Heterogeneity and the Origin of the Founding Team: How the Concepts Relate and Affect Entrepreneurial Behavior

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Abstract Although discovery and exploitation of entrepreneurial opportunities have often been attributed to an individual entrepreneur, scholars have increasingly recognized that entrepreneurship is a task performed by teams more than individuals and that the dynamics of entrepreneurial teams add new insights to entrepreneurship research (Klotz et al., Journal of Management 40: 1–30, 2013). It has also been suggested that the traditional way of performing the entrepreneurial process, is not the only way and other alternatives have been proposed to explain how individuals and teams perform this process. Findings of this work suggest differences among founding teams relative to their composition at the moment of creation of their ventures, and to whether they were formed before or after the entrepreneurial opportunity was discovered or created. Relationships are suggested between teams' heterogeneity and the use of Effectuation and Causation as entrepreneurial behaviors by Founding Teams. Additionally, a *Behavioral Classification of Founding Teams* is proposed, based on the analysis of the behaviors reported by entrepreneurs from nine Founding Teams.

Keywords Founding teams · Entrepreneurial teams · Entrepreneurial behavior · Effectuation · Heterogeneity · Startups

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1 Introduction

Opportunities are at the top of the Entrepreneurial Process whether we conceive them as latent and waiting to be discovered (Shane and Venkataraman 2000) or as circumstances that have to be constructed through experimentation (Sarasvathy 2001).

Discovery and exploitation of entrepreneurial opportunities have often been attributed to an individual entrepreneur that has been mystified as a "lone hero" (Cooney 2005). Notwithstanding this general conception, entrepreneurship scholars have come to acknowledge that the formation of new ventures is usually accomplished by teams (Klotz et al. 2013) rather than by individuals and that ventures led by teams are more successful than those of lone entrepreneurs (Kamm et al. 1990).

On the other hand, most entrepreneurship research has focused on the discovery and exploitation of entrepreneurial opportunities as a goal-driven process, where entrepreneurs foresee a business opportunity and assemble the necessary resources to exploit it (Fisher 2012; Perry et al. 2011; Sarasvathy 2001).

Complementing this view, new thinking has presented different perspectives to explain the actions and logic that underlie entrepreneurial behavior (Fisher 2012), *effectuation* being one that "assumes not that opportunities are waiting to be discovered, but that opportunities emerge when created by an entrepreneur and her partners" (Read et al. 2009, p. 573).

Sarasvathy (2001) refers to the traditional model as *causation* and introduces *effectuation* as an alternative model of opportunity identification and exploitation.

Effectuation is built on the idea of co-creation of the entrepreneur with her partners (Dew et al. 2009; Read et al. 2009) leading one to suspect that it might be more a team effort than an individual endeavor. Nevertheless, although several works about *effectuation* have been written (Perry et al. 2011; Read et al. 2009) few have explicitly referred to the use of *effectuation* by teams (Alsos and Clausen 2016). In that case, this approach might add new information to the extant literature about both *effectuation* and *entrepreneurial teams*.

Klotz et al. (2013) recognize that to this point most entrepreneurship research about new venture team functioning and performance has followed the lead of Upper Echelons (UE) research which states that the characteristics of individuals in Top Management Teams (TMT) predict the team's organizational outcomes, i.e. their strategic choices and performance levels (Hambrick and Mason 1984). This has been a useful approach so far, however such studies have been limited to publicly available data, and have often failed to explain *how* and *when* teams' characteristics influence firm performance. To address these questions, an Input-Mediators-Outcomes (IMO) framework has been proposed, to achieve better knowledge about team dynamics and performance (Klotz et al. 2013).

Bird and Schjoedt (2009) refer to *Entrepreneurial Behavior* as the concrete enactment of individual or team tasks or activities "chosen with the intention of finding and exploiting an opportunity and forming an organization of human, financial, physical, social, and intellectual resources" (p. 328). According to this definition, teams and organizations do not behave but individuals comprising them do and their actions derive from the characteristics they own, such as their experience, knowledge, skills, abilities, cognitions, intelligence, learning, intentions, and motivations which, according to Sarasvathy (2001) become the *means* of the entrepreneur, or the team, i.e. "*who they are*, *what they know*, and *whom they know*—their own traits, tastes, and abilities; the knowledge corridors they are in; and the social networks they are a part of" (p. 250, italics added).

Each entrepreneur brings her own resources to the endeavor depending on the means that he/she can control and draw upon to establish and grow the new venture. Consequently, when a group of entrepreneurs get together, it can be expected that the variety of means available to start the new venture might be wider, allowing the team to develop more innovative ventures than an individual acting alone would (Kamm et al. 1990).

When studying Top Management Teams (TMT's) under the Upper Echelons perspective (Hambrick and Mason 1984), the idea of heterogeneity of characteristics among team members affecting firm's performance has been widely referred to (Nielsen 2010). The same is true in works addressing Founding Teams (Klotz et al. 2013) although extant studies support the idea that the latter are formed by individuals who are more alike than complementary (Ruef et al. 2003).

Even though several forms of heterogeneity in founding teams have been researched and tested by different authors, the results have been misleading because a mixture of demographic characteristics and/or knowledge backgrounds has been used by authors to illustrate heterogeneity (Klotz et al. 2013); and, on the other hand a variety of outcomes has been related, making it difficult to establish a consistent theory about entrepreneurial teams' heterogeneity and its effect on either team's or firm's performance, and/or behavior.

On the other hand, as Chowdury (2005) points out, research has been lacking studies on entrepreneurial team diversity related to personality characteristics of entrepreneurs, which might be combining with demographic characteristics and thinking style to influence entrepreneurial team dynamics and team effectiveness.

Despite differences in works relating heterogeneity to team or firm outcomes, several works test some form of *informational diversity* (Jehn et al. 1999).

Informational diversity refers to heterogeneity related to human capital, i.e knowledge of the entrepreneurs that is acquired either through years of study or experience (Davidsson and Honig 2003), such as educational background (either type of knowledge and/or years of training), previous work experience and, previous entrepreneurial experience and/or entrepreneurial education and training (Martin et al. 2013).

