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The rise of art movements: an effectual process model of Picasso's and Braque's give-and-take during the creation of Cubism (1908–1914)

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Abstract Cubism was the most influential movement in modern art, and Pablo Picasso transformed the art world like no other figure before him. Changes in institutional and market conditions have been until now mainstream explanations for the emergence of art movements such as Cubism. However, we argue that there are complementary explanations centered on the agency of the artists themselves and based on entrepreneurial decision-making processes, in particular on the theory of effectuation. We have analyzed the detailed accounts of art history experts to generate a longitudinal process model of the creation of Cubism. Cubism emerged because Picasso and Braque transformed their common set of means into a variety of effects. Cubist innovations originated sequentially, as part of a chain of achievements. One innovation and artistic achievement led to another. Picasso and Braque's methods of producing series of paintings and drawings and building upon previous achievements enrich our existing understanding of effectuation on a central point—the transformation of means into effects. This research also uncovers relationships among effectuation, bricolage, and subversion. This study illustrates how the theory of effectuation can be a method for the creation of new artifacts in fields beyond entrepreneurship and how effectuation can be a general-purpose decision-making schema for operating under conditions of uncertainty. The results of our study offer lessons of interest to scholars and practitioners in both art and entrepreneurship.

Keywords Cubism · Picasso · Effectuation · Bricolage · Subversion

JEL classifications D81 · L26 · M13 · M31 · O31

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1 Introduction

The emergence of art movements is relevant not only for art scholars but also for scholars interested in the creation of human artifacts. The purpose of this study is to offer a complementary explanation for the emergence of art movements centered not on changes in institutional and market conditions and location factors but on the agency of the artists themselves. This explanation is based on entrepreneurial decision-making processes and, particularly, on the theory of effectuation. As we use an entrepreneurship lens to enhance our understanding of the emergence of art movements, we first define "art movement" and Cubism and follow with a series of exogenous and endogenous explanations for their emergence.

1.1 Art movements

An art movement is a style in art with a particular philosophy, goal, or purpose, followed by a generation of artists during a period of time. We cannot speak of art

movements as such until the appearance of Impressionism in the mid-nineteenth century. European art of the seventeenth and eighteenth centuries was dominated by France and England's Royal Academies, national academies in which the accepted quality of an artwork depended on the judgment of peers who evaluated whether the artwork was in accordance with current orthodoxy. Artists competed in the Salon, the French Academy's yearly exhibition, for the honors of medals and state purchases (Cottington 2005). However, by the turn of the eighteenth century, the ability of the Salon to act as a sales channel was diminishing as the number of works exhibited increased (Cottington 1998). Also, there was a rapid rise in the number of aspirant artists in the 30 years after 1870. The removal of the state's monopoly of control (and thus guaranteed support) of the Salon in 1881 led increasing numbers of artists to find themselves dependent on the new dealer-based free market. The consequence of this privatization (in modern terms) of the Salon was a multiplicity of pictorial styles for an increasingly diversified and expanding bourgeois clientele with the money to spend on artworks.

In 1870 Paris, the emergence of the dealer–critic system gave rise to Impressionism (White and White 1993), which was born as a reaction to academicism. White and White (1993) explain that the emergence of the dealer–critic system was the result of the Academy's inability to provide work for the growing number of painters centered in Paris. In the new regime dominated by traders and critics, a break with the academic conventions was encouraged.

Hook (2012) states that the factor that ultimately facilitated the rise of Impressionism was a change in the way paintings were marketed. The powerful dealer interpreted and marketed the new art to the public and simultaneously employed the artists he was promoting by guaranteeing to buy their work. Hook (2012) concludes that the sophisticated contemporary art market of the twenty-first century has its origins in the way Impressionism was marketed by Paul Durand-Ruel in 1870. Furthermore, critics played an important role: "The history of modern visual art is also the history of those critics who were among the first to recognize the importance of new groups and movements" (Wijnberg and Gemser 2000, p. 328).

Impressionist artists themselves played a role in the creation of a market for art and in the emergence of the subsequent art movements: "By coupling their new aesthetic with the establishment of a commercial and critical system to support their art, they … laid the foundation for the succession of modern movements that would dominate art through the twentieth century" (Fitzgerald 1996, p. 7).

There are two existing explanations for the proliferation of art movements throughout the nineteenth century. On one hand, the increase in the number of painters made it harder to ensure the internal coherence of a large professional society (White and White 1993). The second explanation has to do with institutional order, as the guild system was officially abolished, destroying the artists' existing support structure (Hauser 2005).

As Cottington (1998) explains, the rise in the number of painters led to a proliferation of smaller salon exhibits, organized by the artists themselves, and to market saturation. Ironically, the growth in the number of salons, itself in part a response to the problem, thus served to exacerbate it, contributing to the fragmentation of the art world. There was little stylistic similarity among the artists exhibiting in the salons. In addition to the proliferation of salons, the incapacity of the Salon to handle the growth in numbers of artists also led to a well-developed hierarchy of art galleries that provided viewing conditions more comfortable, less crowded, and more domestic in appearance than those of the Salon (Cottington 2013). Moreover, galleries displayed the work of novice, unorthodox, and unknown artists (Cottington 1998).

1.2 Cubism

Cubism is an art movement created by Pablo Picasso and Georges Braque during the period 1908–1914 in Paris. It was, among many other things, "a new way of representing three-dimensional reality on a two-dimensional surface" (Wilson 1983, p. 3). In overthrowing classic principles of representation (Sgourev 2013), Cubism formed the very basis of modern art and was the most influential movement in its history (Wilson 1983). In addition, Cubist syntax is the syntax of twenty-first-century art (Karmel 2003).

1.3 Exogenous explanations for the emergence of art movements

Although the influence of art movements such as Impressionism and Cubism has been extensively documented by art historians, less attention has been paid to the *birth* of these movements. Changes in

institutional and market conditions have been until now mainstream explanations for the emergence of these styles.

Wolff (1981) holds that social institutions have a role in deciding who becomes an artist, how artists practice their art, and how artworks are produced and marketed. She concludes that the dealer–critic system emerged due to the decline of an outdated institution and the increase in the number of potential buyers. Cottington (2004) points to a progressive disengagement of artists from the established institutional framework of art education, professional practice, and exhibition. Cottington (1998, 2005) highlights the role of collectors. While galleries needed artists willing to show their work with them instead of in the salons, they also needed collectors willing to buy this work. Without collectors' willingness to speculate, the new market would not have emerged.

Some experts emphasize the significant role played by new market conditions. Cottington (1998, p. 50) refers to avant-gardism as "market-driven avant-gardism." In a similar vein, "the market was not peripheral to the development of modernism but central to it. It was the crucible in which individual artists' reputations were forged as critics, collectors, and curators joined with artists and dealers to define and confer artistic standing" (Fitzgerald 1996, p. 4). Particularly in the case of Cubism, "the market played a critical role in Cubism's emergence" (Sgourev 2013, p. 1608).

In sum, the rise of Impressionism "was facilitated by a change in the selection system of the visual arts industry from one dominated by peers into one dominated by experts" (Wijnberg and Gemser 2000, p. 323). The former "was strongly biased in favor of tradition and continuity" (Wijnberg and Gemser 2000, p. 324). Then in the latter, innovation "came to serve as the dominant criterion for the evaluation of quality in the painting industry" (Wijnberg and Gemser 2000, p. 327). With regard to Cubism's rise, "the fragmentation of the art market in early 20th-century Paris served as the trigger. The proliferation of market niches and growing ambiguity over evaluation standards dramatically reduced the costs of experimentation in the periphery and the ability of the core to suppress radical ideas" (Sgourev 2013, p. 1601).

In addition to changes in institutional and market conditions, other researchers refer to location factors as an explanation for the emergence of art movements. Williams (1992, p. 13) writes that "it is now clear that there are decisive links between the practices and ideas of the avant-garde movements of the twentieth century and the specific conditions and relationships of the twentieth-century metropolis." Sgourev (2013, p. 1608) states that "Cubism could not have been born elsewhere but in Paris." In a similar vein, Williams (1992, p. 21) explains that "within the new kind of open, complex and mobile society [the metropolis], small groups in any form of divergence or dissent could find some kind of foothold, in ways that would not have been possible if the artists and thinkers composing them had been scattered in more traditional, closed societies."

Hellmanzik's (2010, p. 199) analysis of modern artists concludes that "location matters in terms of premiums … for paintings produced in Paris and New York." Oberlin and Gieryn's (2015, p. 20) study of twentieth-century schools of painting concludes that "emplacement is important not only for the emergence of new esthetic norms but also for the recognition of the group as a 'school' and for its eventual success in the art market."

1.4 Complementary endogenous explanations for the emergence of art movements

Changes in institutional and market conditions and location factors almost certainly played some role in the emergence of new art movements, including Cubism. However, we argue that there are complementary and equally important explanations for their emergence; particularly, explanations centered on the agency of the artists themselves. Creativity is the result of collective effort (Suddaby and Young 2015; Wolff 1981), and Becker (1982, p. 310) states that "an art world is born when it brings together people who never cooperated before to produce art based on and using conventions previously unknown or not exploited in that way." He points to *endogenous* rather than *exogenous* causes and emphasizes the collaborative effort of individual artists and other actors in the rise of art movements: "To understand the birth of new art worlds, we need to understand the process of mobilizing people to join in a cooperative activity on a regular basis" (Becker 1982, p. 310 and 311).

