
This is an electronic reprint of the original article.
This reprint may differ from the original in pagination and typographic detail.

Author(s): Björklund, Tua A. & Krueger, Norris F.

Title: Generating resources through co-evolution of entrepreneurs and ecosystems

Year: 2016

Version: Post print

Please cite the original version:

Björklund, Tua A. & Krueger, Norris F.. 2016. Generating resources through co-evolution of entrepreneurs and ecosystems. *Journal of Enterprising Communities: People and Places in the Global Economy*. Volume 10, Issue 4. 477-498. 20. 1750-6204 (printed). DOI: 10.1108/jec-10-2016-063.

Rights: © 2016 Emerald. This is the post print version of the following article: Björklund, Tua A. & Krueger, Norris F. 2016. Generating resources through co-evolution of entrepreneurs and ecosystems. *Journal of Enterprising Communities: People and Places in the Global Economy*. Volume 10, Issue 4. 477-498. ISSN 1750-6204 (printed). DOI: 10.1108/jec-10-2016-063, which has been published in final form at <http://www.emeraldinsight.com/doi/full/10.1108/JEC-10-2016-063>.

All material supplied via Aaltodoc is protected by copyright and other intellectual property rights, and duplication or sale of all or part of any of the repository collections is not permitted, except that material may be duplicated by you for your research use or educational purposes in electronic or print form. You must obtain permission for any other use. Electronic or print copies may not be offered, whether for sale or otherwise to anyone who is not an authorised user.

Generating resources through co-evolution of entrepreneurs and ecosystems

Tua A. Björklund
Aalto University Design Factory, Espoo, Finland

Norris F. Krueger
School of Advanced Studies, University of Phoenix, Tempe, Arizona, USA

Purpose: The emerging perspectives of entrepreneurial ecosystems, bricolage, and effectuation highlight the interaction between the entrepreneur and the surrounding community and its potential for creative resource acquisition and utilization. However, little previous empirical work exists to date on how this process actually takes place in opportunity construction and how this can lead to a virtuous cycle where opportunity construction and ecosystem development co-evolve.

Design/methodology/approach: Qualitative analysis of the extreme case of Aalto Entrepreneurship Society (Aaltoes), a newly founded organization successfully promoting entrepreneurship within a university merger with virtually no resources, based on interviews of six key contributors and four stakeholder organizations.

Findings: The opportunity construction process both supported and was supported by two key resource generating mechanisms. Formulating and opportunistically reformulating the agenda for increasing potential synergy laid the groundwork for mutual benefit. Proactive concretization enhanced both initial resource allocation and sustaining input to the process through offering tangible instances of specific opportunities and feedback.

Research limitations/implications: Although based on a single case study in a university setting, proactive concretization emerges as a promising direction for further investigations of the benefits and dynamics of entrepreneur-ecosystem interaction in the opportunity construction process.

Practical implications: Intentionally creating beneficial entrepreneur-ecosystem interaction and teaching proactive concretization becomes a key goal for educators of entrepreneurship.

Originality/value: The paper extends understanding of creative resource generation and utilization in the opportunity construction process. The role of proactive concretization was emphasized in the interaction of the entrepreneur and the ecosystem, creating virtuous spirals of entrepreneurial activity.

Keywords: resource generation; resource mobilization; proactivity; bricolage; effectuation; entrepreneurial behavior; opportunity construction

INTRODUCTION

The importance of entrepreneurship and entrepreneurial behavior for national economies, industries, and individual organizations alike has been widely recognized (Acs *et al.*, 2013; Audretsch, 2002; Audretsch *et al.*, 2008; Shepherd *et al.*, 2007). Taking action has become imperative for entrepreneurial success both in popular practitioner approaches (such as the “lean startup” in Ries, 2011) and academics approaches – ‘*doing* is a key theme running throughout the academic literature in entrepreneurship’ (Certo *et al.*, 2009, p. 319, italics original). However, studies on the actual actions of entrepreneurs are rare (Venkataraman *et*

Acknowledgements: The authors wish to thank the interviewees for their participation in the study. The events described here are based on the authors’ interpretations of the interviews, and as such, cannot be taken to represent any official positions of the organizations named in the study.

al., 2012). Furthermore, making sense of action requires understanding them in terms of the cognitions of the entrepreneurs. There is a growing literature emphasizing opportunity construction over opportunity discovery in the cognitive sense –opportunities do not objectively exist waiting to be discovered, but rather are cognitively constructed by the beholder (Baron, 2006; Krueger, 2000). Similarly, context can play a large role in the construction process, with culture influencing individuals' perceptions of opportunities (Dana, 1995). If opportunities have a social ontology, it offers important insights in how context and opportunity construction interact (McBride & Wuebker 2014; McBride, et al. 2013). Understanding the processes involved in the construction of perceived opportunities has been recognized as a key goal for entrepreneurship research (Krueger, 2000, 2007).

Opportunity construction can also be understood in a more tangible sense. Arguing that entrepreneurial potential is a function of potential entrepreneurs (Krueger and Brazeal, 1994), we can conceptually expect a co-evolution of entrepreneurial environments and actions (Acs *et al.*, 2013; Krueger and Brazeal, 1994). Interestingly, practitioner observers also argue that healthy entrepreneurial ecosystems exhibit the same virtuous spiral (Feld, 2013).