Human capital can be generic when acquired through formal education and professional experience, or specific when it relates directly to the industry of the venture (industry-specific), or to the capabilities needed by an individual to start a new firm (entrepreneur-specific) (Colombo and Grilli 2005). Complementary context-specific knowledge needs to be integrated to successfully exploit a business opportunity, and this integration is best achieved if experts are members in the founding team (p. 800).

From the conclusions of most works relating informational heterogeneity to team or firm outcomes, previous work experience (*functional experience*) is usually the one type of heterogeneity that positively affects firm's or team's performance (e.g. Eisenhardt and Schoonhoven 1990; Colombo and Grilli 2005; Beckman and Burton 2008; Hmieleski and Ensley 2007; Eesley et al. 2014; Zhou et al. 2015; Muñoz-Bullon et al. 2015; Ensley and Hmieleski 2005) which leads us to think that heterogeneity in context specific knowledge is more important to Founding Teams than other types of human capital (Colombo and Grilli 2005), or types of diversity among team members.

To explain the dynamics of Founding Teams following Klotz' et al. (2013) IMO framework, we propose a model where inputs (I) are represented by the "means" of the team as described by Sarasvathy (2001); both Effectuation and Causation as frameworks of entrepreneurial behavior (Fisher 2012) are considered mediators (M) linking Inputs to firm Outcomes (O) which are represented by sales growth, employee growth and innovativeness. Outcomes, however will not be specifically addressed by this work.

The present work analyzes, first the characteristics (*means*) of nine Founding Teams (i.e. Teams starting New Ventures) and secondly the activities and actions that each of the teams followed to identify and exploit a business opportunity, with the aim to answer the following questions: Who is included in the Founding Team at the moment of venture creation and what are the different (or not so different) attributes that team members bring to the team in terms of knowledge, social networks and other personal characteristics? What are the different behaviors and actions by which the Founding Team identifies an entrepreneurial opportunity, creates and develops the new venture and subsequently makes the important decisions that affect it?

We describe findings related to Founding Team composition; Founding Team behavior and the relationship between both concepts. Also, a Behavioral Classification of Founding Teams is proposed for future research and validation.

The rest of this paper proceeds as follows:

First the theory is presented related to Entrepreneurship and Teams as well as Entrepreneurial Behavior, focusing on the logics of Causation and Effectuation. Secondly the research design of the study is explained, followed by a presentation of results and conclusions based on the observations obtained from the analysis of the participating Founding Teams and their behaviors at pre-startup and startup phases.

2 Entrepreneurship and Teams

Kamm et al. (1990) established that "teams are significant for researchers and entrepreneurs in two primary ways: (1) they are a more common occurrence than the entrepreneurship literature leads one to expect; and (2) they affect their firms' performance" (p. 7).

Founding Teams form under conditions of uncertainty, in which "similar trusted alters" (Ruef et al. 2003) perceive they can jointly reach an objective that would not be achieved individually by any one of them (Harper 2008).

It is not always clear whether the team originates from one individual assembling it together once a business idea has been developed, or if the idea develops from an already committed group of people that share a specific social context and experience (Kamm and Nurick 1993; Cooney 2005; Beckman 2006).

Cooney (2005) and Beckman (2006) similarly explain a process of team formation in which both the idea and the team evolve and take form together in a dynamic and alternative fashion after which the idea will be evaluated by the team and the necessary resources will be acquired to develop and launch the new venture.

Cooney's (2005) model sustains the idea of organizations emerging in stages (Kamm and Nurick 1993) starting with the developing of the business idea by a "lead entrepreneur" as the first stage; although, in other circumstances, an "event" might trigger the venture creation process even before a business opportunity is identified, such as: the assembly of a team of friends or colleagues in pursuit of a common endeavor or by social convention; or the occurrence of an "external enabler" (Davidsson 2015) (e.g. demographic shift, technological breakthrough, regulatory change) that creates disequilibrium in the market and allows entrepreneurs to think about new economic activities that can be explored.

After a decision has been made about formalizing the relationship between partners and/or take action on the idea of developing a new venture, a new set of decisions follows related to getting resources and more information that may modify the initial idea, and how to implement it (Kamm and Nurick 1993). The process then becomes iterative and turns an informal social group into an entrepreneurial team.

Several terms have been used by scholars when referring to teams starting new ventures, such as *founding teams* (Brinckmann et al. 2009; Colombo and Grilli 2005; Beckman and Burton 2008; Brinckmann and Hoegl 2001; Ruef et al. 2003; Kamm and Nurick 1993; Fern et al. 2012; Visintin and Pittino 2014; Eesley et al. 2014); *entrepreneurial teams* (Blatt 2009; Chowdury 2005; Harper 2008; Zhou et al. 2015); *new venture teams* (Klotz et al. 2013; Lim et al. 2012); *new venture top management teams* (Ensley et al. 2002) and, *startup teams* (Klotz et al. 2013) among others.

Furthermore, there is no clear agreement about the definition of this type of teams.

For this work, building upon the different definitions that we found in the literature, we will use the term *founding team*, to refer to the first team that is formed to create the venture, described as a *group of two or more people who jointly create and manage a new venture, have an equity stake in the business and are responsible for taking the strategic decisions that affect it.* We will also use the term *entrepreneurial team* as a generic term when referring not necessarily to the first team but to one that *might include some or all the founders and is set at a point in time which is different from that of the creation of the new venture.*

2.1 Heterogeneity in Founding Teams

Following the lessons from Upper Echelons theory (Hambrick and Mason 1984), several authors assert that heterogeneity of the Founding Team is beneficial for the new venture and its subsequent success (Zhou et al. 2015; Eesley et al. 2014; Visintin and Pittino 2014; Beckman and Burton 2008; Colombo and Grilli 2005), however, there are also works claiming that Founding Teams are not necessarily diverse (Ruef et al. 2003) setting the tone for the development of new insights that might give us some clues about whether heterogeneity of the Founding Team really occurs and, if not, to understand how teams manage to solve the problems and needs of their ventures.

