

UNIFYING THE THREE PRINCIPAL CONTENDING APPROACHES TO EXPLAINING EARLY-STAGE ENTREPRENEURIAL DECISION-MAKING AND BEHAVIOR

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ABSTRACT

Analysis of the evidence of 22 cases of Terry Allen's experience as a serial entrepreneur (Allen, 2001) demonstrates strongly that the seemingly irreconcilable differences between three "contending" views of entrepreneurial process – bricolage (Baker & Nelson, 2005), effectuation (Sarasvathy, 2001, 2008) and causation (Shane, 2003) - can be resolved when these three particular forms of thinking and behavior are viewed as subsets of a broader model of entrepreneurial process (Hindle, 2010a). They should not be regarded as mutually exclusive, universal, contending explanations of the whole world of entrepreneurial process all of the time but, rather, as contextually contingent and often highly compatible explanations of parts of that world, some of the time. All three approaches are forms of a larger unit: the contextually dependent evaluation of an opportunity to the point where it has become, in the entrepreneur's mind, a business plan worthy of his (or her) commitment and managerial effort. The examined evidence overwhelmingly supports our central proposition that the proportional use of the three logics is circumstantially dependent. Patterns and relationships are explored and discussed.

INTRODUCTION

How can we best understand the essential, generic nature of entrepreneurship as a process? In the entrepreneurship literature, there are - among the extant, formal models of entrepreneurial process (Moroz & Hindle, 2010) - three principal and seemingly incompatible approaches vying for primacy as the best answer to this question: *causation* (Sarasvathy, 2001; Kotler & Keller, 2009; Porter, 1980, 1985), *effectuation* (Sarasvathy, 2001, 2008; Dew et al., 2009), and *bricolage* (Baker & Nelson, 2005; Baker, 2007). This study employs Hindle's (2010a) harmonizing model of entrepreneurial process (MEP) as the theoretical framework underpinning an investigation of the possibility of resolving this important controversy concerning the nature of the logical systems of decision-making and the patterned modes of behavior employed by entrepreneurs as they design and manage the early stages of the entrepreneurial process. The three arguments are at loggerheads and, currently, seem to be mutually contradictory.

As summarized by Archer, Baker and Maur (2009), the approach classified by Sarasvathy as *causation* is a model of successful entrepreneurship, in which: advantage goes to those who discover large opportunities (Kirzner, 1997; Shane & Venkataraman, 2000), adopt consistent goals and strategies to exploit them (Wiklund & Shepherd, 2005), marshal high-quality resources in accordance with the plan, and deploy those resources in a planned, skilful and disruptive manner (Schumpeter, 1934). *Effectuation* (Sarasvathy, 2001) is a logic of decision-making in the sense of "an internally consistent set of ideas that forms a clear basis for action upon the world, and which is based on the premise: To the extent we can control the future, we do not need to predict it" (Sarasvathy, 2008: 17). *Bricolage* is "making do by applying combinations of the resources at hand to new problems and opportunities" (Baker & Nelson, 2005: 333).

These three approaches entailing distinctive logical and behavioral characteristics are, in a sense, contenders for the title of "best" conceptual framework for explaining the managerial process of early-stage new venturing in particular, and entrepreneurial process more generally. Whereas Archer, Baker and Maur (2009) have pioneered a study of the similarities and differences between effectuation and bricolage, no one prior to this study has explored whether these two improvisational approaches might actually be compatible, rather than at odds, with the mainstream

causation model. Could it be that causation, effectuation and bricolage are not confrontational “contenders” but, as Hindle’s (2010a) MEP model would have it, harmoniously classifiable as different forms of new venture evaluation that entrepreneurs use, in varying proportions, dependent upon the contextual nature of the venture itself and its principal defining circumstances (including such things as degree of innovation, entrepreneurial experience and degree of technological complexity)? This paper explores that possibility using 22 cases of actual venture creation from the diverse portfolio of a prolific serial entrepreneur.

The paper proceeds as follows. We begin (following Moroz & Hindle, 2010) by discussing perspectives of the nature of entrepreneurial process and find, in the highly-fragmented literature, three dominant divergent perspectives and one claim to be able to harmonize them in the sense of seeing them as contingent variations of a greater unity. We then present a formally-stated research problem involving two questions and one fundamental proposition: *that the proportional use of the three logics is circumstantially dependent*. The research design employs a theoretical framework which melds a component of Hindle’s harmonized model of entrepreneurial process (MEP) (Hindle, 2010a) with a table of the distinctions defining the three evaluation logics of bricolage, effectuation and causation. This is operationalized in a framework we call an evaluation logic matrix” (ELM). Our research employs a multiple case study approach (Yin, 2009; Eisenhardt and Graebner, 2007) of 22 ventures in the portfolio of serial entrepreneur, Gary Allen. The ELM facilitates efficient and dispassionate measurement and arrangement of the degree to which each venture displayed characteristics typical of the three “contending” logics of venture evaluation which Allen actually employed. Data are analyzed using a mixture of qualitative and quantitative techniques including hierarchical regression. The essence of all our findings is that, in every one of the 22 ventures, Allen’s thinking and behavior comported strongly with the prescriptions of the first phase of Hindle’s MEP model. Elements of bricolage, causation and effectuation are found in all 22 ventures, although in varying proportions. Pronounced patterns in the evidence indicate strongly that causation, bricolage, and effectuation are not contending systems of entrepreneurial logic but contingent, contextually dependent aspects of a larger unity. We explore several patterns in the data, discuss some detailed aspects of principal findings and briefly discuss their implications.