We adopt the terminology of 'entrepreneurial ecosystems' from the practitioner literature to describe the set of contextual conditions that highlight the grass-root perspective¹. Entrepreneurial ecosystems have sparked interest amongst researchers, practitioners, and policymakers alike (e.g. Isenberg, 2010; OECD, 2013), emphasizing that opportunities are not pursued in isolation from their context. Entrepreneurial efforts are influenced by interaction with external stakeholders.

The focus on interaction is shared by emerging theoretical perspectives within entrepreneurship, moving away from linear, rational, economic approaches relying largely on theories imported from other domains (Fisher, 2012). For example, effectuation (Sarasvathy, 2001) represents a proposed paradigm shift where means rather than goals are the starting point of entrepreneurs, based on studies of how expert entrepreneurs "utilize resources within their control in conjunction with commitments and constraints from self-selected stakeholders to fabricate new artifacts such as ventures, products, opportunities, and markets" (Sarasvathy *et al.*, 2014). Theorized as a dynamic process with concurrent cycles of acquiring means and constraining goals, empirical research nevertheless remains scarce, and has been primarily focused on risks and returns (Perry *et al.*, 2012). Another emergent perspective is that of bricolage, or "making do by applying combinations of resources at hand to new problems and opportunities" (Baker and Nelson, 2005, p. 33). Entrepreneurs who practice bricolage utilize surrounding physical, labor, skill, stakeholder and institutional resources in a creative manner, highlighting an action-oriented approach (Fisher, 2012). Since the introduction of the concept in the entrepreneurship context, a number of empirical studies have been published, though with mixed results: While, for example, Desa (2012) suggests that bricolage is a quite prevalent practice in technology social ventures and that it acts both as a resource-enabler and as a legitimating mechanism in a smaller sample size study by Stinchfield, Nelson and Wood (2013), bricolage was the least frequently observed dominant pattern of behavior, and was associated with rather dubious practices and a lack of efficiency.

Both effectuation and bricolage share a number of consistent dimensions: existing resources are considered a source of entrepreneurial opportunity, action a mechanisms for overcoming resource constraints, community engagement as a catalyst for resource development, and resource constraints as a source of creativity (Fisher, 2012, p. 1039). Both approaches

¹ Scholars and policy makers have multiple constructs for describing the context of economic activity: clusters, national/regional innovation systems, etc. Typically, these are relatively top-down, institutional models, whereas the "entrepreneurial ecosystem" is generally conceptualized as bottom-up and functionalist (e.g., Brännback, et al., 2008; Feld, 2013). Given our focus here on opportunity construction we prefer 'ecosystem'.

highlight the importance of situated, creative resource acquisition and utilization, including both the entrepreneur and a wider group of stakeholders, and suggest a dynamic relationship between the entrepreneurs' cognitions, actions, and environments. Resources can drive the entrepreneurial process as much as opportunities do (Korsgaard, 2011). But what actions do entrepreneurs take to mobilize resources in their ecosystems?

In order to extend understanding of the dynamics of entrepreneur-ecosystem interaction in pursuing opportunities based on creative resource utilization, we proceed to study what Eisenhardt (1989) labels as an extreme case: Aalto Entrepreneurship Society (Aaltoes), a recent student-led effort of promoting growth entrepreneurship in Finland. The organization has been highly successful in both increasing entrepreneurial activity and making entrepreneurship more visible and attractive in the local ecosystem, yet the organization's development and operations have been purely volunteer-based. Both Aaltoes contributors and stakeholder organizations were interviewed to understand the taken actions in terms of the cognitions of both the entrepreneurs and the (potential) stakeholders to make sense of the entrepreneur-ecosystem interaction and capture the context of entrepreneurs (Dana & Dana, 2005). As a result, we identify two key mechanisms of attracting and sustaining resources in a virtuous spiral in the entrepreneurial process, and discuss the implications for both our conceptual understanding and practical application.

RESEARCH SETTING

Entrepreneurs do not act in isolation, and understanding entrepreneurial phenomena requires taking into account the environment and cultural context of entrepreneurial behavior (Leighton, 1988). Culture can encourage or discourage entrepreneurial activity (Dana, 1997; Shaper, 1984). It can also influence the type of entrepreneurial activities pursued (Dana, 1995). What is 'known' to be desirable and what is 'known' to be feasible can be dramatically influenced by local cultural and social norms, but can the reverse also be true?

In Finland, the context of this study, the number of entrepreneurs striving for growth had decreased a decade ago, despite an increase in the amount of entrepreneurs in general (Pajarinen and Rouvinen, 2006). The amount remains low compared to other innovation-driven economies (Stenholm, et al., 2011), and Finland has been characterized by the lowest proportion of young entrepreneurs within the European Union (European Commission, 2010), in spite of Finland being an early adopter of entrepreneurship education, with entrepreneurship being a recognized objective of the education systems and embedded explicitly in the national framework curricula for basic and higher education alike (Hietanen and Järvi, 2015; Kyrö and Ristimäki, 2008; Nieminen and Lemmetyinen, 2015; Rönkkö and Lepistö, 2015).