The composition of founding teams is important because they perform the entrepreneurial action that leads to the new venture and, even though, the initial team might evolve as time passes and new challenges are faced by the new ventures, research has recognized that the founding team has an imprinting effect on subsequent executives and firm structures (Boeker 1989; Kamm et al. 1990; Beckman 2006; Beckman and Burton 2008; Eesley et al. 2014) which are the ones that will support the venture to become an established company.

Although the composition of Entrepreneurial Teams has been studied before, most works have focused on member entry and exit (Forbes et al. 2006; Chandler et al. 2005; Ucbasaran et al. 2003) and have found difficulties to go into detail about how Founding Teams actually form (Forbes et al. 2006).

Some research has developed supporting the idea that founding teams are formed by individuals that are more alike than complementary (Ruef et al. 2003) nevertheless, several forms of heterogeneity in founding and entrepreneurial teams have been researched and tested by different authors (Klotz et al. 2013).

Jehn et al. (1999) distinguish three types of diversity in teams: *Informational diversity* related to differences in knowledge bases and perspectives that members bring to the group; *Social category diversity* that refer to explicit differences among group members such as race, gender or age; and *Value diversity* that occurs when members of a workgroup differ in terms of what they think the group's real task, goal, target or mission should be.

Most studies relating team's heterogeneity and firm's performance include some form of *informational diversity* (e.g. work experience diversity; educational diversity and/or entrepreneurial experience diversity) to find that it is positively related to either team's performance (Ucbasaran et al. 2003; Zhou et al. 2015; Muñoz-Bullon et al. 2015) or firm's performance (Visintin and Pittino 2014; Hmieleski and Ensley 2007; Colombo and Grilli 2005; Eisenhardt and Schoonhoven 1990).

Social category diversity (Jehn et al. 1999) has also been considered in some works, assessing age, gender and ethnicity differences among team members as control variables (Auh and Menguc 2005; Carson et al. 2007; Zheng 2012), or as independent variables (Ruef et al. 2003; Chowdury 2005; Chandler et al. 2005) related to team effectiveness, team turnover or team performance. Nevertheless, the effect of this type of heterogeneity, has not always been reported as significant (e.g. Chowdury 2005; Chandler et al. 2005).

It is suggested that the effect of Social category diversity might be indirect, by affecting or creating other types of heterogeneity such as diversity of information or perspective (Jehn et al. 1999); however, the debate about its effect remains open and calls for further research.

Value diversity on the other hand has not been addressed by the literature referring to Entrepreneurial Teams. According to Jehn et al. (1999) for a team to be effective it should have high *informational diversity* and low *value diversity*.

Additionally, personality traits diversity has recently been addressed as beneficial for the team to achieve the growth of their new venture. Especially when referring to relationship-oriented personality traits such as extraversion, agreeableness and emotional stability, diversity has been found to positively affect team processes and enhance team performance.

On the other hand, characteristics such as humility of founders and/or team leaders, together with proactive personality traits of team members may add up for the team to develop Shared leadership (Chiu et al. 2016).

D'Innocenzo et al. (2014) define *Shared leadership* as "an emergent and dynamic team phenomenon whereby leadership roles and influence are distributed among team members" (p. 5).

According to Hoch (2014) Shared leadership is directly associated with information sharing among team members when diversity is high, allowing for the team to enhance its performance by using the diverse information and knowledge backgrounds of all team members.

The heterogeneity construct in entrepreneurial teams' theory has been developed from a mix of different attributes without always making a separation between those referring to individual demographic or social characteristics of team members (*Social category diversity*) and those referring to their previous experience or knowledge (*Informational diversity*).

Adding up to the difficulties in establishing a consistent theory about entrepreneurial teams' heterogeneity and its effect on either team's or firm's performance (Klotz et al. 2013), a variety of outcomes has been considered by different authors, such as: innovativeness and/or product innovation (Eisenhardt and Schoonhoven 1990; Auh and Menguc 2005; Henneke and Lüthje 2007); firm growth related to increase in number of employees (Colombo and Grilli 2005; Beckman 2006) or sales growth (Visintin and Pittino 2014); time to receive venture capital or to initial public offer (IPO) (Beckman and Burton 2008; Eesley et al. 2014); team effectiveness and/or team performance (Chowdury 2005; Zhou et al. 2015; Muñoz-Bullon et al. 2015) and, type of strategy (Fern et al. 2012) among others.

In any case, the effect of different types of heterogeneity cannot yet be dismissed from studies about entrepreneurial teams although a greater consistency is required around the factors that are considered to delineate the different forms of heterogeneity as well as to understand the mechanisms through which heterogeneity influences behavior and/or performance outcomes (Klotz et al. 2013).

3 Entrepreneurial Behavior: About Effectuation and Causation

Bird and Schjoedt (2009) define *Entrepreneurial Behavior* as a research construct involving the concrete enactment of the individual or team tasks or activities required to start and grow a new organization.

Numerous theoretical perspectives have emerged to explain the actions and logic that underlie entrepreneurial behavior. The traditional model is described as one in which an individual or firm takes entrepreneurial action to discover, evaluate and exploit an entrepreneurial opportunity.

Sarasvathy (2001) refers to the traditional model as *causation* and introduces *effectuation* as an alternative model of opportunity identification and exploitation. In her work, she defines both concepts as follows: "*Causation* processes take a particular effect as given and focus on selecting between means to create that effect. *Effectuation* processes take a set of means as given and focus on selecting between possible effects that can be created with that set of means" (Sarasvathy 2001 p. 245).

While causation is consistent with planned strategy approaches, including such activities as opportunity recognition and business plan development, effectuation processes are consistent with emergent strategy and include a selection of alternatives based on loss affordability, flexibility, and experimentation (Chandler et al. 2011).

When effectual reasoning is used by entrepreneurs, subjects start with a given set of means which open up a set of possibilities: things entrepreneurs can afford to do based on who they are, whom they know and what they know, being able to create the opportunity and the market itself (Read and Sarasvathy 2005) using the means they can control. We can expect that entrepreneurs that use the effectual model are able to exploit opportunities quicker and more often than those who follow the causal model.

According to Fisher (2012) behaviors associated with causation and effectuation are not purely present in entrepreneurial action by an individual or a team; more often, the "traditional model" of causation needs to be combined with other emerging models (e.g. effectuation and bricolage) to explain how entrepreneurs behave when they launch their new ventures.

