and outcome; identify the effective skills of entrepreneurs; conditions that favor the use of logic and the ways of alternating or combining; connect with planning, negotiation and goal setting; integrate with interconnectedness of changing and evolving selection; explain how to turn media into resources; and understand more about co-creative equity relationships in partnerships
	Reuber <i>et al.</i> (2016)	Understand the integration between creativity (effectual) and habit (causal) of entrepreneurs, recognizing that they are complementary and not different processes. Understand how and under what conditions the usual patterns, even if they occur in a hybrid way
	Gupta, Chiles, and McMullen (2016)	Examine effectuation to understand characteristics, motive, and how events happen over time

Table IV.
Theoretical gaps for
future studies

Source: By the authors

However, there is no consensus on which aspects and under which conditions are more appropriate to choose one approach over another, so we recommend that future studies explore these issues, including seeking to understand the coexistence between approaches (Read *et al.*, 2016; Fisher, 2012); and

- Some authors had already explored the nonlinear decision-making process (Behn, 1988; Cohen *et al.*, 1972; Weick, 1995), so new studies can understand the interface between approaches, as well as similarities, convergences and divergences.

The possibilities for theoretical research on effectuation do not end with these suggestions. On the contrary, the research undertaken reinforces the arguments surrounding the inconclusiveness of whether effectuation is a theory. More clarity is needed on the conceptual boundaries and possible limitations of this proposition. Finally, there seems to be a long way to go for researchers working in the field of entrepreneurship.

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Corresponding author

Suzi Elen Ferreira Dias can be contacted at: dias.suziferreira@gmail.com

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