The absence of endogenous explanations for the emergence of art movements and Becker's (1982) remarks about people who cooperate in novel ways sparked our interest in examining the creation of Cubism through an entrepreneurial lens. This, we reasoned, would allow us to explore in detail the role of

human agency in the emergence of art movements, an effort that would build on the debate between Baumol's "rules of the game" and Gerschenkron's "entrepreneurship against the odds," first detailed in Harmeling and Sarasvathy (2013). In short, these two economic historians portrayed the role of the entrepreneur in almost diametrically opposed ways: Baumol focused on institutional factors, which established what he called the "rules of the game" that dictated the level of entrepreneurial activity that would emerge in a given society, while Gerschenkron stressed the agency of the resourceful entrepreneur who was able to flourish *despite* the lack of a prevailing institutional infrastructure meant to encourage entrepreneurial activity.

In this research, we show that an entrepreneurial decision-making process including, but not limited to, heuristic elements of effectuation provides a framework to explain the creation of Cubism. In so doing, we add to existing theories on the rise of art movements in general and Cubism in particular. In addition to changes in market conditions, Cubism emerged because Picasso and Braque transformed their common set of means into a variety of effects that originated innovative breakthroughs. As part of the proposed framework, we explain how Picasso and Braque made their choices and progressed toward their finished canvases. The research also uncovers relationships among effectuation, bricolage, and subversion. These results could be of interest to both art and entrepreneurship scholars and practitioners. The true value of this study resides not only in suggesting an alternative explanation for the emergence of art movements—and Cubism in particular—based on the agency of the artists themselves, but also in providing further insight into the creation of human artifacts in general.

The paper is structured as follows: first, we review literature on the connection between art and entrepreneurship, on Cubism as a paradigm of exceptional value creation, on artistic decision-making, and on effectuation; then, we detail the methodology followed; next, we summarize and discuss the results; and finally, we detail the contributions of the research.

2 Literature review

Because our aim is to examine the creation of Cubism through the lens of entrepreneurial decision-making, we begin by explaining the rationale behind the connection between art and entrepreneurship. We note that some researchers have used art to illustrate management topics. In particular, Cubism and Picasso's career and output have been analogized to topics in management, organization science, and marketing. We indicate how artists make their choices and progress toward the final version of their works. Finally, from the literature on effectuation, we focus on the definitions, concepts, and prescriptions we use in Sections 4 and 5.

2.1 The connection between art and entrepreneurship

There is a growing body of literature building upon the similarities between artistic creation and the entrepreneurial process (Scherdin and Zander 2011; Harmeling 2011). Above all, art and entrepreneurship both produce novelty (Lindqvist 2011). Meisiek and Haefliger (2011) discuss the commonalities between artistic and entrepreneurial processes in the creation of novel artifacts, and Fillis and Rentschler (2010, p. 57) suggest that "decision making is common to all kinds of creative performance." Finally, Barry (2011) claims that Schumpeter's notion of creative destruction is the joining point between art and entrepreneurship.

Some researchers (Bureau and Zander 2014, p. 126) use Tsoukas's (1993) analogical reasoning to "transfer some information from a specific domain—e.g. art—into a new domain—e.g. entrepreneurship," and to identify similarities and dissimilarities. Much of the improvisation research has been on jazz (e.g., the 1998 *Organization Science* special issue on jazz improvisation and organizing). Austin and Devin (2003), after observing theatrical rehearsals, coined the term "artful making," which derives from collaborative art, requires an artist-like attitude, consists of cheap and rapid iteration, and incorporates the actions of others as well as unexpected events from the outside. Vera and Crossan (2004) build on the improvisational theater metaphor, asserting that it focuses on process, rather than outcomes. Vera and Crossan (2004, p. 737), citing Sawyer (2000), explain that "improvisational theatre is a balance between problem finding and problem solving. As part of the creative process, actors find a problem for themselves, spend some time solving the problem, and find a new problem during the solving of the last one." Barry and Rerup (2006) link the mobile art of Alexander Calder and organizational design. Hjorth (2007) uses a fragment of Shakespeare's *Othello* as an extreme illustration of a narrative approach to entrepreneurship

studies. Hjorth and Holt (2016) use the work *Sunflower Seeds* by Chinese artist Ai Weiwei to challenge the association of enterprise and entrepreneurship. These myriad examples show that the fields of art and entrepreneurship have distinct synergies and that we can transfer information between the two fields.

2.2 Picasso as analogy to topics in management and marketing

Several studies, also based on analogic reasoning (Tsoukas 1993), connect Picasso's career and output to management and marketing topics. His Blue Period is offered as an example of consistency in the use of color across a sequence of paintings and serves as an analogy to strategy as consistency in behavior (Mintzberg 1978; Mintzberg 1987; Mintzberg and Waters 1985). The same period is also put forth as an example of serendipity: "Picasso had only blue paint to work with one day, but when he started to toy with the effects of painting with this one color, he found that interesting art could be made of it. Thus, Picasso took what was initially a serendipitous constraint, and leveraged it into a creative result" (Dew 2009, p. 735). Adler (2010), Gonin (2012), and Dufour and Steane (2014) note that, as Cubists displayed an object from multiple perspectives, managers in more complex organizations are increasingly required to adopt multiple perspectives simultaneously. Desborde and Marshall (2016) show that Picasso repeatedly experimented with new and diverse painting styles throughout his 70-year career to keep his art "fresh" and at the cutting edge of the art market of the time, thus illustrating the importance of revitalizing product lines. Sgourev (2013, p. 1601) uses the rise of Cubism to examine "what makes radical innovation possible if peripheral actors are more likely to originate radical ideas but are poorly positioned to promote them," while actors in the core can mobilize the support but are more likely to innovate through recombination. Muñiz et al. (2014), p. 68) analyze Picasso's career and assert that some artists behave as brand managers and work with a network of dealers, collectors, and art critics "to cultivate an appealing and vivid identity that translates into purchases and brand loyalty." Fillis and Rentschler (2006), analyzing Picasso's life and output, uncover marketing practices such as market analysis, product and brand name development, distribution, merchandising, public relations, and pricing. All of these examples show that Cubism, its different periods, and the career and output of Picasso are considered by management scholars as paradigms of exceptional value creation, suitable to illustrate value creation not only in art but also in management.

2.3 Artistic decision-making

Becker (1982) argues that a work of art at a particular moment is the result of the cumulative choices made by the artist up to that point. As these choices are made from moment to moment, they shape the developing creation. In this regard, artistic choices show similarities to managerial choices. Some business strategies have formed "gradually, perhaps unintentionally, as he [the strategy-maker] makes his decisions one by one" (Mintzberg 1978, p. 935) and are the result of "countless strategic decisions that have been made, one at a time, over a period of years" (Fredrickson 1984, p. 400).

Becker (1982) states that artistic conventions—standardized ways of doing things embodied in practices taken for granted—guide artists' decisions. However, when artists break with convention, they do not have rules or established criteria to follow, and the reactions of others, whether actual or anticipated, become their only reference.

Becker (1982) explains that the development of artworks can be analyzed through a succession of sketches, each of which contains an infinity of choices. Mace (1997, p. 270) studied how artists make their decisions and saw that many of them work in series and accumulate "a number of individual works pertaining to a certain theme." However, not all of the artists studied worked in the same way. Mace (1997, p. 273) concludes that

> in this study some artists reported having a relatively clear idea of what they wanted to depict when they started an artwork and deviated little from that, except for resolving technical or aesthetic problems as they occurred. Other artists started with a clear idea of the artistic problem, but in the process of making the work, other ideas occurred that changed the nature of the problem and the resulting artwork. Other artists started working with only a vague idea of the problem, which was formulated more clearly during the making process.

Simonton (2007) describes two alternative processes that end in the completed work of art. In the first

(monotonic improvements), "each consecutive sketch moves the artist closer to his goal" and "represents a sharpening or honing of the idea represented in the preceding sketch" (p. 332). Simply stated, each sketch builds on all of the preceding sketches. In the second (nonmonotonic variants), each sketch is a blind variant. "The artist cannot determine in advance whether a given sketch marks a step forward or a step backward with respect to the final composition" (p. 333). He does not know whether he is getting "colder" or "hotter." In this second process, whether the creator "goes in the right or wrong direction can be ascribed to chance, rather than to intelligence or expertise" (p. 333). The artist explores a wide range of possibilities before choosing the definitive one. The creator relies on a "trial-and-error process that produces more ideas than will ever be used" (p. 331). Many of the variants are "superfluous and dispensable with respect to the finished painting" (p. 331), but the artist counts on them to make his final choices. Simonton (2007) shows in his work that, in their "progress toward the final version of the painting," Picasso's sketches for Guernica "illustrate a Darwinian process of blind-variation and selective-retention (i.e. nonmonotonic variants), rather than a more systematic, expertise-driven process (i.e. monotonic improvements)" (p. 329). He concludes that Picasso was "accumulating several possible variants of each main figure and only later selected the final representation from that set. Often the variant selected would be one that appeared early in the series of sketches regarding that figure" (p. 240). Getzels and Csikszentmihalyi (1976) studied the creativity of a cohort of art students and saw that the more creative individuals also adopted more nonmonotonic strategies and extensively explored a wider range of possibilities, while the less creative individuals started with a clear idea and during the creative process refined this idea. These variations on decision-making processes in art hold lessons for decision-making in business, and the way in which artists make their choices and progress toward the final version of their works are topics of value to management scholars.