As Dew et al. (2009) explain, it is expected to see novice entrepreneurs to perform by the traditional *Causation* model because they are taught to master business plans and market research (Read and Sarasvathy 2005); while expert entrepreneurs follow an *Effectual* behavior, ignoring predictions about markets and working with things within their control to achieve goals that were not anticipated.

Entrepreneurial expertise as Read and Sarasvathy (2005) assert—i.e. a set of skills, models and processes that can be acquired with time and deliberate practice—is a significant factor that can explain entrepreneurial performance, and also "enables us to identify testable elements of entrepreneurship that are teachable" (p. 4).

Dew et al. (2008) contrast the differences between Effectuation and Causation models showing how prediction defined by given goals determine a future world desired by the entrepreneur and his partners who will do whatever is at hand to reach that future. This reasoning describes the Causation Behavior Model, as opposed to the Effectuation Behavior Model which is defined by design and co-creation along with stakeholders, where a set of means is given as the distinctive characteristics of the entrepreneur and her partners which consequently determine a combination of possible worlds that can be reached.

When the Effectual approach is followed, ventures are never finished and new possibilities arise as the entrepreneur accumulates resources, either human, financial or physical.

4 Research Design

Our study was based upon the analysis of nine cases, developed to understand the dynamics of Founding Teams, i.e: how teams form; which characteristics of team members, if any, are relevant when teams make decisions about their new ventures and, whether diversity in those characteristics is determinant of the behavior the team follows to identify and exploit a business idea.

The study follows a theory-building approach, which is well-suited to new research areas or research areas for which existing theory seems inadequate (Eisenhardt 1989). Qualitative methodologies based on case studies may shed light on "how" questions (Yin 2014). We thus adopt an inductive multiple case-study method, using a system of replication logic, with each case treated as an independent experiment (Yin 2014). This method allows comparison across cases, accumulating evidence in the process and increasing the validity of the findings (Yin 2014).

4.1 Case Selection

The cases for this study were selected from a database of Mexican firms that were part of ENLACE E+E mentoring program.

ENLACE E+E[1] is a mentoring program pertaining to Tecnologico de Monterrey (ITESM), which is the largest private university in Mexico. ENLACE E+E was initiated in Monterrey, Mexico in 2008 by a group of alumni to give support and advise to new ventures graduating from the university's incubators and accelerators as well as to high potential startups located in the community. The program is conducted by assembling a group of the most recognized business owners and CEOs of the largest companies in every region where an ITESM campus is located, who act as a board of advisors to new ventures with the potential to generate

[1]http://tec.mx/es/ee-connections-network

high growth in sales and employment in the 2 years following their selection to the program.

The cases were chosen from a group that answered a questionnaire about Founding Teams and voluntarily left their e-mail for further questioning.

The questionnaire was applied as a pre-test for a quantitative study to be made about the use of Effectuation and Causation by Founding Teams in Mexico. Several categories were included to measure different types of informational heterogeneity: educational background; educational level; work experience; and entrepreneurial experience.

Seven companies agreed to be contacted after the application of the questionnaire. Two more teams were selected by convenience of the authors. For the latter, information from the questionnaire was not available.

Companies' tenure ranged between 1 and 5 years, although three of them were more than a decade old. Companies were located in different parts of Mexico: three in the State of Sonora, and the rest in Mexico City, Puebla, Nuevo León, Jalisco, Querétaro and Sinaloa. In each case, the level of analysis is the team, and the unit of analysis is the entrepreneurial behavior they develop.

A brief description of each company is summarized in Tables 1, 2 and 3.

4.2 Data Collection

Semi-structured interviews were conducted to one or two members of each founding team still working for the company; in every case, one of the respondents was the appointed CEO or General Manager of the company. Three of the interviews were personally carried out in October 2014 and the rest were conducted through Skype in October 2015. The duration of the interviews was approximately 1 h and the procedure was recorded and fully transcribed to analyze the information provided by the respondents.

For those companies that participated in the questionnaire, heterogeneity was calculated from their answers using Blau's heterogeneity index as used by Chowdury (2005). This index was used just for reference, to be contrasted with the answers given by the CEO during the interview.

A self-reported index of Shared leadership was calculated for each Founding Team adapting the density measure used by Carson et al. (2007).

It is suggested that Shared leadership might benefit constructive discussion and diminish conflict when it is present in entrepreneurial teams (Hoch 2014; Bird and Schjoedt 2009). As we deal with heterogeneity of the founding team, and heterogeneity is believed to ignite conflict among team members and negatively affect performance of the team (Amason et al. 2006), we considered it of interest to understand if and how Shared leadership affects the interaction among team members as well as the behavior of the team.

Our measure of Shared leadership has its limitations because it is the view of only one member of the Founding Team, however, the obtained measurement was

Table 1 Characteristics of founding teams in the sample (1)

	PL1	HE2	GLOB3
No. of founders	2	3	3
Actual size of the team	2	4	4
Core product/ service	Communication through screens: On site, closed circuit TV	To develop already existing businesses in an innovative way: e.g. Carpentry, Barber shop, App programming, Branding agency, open workspace. . .	Application development for in site meteorological forecasts in agricultural fields
Origin of the team	Family: Brothers	Two friends since childhood started the team. Other two members with no previous relationship were added later	All acquaintances from University The fourth member with business background shares family ties with the lead entrepreneur and was invited later
Team/Idea first	Team	Idea	Idea
Age[a]	0	0	0
Formal education (field)[a]	0.5	0.625	0.375
Formal education (level)[a]	0	0	0
Work experience[a]	0.5	–	0.625
At least one member had started a previous company	YES	YES	YES
One previous startup by the same team	YES	YES	NO
Shared leadership	4.5	2.5	3.25

[a]Heterogeneity

consistent with the distribution of leadership reported by the respondents during the interview.