In the beginning of 2010, a new university was formed in Finland, merging together three prominent universities – Helsinki University of Technology (TKK), Helsinki School of Economics (HSE), and University of Art and Design Helsinki (TaiK). The aim of the merger was to open up new possibilities for strong multi-disciplinary education and research, creating a “unique, integrated seedbed for innovation” (Green, 2009, p. 12). The new Aalto University, which started operations January 1st 2010, has been seen as a flagship project in the larger scale development of the higher education and innovation systems in Finland (Green, 2009).

One of the first tangible new entities to emerge from the turmoil of the formation of the upcoming Aalto University was the Aalto Entrepreneurship Society (Aaltoes, www.aaltoes.com), an independent student-run and student-founded organization promoting growth entrepreneurship. Subsequently hailed as “the most constructive piece of student activism in the history of the genre” (The Economist, 2013, p. 10), Aaltoes has been

characterized as a start-up rather than a social club by its volunteer contributor members. Founded in 2009, the society managed to acquire over 5000 members in a university of 20 000 students in about a year, gained a role in influencing Aalto University's entrepreneurship policies, and sparked a variety of change efforts nation-wide by 2010. In addition, as experience with and exposure to entrepreneurial activity and peers can increase entrepreneurial intentions (Falck *et al.*, 2012; Krueger 1993b), the dramatic increase in the visibility of entrepreneurship amongst students due to the numerous, widely marketed events and campaigns of Aaltoes is a noteworthy achievement. Indeed, Aaltoes can be considered as an "entrepreneurial spirit development program", a prerequisite for new venture programs for existing entrepreneurs (Dana, 1995, p. 67). The present study examines entrepreneur-ecosystem interaction in resource acquisition and utilization processes in the opportunity construction processes of Aaltoes during the formation and initial development of the society, from its roots in the fall of 2008 to the end of 2009, after which a new board took over the society.

METHODS

In order to explore the opportunity and resource construction processes behind the development of Aalto Entrepreneurship Society, the first 18 months (August 2008 to January 2010) of the organization were examined, focusing on the initial formation and development of the society. A case study approach was deemed appropriate, as the studied dynamic processes do not have a clear-cut boundary with their contexts (Eisenhardt, 1989; Yin, 2003). In the field of entrepreneurship, for example Dana and Dana (2005) have advocated more qualitative research to "understand the entrepreneur's motivation and perception of opportunities and constraints in a given environment" (p. 84). They suggest that "qualitative [rather than quantitative] research may be better suited to understanding the entrepreneur's interaction with the environment" (p. 83), and to the study of marginal rather than average (p. 84). Indeed, single case studies can be considered as an appropriate choice when the studied case is critical, extreme, or rare (Eisenhardt and Graebner, 2008; Yin, 1994). Cases of extreme situation can make the 'process of interest "transparently observable"' (Eisenhardt, 1989, p. 537) compared to more typical situations. Aaltoes provides an extreme example of resource generation, mobilization, and utilization, as operations were initiated and developed purely on volunteer resources, without any potential for direct financial rewards even in the future. In more typical cases of entrepreneurship, there are strong hopes for financial gains and some capital, even if personal, is invested in the efforts. Absent of these conditions, why were individuals and organization willing to commit significant amounts of time, as well as tangible resources, towards developing the Aaltoes opportunity? The main body of data in the case study was formed by in-depth interviews, which were analyzed utilizing two approaches. First, a case description identifying the perceived chain of significant events and causal relationships was constructed, giving us a representation from each informant of their causal maps for the evolution of Aaltoes. These were analyzed for underlying mechanisms of development actions. Second, as the linkage between intent and action is influenced by both barriers and facilitators (Krueger, 2010), the interviews were coded for both perceived enabling and hindering elements, which were then analyzed thematically in order to identify patterns in the reported perceptions (Braun and Clarke, 2006). These perceptions were then reflected against the identified mechanisms.

Participants

All of the data was collected from participants involved with the development of the society (rather from more objective onlookers), as the purpose of the study was specifically to investigate the subjective co-evolution of the opportunity between the various stakeholders and the related resource creation processes. Data collection was centered around six in-depth

interviews with key Aalto Entrepreneurship Society (Aaltoes) contributing members from the first year. The participants included all three founding members, involved with Aaltoes since its idea formation in 2008. In addition, three other board members, who had been active contributors from the spring of 2009 onwards, were interviewed. All of the interviewees had contributed at least 20 working hours per week towards Aaltoes at some point of the critical early phases. The interviews were conducted in the autumn of 2009, less than a year and a half from the formation of the society idea. In addition to Aaltoes related work, some participants ran their own businesses, and all considered founding a growth-oriented company a possible option for their future employment form. Some of the interviewees were still studying for their Master's Degree, while others had already graduated after the initial formation of Aaltoes. The interviewees were in their twenties and early thirties, and included two women and four men.