2.4 Effectuation

In this paper, we examine the process of artistic creation through the lens of entrepreneurial decision-making. To that end, we have chosen the theory of effectuation as the basis for our conceptual framework.

2.4.1 Definition

Effectuation means taking a given set of means and selecting among possible effects that can be created with them. "Characteristics of decision makers, such as who they are, what they know, and whom they know, form the primary set of means that combine with contingencies to create an effect that is not preselected" (Sarasvathy 2001, p. 249). Effectuation is a coherent set of five heuristic principles grounded in expert entrepreneurial practice for decision-making under uncertainty (Read et al. 2009) useful in the creation of human artifacts (Sarasvathy et al. 2008). Expertise is not merely experience but reliable superior performance achieved through years of deliberate practice (Dew et al. 2009). The five principles, enunciated as prescriptions to potential entrepreneurs, are as follows: start with your means (think about what you can do based on what is available to you), focus on the downside risk (affordable loss), leverage contingencies, form strategic alliances, and control versus predict (the future cannot be predicted). In contrast, causation contends that goals determine actions and entails selecting the best action to achieve a given goal, subject to the available means. It also suggests that the future can be predicted.

2.4.2 The five heuristic principles

The effectuator's pool of resources (what I have) is composed of three categories of means: identity (who I am: traits, tastes, and abilities), knowledge (what I know: education, training, expertise, and experience), and network (whom I know: social and professional networks).

The principle of affordable loss recommends that decision-makers avoid risking more than what they can afford to lose (Read et al. 2009). Individuals must consider whether an idea is worth pursuing even if they lose their investment. In addition, there are other resources apart from time and money—such as reputation—that may be put at risk (Dew et al. 2009).

Given the exact same starting point, contingencies, both personal and historical, shape the artifact that is finally created (Sarasvathy 2001; Harmeling 2011). Entrepreneurs exploit contingencies rather than preexisting knowledge and manage failures rather than trying to avoid them. In other words, entrepreneurs do not "merely react to contingencies" but rather "actively

seek to transform them into" resources (Harmeling and Sarasvathy 2013, p. 716).

Effectuation allows for the co-creation of ventures with nothing more than the available resources and stakeholders who self-select into the process and make precommitments (Read et al. 2016). New stakeholders provide additional means (Read et al. 2009). Precommitments are provisions of resources made early in the process by self-selected stakeholders who engage a priori (Wiltbank et al. 2006). Sarasvathy et al. (2008, p. 339) say that "courses of action are typically co-determined by stakeholders who are willing to commit resources to particular actions. In general, stakeholders not only provide resources, they also set immediate agendas." Indeed, "*who comes on board* determines what the new market will look like" (italics original; Sarasvathy and Dew 2005, p. 558). Moreover, "the commitment to the network … involves an explicit pre-commitment not to explore alternatives" (Sarasvathy and Dew 2005, p. 552). The contribution of stakeholders causes an expanding cycle of resources and a converging cycle of constrains on goals, as shown in Fig. 1.

Welter et al. (2016, p. 10) hold that "the essence of effectuation is a non-predictive way of coping with uncertainty." High uncertainty "may reduce the accuracy and usefulness of prediction, requiring alternative approaches" (Wiltbank et al. 2009, p. 117). Effectuation refers to Knightian uncertainty, in which the future is unknowable because it is not possible to estimate probabilities since distributions do not exist (Sarasvathy et al. 2008).

Effectuators focus "on the *controllable* aspects of an unpredictable future" rather than "on the predictable aspects of an uncertain future" (italics original; Sarasvathy 2001, p. 252). The logic of nonpredictive control suggests that "to the extent you can control the future you do not need to predict" (Wiltbank et al. 2009, p. 117).

Sarasvathy (2001) asserts that, although the assumption of preexistent goals is eliminated, the entrepreneur is guided by a generalized end goal or aspiration in the sense that "effectuation is not a theory of 'trial and error'" and "the effectual process is purposeful … and is propelled through high level goals" (Read et al. 2016, p. 532).

Effectuation is about creating human artifacts and designing the environments in which entrepreneurs live and work. Harmeling and Sarasvathy (2013) state that entrepreneurs do not passively accept the "rules of the game," meaning the prevailing norms and modes of operation in their environments, but rather seek to influence and transform their environments. Finally, effectual artifacts may take on shapes that are unanticipated and sometimes even unimagined (Sarasvathy et al. 2008; Harmeling 2011). Moreover, "the end-product … is inherently unpredictable at the beginning of the process because the process is actor-centric: it depends on which actors come on board with what commitments" (Sarasvathy and Dew 2005, p. 544).

2.4.3 A dynamic model

Figure 1 shows a dynamic model that describes how new markets are created through the effectual interactions of their creators (Sarasvathy and Dew 2005). Effectuators consider what they can do based on all of the resources available to them. By engaging self-selected stakeholders who commit resources to the endeavor, they increase their available means. In exchange for the additional resources they commit, these stakeholders help shape the artifact by narrowing the scope of the goals.

2.4.4 Effectual transformations

Dew et al. (2011) view "new market creation as a result of transformation processes" (p. 246) rather than as a result of "search and selection among a universe of exogenously given market opportunities" (p. 233). Entrepreneurs "generate usable innovations" (p. 235) out of "a series of transformations of the particular stakeholders' means-at-hand into new goods and services that are often *unanticipated residual artifacts* of the effectual process" (p. 236; italics original). They list a variety of transformation types: deletion and supplementation, composition and decomposition, exaptation, manipulation, and deformation, among others.

We have shown in Section 1 that, setting aside Becker's (1982) remarks about people who cooperate in novel ways, mainstream explanations for the emergence of art movements focus on external factors, rather than on the agency of the artists themselves. The literature review on effectuation suggests that various theories of entrepreneurship can provide an alternative explanation. On one hand, this is true because they focus on the agency of the entrepreneurs when it comes to creating human artifacts. On the other hand, it is because

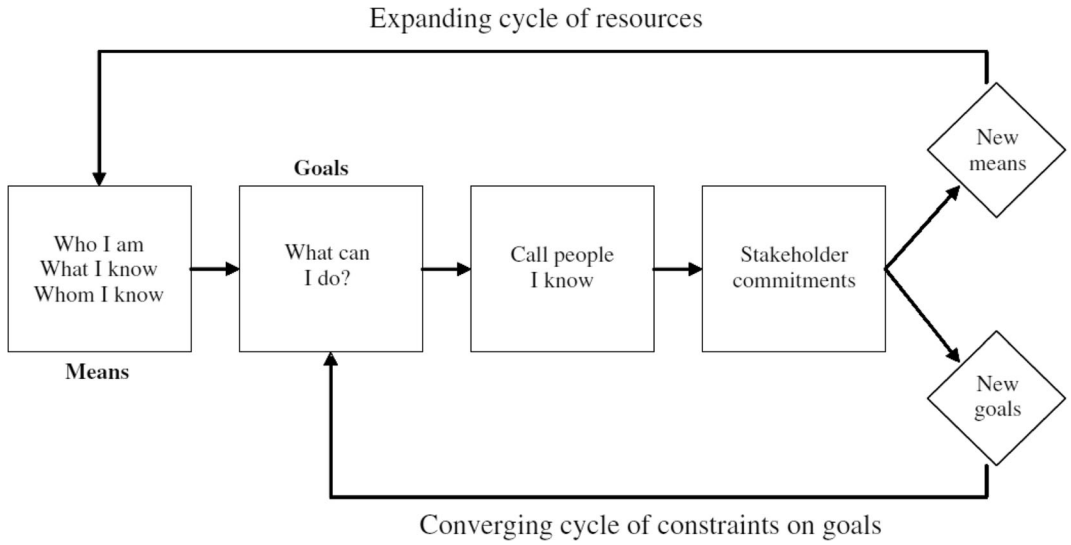

Fig. 1 Dynamic model from Sarasvathy and Dew (2005)

artistic processes are as uncertain as entrepreneurial processes. Therefore, we propose the following research question: "What role does entrepreneurial decision-making play in the creation process of an art movement?" We will answer this question by examining the creation of Cubism through the lens of effectuation.

3 Methodology

In this section, we describe the methods we used to collect and analyze the data and to validate our findings.

3.1 Data collection and analysis

We selected the creation of Cubism as our unit of analysis for three reasons: it has been considered by art historians to be the most influential movement in the history of modern art; it has been considered by management scholars to be a paradigm of exceptional value creation; and, finally, early Cubism was not only a "new visual style," but also "a process innovation, providing a new method of creating pictures" (Sgourev 2013, p. 1606).

We investigated the creation of Cubism by Picasso and Braque during the period 1908–1914 through accounts of experts based on the analysis of the pictorial output of the artists, on relevant biographical facts, and on statements by peers, dealers, and collectors who were also contemporaries of the artists. We chose a qualitative approach because we scrutinized a narrative series of actions, decisions, choices, and events with the aim of generating a process model. The expected outcome of this research was a longitudinal process model that would shed considerable light on how Cubism came into being.

In part, we had to rely on secondary data only because "during the years of their dialogue, the two painters maintained an absolute public silence concerning their art" (Rubin 1989, p. 40). Secondary data consisted of quotations retrieved from handbooks written by experts on Picasso's and Braque's life and output. Sgourev (2013) and Muñiz et al. (2014) also used quotations from handbooks as a source of evidence. The selection of authors and handbooks followed two criteria: recommendations by art historians and librarians and references found in previous works using the rise of Cubism as a case study (Sgourev 2013; Muñiz et al. 2014).