We utilized Fisher's (2012) alternate templates as a reference of the behaviors displayed by entrepreneurs that follow the Causation and/or Effectuation models which have been consistently compared and presented in opposition by several authors (Blauth et al. 2014; Chandler et al. 2011; Read et al. 2009; Dew et al. 2009; Sarasvathy 2001), and understand from our sample which logic is preferred by entrepreneurs in Founding Teams and whether teams' composition influences the selection of either logic. Tables 4, 5, 6 and 7 show the results of this analysis of respondent statements.

Table 2 Characteristics of founding teams in the sample (2)

	ID4	H5	MAG6
No. of founders	3	2	5
Actual size of the team	3	2	4
Core product/ service	Consultancy and construction of food products' manufacturing facilities	Manufacture of "fat-burning" beverages. High R&D activity to develop different types of beverages	Design and implementation of entertainment devices and Services: 4D cabins, Dancing Fountains, Robot configuration, 4D Theaters, Holograms, 3D Mapping
Origin of the team	Friends from university. Two of them were friends since childhood	Friends since childhood	Family: Brothers and one sister
Team/Idea first	Team	Idea	Idea
Age[a]	0	0.5	0.72
Formal education (field)[a]	0.444	0.5	0.72
Formal education (level)[a]	0	0.5	0.56
Work experience[a]	0.444	0.5	0.72
At least one member had started a previous company	YES	YES	YES
One previous startup by the same team	YES	NO	NO
Shared leadership	5.0	3.5	2.6

[a]Heterogeneity

5 Results

5.1 Characteristics of the Founding Team

Our first research question is related to the composition of the Founding Team, i.e. who is included at moment of venture creation and what are the different attributes that each member brings to the team.

All nine Founding Teams in our sample were created by "similar alters" (Ruef et al. 2003), either family or friends from childhood or from college. With exception of one team (GLOB3), none were formed with the goal of complementarity of characteristics or of filling in certain positions for the new venture.

Table 3 Characteristics of founding teams in the sample (3)

	VIR7	SI8	RA9
No. of founders	7	2	4
Actual size of the team	5	2	5
Core product/ service	Distribution, design and Integration of vehicule location technology	Credit management Systems. Design, adaptation and installation	Industrial automation (Mostly Automotive); Innovation services (Startup Factory); Innovation consultancy
Origin of the team	Mostly friends from university. Two team members with no previous relationship but who had entrepreneurial experience also invested to launch the firm	Friends from university: MBA colleagues	Friends from university in an engineering field. One newly added team member is a woman with design background
Team/Idea first	Idea	Team	Team
Age[a]	0.64	0.5	0
Formal education (field)[a]	0.32	0.5	0.48
Formal education (level)[a]	0.625	0	0
Work experience[a]	0.64	0.5	0.375
At least one member had started a previous company	NO	YES	NO
One previous startup by the same team	NO	NO	NO
Shared leadership	2.6	4.0	3.4

[a]Heterogeneity

Stories about how the Founding Team came into being are more related to friends or family wanting to do something together:

> ... we were colleagues of the same career program: Electronic Engineering. One of the partners was my boss, where I was doing my internship... With the other partners ... I did some work with them in our Free Software Development Laboratory... so, we also were all in the faculty... that is where the human capital came from. (VIR7)

Table 4 Causation action framework (1)

No.	Item	PL1	HE2	GLOB3	ID4
1	Identified an opportunity before developing anything else (Not in Fisher (2012))	YES		YES	
2	Identified and assesed long-run opportunities in developing the firm	YES		YES	
3	Calculated the return of various opportunities				
4	Wrote a business plan	YES	NO	YES	
5	Organized and implented control processes				YES
6	Gathered and reviewed information about market size and growth	YES	NO	YES	
7	Gathered information about competitors and compared their offerings		NO		
8	Wrote up or verbally expressed a vision for Ventures	YES	YES	YES	YES
9	Developed a project plan to-develop the product and/or services	YES	NO	YES	YES
10	Wrote up a marketing plan for taking the products/services to market			YES	

Adapted from Fisher (2012)

Table 5 Causation action framework (2)

No.	Item	H5	MAG6	VIR7	SI8	RA9
1	Identified an opportunity before developing anything else (Not in Fisher (2012))	YES	YES		YES	
2	Identified and assessed long-run opportunities in developing the firm	YES		NO		NO
3	Calculated the return of various opportunities		YES			
4	Wrote a business plan	YES	YES	NO	YES	NO
5	Organized and implented control processes		YES		YES	
6	Gathered and reviewed information about market size and growth	NO		NO		NO
7	Gathered information about competitors and compared their offerings	YES	YES	YES		NO
8	Wrote up or verbally expressed a vision for Ventures	YES			YES	NO
9	Developed a project plan to-develop the product and/or services	YES	YES		YES	
10	Wrote up a marketing plan for taking the products/services to market	YES	YES	NO	YES	

Adapted from Fisher (2012)

> . . . we met at college, we had worked together, we got along very well and went out together a lot. . . we also respected each other's work very much. . . the big strength that we saw is that we were impeccable, in our engineering. . . (RA9)

> (My brother) lived in the United States and worked there. . . and for years, when we reunited we talked about doing something together. . . (PL1)

Table 6 Effectuation action framework (1)

		PL1	HE2	GLOB3	ID4
	Experimentation				
1	Developed multiple variations of a product or service in arriving at a commercial offering		YES		
2	Experimented with different ways to sell and/or deliver the product in arriving at a commercial offering				YES
3	Changed the product or service substantially as the venture developed		YES		
	Affordable loss				
4	Committed only limited amounts of resources to the venture at a time	NO	NO		YES
	Flexibility				
5	Responded to unplanned opportunities as they arose		YES		YES
6	Adapted what they were doing to the resources on hand				YES
	Pre-commitments				
7	Entered into agreements with customers, suppliers and other organizations	YES	NO	YES	YES

Adapted from Fisher (2012)

Table 7 Effectuation action framework (2)

		H5	MAG6	VIR7	SI8	RA9
	Experimentation					
1	Developed multiple variations of a product or service in arriving at a commercial offering					YES
2	Experimented with different ways to sell and/or deliver the product in arriving at a commercial offering			YES		
3	Changed the product or service substantially as the venture developed	NO	NO			YES
	Affordable loss					
4	Committed only limited amounts of resources to the venture at a time	YES	NO		YES	NO
	Flexibility					
5	Responded to unplanned opportunities as they arose			YES	NO	YES
6	Adapted what they were doing to the resources on hand			YES		YES
	Pre-commitments					
7	Entered into agreements with customers, suppliers and other organizations	YES	YES	YES	NO	YES