The data from the six Aaltoes interviews was later supplemented by interviews of the representatives of four critical stakeholder organizations that the Aaltoes interviewees felt had an important perspective to the development of the society, as they had provided various tangible and intangible resources (see also Fig 1, below). These organizations included Veturi Venture Accelerator, the Finnish Funding Agency for Technology and Innovation (Tekes), Aalto University Design Factory, and Arctic Startup. Rather than representing any official organizational perspective, we invited these participants to share their own insights on the development of Aaltoes, why the society had been interesting from their point-of-view, and why they had invested their own input in the society. All of the four participants were Finnish men, had been in their respective organization for several years, and had had a key role in the interaction between their organization and Aaltoes.

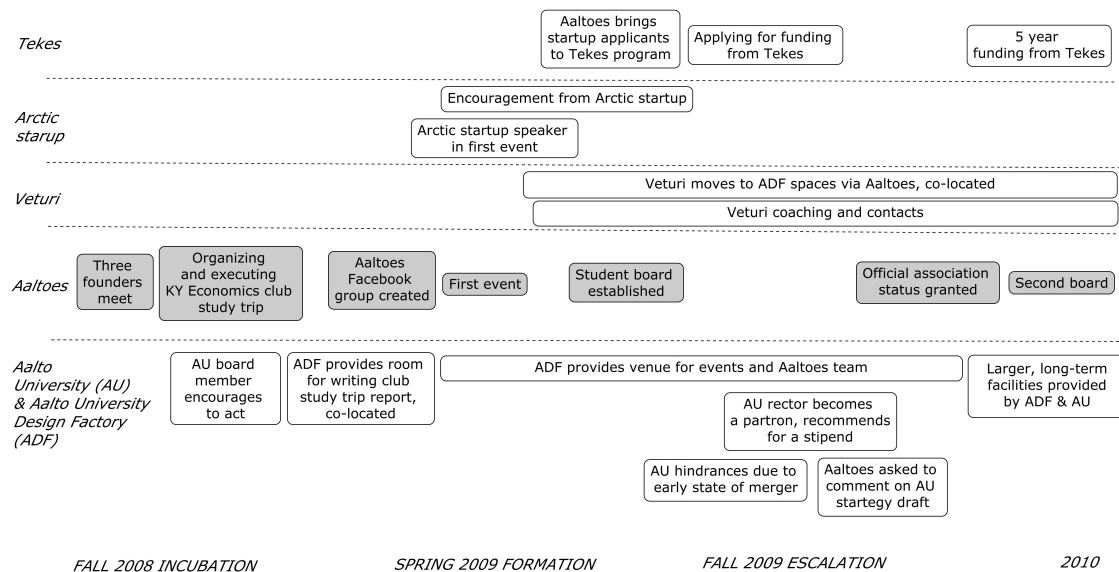


Figure 1 Timeline of main interaction and support between Aaltoes and interviewed stakeholder organizations

Interviews

The six in-depth semi-structured interviews of Aaltoes participants began with a few introductory background questions (Rubin and Rubin, 2011), after which the participants were first asked to describe freely the development of Aaltoes and their role in it, utilizing prompting questions to elicit clarifications of the accounts. This narrative technique resulted in the life-span of the organization and the interviewees' involvement in terms of events that the interviewees themselves perceived as significant (self-selected critical incidents; Cope and Watts 2000). The interviews then proceeded in a semi-structured manner following a thematic

interview guide, designed to prompt further reflection on critical events affecting the development of the Aaltoes opportunity (Chell, 2004; Cope and Watts, 2000): personal turning points, inspiring and exhausting moments, possible conflicts they faced, and how the context had affected the described development. All of the interview sessions were carried out individually and by the same interviewer. The interviews were held in the mother tongue of the participants (five in Finnish, one in English). The interviews lasted between 79 and 104 minutes, averaging at 94. They were recorded and transcribed for further analysis.

In the four semi-structured outside-Aaltoes interviews, in turn, the participants were asked to freely describe the development of Aaltoes, and additional prompting questions were asked on what had been the strengths and weaknesses of the society, why the society had been of interest, and if it could have benefited the participants' organization more in some way. The interviews were held in the mother tongue of the participants (Finnish), and lasted between 21 and 60 minutes, averaging at 37 minutes. They were recorded and transcribed for further analysis.

Data reduction and analyses

A case description was formed based on the six conducted Aaltoes interviews, enriched by various written artefacts produced by Aaltoes, such as newsletters, presentations, strategy drafts and press releases, along with media accounts such as articles published in magazines and newspapers to ensure that the context was captured. The constructed case description was further validated by sharing and discussing it in 2010 with the Aaltoes interview participants, as well as the 2010 Aaltoes chairman of the board, in order to correct any misunderstandings or omitted significant events. Several additions and elaborations were made after the review of the case description, but no misunderstandings were identified. Additional interviews from the representatives of the four other stakeholder organizations were then elicited and the case description was further elaborated based on them.