DISCORD AND HARMONY IN THE LITERATURE OF ENTREPRENEURIAL PROCESS

A Highly-fragmented Literature

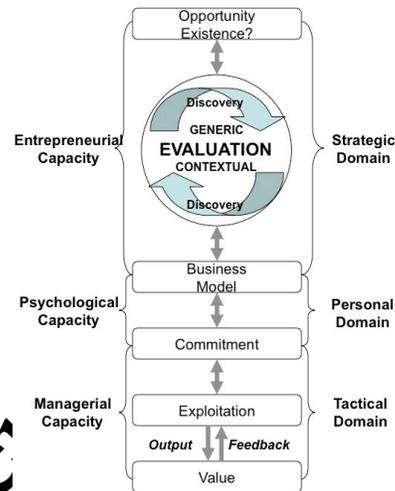
Are there any common denominators within the extant entrepreneurship literature that may serve as foundational to understanding the entrepreneurial process in a systematic and comprehensive way that is useful to scholars *and* practitioners? This is the question asked by Moroz and Hindle (2010) in their recently completed study entitled, “Entrepreneurship as a process: toward harmonizing multiple perspectives”, in which they give detailed scrutiny to the 32 entrepreneurial process models contained in the peer reviewed literature. Their aim was to discover what, if anything, about entrepreneurial process is both generic (all processes that are entrepreneurial do this) and distinct (only entrepreneurial processes do this). Their approach was to evaluate all extant models of entrepreneurial process to discover what scholars have argued about, what entrepreneurs do and how they do it (the processes they use) and to seek any key commonalities that scholars claim are associated with the phenomenon. Unfortunately for the field, Hindle and Moroz demonstrate that extant models of entrepreneurial process, as at the time of their investigation, are highly fragmented in their claims and emphases, and are insufficient for establishing an infrastructure upon which to synthesize a generic and distinct understanding of entrepreneurial process. Insights gained in the study led them to suggestions for future research and theory development, of which the most urgent was the need to develop a “harmonized” model of entrepreneurial process capable of embracing the best of what is on offer and adding new theoretical arguments in areas where practice shows they are lacking.

A Solution to Fragmentation: A harmonizing model of entrepreneurial process

In response to the fragmentation demonstrated by Moroz and Hindle (2010), Hindle (2010a) has developed a generic model of entrepreneurial process (MEP) that claims to harmonize much of the discord displayed in extant theory of entrepreneurial process. The model conceptualises the entrepreneurial process as a set of activities that takes the entrepreneur – or group of entrepreneurs – from a starting input of questioning whether an opportunity exists, to an output where some kind of value – positive or negative – is actually achieved.

To get from input to output, the model distinguishes between three distinctive but inter-related domains of activity: the strategic, the personal and the tactical. Each domain requires the entrepreneur to utilize some specific skills or competencies. In the strategic domain, the distinctive core is entrepreneurial capacity, and the key activity is some form of *evaluation* of the potential opportunity, and the focal outcome is the development of an opportunity into (some kind of) a business model. In the personal domain, the distinctive core is psychological capacity, the key activities involve a range of psychologically driven behaviors and the focal outcome is the entrepreneur's personal commitment – or lack of commitment – to actually implement the business model. In the tactical domain, the distinctive core is managerial capacity, and the key activity is managing the appropriate exploitation activities – that is, starting and running the business – and the focal outcome is the achievement of value.

Figure 1. The MEP Model



Source: Hindle 2010a

This study adopts the theoretical position that entrepreneurial evaluation – the transformation of a vague idea into a precise agenda (whether this be called a “business model”, a “venture design”, a “new means-ends framework”, or something else) – is at the heart of entrepreneurial process (Hindle, 2010a). We will limit the majority of our focus to the first phase of the model, the strategic domain, where evaluation is the key activity. Bricolage, effectuation and causation are primarily logics of venture evaluation because evaluation is traditionally defined as the systematic determination of merit, worth, and significance of something using pre-set criteria against a set of standards. Hindle’s MEP stresses that the broad generic concept of “evaluation” includes *any* regime whatsoever for assessment of merit, worth and significance, using *any* criteria via *any* set of standards whatsoever. It is vital to stress that, in this perspective, the term “evaluation” should not be confined to the particular kind of formal evaluation associated with “causist” logic (see below), despite the fact that some researchers (e.g., Mitchell et al., 2007) do use it in this limited way. Such scholars assume (wrongly, in our view) that “evaluation” is always teleologically directed to a given explicit endpoint and uses specific formal, often economic, assumptions and techniques to assess the viability of achieving that end. In stark contrast, “evaluation”, as used by Hindle (2010) in the MEP model, can also embrace heuristic approaches and even unstructured assessment regimes made by some entrepreneurs. In the conception embodied in the MEP model, there are many kinds of assessment regimes, and all – including bricolage, effectuation and causation (see below) - can be classified as different *forms* of evaluation.

The result of combined generic and contextual evaluation activities, after a number of iterative cycles **in the strategic domain**, will produce a business model. Hindle (2010a) argues that the result after all cycles that the entrepreneur wishes to perform is a business model that answers – to the entrepreneur’s satisfaction - the fundamental question of whether an exploitable opportunity exists or not. Or, in the words of Shane (2003: 18), the entrepreneur (now) believes that she/he has created a design for *a new means-end framework for recombining resources that the entrepreneur*

believes [*Shane's emphasis*] will yield a profit (Shane, 2003: 18). In other words, at this level of generality, a “business model” can be defined as an answer to the opportunity existence question wherein the entrepreneur has satisfied herself that she has created a design for how to proceed to implementation of the opportunity.

The Three Dominant Divergent Perspectives on Entrepreneurial Process

The concept of *bricolage* was introduced in 1967 by the French anthropologist, Levi-Strauss, to describe how members of various societies (tribes) recombine elements of materials, tools and skills that are available to them, in order to solve various everyday problems and challenges. The concept has since been applied in a number of different fields and disciplines. Baker and Nelson (2005) have looked at bricolage as a way to understand and describe how entrepreneurs under severe resource constraints manage to start and grow new firms despite severe resource disadvantages. They define entrepreneurial bricolage as “making do by applying combinations of the resources at hand to new problems and opportunities” (Baker & Nelson, 2005: 333). Bricolage describes the process of how entrepreneurs bring value to otherwise (seemingly) worthless resources, and achieve their goals with the means and resources easily available to them. The bricoleur is a kind of handyman who meets day-to-day challenges and opportunities through the trial-and-error combination of whatever materials, tools and skills he or she has accumulated and in ways for which they were not originally intended.