The quotations were retrieved from the following handbooks:

- Cowling, E. (2002). *Picasso: style and meaning*.
- Daix, P., & Rosselet, J. (1979). *Picasso: the Cubist years, 1907–1916: a catalogue raisonné of the paintings and related works*.
- Karmel, P. (2003). *Picasso and the invention of cubism*.
- Richardson, J. (2011). *A life of Picasso volume II: 1907–1917: the painter of modern life*.
- Rubin, W. (1989). *Picasso and Braque: pioneering cubism*.

The handbooks follow either the chronological order of the pictorial output of the artists or the chronological order of the relevant facts in their biographies. For this project, we focused on Picasso's and Braque's pictorial breakthroughs and on the processes they followed to originate them.

Literal quotations were identified and transcribed for posterior analysis. The choice of quotations was made on the basis of their relevance to the phenomenon, initially using constructs selected from the literature review on effectuation. The research consisted of reviewing the handbooks thoroughly and then underlining and coding words or entire passages related to the chosen constructs. According to the definition of effectuation ("characteristics of decision makers, such as who they are, what they know, and whom they know, form the primary set of means that combine with contingencies to create an effect that is not preselected"), the effectuation constructs selected were *means*, *effects*, and *contingencies*. In addition to these three constructs, the construct *strategic alliances* was also included, first, because it reflects the partnership between Picasso and Braque, as well as their alliances with dealers and collectors; second, because making art is a collective activity (Becker 1982; Suddaby and Young 2015; Wolff 1981); and third, because effectuation prescribes the formation of strategic alliances with self-selected stakeholders.

We used an analytical approach following Gioia et al. (2012, p. 15), who propose a method to develop new concepts and derive models "designed to bring 'qualitative rigor' to the conduct and presentation of inductive research." The application of this method allowed us to convert the literal experts' quotations retrieved from the handbooks into a process model. We followed the sequence: literal experts' quotations > statements written by the researchers using the experts' terms > constructs used by the researchers to codify the literal experts' quotations > dimensions that aggregate the constructs. The set of statements, constructs, and dimensions was the basis for the data structure, which represents the progression from raw data to statements, constructs, and dimensions and, ultimately, to the derived model. The resulting model "that shows the dynamic relationships among the emergent concepts that describe or explain the phenomenon of interest and … that makes clear all relevant data-to-theory connections" is depicted in graphic form (Gioia et al. 2012, p. 22). The set of constructs used by the researchers to codify the literal experts' quotations was selected from the literature review on effectuation.

3.2 Validation

In order to validate this research, a set of 40 statements was submitted for the consideration of experts in the life and work of Picasso. The choice of statements was made on the basis of their relevance to the phenomenon. The experts we chose were researchers from universities with contributions about Picasso and Cubism in their research CVs, as well as living authors of handbooks on this period. Eight experts anonymously assessed each of the statements through a 5-level Likert scale survey (level 1 = "strongly disagree" to level 5 = "strongly agree"). The within-group interrater agreement index r_{wg} proposed by James et al. (1993) was calculated for each statement. This index is 1 when there is unanimity among the experts and tends to 0 when there is controversy. On the other hand, since unanimity can be obtained in either of the five levels of the Likert scale, the r_{wg} index indicates consensus but not agreement. The degree of agreement with regard to a statement was measured by the closeness of the mean of the experts' assessments to level 5 in the Likert scale (100% = maximum agreement). We also asked the experts to assess how well the selected 40 statements as a whole represented the phenomenon, also using a 5-level Likert scale (level 1 = "inadequately represented" to level 5 = "fully represented").

During the process of data analysis, we realized the relevance for the research of two constructs—bricolage and subversion—that were not part of the initial research agenda (which was to examine the creation of Cubism through the lens of effectuation). For this reason, the constructs were not initially included in the list of codes and the literature review on them was carried out a posteriori. We use some references about bricolage and subversion to connect these constructs with effectuation in Sections 4 and 5.

Finally, we recognize the risk of anachronism, in that the word "entrepreneurship" was still very much emergent at the beginning of the twentieth century and not used in relation to the art world as far as we know, and the word "effectuation" was nonexistent at that time. We are therefore using a contemporary theory (effectuation) about a contemporary phenomenon (entrepreneurship) to enrich our understanding of a historical event (the rise of Cubism).

Table 1 Data structure

Statements	Constructs	Aggregate dimensions
Picasso and Braque had opposite personalities and temperaments.	Who I am, what I know, whom I know	Means
Their temperaments influenced their work.*		
Picasso's spirit was revolutionary and anarchic; he provoked and parodied.		
They followed differing working patterns.		
They had differing facilities and gifts.		
They had differing trainings (Picasso academic and Braque artisanal).*		
Picasso borrowed academic techniques.		
Braque's innovations had artisanal origins.		
Picasso already had expertise, recognition, and market acceptance (in 1908).		
Picasso alluded to works of other artists.*	Starting points	
Some of Picasso's works recall works of other artists.		
They followed other artists and borrowed from them.*		
Picasso adapted pictorial devices and techniques from other artists.		
They took pictorial devices and techniques from other artists a stage further.*		
They gave new meanings to preexisting pictorial devices and techniques.*		
Previous artists guided their work.		
Picasso inspired simultaneously in the work of many diverse artists.*		
They scrutinized, disassembled, reconceived personal objects.		
They revalued junk objects.*	Bricolage	
Some of their paintings were rejected by their peers.*	Contingencies	Contingencies
World War I had a tremendous impact in their lives and works.*		
Personal affairs played a role in Picasso's painting.*		
Picasso's return to naturalism (in 1914) may be a response to a chauvinist call.		
They shared goals.	Strategic alliances	Strategic alliances
They pooled their resources and skills.		
They worked toward the solution of the same problems.*		
They had a friendly rivalry.		
The environment favored the flourishing of the partnership.		
Differences in personalities and priorities reasserted (from 1914).		
They no longer shared the same pictorial problems (from 1914).		
The situations in which they found themselves made the dialog impossible (from 1914).		
Kahnweiler dictated the Cubist strategy.*		
Picasso did preparatory work (collateral drawings and paintings).*	Working method	Transformation of means into effects
Braque practiced reworking (revisions made directly on the canvas).*		
Picasso produced a series of drawings or paintings in a process of repetition and variation.*		
Each work of the sequence (repetition) modified its predecessor (variation).*		
Previous works allowed for subsequent works.*		
Picasso built upon previous achievements.*		
One innovation led to another.*		
They took something a step further.*		
Picasso retroceded and applied in subsequent works ideas explored and rejected in previous works.		
Picasso made sudden or gradual transformations of motive from one picture to the next.		

Table 1 (continued)

Statements	Constructs	Aggregate dimensions
Techniques such as *papier collé* allowed them to quickly test different configurations.		
Each work of the sequence was a provisional solution to a pictorial problem.*	Problem finding and problem solving	
The final solution to the pictorial problem came at the end of the sequence.*		
The solution to a problem revealed new problems.*		
Picasso solved two problems with the same device.		
Picasso pursued two solutions simultaneously.		
There was a give-and-take.*	Partnerships	
They had theoretical conversations and discussions about art.		
They exchanged pictorial ideas and applied them in their works.		
The exchange of ideas influenced the other's outcome.		
They criticized each other's work.		
They compared their pictures after having worked separately.		
They reached mutual understanding even working separately.		
They experimented together.		
They responded to each other's innovations.*		
The dialog made them to adapt and reinterpret the other's inventions.		
They matched and embraced each other's latest innovations		
"A canvas wasn't finished unless both of us felt it was." (Picasso)		
The partnership made Picasso to be more methodical.		
The partnership made Picasso stay focused on a single language.		
Their Cubism pursued differentiated styles and systems of representation.*	Variety of effects within Cubism	Variety of effects from the set of means
Cubist styles had a beginning and an end.		
Their Cubism is characterized by versatility, extended repertory, extended range of effects, variety of styles, variety of techniques, and continuous change of language.		
They pursued opposite pictorial effects.	Variety of effects among Cubist artists	
They differed in their subjects.		
They went to opposite endpoints in style.		
They derived their signs from different origins.		
They approached the same technique (*papier collé*) differently.		
The outcomes from this same technique (*papier collé*) differed.		
Their personal preferences determined their use of the same technique (*papier collé*).		
The same technique (drawing) was a means to an end for Braque and an end in itself for Picasso.		
Picasso transitioned from one style to another in the same work and in separate works.*	Variety of effects within the same artists	
Picasso used two opposite approaches simultaneously or alternately.*		
Picasso made some versions of the same painting.*		
Picasso combined two lines of experimentation in the same picture.		
Picasso made two languages work together in the same picture.		
Picasso used the same device in two different ways.		
Picasso returned to naturalism.		
Picasso combined Cubism with naturalism.*		
Cubism changed art forever.	Innovation as novelty	Cubist innovations
They introduced something unprecedented (opposite of conventional, standard, academic).*		

Table 1 (continued)

Statements	Constructs	Aggregate dimensions
They departed from what was considered usual.		
Picasso abandoned classical anatomy.		
They freed something new from something old.		
They removed vestiges of the old.*		
Picasso's purpose was subversion, reaction against previous works of art, provocation.*	Innovation as breaking with convention	
They assaulted conventions.*		
They broke assumptions.*		
They deviated from norms.*		
They reverted something time-honored.		
They discarded traditional techniques.		
They rethought something up-to-then taken for granted.		
They approached something the other way around.		
The nature of their innovation was disruptive, manipulative, radical, and revolutionary.*		
They sought a right balance between two endpoints.*	Innovation as balancing act between novelty and convention	
They managed the tension between two endpoints.		
They evolved from one endpoint to another.		
The new and the old co-existed in time.*		

*Statements submitted to the consideration of experts

4 Results

Table 1 shows the data structure for this research. The column "Statements" shows the literal experts' quotations retrieved from the handbooks. The statements were written by the researchers using the experts' terms. The column "Constructs" shows the constructs used by the researchers to codify the literal experts' quotations. The constructs in the second column are aggregated in the column "Aggregate dimensions." Table 2 reports the within-group interrater agreement index r_{wg} for the selected 40 statements.