Adapted from Fisher (2012)

As Francis and Sandberg (2000) point out, friendship in teams facilitates group processes and performance of a management team by promoting accountability and honest exchange of information, while discouraging negative opportunism. In our sample, when team members that were not previously related were present in the founding team, those members eventually left the team:

> *We* always had our differences about how we wanted to operate the business, *they* had a very rigid structure because their previous company was a security firm. *They* were not very open to new strategies, new ideas … and *we* were more like "Montessori kids"… ideas came from everywhere and *we* wanted to innovate, … and *they* never had enough empathy to make changes… So, after some years, *we* had enough profits to buy *their* shares. (VIR7)

> The decision was totally forced by the group of investors… (the exit of the former CEO). …We were going to let him go, anyway, because it was not working… he was not in our age range, he had different ideas… (GLOB3)

The size of the Founding Teams in the sample ranged from two to seven members. Members were only men, with exception of three of the teams (ID4, RA9 and MAG6) which included one woman each.

Contrary to what could be expected (Discua-Cruz et al. 2012) teams formed by family members showed higher diversity in educational areas and prior work experience (PL1, MAG6), while the less heterogeneous teams were represented by those that were formed by university colleagues (GLOB3, ID4, RA9, VIR7).

All but two teams (VIR7, RA9) had at least one member with previous entrepreneurial experience. The teams with no previous entrepreneurial experience started their ventures right-out-of-college.

In two of the teams, members were highly diverse in terms of age. One of these teams was formed by family members (brothers and one sister) and the other one was the team with the largest number of members. In these cases, *value diversity* (Jehn et al. 1999) was reported which delayed decision making at some point during start-up.

> … Our first challenge was to come to agreement among ourselves, because we are siblings, it is a family enterprise, and it was my oldest brother's, 100%. He is the one that develops the technology. So, it took us almost 2 years, practically, to agree on how we wanted to operate… (MAG6)

> One of the partners is older than the rest of us and he had a complete business perspective. ... But the younger part, they said, well I "extend my hand", right? "I have a business. I am already selling… Why don't I have money in my pocket?". So, those differences in age were somewhat complicated. (VIR7)

Heterogeneity and complementarity of the founding team in the sample had more to do in some cases with personal characteristics of team members than with their functional backgrounds (RA9, HE2, ID4). For the following examples, although team members have similar educational backgrounds or share previous work experience, personal characteristics such as: risk aversion, discipline and organization, negotiation ability and people skills were determinants of complementarity among team members:

> … I am the conflicting one, the quicker one and, when we debate, I always crash into the two (team members) that are more conservative… *They* are very good at solving logical and technical problems… *they* do have an entrepreneurial vision but, a very conservative one. … And the other person that I mentioned …he has always been a mediator…I think that we

> might have ended the company already if it wasn't for him... mediating between us when it was needed. (RA9)

> For example, the architect is very good dealing with suppliers, he is technically very skilled and convinces people... and the client. And, also in his specialty he knows what he is offering... (My other teammate) who makes the designs, he is technically very good, very analytic, I mean, he checks on everything, he asks a lot of questions... And I am a lot about discipline and order... about getting ahead and... pushing them to do new things... (ID4)
>
> As a group, I... take care of everything that has to do with the numbers, finance, management and (my team mate) deals with the people... because he is better dealing with people than I am. (HE2)

Although personal traits of individuals have been dismissed as a cause that separates those who become entrepreneurs from those who do not (Gartner 1988; Gartner et al. 1992; Sarasvathy 2001), it might be insightful to understand how personal traits of individuals in a Founding Team are a source of complementarity even when team members have similar backgrounds related to education or work experience (Chowdhury 2005).

5.2 Entrepreneurial Behavior of Founding Teams

Our second question inquires into the different behaviors and actions by which the Founding Team identifies and exploits an entrepreneurial opportunity.

The findings in this study partially agree with Fisher's (2012) statements indicating that entrepreneurs employing behaviors associated with causation also employ behaviors associated with effectuation alongside.

Although behaviors of Causation and Effectuation action frameworks were reported to be used in combination, some teams demonstrated behaviors more inclined to the causation framework whereas others where more inclined to the effectuation framework; the latter sometimes even rejecting the use of causal behaviors such as the elaboration of business plans or the execution of competitive analysis:

> We are so clear about where we are going, what we want to do and, who we are as a company that we never look at our competition. Basically, every time, when we develop something, we never think... well it is not that we do not think about them... but we do not limit ourselves. (HE2)

> We were technical people, and we still are... and as technical people what talked for us was the prototype... we used all the tools that we had at hand and that was enough for us to convince (investors). (VIR7)

When Founding Teams were assisted by business incubators or groups of investors they usually reported behaviors that fit the Causation Action Framework (e.g. MAG6). This is consistent with statements by Dew et al. (2009) about business schools and incubators teaching entrepreneurs the Causation Model "by the book".