The concept of *effectuation* was introduced by Saras Sarasvathy in 2001. It describes a logic of decision-making and explains how expert entrepreneurs (Sarasvathy, 2001; Dew et al., 2009) make decisions and take actions when faced with complex entrepreneurial challenges such as starting and managing a new venture. Effectuation can be defined as “a logic of non-predictive control that takes a set of means as given, and focuses on selecting between possible effects that can be created with that set of means” (Sarasvathy, 2001; Sarasvathy, 2008). Four principles form the core of effectuation theory: Affordable loss, rather than expected returns; controlling an unpredictable future rather than predicting an uncertain one; reasoning from the starting point of a bundle of existing or available resources (a “means base”) rather than a set of pre-defined goals; and a preference for creating strategic alliances rather than conducting competitive analyses. Thus, instead of making external analyses as typically described by causists including Porter (1980, 1985), or Kotler and Keller (2009), or Shane (2003) and hedging against competition, the effectuator tries to reduce uncertainty and erect barriers to entry by making strategic alliances with stakeholders, including stakeholders who might be regarded as “hostile competitors” in a more Porterian way of thinking.

Effectuation is typically contrasted with *causation* (Sarasvathy, 2001). In the work by Sarasvathy and her colleagues, causation is the term used to explain what effectuation is *not* (Sarasvathy, 2001, 2008; Dew et al., 2009). Causation is seen as the opposite of effectuation in a number of areas. In this study we use the term and treat the causation perspective in its own right. Many scholars and theories within strategic management, marketing and entrepreneurship apply – without using the causation term directly – a causal logic. In their seminal paper, Shane and Venkataraman (2000) describe that to identify and exploit opportunities, the entrepreneur should discover “gaps” in the market, where the competition and rivalry is absent or at least less fierce, and then pursue and exploit those markets, using an underlying causal logic. Similarly, the planning school of strategic management (Mintzberg et al., 1998) prescribes that in the strategic decision-making process, setting goals should come before planning and execution. Kotler (2009) is another well-known proponent of causation logic, as is Porter (1980, 1985). Table 1 illustrates the main differences and similarities between the three perspectives.

Table 1. Differences and Similarities Between the Three Perspectives

	Bricolage	Effectuation	Causation
Goal-setting	The bricoleur usually works toward (pre)existing goals. Most	Effectuation is clearly non-teleological. The effectuator	Causation includes having a well-formulated plan, and one

	empirical descriptions of bricolage are clearly teleological.	starts from a means base (“the bird in hand”) without having a pre-set or well-defined goal for the outcome.	or more clear and precise pre-set goals. Goals should come before planning and execution.
Planning	In “opposition to” the linear (causational) planning models. Though planning and bricolage can happen concurrently: e.g., you can <i>plan</i> to use bricolage. However, the bricoleur has a predisposition for action and emergence.	In “opposition to” the linear causational planning models. Effectuation argues that expert entrepreneurs do <i>not</i> work out and follow a pre-made (linear) business plan.	Planning is an essential part of causation. Planning should come before strategic decisions and execution. The starting point is a set of predefined goals rather than a means base (as is the case in effectuation).
Predictive/non-predictive (ability to control and predict the future)	Making do with the resources at hand. Trial-and-error and improvisational work processes suggest that environment and future is complex and difficult to predict and control.	To the extent that the entrepreneur can control the future, she does not need to predict it. The principle of “affordable loss rather than “expected returns”.	Predicting the future (forecasting) is important in causational logic. “To the extent that the entrepreneur can predict the future, she can control it”. Expected (maximum) returns, rather than the effectual “affordable loss” principle.
Conducting internal and external analyses	Making do with the resources at hand includes improvisational and trial-and-error processes, and suggests that analyses may not be formally conducted. Instead, there is a bias for action; trying it out and seeing what happens.	It is not possible (or sensible) to conduct extended strategic analyses. Making strategic alliances and getting pre-commitments from stakeholders rather than conducting competitive analyses is a way to reduce and/or eliminate uncertainty and erect entry barriers.	Making internal and external analyses (competitive and customer analyses and/or analysing internal resources etc.) is an important part of the causational process.
Using existing resources or seeking new resources	Bricoleurs construct new resources from combinations of what is at hand in pursuit of existing goals. What’s at hand is literally transformed into new resources.	The effectuator takes the <i>means at hand as given</i> and focuses on selecting among possible effects. The means are given: Who you are, what you know and whom you know.	Resources are developed or externally acquired in order to implement the chosen strategies and achieve specified goals.
Resources: defined or constructed	Resources and environments are not objectively defined. Resources are constructed and value added through reconceptualization of resources.	Resources are initially objectively defined, although they are perceived subjectively/individually, and thus may be acted upon in “non-usual” ways.	Resources are well-defined. The task for the entrepreneur is to analyze the situation and acquire the resources required to act according to plan.
Opportunities:	Bricolage sees opportunities as something created, enacted, constructed etc.	Effectuation sees opportunities as something created, enacted, constructed etc.	Both outside-in and inside-out perspectives suggest that opportunities are discovered rather than created.
Expertise:	Bricolage is often carried out by non-experts, but it may be carried out by experts as well.	Effectuation is a theory of how expert entrepreneurs reason and make decisions.	Causation researchers argue that experts should use causation logic. According to effectuationists though, causation is used by novice entrepreneurs.

The Research Problem: Two questions and one proposition

Can the harmonizing approach (Hindle, 2010a) embrace the divergent perspectives as variants of a greater unity?