During the process of collecting quotations, the code *means* was split into three subcodes: *who I am*, *what I know*, *whom I know*; *starting points*; and *bricolage*. The subcode *starting points* refers to Picasso's and Braque's borrowings from other artists and sources of inspiration. They could have been included within the code *what I know*, but they are neither training nor expertise. On the other hand, Picasso and Braque used bricolage materials and tools, and we chose to mention them separately from the other means. The code *effects* was split into three subcodes: *transformation of means into effects*, *variety of effects from the set of means*, and *Cubist innovations*. The subcode *transformation* refers to the way Picasso and Braque worked, and the subcodes *variety* and *innovations* refer to the outcomes of their work.

Figure 2 is the outcome of Table 1 and is a graphical representation of the derived model. It summarizes the results of this research: (1) Picasso and Braque possessed a pool of resources (what I have) comprised of three categories of means: identity (who I am), knowledge (what I know), and network (whom I know); they borrowed from other artists and had their sources of inspiration (starting points); they used bricolage materials and tools. (2) They transformed some of the contingencies they experienced into additional resources. (3) They combined their set of means with the contingencies to create a variety of effects. (4) They transformed means into effects following a working method. (5) The transformation involved finding and solving problems continuously. (6) The working method required the partnership between Picasso and Braque and the partnerships among the artists, dealers, and collectors; the partnerships were forged thanks to strategic alliances of self-selected stakeholders; the partnerships were facilitated by Picasso's and Braque's "whom

I know." (7) The myriad effects created by Picasso and Braque can be classified in three typologies: variety of effects within Cubism, among Cubist artists, and within the work of same artists. (8) The Cubist innovations were originated by the variety of effects created. And (9) the Cubist innovations involved novelty and breaking with convention but were also a balancing act between two endpoints (i.e., novelty and convention, the new and the old).

In sum, Fig. 2 depicts a process model explaining that the Cubist innovations were originated by the variety of effects created by combining a given set of means with contingencies.

Figure 2 complements the dynamic model from Sarasvathy and Dew (2005) shown in Fig. 1. The co-creation of Cubism corroborates the theory described by the dynamic model. Picasso and Braque attracted the attention of dealers and collectors who, through their purchases, committed resources and increased the available means (expanding cycle of resources). In turn, in exchange for the resources they committed, dealers and collectors influenced the evolution of the style (converging cycle of constraints on goals).

Certain subcodes merit further explanation as presented below.

Subcode starting points Picasso and Braque borrowed in particular from Cézanne, and Picasso drew inspiration from African masks and Iberian statues.

Subcode bricolage Picasso and Braque used "resources for different applications than those for which they were originally intended or used" (Baker and Nelson 2005, p. 335) (stencils for letters and numbers, razors, housepainters' steel combs, Ripolin paint, printed oilcloth, wallpaper, dressmakers' pins) and "resources that are available very cheaply or for free" (Baker and Nelson 2005, p. 336) (cardboard, sand, sawdust, metal filings, paper, wood, sheet metal, pieces of newspapers, small found elements, objects found in junk shops, scrap materials).

Subcode contingencies Picasso's work was altered by the reactions of dealers, collectors, critics, and other artists to his paintings; by contemporary events; and by his personal affairs. Sometimes contingencies provoked a leap forward in his painting and in Cubism itself and often caused changes of style, particularly in the case of Picasso. The rejection of *Les Demoiselles d'Avignon* encouraged Picasso to devise a sequel, *Three Women*, which ultimately enjoyed tremendous commercial success.

Subcode partnerships "The partnership between Picasso and Braque engendered the most influential art movement of the century" (Richardson 2011, p. 67). Cubism was described early on as a joint venture between Picasso and Braque. The partnership was the result of a strategic alliance of self-selected stakeholders as "the two of them pooled their prodigious resources" (Richardson 2011, p. 193). Experts refer to the partnership as a "brotherhood" (Cowling 2002, p. 208), a "friendship" (Rubin 1989, p. 15), and a "marriage of minds" (Rubin 1989, p. 46), based on a shared vision of painting and the desire to solve the same pictorial problems. They also partnered with dealers who prepaid a fixed monthly amount, a stipend, to the artists in exchange for the future delivery of a number of artworks agreed in a written contract between the dealer and artist. Dealers engaged a priori, when Cubism was no more than an emergent style, and precommitted resources. In addition to providing Picasso and Braque with financial security through their purchases, dealers—especially Daniel-Henry Kahnweiler—promoted the partnership between the two artists, exerted some influence on their works, and helped shape their style. "Through his regular studio visits and his discreet activities as go-between, Kahnweiler promoted the partnership" (Cowling 2002, p. 203). Picasso allowed Kahnweiler "to dictate cubist strategy" (Richardson 2011, p. 36). Picasso and Braque also partnered with other artists such as Matisse, Cézanne, and Derain. The rivalry between Picasso and Matisse, who regularly visited each other's studios to inspect each other's work, also influenced Picasso's stylistic choices.

Subcode working method Picasso and Braque created a myriad of effects from the set of means within their control. The transformation of means into effects was fueled by the ambition to solve the pictorial problems they picked and was carried out through an intimate dialog between the two artists.

Subcodes variety of Picasso and Braque created varied effects out of the same set of means. While Picasso showed figures, Braque represented landscapes or inanimate objects; while Picasso focused on figures or

Table 2 Within-group interrater agreement index r_{wg}

Statements	Within-group interrater agreement index r_{wg}	Mean (%)
They gave new meanings to preexisting pictorial devices and techniques.	*1.00*	*100*
They introduced something unprecedented (opposite of conventional, standard, academic).	*1.00*	*100*
They responded to each other's innovations.	*0.89*	*94*
Picasso did preparatory work (collateral drawings and paintings).	*0.87*	*91*
They followed other artists and borrowed from them.	*0.87*	*84*
Each work of the sequence (repetition) modified its predecessor (variation).	*0.86*	*75*
Braque practiced reworking (revisions made directly on the canvas).	*0.75*	*81*
The solution to a problem revealed new problems.	*0.75*	*81*
Their Cubism pursued differentiated styles and systems of representation.	*0.75*	*81*
There was a give-and-take.	*0.72*	*91*
They took something a step further.	*0.72*	*91*
They deviated from norms.	*0.72*	*91*
One innovation led to another.	*0.72*	*84*
Picasso's purpose was subversion, reaction against previous works of art, provocation.	*0.72*	*66*
Picasso inspired simultaneously in the work of many diverse artists.	*0.71*	*88*
They assaulted conventions.	*0.71*	*88*
They broke assumptions.	*0.71*	*88*
The nature of their innovation was disruptive, manipulative, radical, and revolutionary.	*0.71*	*88*
Previous works allowed for subsequent works.	*0.65*	*78*
Each work of the sequence was a provisional solution to a pictorial problem.	*0.65*	*78*
The new and the old co-existed in time.	*0.65*	*78*
Their temperaments influenced their work.	*0.61*	*81*
Some of their paintings were rejected by their peers.	*0.61*	*81*
World War I had a tremendous impact in their lives and works.	*0.61*	*81*
Picasso built upon previous achievements.	*0.61*	*81*
Picasso produced a series of drawings or paintings in a process of repetition and variation.	*0.61*	*81*
Kahnweiler dictated the Cubist strategy.	0.51	22
They worked toward the solution of the same problems.	0.51	72
They sought a right balance between two endpoints.	0.51	78
Picasso used two opposite approaches simultaneously or alternately.	0.51	72
They took pictorial devices and techniques from other artists a stage further.	0.43	88
Picasso transitioned from one style to another in the same work and in separate works.	0.43	75
Picasso alluded to works of other artists.	0.37	78
They had differing trainings (Picasso academic and Braque artisanal).	0.29	63
The final solution to the pictorial problem came at the end of the sequence.	0.29	50
Picasso made some versions of the same painting.	0.14	63
Personal affairs played a role in Picasso's painting.	0.08	72
Picasso combined Cubism with naturalism.	0.01	66
They revalued junk objects.	−0.11	69
They removed vestiges of the old.	−0.21	72
How well the selected 40 statements as a whole represent the phenomenon	0.87	84

In italics, statements for which the index r_{wg} was higher than 0.58 (likelihood of a random assessment lower than 5%). In all these statements, the degree of agreement was higher than 75%. For the remaining 14 statements, the index r_{wg} showed controversy among the experts.

objects, Braque prioritized the space around them; while Picasso stuck to representation, figuration, and realism, Braque evolved to abstraction.