After the case description (including the perceived causal relationships of events and decisions) had been constructed, the 10 interviews were coded for elements perceived to have enabled or hindered the development of Aaltoes. This resulted in 223 identified elements, excluding repeated elements within single interviews – i.e. a distinct idea expressed by an interviewee several times was counted only once, as the aim was to represent the dimensions perceived as relevant by the interviewees. These elements were divided into 'enabling' and 'hindering' elements, and then categorized based on thematic similarity of content in an inductive, semantic-level thematic analysis (Braun and Clarke, 2006). First repeated ideas were searched for across interviews, after which similar elements were grouped together. As a result, 19 ideas were found to be repeated 5 times or more, and grouped together under 9 categories. In addition, 16 ideas were repeated between one and four times. Paraphrasing Dana (1995, p. 59), such functional grouping of empirical findings is useful for future analysis, even if discrete, non-problematic categories cannot truly exist.

RESULTS

Case description

The foundations for Aaltoes can be traced to the beginning of fall 2008, when the three founding members become acquainted in a seminar loosely connected to their work at the moment. Two of the founders were involved with a student society at Helsinki School of Economics (current Aalto University School of Business) that was initiating fund raising for a planned entrepreneurship-related excursion to the United States. However, 2008 marked the beginning of the global economic downturn, making private funding scarce. Meanwhile, the

board for Aalto University has been recently formed and begun preparations for the new university. One of the international educational entities Aalto University has been benchmarking is Massachusetts Institute of Technology (MIT), where the club plans to visit, and the founders thus propose providing a student-focused perspective to complement benchmarking. Another funding venue is discovered in Helsinki School of Creative Entrepreneurship (HSCE), familiar from a former employment connection, and the club gains funding in return for compiling a report on the US East Coast entrepreneurship clubs.

During the study excursion to the US East Coast universities the founders become familiar with the entrepreneurship clubs and entrepreneurs due to pre-excursion research and scheduling meetings with the report in mind, as well as the personal networks of one founder. At MIT, the student group meets a board member of the newly formed Aalto University board. Surprised by the amount of Aalto related questions that the students have, the board member later engages in an informal hallway discussion with the founders. Upon hearing their agenda for the trip, the board member prompts the founders to do something rather than just write another report, which the founders perceive as a mandate for the club given from the highest level of Aalto. The intent to form an entrepreneurship support club is created.

When returning from the study excursion, the founders' need to collaboratively create a report prompts the founders to acquire working spaces, leading them to the newly formed Aalto University Design Factory (ADF). ADF has become familiar to the founders through their active participation in a number of work and study related events – the founders received an invitation to the ADF opening ceremony in October 2008 from its professor at an opening ceremony of a start-up center. Establishing headquarters at the ADF allows frequent interaction, and ultimately provides resources, contacts and inspiration.

A Facebook group is formed for Aalto Entrepreneurship Society in December 2008, making the idea to form the club publicly known, escalating the organization from a thought shared by a few founders to a visible organization. This creates a snowball effect of interested people, as friends and friends of friends join. The Facebook pages are created in English (partially due to the fact that one of the founders does not speak Finnish), providing easy access for international students and foreign stakeholders from the very beginning on. Nevertheless, members prove unwilling to commit their time to a founding meeting. The founders decide to organize an entrepreneurship event, and the people that show up the event planning meeting after an open Facebook invitation was issued become the core members of Aaltoes, and in just a few weeks, the hugely successful first event takes place. ADF provides the venue for the event, HSCE the refreshments, and the start-up speakers are found via the founders' existing network contacts. In the first event, nearly 200 people show up to work on the challenges entrepreneurship faces in Finland, and how those challenges could be alleviated. New key contributors join, weekly meetings of the active contributor team are initiated, and content-focused events become the core of Aaltoes operations.

With the early successes and increased activity as well as visibility, several parties are quick to claim credit for Aaltoes in the spring of 2009, portraying the society as their affiliate. Combined with the discussion that the student union elections for Aalto University spark in the community, Aaltoes decides that it will be an independent and politically neutral student organization, and a student board is formed. Although corporate funding would be more readily available, it also decided that the aim is to gain public, "neutral" funding. During this time, Aaltoes is also introduced to Veturi Growth Partners (current Veturi Venture Accelerator), and offers to ask ADF to provide a space for Veturi. Veturi moves in, and takes a mentoring role with Aaltoes, coaching the board and providing access to their extensive contact network. This initiates a more thorough positioning and goal discussion, and Aaltoes decides to apply for an official association status, resulting in more strategy and rule work as required for the application. In the end, the process lasts for a half a year, creating much

frustration in bureaucracy (reinforcing the desire for Aaltoes to stay flexible) forcing Aaltoes to operate on a zero budget. Thus the flexible job schedules and arrangements that the active contributors have in their start-ups and university positions are crucial for Aaltoes functioning, as is also the encouragement provided by event participants for sustaining overbooked schedules. In addition, ADF continues providing free venues for the events to take place in.