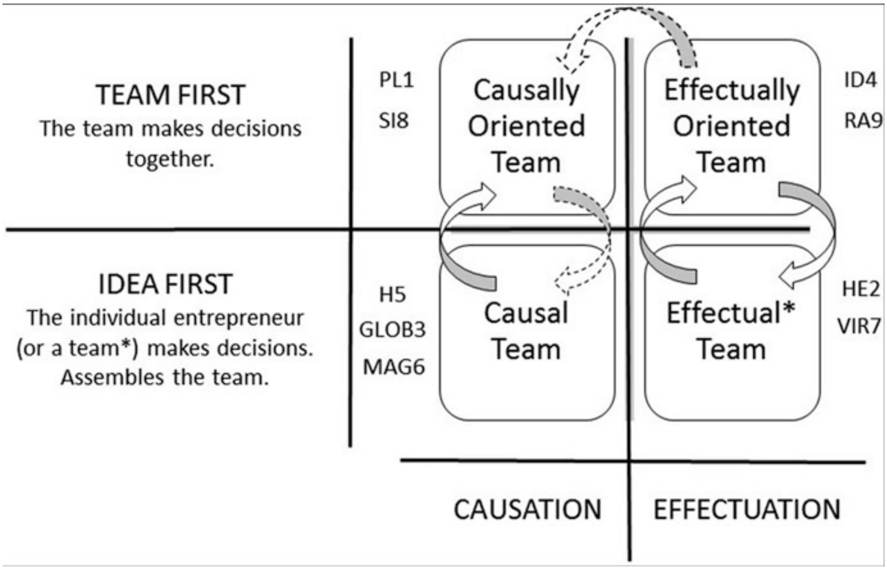

Fig. 1 Behavioral classification of founding teams. Developed by the authors

6 Behavioral Classification of Founding Teams

From the analysis of the behaviors displayed by the teams in this study, four categories of Founding teams are developed: Causally Oriented Teams; Effectually Oriented Teams; Causal Teams and Effectual Teams.

Figure 1 shows how these four different categories are related and which teams from this study represent each category.

As Cooney (2005) describes, two different events might trigger the formation of a Founding Team, one being the development of a business idea by one "lead entrepreneur" that subsequently assembles the team; another being the formation of the team by friends or colleagues who afterwards develop a business idea.

We have found that whether the first stage is the formation of the team or the development of the idea, is an important feature that might influence the behavior of the Founding Team.

6.1 Team First Categories

Team First categories refer to those cases in which the Founding Team existed before the business idea was envisioned or created. The Founding Team makes decisions with the participation of every team member, and performs either Causally or Effectually depending on the team's characteristics.

Teams in this classification are less heterogeneous related to age, type of education, level of education, and work experience, compared to the teams in the *Idea First Categories*, mostly because these Founding Teams are formed by colleagues from University. They also show higher levels of shared leadership and report less or no conflict.

6.2 Idea First Categories

Idea First Categories include Founding Teams that were assembled after an individual entrepreneur or a group of two or more developed a business idea. Teams in this classification can be *Effectual Teams* or *Causal Teams*.

Teams in the *Idea First Categories* show higher heterogeneity than the teams in the *Team First Categories*, regardless of the behaviors they perform (i.e. Effectuation or Causation).

Causal Teams were assembled by one individual entrepreneur who identified *a priori* a business opportunity and later invited others to join the team, depending on the resources that they could supply to achieve the envisioned venture.

> He (The lead entrepreneur) is a meteorology lover... He studied his career in Information Technologies but followed his curiosity. In 2009, he opened a Twitter account with information about the weather and many people started following him and most of his followers were farmers... so he realized there was a need for information of this type and that his tool could cause a great impact. ... One day, he came to the office and said: "I have this idea and I want to make an application"... that is how our relationship started. (GLOB3)

Effectual Teams in this study started with two or more entrepreneurs who began developing an "artifact" (Read and Sarasvathy 2005) (i.e. a product or service) and later added team members from their personal networks to accrue needed knowledge or financial resources. The only difference that is evidently observed between *Effectual Teams* and *Effectually Oriented Teams* (Team First category) is that *Effectual Teams* added team members at some point during the startup phase.

> ... We all were university colleagues. One of us dropped school and started to work ... he made the installation of this equipment... we were close (friends), so he tells me "if we design these equipments, it is not so complicated"... we had the tools to do it, so ... we saw the opportunity to start the company... half of the team members, we made an initial product to found the company, but we partnered with other people because they already had a company... (VIR7)

The line between *Effectual Teams* and *Effectually Oriented Teams* is not an easy one to draw as none of the Effectual Teams in this study started with only one individual entrepreneur nor even with an idea. As we can observe, it is the very nature of Effectuation as entrepreneurial behavior (Sarasvathy 2001; Read et al. 2009; Fisher 2012) what hinders this classification, leading us to suggest that Effectuation is a team endeavor and that Effectually Oriented Teams become Effectual Teams and vice versa, in a continuous manner as they add (and/or drop) team members.

6.3 Effectuation and Causation Categories

Represented by arrows in Fig. 1, are the different transitions that could be observed in teams that were part of this study: (1) from Effectual Team to Effectually Oriented Team; (2) from Effectually Oriented Team to Effectual team and, (3) from Causal Team to Causally Oriented Team.

1. From Effectual Team to Effectually Oriented Team. This transition refers to those teams that started as Idea First Teams behaving according to the Effectuation Action Framework. The transition shows a team that added or dropped members during startup but has remained the same after the venture has been established and new projects are developed with the participation of everyone involved in the team. (e.g. VIR7)
2. From Effectually Oriented Team to Effectual Team. This transition refers to those teams that started as Team First Teams, in which team members developed the idea for the startup together following the Effectuation Action Framework. After the venture was established the team added new members when new projects were created to become Effectual Teams. (e.g.ID4, RA9)
3. From Causal Team to Causally Oriented Team. As occurs with the first transition, in this case the founding team started as an Idea First Team, adding members according to the needs of the new venture being started. After the venture is established, the team remains the same for future projects that are envisioned following a Causation Action Framework. (e.g. GLOB3, H5)

No transition was observed from a Causally Oriented Team to a Causal Team, although the effect is suggested by a dotted arrow. Teams in the Causation categories were more static in terms of membership changes, even in the case of Causal Teams that added (or dropped) new members during startup, which showed no evidence of considering subsequent member additions or exits.

7 Conclusions

This study presents a different view of the dynamics of Founding Teams based on team composition at pre-startup and startup phases and, on the behavior they report from the moment they conceive their business idea to the moment when the interviews take place which is a different stage of development for each of the participating teams.

We agree with several works stating that founding teams are formed by “similar alters” (Francis and Sandberg 2000; Ruef et al. 2003; Henneke and Lüthje 2007) as all the teams included in this work are formed either by family or friends.