Subcodes innovation as The varied effects Picasso and Braque created out of the same set of means originated the early Cubism technical innovations: the invention of signs, the introduction of words, and the creation of a private language; the reduction of everything to geometric forms; the use of bricolage materials and tools; the development of new techniques such as constructed sculpture, collage, or *papier collé*; the emphasis on tactile instead of simply optical sensations; and especially the rethinking of the relationship between figure and space through fragmentation, faceting, and open form, and the shift from traditional perspective to novel techniques, such as the lattice and the grid, to represent the dimension of depth.

As explained below, the breakthroughs were generated sequentially, as part of a chain of achievements. One innovation led to another. Each advancement was the result of taking a previous achievement a step further. Cubist innovations challenged the conventional language of academic painting but they also involved a balancing act between novelty and convention. Indeed, they were "usable innovations, unanticipated residual artifacts of the effectual process" but also a Schumpeterian recombination of preexisting elements (Dew et al. 2011, p. 235 and 236).

The crux of the model depicted in Fig. 2 is the transformation of means into effects, the realization of effectuation's prescription of "thinking about what you can do based on what is available to you." The process involves the way Picasso and Braque made their choices as well as their working method. When artists break with conventions, conventions can no longer guide their choices (Becker 1982), and choices must be made through reference to other criteria (i.e., influence of the environment, anticipated reaction of others, need to gain and protect a reputation, rivalry with other artists, commitment to a style, etc.).

Figure 3 illustrates this transformation in more detail. It is a detailed view of the "working method" box of Fig. 2. Hence, the transformation model is part of the process model shown in Fig. 2.

The starting point is the formulation of a problem (e.g., the representation of a three-dimensional reality on a two-dimensional surface). The outcomes are the solutions to the problem; they can be provisional (the two-dimensional lattice or the three-dimensional lattice) or definitive (the three-dimensional grid). A definitive solution to a problem usually reveals new problems. The transformation is enabled by a continuous give-and-take between the partners and is performed by means of a series of works in a process of repetition and variation. In this process, each work in the sequence (repetition) modifies its predecessor (variation), previous works make possible subsequent works, and subsequent works build upon previous achievements and take them a step further.

The transformation of stakeholders' means-at-hand into usable innovations (Dew et al. 2011) carried out through a dialog between the two artists, as well as the work in series, merits a more detailed description. These are very important for understanding what is effectual about the emergence of Cubism.

4.1 The dialog and give-and-take between partners

Cubism developed out of a dialog consisting of an endless exchange and discussion of pictorial ideas and a daily comparison of paintings and techniques. According to Rubin (1989, p. 15), "the fact that Cubism unfolded essentially through a dialogue between two artists extending over six years makes it a phenomenon unprecedented in the history of art." The ideas were tested, experimented with, and implemented in their canvases. To describe their interdependence but also the precariousness of their shared fate, Braque commented that they were "two mountaineers roped together." Picasso said that every evening they reviewed and critiqued what the other had done during the day and that a canvas was not finished unless both of them agreed that it was. Therefore, there was a mutual assessment of the results. The outcomes of the dialog were intertwined contributions and paintings almost indistinguishable from one another (Kahnweiler, transcribed by Rubin 1989, p. 45). "Some collectors visiting Kahnweiler's galley mistook a Braque for a Picasso, or vice versa" (Cowling 2002, p. 214). The give-and-take suggested independently by Rubin (1989, p. 36) and Cowling (2002, p. 216) followed a pattern: one of the two artists introduced an innovation, and the other responded immediately either by mimicking the innovation or by introducing another innovation. Sometimes, the give-and-take became a sort of "friendly rivalry" (Rubin 1989, p. 27).

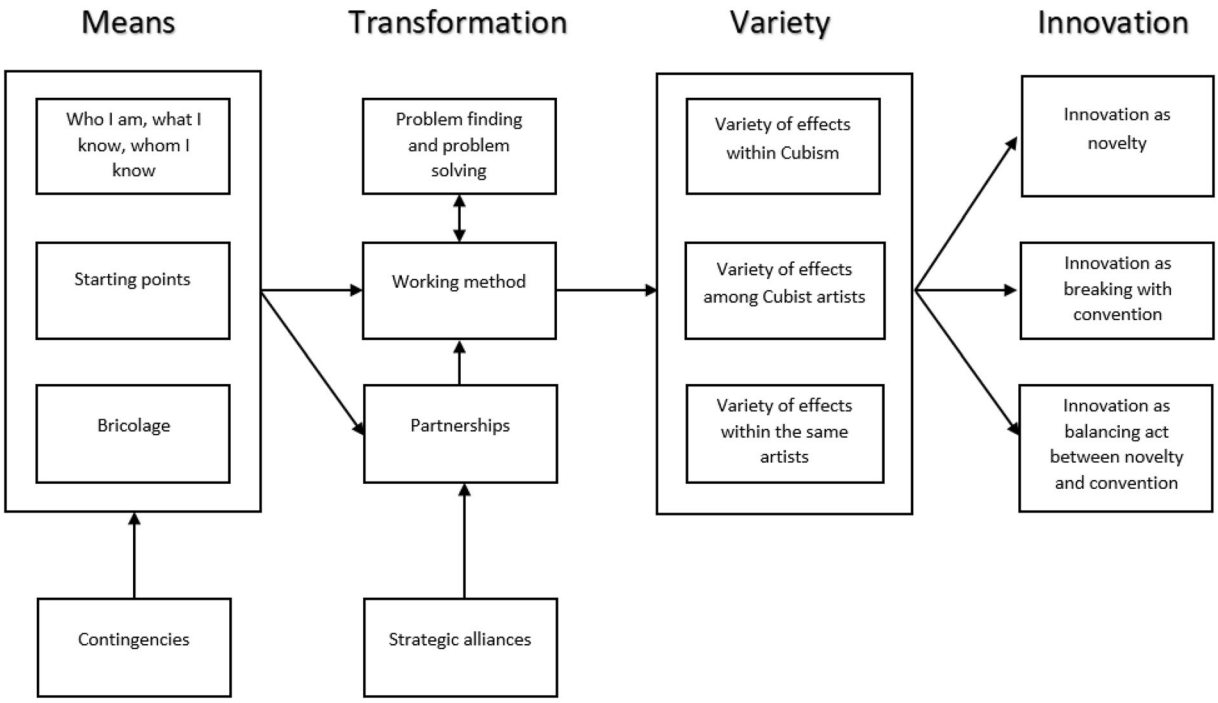

Fig. 2 Dynamic relations among constructs

4.1.1 The work in series

One of the characteristics of Picasso's work was that he produced a series of drawings and paintings in a process of repetition and variation (Karmel 2003, p. 156). Each work of the sequence (repetition) modified its predecessor (variation), and previous works made possible subsequent works. "Pepe Karmel has shown that Picasso worked in a very systematic way, building upon previous achievements, rather than setting off suddenly on a new tack" (Cowling 2002, p. 211).

> Picasso's methodical approach and his production of numerous extremely similar pictures run counter to our usual assumptions about creativity and about the uniqueness of great art. This new working process implied that the individual picture was not a definitive statement but merely a provisional solution to a pictorial problem, and that the problem could be fully addressed only by exploring a series of solutions, each of them slightly different (Karmel 2003, p. 157).

With regard to Picasso's summer 1912 sketchbook, Karmel (2002, p. 152) states: "He seems repeatedly to have used elements from the drawing on one page as an armature for the drawing on the next." In this process of repetition and variation, Picasso selected the last work of the series: "As usual, this discovery came at the end of a series of previous experiments" (Daix and Rosselet 1979, p. 111).

The use of a longitudinal process-model approach allowed us to realize that the Cubist innovations were originated sequentially, as part of a chain of achievements, and followed the chronologic order of the artists' output. One innovation led to another, and most of them were the result of taking a previous artistic achievement a step further. The transition from the two-dimensional lattice to the three-dimensional grid is the best example of this process: two-dimensional lattice > three-dimensional lattice > three-dimensional grid.

The method of producing a series of paintings and drawings and building upon previous achievements is Picasso's and Braque's "what to do next." The path toward the finished canvas in a sequence of works deserves further attention. We can compare our findings with those of Simonton (2007). Table 3 is based on Simonton's (2007) framework.

Although Simonton (2007) concludes that Picasso's sketches for Guernica are an example of a process of blind-variation and selective-retention, according to the experts' quotations retrieved from the handbooks, early

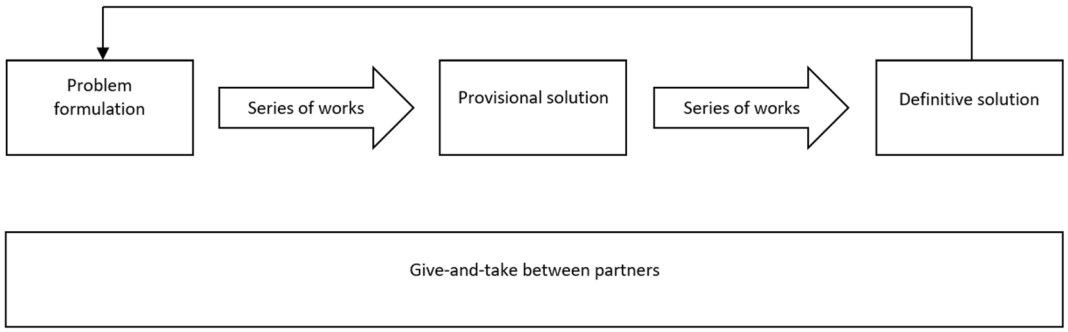

Fig. 3 Transformation of means into effects

Cubism best fits the process of monotonic improvements. During the period 1908–1914, Picasso seems to have used monotonic improvements (taking a previous achievement a step further), but 30years later, when he painted Guernica, he seems to have used blind variants (practicing trial and error). Picasso's and Braque's early achievements are attributed to their expertise: their approach was systematic and linear and each work of the series was a necessary step on the way to the finished canvas. In addition, each run-through provided the material for the subsequent run-through (Austin and Devin 2003); they selected the last work of the series; and they did not practice trial and error but rather took each previous achievement a step further.