While Aaltoes had already been able to catalyze several start-ups, it raised little interest in the media. Instead, Aaltoes was able to capitalize on being one of the only tangible Aalto University results at such an early time, allowing media access as much national discussion on the merger is taking place concurrently. Aaltoes gains a feature in the Finnish national primetime news in August 2009, and a feature article in the national economic magazine *Kauppalehti*, sparking wide national visibility and interest. Furthermore, the benefit from being a concrete example of Aalto University is mutual, as the university is able to illustrate what the merger of three universities can achieve. Aaltoes is able to achieve a reputation for doing, rather than talking, and the newly elected rector of Aalto University, becomes a patron of the society. She recommends Aaltoes for a stipend, and for the first time, Aaltoes gains internal funding. The dynamics start to shift, as many stakeholders now approach Aaltoes rather than vice versa. National sister student organizations are established, as well as international partners. One of the culminating moments comes when the Aaltoes active contributors (all students) are asked to contribute to the Aalto University strategy draft, and the role of growth entrepreneurship is promoted in the university-wide strategy. At times, however, the turmoil related to the formation of the new university has an adverse effect, encouraging Aaltoes to adopt a “guerilla” stance, finding alternative routes and solutions when official paths are incomplete or closed. A number of the interviewees noted the global maxim “sometimes it is better to ask forgiveness than ask permission”.

After the success of fall 2009, Aaltoes gains steady foothold, acquiring large spaces in the university and five-year funding from the Finnish Funding Agency for Technology and Innovation (Tekes). They agree to dedicate 50% of their efforts during the next five years towards specified goals. A new student board is formed for 2010, focusing on the student-directed activity, and some former contributors continue to co-create a new project called Aalto Venture Garage (now Startup Sauna) with the university, receiving significant funding. Aaltoes and Venture Garage, along with later entrepreneurship units, act in collaboration with complementary foci in promoting growth entrepreneurship in Aalto University, and today the society continues its function and development as a student-oriented event-based initiative to promote entrepreneurship under its seventh board.

Case analysis: Underlying mechanisms enhancing resource generation, mobilization, and utilization

Analyzing the development path of Aaltoes and the seemingly serendipitous escalating events, it becomes apparent that many, if not most, of these resulted from aggregates of a number of minor actions or events. These turns of events appeared to be governed by two underlying mechanisms: (1) *proactive concretization* and (2) *(re)formulation for synergy*. Proactive concretization seems to have encouraged resource allocation both by providing an immediate, tangible agenda for (potential) collaboration to contribute towards, and by providing feedback on the results of investing resources. Specific instances of the larger opportunity at hand were repeatedly created by various concretizations. Formulating or reformulating for synergy, in turn, reflects highlighting interdependencies and mutual benefits from an early stage on, including opportunistically reframing efforts and accepting outside input to guiding the direction of efforts in order to attract long-term collaborators. Table 1 presents the key events of in forming and developing Aaltoes with the related mechanisms and effects on resources.

Table 1. Concretization and (re)formulation for synergy in the development path of Aaltoes

Event	Underlying mechanism	Effect on resources
Three founders meet, third joins first two in planning a study excursion	Concretization: having tangible agenda (the study excursion) for collaboration provides an immediate opportunity for collaboration	Labor secured, relationship between founders formed
Founders propose providing a student-focused perspective to complement Aalto University benchmarking in exchange for funding	Opportunistic reformulation for synergy and concretization: proposing benchmarking to the university as other funding efforts have not bared fruit	Initial relationship formed between the founders' project efforts and Aalto University
Funding secured from a university program in exchange for compiling a report on US East Coast entrepreneurship clubs, making entrepreneurship central to the agenda of the trip	Opportunistic reformulation for synergy and concretization: seeking funding from alternative sources and accepting proposition for additional task/agenda, new goal formed for excursion	Funding secured; relationship formed with HSCE; directing efforts towards entrepreneurship
Aalto University board member prompts founders to do something rather than just writing a report	Concretization and opportunistic reformulation: having a tangible agenda sparks further discussion and feedback, new goal formed based on feedback	Perceived mandate for forming the club, intent to start a club formed; encouragement for founders to invest resources
Establishing headquarters at ADF	Concretization: immediate, tangible agenda of compiling report for an organization of potential synergy to support	Relationship formed established with ADF; increased interaction between collaborators
Facebook page formed in English, naming the society as Aalto Entrepreneurship Society and allowing to track "likes"	Concretization: tangible, visible entity of Facebook page to attract interested parties, feedback on progress	Increased accessibility and motivation to join and to contribute; ties to Aalto cemented
Open Facebook invitation to join planning the first Aaltoes event	Concretization: immediate, tangible agenda of planning the event for potential collaboration to join	Labor secured
First event organized successfully, sparking weekly meetings and an event-focused form	Concretization: immediate, tangible event for parties with potential synergy to support, clear feedback on progress to both Aaltoes and supporting organizations	Event-format attracts labor and resources; encouragement to sustain resources
Forming a student board and seeking public, "neutral" funding for the society	Formulation for synergy: remaining open for all potential stakeholders rather than committing to a selected few	Neutrality leaves all doors open, but guarantees no resources
Mentoring from Veturi	Concretization and formulation for synergy: acquiring facilities create a tangible agenda for initial collaboration, in which deeper synergy is discovered and created, emphasizing synergy in the chosen direction of development	Labor secured
Flexible arrangements facility and working allow operating on zero budget while waiting for official association status	Formulation for synergy and concretization: Highlighting synergy with organizational stakeholders already brought to the table previously, combined with continued concrete evidence of progress in the amount and feedback of event participants	Securing labor and facilities free of cost, attracting further labor; encouraging sustaining input of founders
Widespread attention due to media coverage as an example of Aalto University, "smuggling" in the entrepreneurship agenda	Opportunistic reformulation for synergy and concretization: changing the primarily angle from entrepreneurship to Aalto University to gain initial interest, acting as a tangible example of the otherwise still vague university merger	Labor and resources attracted; attention drawn to entrepreneurship
Guerilla stance in operations, finding alternative and fast routes and solutions	Opportunistic reformulation for synergy and concretization: finding alternative ways to become visible	Maintaining labor and other resources as a sound investment of energy