Our investigation began with the supposition – simultaneously a suspicion and a hope – that causation, effectuation and bricolage are not really *contending* logics: they may instead be *contingent* logics. Looking up from the musty pages of journal-based scholarship and looking squarely – if naively – at business practice, we made a range of simple observations. Two examples suffice to explain our motivation for the study. Imagine an intelligent person who has

just lost her job in an economic downturn where employment is tight and her need for cash is urgent. It is highly unlikely that she will conduct her necessity-driven entrepreneurial business according to causist logic. She will likely behave in a manner highly consistent with the arguments of effectuation and/or bricolage: trying to put existing resources to new uses. In total contrast, a securely-employed engineer who conceives what he thinks may be a brilliant technological breakthrough in a fit of inspiration in his garage, may well follow the “classical” causist route of employing a highly-structured formal business plan, and shopping it to potential investors in a quest to acquire the resources necessary for transforming his innovative potential into realised profits. It seems to us that circumstances matter. The choice of venturing logic is, at least, partly prescribed by the circumstances in which the entrepreneur finds him or herself. Moving from whimsical surmise to structured inquiry, we sought answers to two core questions: one generic and one specific.

The question of generic evaluation. Does evidence support the generic argument contained in the first domain of the MEP (Hindle, 2010a): that the first phase of entrepreneurial activity is some form of *evaluation* of a potential opportunity, and the focal outcome of this evaluation is the development of an opportunity into some kind of a business model?

The question of logical contingency. The fundamental question here concerns the variable nature of the evaluation process. Are the allegedly “contending” logics – bricolage, effectuation and causation – actually *contingent* logics of evaluation? Put another way, is one of the “contenders” clearly demonstrated to be the dominant logic of all entrepreneurial venture evaluation or not? If not, what is the nature of the harmonies and discords between causal, effectual and bricolage logics in the opportunity evaluation process? Associated questions abound. Are the three approaches, for instance, mutually exclusive logics in some circumstances and strong allies in others? Do any usage patterns (i.e., various proportional mixes of the three logical approaches) occur, and are they associated with any discernible circumstantial factors?

In a bid to answer our questions, we conducted the empirical investigation detailed in the methodology section of the paper, below. We examined a data set that permits the analyst to observe, describe and assess the nature of the logical processes actually used in the performance of 22 venture creations. We reasoned that serial entrepreneur Terry Allen’s portfolio of venture creation – as documented in his book “No Cash, No Fear”, (Allen, 2001) – is a highly appropriate data base for empirical investigation of our questions for one main reason. Prima facie, an individual is likely to display uniformity rather than diversity in the evaluation process. So, if Allen actually displays consistency in his generic approach to venture creation but variety in the mixes of causal, effectual and bricolage logic in his evaluation logic and behavior of different ventures, it strengthens support for the proposition *that the proportional use of the three logics is circumstantially dependent*. That proposition is at the heart of our investigation. If it is supported, we will have, at the very least, some arguments about what circumstances and contingencies favor which logical approach to new venturing. If emergent patterns are sufficiently strong and clear, we might even have the basis for formulating a conceptual model potentially capable of harmonizing the allegedly contentious voices of causation, effectuation and bricolage in a single choir. Though our study features a large empirical component, it is fundamentally theoretical in intent.

RESEARCH DESIGN

Operationalizing our Theoretical Framework

We accepted and adopted the generic theoretical position, embodied in Hindle’s (2010a) model of entrepreneurial process detailed in a previous section, that entrepreneurial evaluation - the transformation of a vague idea into a precise agenda (whether this be called a “business model”, a “venture design”, a “new means-ends framework”, or something else) – is at the heart of entrepreneurial process. We further relied on the distinctions we articulated, in Table 1 above, between the venture evaluation logic and behavior typical under bricolage, effectuation and causation. The operationalized theoretical framework employed in this study is developed from

Table 1, above. We label the device an “evaluation logic matrix” (ELM). Its components are set out in Table 2 (below). The ELM matrix employs six of the eight key distinctions between causation, effectuation and bricolage detailed in a previous section of the paper (Table 1, above). The resulting matrix has “causal”, “effectual” and “bricolage” as column headings, and “goal setting”, “planning”, “the ability to control and predict the future”, “conducting analyses”, “using existing resources or seeking new resources” and “whether resources are seen as given or being constructed”, as row headings. The other two row headings in Table 1 are not amenable to the same kind of quantitative rating as the first six. The conception of “opportunity” is an *a priori* philosophical stance taken by theorists. Quantitatively rating the expertise of the entrepreneur is far more difficult and contentious than rating the other six factors. As will be seen subsequently, we do pay a great deal of qualitative attention to the issue of expertise because, in our data set, we have the advantage of seeing Allen’s level of expertise change over a long time-span. Rating the observed evaluation behavior of an entrepreneur, in any given case in all 18 cells of the matrix, provides a raw, quantified portrait of that behavior providing precision to our scrutiny and enhanced ability to detect patterns. The ELM allows the analyst to detail, to classify, and to measure *whether* causal, effectual and bricolage evaluation behaviors are displayed in particular cases, *the extent* to which each logic-behavior system is being employed and therefore, the *proportional* contribution of each logic-behavior system to the total evaluation effort an entrepreneur employs in a given case. The maximum total score in any column is 18. Totaling horizontally (for each row individually, and for total column scores in aggregate) allows for an assessment of the proportional use made of each logical/behavioral approach (simply divide the score of each by the horizontal total for all). Crude, simple and judgmental it may be, but, despite its limitations (discussed in the concluding section of the paper) using the ELM framework provides more precise distinctions of what we are looking for when we observe actual evaluation behaviors in operation than we could obtain using words alone.