The tactic of taking a previous achievement a step further emerged in the research as an alternative to practicing trial and error. Trial and error means that in each and every iteration a new option is tried, and this new option can be related or unrelated to previous tested options. Indeed, new options may have nothing to do with previous options, and each and every iteration may signify that the process starts anew. In this case, the iterations are independent from one another. After an iteration, we know what does work and what does not work. In case of error, we know what does not work, but we do not know which option to try in the subsequent iteration, precisely because this option may have nothing to do with the last failed option. In contrast, when we build upon previous achievements and take them a step further, the options we test are part of a chain of achievements. This tactic is consistent with the contention that effectuation is not a theory of trial and error (Read et al. 2016).

Dew et al. (2011) refer to a variety of transformation types. We have found evidence for "deletion" in a quotation by Daix and Rosselet (1979, p. 47): "Eliminate everything that is not essential to form." Bricolage has to do with "composition and decomposition" and also with "exaptation." However, producing a series of outcomes and building upon previous achievements, and specifically the tactic of taking a previous achievement a step further, is a way to transform means-at-hand into usable innovations. We uncovered this through our research and believe it deserves to be included in the list of transformation types.

The transformation of means into effects through a series of works in a process of repetition and variation can be done in isolation but seems to be more effective when actors work in partnership.

Although Picasso and Braque worked under conditions of uncertainty, they found a way to cope with that uncertainty in the method of building upon previous achievements following a process of monotonic improvements. The destination was unknown, but the sequence of works signaled the path to a destination, and they could follow it.

The way Picasso and Braque worked fits Mace's (1997) observation that some artists start working with only a vague idea of what they want to depict. This is clearly effectuation, the opposite of a causation process followed by those who have a clear idea of what they want to depict and deviate very little from that original version.

In addition to devising the process model presented, our research also allowed us to identify meaningful data from the handbooks concerning other constructs related to effectuation, as follows.

4.1.2 A generalized end goal or aspiration

One of the key issues in Cubism's development was the creation of an "impersonal" style: "They were

attempting to invent pictorial methods which everyone could use. They wanted these methods to be as *impersonal* as possible" (italics original; Kahnweiler, transcribed by Cowling 2002, p. 202).

During this period in his career, Picasso had to narrow the range of subjects he worked on and resist deploying all his talents. He had to give up his method of alluding to other works of art. Such "confinement" (Rubin 1989, p. 26), "sacrifice" (Cowling 2002, p. 216), and "privation" (Cowling 2002, p. 231) were the price he paid to create an anonymous style in partnership with Braque, which was a generalized end goal or aspiration they shared. By selecting effects that meant a depersonalization of painting, he renounced practicing other styles and pursuing other artistic opportunities, but we cannot speak of "opportunity costs," as the commitment to the effectual network involves an explicit precommitment not to explore alternatives to the artifact (Sarasvathy and Dew 2005).

4.1.3 Uncertainty and unpredictability

Picasso and Braque worked and made decisions under conditions of uncertainty. "The journey was always fraught with profound uncertainty. But Picasso thrived on risk. The sheer unpredictability of his and Braque's creative journey made the collaboration possible" (Cowling 2002, p. 216). They even ventured into "uncharted and perilous territory" (Cowling 2002, p. 202). "Picasso was able to venture into unknown territory" (Daix and Rosselet 1979, p. 82). These quotations show that uncertainty and unpredictability are defining features of very creative art just as they are for creative entrepreneurship.

4.1.4 Lack of predetermined goals

The art production process was effectual in that it was not guided by predetermined goals. Experts have highlighted that "each step was a step in the dark and could have had a very different outcome. There was no clear direction because there was no known destination" (Cowling 2002, p. 216); "Picasso had no way of knowing which ideas pointed 'forward' and which did not. There was no clear direction to his development. There was nothing pre-ordained about it" (Karmel 2003, p. 49); "Nothing anticipated it [a particular achievement], and there is no obvious reason why it occurred" (Karmel 2003, p. 43).

4.1.5 The role of contingency

The rejection of *Les Demoiselles d'Avignon* is the most renowned contingency ever experienced by Picasso. The canvas was an example of the subversive and provocative purpose of many of his works. However, "almost everyone considered *Les Demoiselles* bizarre and incomprehensible" (Cowling 2002, p. 160). Picasso was "battered by the negative reaction" to the painting (Cowling 2002, p. 207). "Besides exhaustion, Picasso suffered from a terrible spiritual isolation. Friends avoided the artist. They thought he was crazy" (Richardson 2011, p. 45). It was an act of subversion and provocation as "the *Demoiselles* was intended as a revolutionary manifesto—a demonstration that Picasso could, in a single bound, leap past his contemporaries and establish himself as the leader of the Parisian avant-garde. In the short run, the painting was an ignominious failure, rejected by precisely the audience Picasso had hoped to impress" (Karmel 2003, p. 28).

4.1.6 A role for bricolage

Braque's artisanal training explains his and Picasso's use of bricolage materials and tools. "Many of Braque's innovations in Cubist practice … had genuinely artisanal origins" (Rubin 1989, p. 19). In this regard, Braque considered how the resources of the housepainter might enrich high art. Picasso and Braque practiced bricolage for three reasons. First, they "signaled their intention to identify with nameless artisans rather than 'fine' artists" (Cowling 2002, p. 228). Second, by using products, tools, and procedures from decorators, they bore "a highly ironic relationship to their normal utilitarian or decorative purpose" (Cowling 2002, p. 229). Third, they "were means of outwitting and outdistancing the growing corps of imitators" (Cowling 2002, p. 237). Junk objects "are raised from the status of junk to that of elements of painting. From rubbish they become art" (Daix and Rosselet 1979, p. 148). In sum, Picasso and Braque "were bricoleurs in the sense that Claude Lévi-Strauss gave to the word: they re-used preexisting materials—pictorial devices and techniques—while transforming their significance" (Daix and Rosselet 1979, p. 183).

An important aspect of Picasso's and Braque's use of bricolage was that they did not use it due to resource constraints or scarcity or for lack of the "right" resources, as suggested in the literature that connects

Table 3 Path toward the finished canvas. Based on Simonton (2007)

Process	Period	Key attribute	Approach	Outcomes	Selection	Tactics
Monotonic improvements	Early Cubism (1908–1914)	Expertise	Systematic, linear	Previous works allow for subsequent works.	The selected version is the last work of the series.	Take a previous achievement a step further
Blind variants	Guernica (1937)	Chance	Unsystematic, nonlinear	Many of the variants are superfluous and dispensable.	The selected version can be any work of the series.	Practice trial and error

effectuation and bricolage (Fisher 2012; Welter et al. 2016). Instead, they practiced bricolage to feel closer to artisans, to enrich fine art with artisanal resources, to outdistance imitators, and to revalue junk objects. Fine artists often borrow from craftsmen because they see in their materials and techniques "a potential for artistic exploitation" (Becker 1982, p. 278). However, Picasso's and Braque's primary purpose was to challenge the conventional language of academic painting and to provoke the viewer by deviating from the ordinary (Scherdin 2011). This finding claims for an extension of the relationship between effectuation and bricolage: we can create effects that are sought but not preselected by subverting through the use of bricolage materials and tools.

4.1.7 The central importance of subversion

In Picasso's words, he and Braque "were trying to set up a new order" (Karmel 2003, p. 146). In the handbooks, many experts' quotations refer to subversion and similar terms as ways to challenge the conventional language of academic painting. For instance, "Picasso imitates and subverts simultaneously" (Cowling 2002, p. 261) or "it was Picasso who was responsible for breaking the rules, using painting or sculpture in ways far removed from their conventional objectives" (Daix and Rosselet 1979, p. 183). Sometimes, subversion was carried out through radicalization of style as a means to outdistance his rivals. "To challenge his competitors in the Steins' circle, Picasso had to beat them at their own game—to be more extreme than they were. He therefore proceeded to radicalize the *Demoiselles*" (Karmel 2003, p. 32). "Picasso rejected this mode of figuration, probably because it seemed too naturalistic, compared with the bold distortions of his chief rival, Matisse. Under the pressure to produce a more radical style …" (Karmel 2003, p. 51 and 52). Sometimes, the aim was to provoke the viewer. "The extreme simplicity of *Man with a Hat* seems calculated to provoke the ire of viewers accustomed to conventional realism" (Karmel 2003, p. 18).

In the handbooks, the experts refer to the ultimately radical (Richardson 2011, p. 105) and revolutionary (Karmel 2003, p. 49) nature of Picasso's and Braque's innovations.