As has been noted, informational heterogeneity (Jehn et al. 1999) (i.e. heterogeneity related to knowledge bases and perspectives such as: work experience; educational diversity and entrepreneurial experience diversity), is the one type of heterogeneity which is mostly addressed as significant in several works relating it to firm's or team's performance (Eisenhardt and Schoonhoven 1990; Ucbasaran et al. 2003; Colombo and Grilli 2005; Hmieleski and Ensley 2007; Visintin and Pittino 2014; Zhou et al. 2015; Muñoz-Bullon et al. 2015). In our findings informational heterogeneity represented by educational background and previous work experience is also salient as a source of diversity in most of the teams, overshadowing other types of heterogeneity such as age, educational level and entrepreneurial experience.

Existing theory has concluded that individual personality characteristics are not decisive in predicting who will be an entrepreneur, nor who will succeed in their venture creation path (Gartner 1988; Gartner et al. 1992; Sarasvathy 2001). Our findings suggest that differences in individual personality traits might be a source of complementarity in founding teams (Chowdury 2005), even when other types of heterogeneity are not present.

Although the purpose of this work was to find a relationship between the heterogeneity of characteristics of the founding team and the entrepreneurial behavior it performs, we could not find a direct relationship between both concepts. Our findings, however led us to develop a new classification of Founding Teams based first, on how and/or when during the entrepreneurial process the team forms, and second, on the entrepreneurial behavior the team performs.

Kamm and Nurick (1993) state that "multi-founder" organizations emerge in stages, where the first stage is the *idea.* As Cooney (2005) points out, the *idea*, can be identified or created by an individual or by a team. Considering the latter we conclude that there is a moment in which the team forms, and this moment can occur before the idea is discovered or created. We therefore develop two categories of founding teams: (1) Team first Teams, and (2) Idea first Teams.

Ensley and Hmieleski (2005) assert that university-based firms are less heterogeneous than independent firms. Although none of these ventures are university-based firms, Team first Teams in our sample are formed mostly by university colleagues that share the same educational background and/or educational level and report to be in the same age range. Our first proposition is related to this observation:

P1 Team First founding teams are less heterogeneous than Idea First founding teams when heterogeneity refers to informational diversity, i.e. previous work experience and formal education.

As Ensley et al. (2002) explain, there are two dimensions of conflict that must be understood when dealing with entrepreneurial teams: *Cognitive conflict* is focused on the task at hand bringing together the different perspectives of the team and promoting creativity, decision quality and understanding. *Affective conflict* is personally focused, highlighting interpersonal dislikes and disaffections that both undermine the quality of decisions and reduces the satisfaction and affection among team members (Amason and Sapienza 1997). To achieve superior performance, entrepreneurial teams must be able to nurture *cognitive conflict* while avoiding *affective conflict*, although as Ensley et al. (2002) point out, both types of conflict might be fueled simultaneously and intermittently.

Cognitive conflict, however, can be developed when leadership is shared by all the participants within the founding team (Bird and Schjoedt 2009; Hoch 2014).

When conflict was reported in the interviews, it was present in Idea First Teams. Teams in this category also showed lower levels of shared leadership and higher heterogeneity, specially related to age. On the contrary, Team First Teams showed higher levels of shared leadership and reported less or no conflict. We could not conclude, however, whether shared leadership is an effect of a more homogeneous composition of the team or a feature that was developed from the interaction among team members during the startup phase of their venture. In any case, our observation leads us to the next proposition:

P2 Team First founding teams exhibit higher levels of shared leadership and less conflict than Idea First founding teams.

No relationship has been addressed between personal traits of the entrepreneur and Effectuation; on the contrary Sarasvathy's (2001) seminal work on Effectuation and Causation dismisses the influence of individual characteristics in the success of any firm or organization.

It is relevant to notice that, in the examples depicted in this work, when individual personality characteristics are referred to as means of complementarity in the founding team the actions and behaviors of the team were more related to the Effectuation Action Framework.

In this regard, a recent work by Engel et al. (2014) relating self-efficacy to the use of Effectuation in university business students might start the debate about whether personality characteristics influence the use of Effectuation or any other entrepeneurial behavior by an individual or a team. Also Welter et al. (2016) argue that there might has been a misconception about which personality-traits actually matter and are able to explain aspects of opportunity discovery. With respect to founding teams, our findings suggest that when personality traits of team members are a source of complementarity, the behavior of the team is more inclined to the Effectuation action framework, which leads us to the next proposition:

P3 When heterogeneity of personal characteristics (i.e. personality traits) is present in the founding team, the behavior of the team is more related to the Effectuation action framework.

Klotz et al. (2013) propose an Input-Mediators-Outputs framework to explain the dynamics of New Venture Teams (NVT). We refer to this framework when suggesting that entrepreneurial behavior is a mediator between team heterogeneity and firm performance. Although we are not addressing outcomes of the new ventures in this work, the following proposition remains for future research:

P4 Entrepreneurial Behavior of founding teams (i.e. Effectuation and Causation) has a mediating effect linking founding team's heterogeneity to the outcomes of their new ventures.

These propositions challenge the traditional model of entrepreneurial behavior and develop a new framework to study the dynamics of founding teams.

More detailed quantitative and qualitative studies are recommended in order to describe the dynamics of Founding Teams: how they form, and how the characteristics of team members affect the behavior of teams and the outcomes of their new ventures.

Longitudinal qualitative studies would be useful to understand if the distribution of teams according to their origin and preferred behavior remains, or is modified as time passes; such studies would also help to confirm if Shared leadership that is present at the startup phase contributes to the maintenance of the team (Kamm et al. 1990) and the venture.

The usefulness of our behavioral classification of Founding Teams (i.e. Team first Teams and Idea first Teams) also presents a case for further study:

Firstly, it will be of interest to verify quantitatively with a sufficient sample, if Team first Teams are in fact less heterogeneous than Idea first Teams, and also if the former demonstrate higher levels of shared leadership as is suggested by this qualitative study.

Secondly, as Shared leadership has been proposed to enhance cohesion in the Founding Team (Ensley et al. 2003) which increases the chances of the team to engage in cognitive conflict and fruitful decision making (Amason and Sapienza 1997) we posit that the ventures created by Team first Teams will have larger tenures and will perform better over time than Idea first Teams.

The behavioral classification that is proposed by this study presents a framework to develop new studies and conclusions about how founding teams can be nurtured and guided to create new ventures that grow and endure over time.

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