Table 2. Operationalized Theoretical Framework: The Evaluation Logic Matrix (ELM)

	Bricolage	Effectuation	Causation
Goal-setting prior to execution	Yes, teleological. Score 0 to 3	No. Score 0 to 3	Yes. Score 0 to 3
Planning	Usually no. Score 0 to 3	No. Score 0 to 3	Yes. Score 0 to 3
Predictive/non-predictive (ability to control and predict the future)	Non-predictive. Score 0 to 3	Non-predictive. Score 0 to 3	Predictive. Score 0 to 3
Conducting internal and external analyses	No. Score 0 to 3	No. Score 0 to 3	Yes. Score 0 to 3
Resources: Using existing or seeking new resources	Existing. Score 0 to 3	Existing. Score 0 to 3	Seeking new resources. Score 0 to 3
Resources: Defined or being constructed	Constructed. Score 0 to 3	Defined. Score 0 to 3	Defined. Score 0 to 3

Our research employed a multiple case study approach (Yin, 2009; Eisenhardt, and Gaebner 2007) of 22 ventures in the portfolio of serial entrepreneur, Terry Allen. The ELM facilitates efficient and relatively dispassionate measurement and arrangement of the degree to which each venture displayed characteristics typical of the three “contending” logics of venture evaluation which Allen actually employed. Using the ELM framework, we took each of the 22 ventures (see below) in our data set and carefully scrutinized the venture, assessing the level of bricolage, effectuation and causation displayed in the entrepreneur’s thinking and behavior as he evaluated and initiated the business. A score of 0, 1, 2 or 3 was awarded for each relevant cell in the ELM matrix (clearly, a zero score means the factor is absent from the evaluation behavior displayed by the entrepreneur). Scores 1 (low), 2 (medium) and 3 (high) provide simple but, we would argue, justifiable ratings of the degree to which the evaluation behavior of the entrepreneur comported with the behavior classified in the cell. For example, in Case 12 (see below) “Toys n’ Games”,

there was a clear, fully articulated goal for the venture prior to execution, and this venture, therefore, received a score of 3 points in the “goal-setting” category in the ELM framework. The rating procedure resulted in each venture obtaining a bricolage, effectuation and causation score. For each of the three perspectives, there is a maximum score of 18. A score of 18 equals a very high level of, for example, bricolage, whereas a score of 0 means that bricolage is not used at all in this venture. As will be detailed presently, the results of this analysis form the basis for the further investigation of features, trends and patterns among the ventures that formed our data set.

Data Set

Terry Allen is a prolific serial entrepreneur who has started over 100 ventures in a wide range of industries. Twenty-two of them are described in the book, “No Cash, No Fear” (Allen, 2001). We treated each venture as a case in our dataset. We bracketed a number of very juvenile ventures into a single composite case we called “childhood portfolio”, on the basis that the same logic and behavior was displayed in all of them. Each case consists of the description of a venture started and or acquired and developed by Terry Allen. Space constraints preclude elaborating on each of the 22 ventures at any length. We are restricted to the summary overview of all the cases in the data set provided in Table 3.

Table 3. The 22 Ventures in the “No Cash, No Fear” Portfolio

Case No.	Name of venture	Data detail supplied	Industry	Core activity	Degree of innovation
<i>Early Career Phase:</i>					
1	Childhood portfolio	Sparse	Retail	Selling earth worms, frogs, pot-holders, popcorn, candleholders, vegetables, soft drink	Imitation
2	Lawnmowing services	Sparse	Gardening services	Lawnmowing services	Imitation
3	Stationery	Sparse	Retail	Selling stationery at college	Imitation
4	Paperback books	Sparse	Retail	Selling books at college	Incremental
5	Bookbinding	Sparse	Retail	Selling bookbinding kits	Imitation
6	Roommate replacement service	Sparse	Housing	Providing rooms for students	Imitation
7	Vermont Ski Lodge	Rich	Leisure and retail	Renting out rooms and selling bunk beds	Imitation/ Incremental
8	Exam passing course	Sparse	Education	Making a course for real estate studies	Incremental/ Radical
9	Better Realty	Rich	Real estate and land development	Real estate brokerage, buying/selling houses, renting out apartments and developing land	Imitation
10	Putland Savings and Loan Assn	Medium	Banking	President of small bank/loan association	Imitation
<i>Middle Career Phase:</i>					
11	Equipment Rental Business	Rich	Retail	Renting house/renovating equipment	Imitation
12	Toys n' Games	Rich	Retail	Opening a toy store for Christmas	Imitation/ Incremental
13	Self-publishing books	Rich	Publishing	Writing and publishing books about rental store management	Incremental
14	Coupon Distribution Services	Rich	Direct mailing and franchise	Direct mail coupons for house-owners and offering the business for franchisees	Incremental
15	Information Industry I	Rich	Data information	Making/selling data lists of real estate transactions	Incremental/ Radical
16	Electronic Video Games	Rich	Electronic games	Manufacturing and selling video games when they were novel	Radical
17	Sex Education Publishing business	Medium	Publishing	Selling sex education comic books	Incremental

18	Stock Options	Medium	Stock trading	Buying/selling stocks on the stock market	Imitation/ Incremental
<i>Late Career Phase:</i>					
19	Promotional Board Games (“All about Town”)	Rich	Board games	Manufacturing electronic board games, promoting the local trade	Incremental
20	Information Industry II	Rich	Data information	Making/selling data lists of real estate transactions	Incremental
21	Information Industry III, Selling Business Names	Rich	Data information	Making and selling data information lists	Incremental
22	Russian adventure	Medium	Retail	Opening a pizzeria and ice-cream bar in Russia	Imitation/ Incremental in Russia

Analytical Techniques

Using the ELM, we classified, in each case, Allen’s early-stage venturing, thinking and behavior and compared it with the patterns typical of bricolage, effectuation and causation. As indicated below, we employed a combination of qualitative judgements of each venture, and quantitative analyses of the data resulting from the rating system previously developed.

FINDINGS

The Question of Generic Evaluation

Does evidence support the generic argument contained in the first domain of the MEP (Hindle, 2010a), that the key activity in early-stage entrepreneurial activity is some form of contextualised *evaluation* of a potential opportunity, and the focal outcome of this evaluation is the development of the suspected opportunity into some kind of a business model? The short and complete answer to this question is simply, “yes”. In every one of the 22 ventures examined in our data set – including the earliest childhood portfolio – Allen’s thinking and behavior comported strongly with the prescriptions of the first phase of the MEP model. Indeed, we would argue that the key to Terry’s serial entrepreneurship lies in the fact that he is what we would call an almost perpetual evaluator. Every Terry Allen venture provides strong support for the accuracy and efficacy of the MEP as a model of entrepreneurial process.