Another perspective on the two mechanisms and their effects on resources: Perceptions of enablers and hindrances

The ten interviewees were also asked to explicitly reflect on the enablers and hindrances they perceived as relevant for the society, in order to further enrich understanding on the resource-generating mechanisms in the opportunity construction process. As a result, 223 enabling and hindering elements were identified by the interviewees (eliminating repeated elements within a single interview). The vast majority of these (167) originated from the interviews from the six Aaltoes contributors, whereas 56 elements were identified from the representatives of the four other stakeholder organizations. Out of the 223 identified elements, 166 had been perceived to enable development (Table 2) and 57 to hinder progress (Table 3). While the four outside-Aaltoes interviews produced a total of only three hindrances, the six Aaltoes interviewees also all named more enablers than hindrances, ranging from 59% to 94% of identified elements per interview (average 69%).

Most enabling elements were closely tied to the two key mechanisms of enhancing resource allocation, proactive concretization and (re)formulating for synergy. The largest category of enabling elements was directly a result of proactive concretization – the ability of Aaltoes to demonstrate action (n=47), which had a motivational effect on both Aaltoes members and supporting organizations, justifying providing (further) input towards the society. Excluding one outside-Aaltoes interview, all interviewees named several elements related to the value of demonstrating visible traction. Demonstrating results in a quick pace and developing a thoroughly action-oriented culture were perceived to have allowed Aaltoes to set itself apart from other parties and attract both new members and outside benefactors.

The second largest perceived enabling category was the communicated value of Aaltoes (n=24) – mainly from the perspective of Aaltoes interviewees, others' positive feedback and attitudes towards Aaltoes efforts had sustained the contributors' faith in the value of their contribution and motivation to maintain overbooked schedules, as well as created a snowball effect in the reputation and influence of Aaltoes. Especially perceived as important was the recognition provided by key people in well-established and influential positions. The stakeholder interviews revealed that many, if not most, of these communications were reactions to the action demonstrated by proactive concretization and similar or complementary goals of Aaltoes and other stakeholders.

Synergy with other actors (n=21) was frequently also explicitly named as an enabling element. The timing of efforts had in general been perceived as favorable, especially in relation to the development of Aalto University. The outside-Aaltoes interviewees attributed much of their willingness to help Aaltoes to the synergy of their organization with Aaltoes, based on various mutual benefits and compatible goals (n=10). As a result, several organizations had offered concrete help to the society, forming the third external enabler category (n=18). The received help had ranged from tangible benefits such as facilities and funds to intangible help in the form of mentoring, contacting and legal counseling, to name a few examples. Although the category covered a larger percentage of the enablers named by outside-Aaltoes interviewees, all ten interviewees named concrete help from other organizations as a significant enabler.

Further, the composition of the active contributor team and network (n=21) was perceived as significant. The energy, persistency, and networks of the Aaltoes team, especially in pitching the society to various stakeholders, were perceived as invaluable and contributors have had complementary skills. One of the significant motivators for the team was the learning benefits that the Aaltoes contributors gained from being involved with the society (n=11). All of the Aaltoes contributors felt they gained valuable knowledge, networks and experience for an entrepreneurial future, motivating their efforts.

Table 2. Perceived enablers of Aaltoes development

Category	Relation to the two enabling mechanisms	Effect on resources	Content	Aaltoes	Other organizations	Total
Demonstrating action	Created by proactive concretization	Motivation of all stakeholders	Fast-paced progress	16	2	18
			Visibility of effects	11	3	14
			Pervasive mentality of doing	11	4	15
			<i>Total</i>	38	9	47
Value communicated by outside-Aaltoes stakeholders	Reactions to proactive concretization, groundwork in (re)formulating for synergy	Primarily motivation of Aaltoes team, wider net of stakeholders through reputation	Others' positive reactions and feedback regarding Aaltoes	14	1	15
			Others' recognition and willingness to listen to Aaltoes	7	2	9
			<i>Total</i>	21	3	24
Synergy between Aaltoes and other stakeholders	Created by (re)formulating for synergy	Promoting access to tangible and intangible resources from stakeholders	Good timing in relation to other parties	8	3	11
			Compatible goals and mutual benefits with other parties	0	10	10
			<i>Total</i>	8	13	21
Suitable people contributing	Enhanced by proactive concretization efforts	Varied	Active contributors and network contains right qualities and mixture	13	8	21
Concrete help	Enhanced by proactive concretization, groundwork in (re)formulating for synergy	Direct (access to stakeholder-provided resources)	Providing spaces, funds, mentoring and legal counseling with no strings attached	10	8	18
Learning benefits for contributors	Enhanced by formulating for synergy between the organization and the contributors' goals and the results of proactive concretizations	Motivation of Aaltoes team	Personal intangible gain in learning, knowledge, and networks encourage participation	11	0	11
Other	Varied	Varied	Process enjoyable, persistency, flexibility, compatible environment, etc.	12	12	24
Total				113	53	166