Collage in particular was conflictual and subversive by definition, hence "sorts well with Picasso's anarchic and revolutionary spirit, his personification of the agent provocateur" (Rubin 1989, p. 38). "Picasso instantly recognized collage as an inherently disruptive procedure" (Cowling 2002, p. 234). Mixing sand into oil paint was "a further assault on the slick refinements of conventional painting" (Cowling 2002, p. 232). Wilhelm Ude, one of Picasso's dealers, did not like the Ripolin paintings and Picasso wrote in a letter: "Perhaps we shall succeed in disgusting everyone, and we haven't said everything yet" (Cowling 2002, p. 231).

Cubism broke the rules (Daix and Rosselet 1979, p. 183) and broke with conventions (Becker 1982). Cubism involved some sort of destruction or, better, creative destruction (Barry 2011). According to Picasso himself: "Every act of creation is first an act of destruction." The creation of Cubism fits the conditions for social subversion. Cubism was subversive because it was connected to society, produced new representations and emotional perceptions, and had a behavioral impact beyond the art world (Bureau and Zander 2014). Picasso and Braque were activists (Bureau 2013) seeking to destroy the ossified (Brenkert 2009) and obsolete (Zhang and Arvey 2009) rules that limited the development of their style. Their art provoked public scandals. As we have shown before, the best example of deviation was the use of bricolage materials and tools, and that of public scandal was *Les Demoiselles d'Avignon*. In addition to freeing from conventions, subversion allowed Picasso and Braque to attract the attention of dealers and collectors and to outdistance their rivals. The subversive nature of Cubism suggests a relationship

between effectuation and subversion: we can create effects that are sought but not preselected by challenging the conventions with the aim of creating a new order, something that occurs frequently in the field of entrepreneurship. For instance, PayPal, the online service for money payments and transfers throughout the world, "was designed to free people in developing countries who are 'prisoners' to the currency exchange systems controlled by their states" (Bureau 2013, p. 214). Bitcoin and the other cryptocurrencies are other recent examples of such subversion.

Breakthroughs have often been considered as market shocks (exogenous explanation to innovation) rather than as the result of collective action (endogenous explanation to innovation). Market rebels (italics original; Rao 2008, p. 7 and 9) are activists who challenge the status quo and enable radical innovations. They "forge a collective identity and mobilize support by articulating a hot cause … and relying on a *cool mobilization* [often based on] improvisational, experimental, and insurgent methods." Rao (2008) points to a connection between market rebels and artists: market rebellion may lead to the emergence of new styles in markets for creative arts. "The nouvelle cuisine movement was powered by a hot cause—the rigid orthodoxy of classical cuisine—and a cool mobilization—the chef as an inventor and improviser" (Rao 2008, p. 15). In this vein, Picasso's hot cause was the orthodoxy of academicism and his cool mobilization was, for instance, collage.

Cubist innovations challenged the conventions of painting but they also involved a balancing act between novelty and convention (Ward 2004; Meisiek and Haefliger 2011). Lampel et al. (2000, p. 266) state that "while consumers expect novelty in their cultural goods, they also want novelty to be accessible and familiar." Goodman (1976), p. 33) says that "to a complaint that his portrait of Gertrude Stein did not look like her, Picasso is said to have answered, 'no matter, it will.'" In both art and entrepreneurship, novelty refers to something unprecedented. However, in order to achieve acceptance by the audience or the market, artworks or products and services must to some extent be a combination of the old and the new. The gap between the currently valued (the old) and the not-yet-created but soon to be valued (the new) must be bridged (Meisiek and Haefliger 2011). By giving new meanings to preexisting pictorial devices and techniques, Picasso and Braque made the old and the new coexist. Picasso committed to continuous change but also to continuity to ensure that "his works remained recognizable without becoming predictable" (Muñiz et al. 2014, p. 73).

4.1.8 Summary

From our analysis, we see that Picasso's and Braque's co-creation of Cubism reveals an entrepreneurial process centered on the agency of the artists themselves and, specifically, an effectual process. There is extensive evidence for four of the five effectuation principles: they relied on their means, they formed strategic alliances with self-selected stakeholders, they leveraged contingencies, and they focused on the controllable aspects of an unpredictable future. Picasso and Braque started with two different sets of means, but they pooled them through their partnership. This common set of means allowed them to create several effects in conjunction, but also varied effects: different effects for Picasso and Braque, and different effects along their individual pictorial paths. This process was not teleological in nature: "There was no clear direction because there was no known destination" (Cowling 2002, p. 216). The artists were unable to see the end from the beginning; hence, they created something that was previously unknowable and evidently unanticipated. The emergence of Cubism also demonstrates a high degree of contingency: The sentence "each step … could have had a very different outcome" (Cowling 2002, p. 216) suggests that given the exact same starting point (the same means), contingencies (i.e., a surprise rejection of Picasso's work by his peers) had an influential role in the final outcome. Picasso and Braque selected among effects also influenced by their partners, that is, dealers, collectors, and peers. By purchasing their paintings, dealers precommitted resources. In exchange for this, they codetermined courses of action. As Becker (1982) says, dealers often suggest the appropriate next step for the artist. Picasso and Braque struggled to anticipate the reaction of others (Becker 1982) and weighed the consequences for their reputation of their stylistic choices.

We have not found direct support for the affordable loss principle, at least in its current formulation in effectuation research of "risking no more than what you can afford to lose." Working as they did, Picasso and Braque did not need to risk "monetary" resources. Instead, reputation was the key asset they could put at risk. In general, it appears that they did not want to put their reputations as painters at risk and were cautious about choosing any effect that could damage them.

Nevertheless, the key documented case of reputational damage—Picasso with *Les Demoiselles d'Avignon*—highlights the fact that it was impossible to anticipate costly mistakes and also the inherent tension between creative achievement and pushing things too far.

5 Discussion and conclusion

The research question "What role does entrepreneurial decision-making play in the process of creating an art movement?" has led us to show that effectuation provides a useful framework to explain the creation process of Cubism. The proposed framework complements other explanations based on changes in institutional (Cottington 2004; White and White 1993; Wijnberg and Gemser 2000; Wolff 1981) and market (Cottington 1998; Fitzgerald 1996; Hook 2012; Sgourev 2013) conditions and location factors (Williams 1992) and also suggests some nuances in the explanation for the rise of Cubism. The symbiotic relationship between Picasso and Braque and the agency of the artists themselves played a central role in the emergence of Cubism. The study thus provides an important, complementary explanation to the prevailing one, namely that institutional and market changes, as well as location factors, are responsible for the rise of art movements. Our research, and the resulting model, clearly illustrates that the artists' own agency is an equally important explanatory factor. This is, of course, very much in keeping with the role of agency and the principle of "controlling rather than predicting" the future that is so much a part of the larger body of effectuation research.

The study of Cubism has allowed us to enrich our existing understanding of effectuation on a central point: the transformation of means into effects. The outcome is the process model depicted in Figs. 2 and 3. Examining the creation of Cubism using the lens of effectuation has also provided insight into the artistic creation process, as well as into entrepreneurship as a process. The method of producing series of paintings and drawings and building upon previous achievements as a way to transform means into effects, and specifically the tactic of taking a previous achievement a step further, is the realization of effectuation's prescription of "thinking about what you can do based on what is available to you" and is the effectuators' "what to do next." It has been proposed as a new type of transformation of means-at-hand into usable innovations (Dew et al. 2011). Artists start with the formulation of a problem and follow a working method that consists of producing a series of works in a process of repetition and variation. In the path toward the finished canvas, they may use two different tactics: take a previous achievement a step further or practice trial and error. It is not difficult to infer that entrepreneurs may follow a similar decision-making process. The development may consist of producing a series of prototypes in a process of repetition and variation, and the path toward a final product or service may be the result of taking a previous achievement a step further or practicing trial and error. We have shown that the effectiveness of this process is enhanced when artists or entrepreneurs work in partnership. We have also suggested that the method of building upon previous achievements signals the path to a destination and, hence, is a way to cope with uncertainty. This insight extends Simonton's (2007) framework.

The research also highlights a new relationship: that between effectuation and subversion. The emergence of art movements—at least in the case of Cubism—has a radical nature. Subversion challenges conventions with effects sought but not preselected. It may also have an instrumental role as a means to attract the attention of dealers and collectors, potential self-selected stakeholders able and willing to precommit resources in exchange for setting agendas, and also as a source of creative contingencies. These findings apply to both art and entrepreneurship.

Finally, with this research, we contribute to what we believe is a very important aspect of the existing body of literature on effectuation, and that is the work of Sarasvathy and Venkataraman (2011) on the entrepreneurial method as "science of the artificial," a method for the creation of new artifacts in *all* aspects of life and society, not just in the world of commerce. This enhances our understanding of effectuation as a "general purpose decision-making schema" for all kinds of uncertainty settings (Welter et al. 2016, p. 14).

The phenomenon investigated is not contemporary and we therefore had to rely on quotations retrieved from handbooks written by experts. However, through a detailed process of reviewing and coding the passages in this literature that pertain to the process through which Picasso and Braque created Cubism, we arrived at a number of valuable insights for art historians and scholars and also for entrepreneurship scholars. We also identified a number of potential areas for future

research. First, this work could be replicated in the research on other contemporary art movements such as minimalism. Second, future work might seek insights into endogenous factors in the creation of other noneconomic human artifacts (for example, the crafting of laws and regulations). Finally, future work might target enhancing our understanding of the working methods of artists by comparing them with the working methods of entrepreneurs. This connection may hold further valuable insights for both art and entrepreneurship.

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