The Question of Logical Contingency

The fundamental question here concerns the variable nature of the evaluation process. Are the allegedly “contending” logics – bricolage, effectuation or causation – actually contingent logics of evaluation? Our analysis of the ventures shows that Terry Allen displays various mixes of causal, effectual and bricolage logic in his evaluations and early-stage entrepreneurial management. Elements of bricolage, causation and effectuation are found in *all* 22 ventures, although in varying proportion. There is not one “pure” case where one approach gets a perfect score of 18, and each of the other approaches scores zero. None of the ventures is, thus, entirely dominated by one of the three perspectives. Given unlimited space, we would, of course, show the full ELM rating sheet for each of the 22 ventures (which are available on application to the authors). Table 4 shows only the aggregate scores received by each venture, in association with five contextual factors that have a potential impact on the underlying entrepreneurial logic(s) employed. These are: career phase (early or late in Allen’s development as a serial entrepreneur); degree of innovation involved in the business; the technological complexity inherent in the venture; its industry location; and whether the venture was a self-developed start-up or an acquisition.

Table 4. Results of the Analysis: Level of bricolage, effectuation and causation

No.	Name of venture	Score B	Score E	Score C	Degree of innovation	Technol. complex.	Industry	Self-develop. or acquisition
<i>Early Career Phase:</i>								

1	Childhood portfolio	16	14	2	Imitation	Low tech	Retail	Self-develop.
2	Lawnmowing services	7	9	9	Imitation	Low tech	Gardening services	Self-develop.
3	Stationery	5	10	3	Imitation	Low tech	Retail	Self-develop.
4	Paperback books	8	14	2	Incremental	Low tech	Retail	Self-develop.
5	Bookbinding	5	11	8	Imitation	Low tech	Retail	Self-develop.
6	Roommate replacement	8	12	2	Imitation	Low tech	Housing	Self-develop.
7	Vermont Ski Lodge	16	16	6	Imitation/ Incremental	Low tech	Leisure and retail	Selfdevelop.
8	Exam passing course	12	17	3	Incremental/ Radical	Low tech	Education	Selfdevelop.
9	Better Realty	12	14	4	Imitation	Low tech	Real-estate and land development	Selfdevelop.
10	Rutland Savings Assn	1	4	9	Imitation	Low tech	Banking	Buying into
<i>Middle Career Phase:</i>								
11	Equip. Rental Store	7	13	11	Imitation	High tech	Retail	Buying into
12	Toys n' Games	8	3	18	Imitation/ Incremental	Low tech	Retail	Self-develop.
13	Self-publishing books	5	7	11	Incremental	Low tech	Publishing	Self-develop.
14	Coupon Distrib. Serv.	3	1	16	Incremental	Low tech	Print mail & franchise	Self-develop.
15	Info. Industry I	12	12	4	Incremental/ Radical	High tech	Data information	Self-develop.
16	Electronic Video Games	13	13	6	Radical	High tech	Electronic games	Self-develop.
17	Sex Education Pub.	8	10	6	Incremental	Low tech	Publishing	Buying into
18	Stock Options	4	5	8	Imitation/ Incremental	Low tech	Stock trading	Buying into
<i>Late Career Phase:</i>								
19	Games "All About Town"	11	11	6	Incremental	Low tech	Board games	Buying into
20	Info. Industry II	7	3	2	Incremental	High tech	Data information	Self-develop.
21	Info. Industry III, selling new biz names	10	8	7	Incremental	High tech	Data information	Buying into
22	Russian adventures	4	8	8	Imitation/ Incremental in Russia	Low tech	Retail	Self-develop.

Given the space constraints of this paper, we now briefly present some of the most salient features of an extensive analysis, somewhat in the nature of "edited highlights".

Effectuation and Causation in the Light of Entrepreneurial Expertise

With respect to entrepreneurial expertise, theoretically, effectuationists (Sarasvathy, 2001; Dew et al., 2009) argue that effectuation and causation are virtually diametrically-opposed. Effectuation is portrayed as the logic of "expert entrepreneurs", whereas causation is portrayed as the logic of "novice entrepreneurs" (Dew et al., 2009). To examine this theoretical claim, we investigated the use of effectuation and causation in Allen's ventures through his entrepreneurial career. Remarkably, analysis reveals that the further Allen progressed in his life-long entrepreneurial career, the less he used effectual logic and the more causal logic was used. We analyzed the phenomenon in three different ways. First, we looked at the "raw" scores by visual inspection, trying to see whether a pattern emerged. Second, we separated his career into three phases; early, middle and late, and then calculated the mean of each phase, to see whether there was a trend in the figures. Third, we conducted statistical analyses, employing hierarchical linear regression with the effectuation score as a dependent variable, and created a dummy variable for career development (a proxy variable for entrepreneurial expertise) as an independent variable. All three methods provided a clear and unanimous result. The effectuation scores generally decreased as his expertise increased. The effectuation score means of the early, middle and late ventures

decreased and, statistically, there was a strong and significant negative correlation between the development in his career (i.e., his entrepreneurial experience) and his tendency to use effectual reasoning when starting and managing a venture. Model 1 in the regression contains the control variables, and Model 2 introduces the effect of career development. The R^2 is .292 and adjusted R^2 is .125. The standardized coefficient for career development is $-.723$ with a level of $p < 0.05$. We checked for normality of residuals, outliers and multi-collinearity issues. A full overview of all statistical results can be forwarded by the authors upon request.

For causation – according to effectuation theory (Sarasvathy, 2001; Dew et al., 2009) – the trend should be the opposite of effectuation: the less expertise, the more causal logic should be applied. We conducted the same analyses as for effectuation, and the results again showed the opposite of that theoretically expected by effectuationists. Strong results indicate that the more Allen grew in experience, the higher the level of causation logic and behavior he displayed. Visually and statistically, the causation trend is not quite as strong and significant as for effectuation. Hierarchical linear regression was conducted in the same manner as for effectuation, only with causation as a dependent variable. The R^2 is .185, and adjusted R^2 is $-.007$. The standardized coefficient for career development is $.610$, with a level of $p < 0.05$. A full overview of all statistical results can be forwarded by the authors upon request.

In sharp contra-distinction to the theoretical arguments of proponents of effectuation, we found opposing directions in the use of causation logic/behavior versus effectuation logic/behavior. The statistical analysis was nuanced enough to show that the trends of use of effectuation and causation as the entrepreneur developed in expertise were not exactly opposite. Effectuation showed a higher correlation with entrepreneurial expertise than with causation. For some ventures, effectuation and causation are *not* mutually exclusive or at “opposite ends” of a bipolar discontinuity. The high levels of effectuation and causation found, for example, in Case 11 “Equipment Rental Store”, reveal that effectuation and causation are not mutually exclusive here. This could imply that these perspectives are not so much competitors as when starting a venture and conducting entrepreneurial management in real life.

Bricolage versus Effectuation and Causation

Bricolage behavior is present in ventures throughout the career of the entrepreneur, but the degree to which it was used varies greatly in different ventures, as can be seen in Table 4. The scores for bricolage and effectuation are positively and highly correlated (Pearson correlation is $.72$, significant at the $.01$ level), meaning that bricolage and effectuation are often found in similar proportions in the same ventures. Bricolage and causation are negatively correlated although the relationship is not nearly as pronounced as the positive correlation with effectuation. (Pearson correlation is $-.49$, significant at the $.05$ level). The analyses of the bricolage scores also reveal that bricolage behavior is seen in both effectuation and causation dominated ventures, implying that the perspectives are not always mutually exclusive or competing, but rather they are sometimes mutually supportive. Further analyses of the bricolage scores indicate that the higher the level of innovation in the venture, the higher the level of bricolage thinking and behavior. It can also be seen that, on average, there is a higher level of bricolage in the ventures started from scratch (“self-development” in Table 4) than for the ventures where the initial idea was already born when Allen took over (“buying into” in Table 4).

Are Bricolage, Effectuation and Causation Mutually Exclusive or Harmonized Perspectives?

What more does data analysis reveal about the nature of the harmonies and discords between causal, effectual and bricolage logic in the opportunity evaluation process? Are they, for instance, mutually exclusive logics in some particular circumstances and strong allies in others? As mentioned earlier, our analysis reveals that elements of the three perspectives are present for all the ventures. Some ventures do display a dominance of one of the perspectives though. In eight out of the twenty-two cases (36%), *one* of the three perspectives makes up more than 50% of the total score of that venture, and the entrepreneurial logic and decision-making can thus be said to be dominated by one of the three perspectives (this is true for case no’s. 3, 4, 6, 8, 10, 12, 14 and 20).

In these cases it might be tenable to argue that the perspectives, though not mutually exclusive, are at least quite clearly distinguished. However, for the remaining 14 cases (64%), the entrepreneurial logic is more evenly spread between two or three perspectives. In other words, for nearly two-thirds of the ventures Allen evaluated and developed, he used a relatively evenly-spread mix of two or all three entrepreneurial logics. In this group, moreover, some ventures have a high level of employment of more than one of the three allegedly “contending” approaches. Here, the approaches seem to be allied, mutually supportive and operating in harmony. Below, we have listed some of these interesting cases where two entrepreneurial logics seem to be (pair-wise) harmonized rather than at odds with each other.

High level of bricolage and effectuation, low level of causation

Case 7: Vermont Ski Lodge: This is an interesting case, high on bricolage and effectuation. He owns an old school, and wants to utilize this (money wise) in some way. He starts a Ski lodge, but purchasing and then selling bunk beds (and bed linen etc.) become, unexpectedly, one of the most profitable parts of the business. Effectuation is very evident in the use of the means at hand and simultaneously, bricolage is evident where resources he already possesses (the old school) are recombined in new and innovative ways for purposes not originally intended.

High level of bricolage and causation, low level of effectuation

Case 12: Toys n’ Games: He starts up a toy store just before Christmas. The whole venture, including an exit strategy, was planned before execution. The plans and analyses were, as can be seen from the case, not performed with pinpoint accuracy and the result was not quite as Allen expected. But there is clear causal logic nonetheless, aided and abetted by some classic bricolage behavior.

High level of effectuation and causation, low level of bricolage

Case 11: Equipment Rental store: He starts with opening one store, initially employing a dominating effectuation logic, but gradually expands the business, adding more stores and moves toward more planning and goal-setting, and greater use of causation logics as he gains experience in the business.

Ventures with a high bricolage score

Case 1: Childhood portfolio: Although these ventures are all small-scale, they display the use of available resources in innovative ways, for which they were not originally designed or intended.

Case 7: Vermont Ski Lodge (also high on effectuation as discussed).

Case 21: Information Industry III: He develops and sells data lists containing newly registered businesses. In this venture Allen describes how he used all possible creative means with little or no costs attached in order to get the saleable information he needed (this information was the most valuable asset in the venture). He used resources in ways that they were not intended for at all (laundrettes, blind people, Canadians etc.).

Ventures with a high effectuation score

Cases 1–9: Almost all the early ventures are high on the use of effectuation logic. Especially interesting ventures were:

Case 7: Vermont Ski Lodge: as discussed. It provides a clear example of using the means at hand. The bunk beds (and bed linen etc.) become one of the most profitable parts of the business.

Case 9: Better Realty: had no clear goal from the start. Here Allen starts a real-estate agency but would do virtually anything to make money. The venture changed as he went along. He moved into land development and renting out apartments. There was no substantial plan or goal.

Case 11: Equipment Rental Store: Started out with a dominating effectuation logic, but gradually moved toward more planning and goal-setting, and then causation as he gained experience in the business.

Ventures with a high causation score

Case 12: Toys n' Games: As previously discussed, the whole venture, including an exit strategy, was planned before execution.

Case 14: Coupon distribution services: In this venture causal logic was used for evaluating the potential and expected outcome. He articulated formal business plans, forecast market share and future profits and pre-planned how to develop and expand the venture.

Case 20: Information Industry II: Allen started this venture in direct competition with his previously owned old firm. He was totally aware of which goals to pursue in pursuit of a highly-defined business model. Later on he planned a "cookie-cutter" arrangement as a way of pre-planning and predicting likely future developments.

DISCUSSION

Limitations and Strengths of the Study

This study has many and obvious limitations, all centered on the nature and quality of the data set. The evidence comes from only one source, Terry Allen himself. His narrative, presented in his book, "No Cash, No Fear", is a retrospective study subject to bias, subjectivity, selective memory and a host of other problems. On the analytical side, it may be argued that both the qualitative assessments and quantitative measurements we made (our rating scores for bricolage, effectuation and causation in our ELM matrix, above) are non-replicable and subject to multiple problems of validity and reliability. It can be argued that our statistical results – particularly in our hierarchical regressions – are compromised by the size of the sample: only 22 cases. Despite these limitations, we contend that the study has some important strengths that stem from the same source as its weaknesses. Terry Allen's narrative is in the public domain; every reader of this study can read the original book. You have the same narrative as we had to compare, for instance, whether you think overall that Allen's behavior is a good fit with the prescriptions of Hindle's (2010a) model of entrepreneurial process. You can, if you wish, easily compare how you would have scored each of the ventures in our ELM framework with the scores that we gave, and so on. The data is completely transparent to every reader. Eminent entrepreneurship scholar, William Gartner, is in the process of creating a new journal entitled *Entrepreneurial Narrative: Text, Ethnomethodology and Reflexivity* (mercifully, "EN:TER" for short). He contends (Gartner 2010), and we agree, that the detailed scrutiny of rich entrepreneurial narratives as data sets for the generation of researched insights is every bit as important, valid and reliable to the development of the field as is the drawing of inferences from large sample questionnaires, where the original data is seldom filed on a long-term, easy access basis and is more often than not destroyed rather than filed in perpetuity.

Achievement

Analysis of the evidence of 22 cases of Allen's experience as a serial entrepreneur (Allen, 2001) clearly answers the questions and proposition that motivated the study. Evidence supports the veracity of the first component of Hindle's model of entrepreneurial process (Hindle, 2010a) and demonstrates strongly that the seemingly irreconcilable differences between three "contending" views of entrepreneurial process – bricolage (Baker & Nelson, 2005), effectuation (Sarasvathy, 2001, 2008), and causation (Shane, 2003) - can be resolved when the three particular forms of thinking and behavior are viewed as subsets of that broader model of entrepreneurial process (Hindle, 2010a). Causation, effectuation and bricolage should not be regarded as universal contending explanations of the whole world of entrepreneurial process all of the time but, rather, as contextually contingent and often highly compatible explanations of parts of that world, some of the time. All three approaches are forms of a larger unity, the same key activity: the contextually dependent evaluation of an opportunity to the point where it has become, in the entrepreneur's mind, a business plan worthy of his (or her) commitment and managerial effort. The evidence overwhelmingly supports our central proposition that *the proportional use of the three logics is circumstantially dependent*.

Thus, none of the three logics has a moratorium on a mono-dimensional, fully definable truth but all of them provide valuable insights into a multi-faceted, elusive truth.

In this study, our main stimulus has been the possibility of bringing greater harmony to three of the key theoretical arguments concerning the nature of entrepreneurship in general, and the management of the new venture creation process in particular. Our evidence shows that in the intensely human complexity of entrepreneurial process, just as in the highly complex processes of the natural world, there can be unity without uniformity. Allen always does the same thing: he evaluates a vague opportunity until, for him at least, it has been transformed into a clear business plan. He commits to it and gets to work to implement it. However, he never does this same *thing* - the process described in Hindle's (2010a) model of entrepreneurial process - in the same *way*. Sometimes he is mostly a bricoleur, sometimes mostly an effectuator and sometimes mostly a causist. He is always something of all three and never thinks of himself as being any of them. He doesn't reflect much on his logic and behavior, he just steps himself in the context, evaluates, commits and acts. Entrepreneurs *do*; entrepreneurship researchers *reflect* upon what they do - in such a way, it is to be hoped, that the research may help future entrepreneurs to do it better.

Archer, Baker and Maur (2009) are among many who believe that entrepreneurship involves the art and science of dealing with varied resource constraints (Aldrich, 1999) demanding the development of theory and research into patterns, practices and outcomes of entrepreneurial "resourcefulness". Our study certainly comports with that philosophy and offers both new insights and significant practical implications for the field. Most importantly, we have shown that none of the great work of researchers in the areas of bricolage, effectuation and causation is in any way wasted. Further exploration of the particularities of each of these venture evaluation logics is vital to deepening our understanding of entrepreneurial process, but even more important is the exploration of the way that context affects entrepreneurial process and how contingent circumstances favor the use of one logic over another or in partnership with another. We would, eventually, like to model this pattern systematically, but feel we do not yet have enough data to allow us to do so with the degree of confidence and comprehensiveness we would desire in such a model. Elsewhere, one of us (Hindle, 2010b) has developed a diagnostic framework for assessing the way in which community context affects entrepreneurial process. Together, we hope to use that work to extend our investigation of the effects of a wide range of contingent circumstances on the way entrepreneurs manage the process of entrepreneurship? We - aided we hope by many scholars interested in this important work - want to add many cases to the 22 studied here as a means of producing a fully-wrought conceptual model potentially capable of explaining the nature of the logical systems of decision-making and the patterned modes of behavior employed by entrepreneurs in the early stages of the entrepreneurial process. Such a model, when and if it is developed, might have the capacity to explain, with great precision, the relationships between certain mixtures of contextual factors, the choice and balance of evaluation logics employed, and the nature of resultant typical business models. This study has given us a first greyscale sketch of complex relationships. It will take much more work to produce a fully colored portrait.

Seeking to build on this study by researching many more cases of entrepreneurial process using a wider range of investigative techniques, our long-term aim is, ultimately, to develop what might be called a conceptual model of contingent evaluation. Meanwhile, we leave the patterns we have found in their relatively eclectic state, content that, even in the absence of precise synthesis, they add significantly to our understanding of entrepreneurial process and bring some harmony to an area where discord was previously strident.

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