Fifty-seven elements, in turn, were perceived to have had a hindering effect on the development of Aaltoes. These were almost exclusively named by Aaltoes interviewees, with outside-Aaltoes interviewees identifying only three elements. They were less directly related to the two enhancing mechanisms of proactive concretization and (re)formulating for synergy. The majority of challenges (35 out of 57) had been related to insufficient workforce, limiting possible actions. There had been difficulties in gaining new committed contributors, both in terms of realizing intentions and interest into action, and in terms of delegating tasks with little time and lack of felt responsibility. Proactive concretization had alleviated, but not removed challenges in gaining contributors. As a result, many active contributors felt overburdened by their total workload, as all had outside-Aaltoes duties as well. On the other hand, close ties to other organizations created by formulating for synergy did have some

drawbacks, such as exposure to bureaucracy, resistance to change, and credit-claiming (n=9). However, formulating for synergy had also prevented such problems in many cases. Finally, there had been some internal organizational confusion and chaos amongst the contributors (n=5), much due to the fast pace of operations. This had somewhat been mitigated by proactive concretization, making the efforts of each individual more visible.

Table 3. Perceived hindrances to Aaltoes development

Category	Relation to the two enabling mechanisms	Effect on resources	Content	Aaltoes	Other organizations	Total
Insufficient workforce	Alleviated by proactive concretization	Insufficient labor, limiting Aaltoes team effectiveness	Difficulties in gaining new contributors	15	1	16
			Lack of time and overburden of active contributors	12	0	12
			Difficulties in delegation	7	0	7
			<i>Total</i>	34	1	35
Environmental resistance	Effect on Aaltoes emphasized due to formulating on synergy, yet in many cases prevented by (re)formulating for synergy	Limiting effectiveness of and motivation for interaction between Aaltoes and other organizations	Bureaucracy, resistance to change and credit-claiming of outside parties	9	0	9
Lack of clarity	Alleviated by proactive concretization	Limiting Aaltoes team effectiveness	Confusion amongst the contributors	5	0	5
Other	Varied	Varied	Interpersonal challenges, etc.	6	2	8
Total				54	3	57

DISCUSSION

While situated, creative resource utilization and active involvement of stakeholders is central in emerging approaches of entrepreneurship, many questions remain both in theory and practice. How are stakeholders committed to or utilized in the opportunity construction process? What actions are performed to gain and utilize alternative resources? We posit that the entrepreneur and the ecosystem cannot be separated in understanding the situated, dynamic process of resource-based opportunity creation. Rather, co-evolution of the entrepreneur and ecosystem is a necessary condition to support this process. An investigation of the development of Aalto Entrepreneurship Society (Aaltoes), a Finnish student-led initiative to promote growth entrepreneurship, identified two key mechanisms for attracting and sustaining resources: proactive concretization and (re)formulating for synergy. As a result of these two mechanisms, the entrepreneur and ecosystem can co-evolve to enhance entrepreneurial action.

Concretization and (re)formulating for synergy as key mechanisms

Analysis of the development path of Aaltoes suggested two key mechanism for attracting and sustaining resources. First, the agenda of the society was formulated and reformulated several times to emphasize the potential for synergy. Committing the society to Aalto University at a very early stage laid the ground for the eventual strong mutual benefit of Aaltoes, Aalto University, and a number of related stakeholders. This was reflected, for example, in the

choice of name, early meetings with Aalto University key members, and establishing headquarters on university premises. The significant resources gained through other stakeholders in the ecosystem of Aaltoes highlight that addressing opportunities does not occur in isolation. Similar findings of seemingly serendipitous development have been obtained also in for example the analysis of the formation of the RFID industry and its roots in acting on a number of contingencies and have been highlighted in effectuation research (Dew, 2003; Dew *et al.*, 2008; Sarasvathy and Dew, 2005). Seeking alternative pathways for funding and operations characterized the development, and previous research on bricolage suggests that such efforts may not only be effective in the short run, but may also breed organizational resilience in uncertain environments (Desa, 2012).

Whereas (re)formulation for synergy laid the groundwork for entrepreneur-ecosystem interaction, proactive concretization seemed to create positive spirals of resource allocation. Demonstrating action was the most frequently perceived enabler of the development of Aaltoes, emphasized several times in most interviews, and having a motivational effect on both the Aaltoes team and outside stakeholders. The society's ability to demonstrate action due to a short idea-to-action cycle was an important success factor, and experimentation played a critical part throughout the development path. Rather than engaging in detailed planning, Aaltoes aimed to test any ideas, taking pride in their reputation for doing. Active experimentation has been highlighted by previous research as well, with for example Shepherd and colleagues (2010) describing the need for entrepreneurial organizations to repeatedly initiate ideas and sustain experimentation efforts. In fact, taking action has been suggested as a mechanism for overcoming resource constraints and taking action rather than conceptually solving problems may increase the likelihood of arriving at a workable solution (Fisher, 2012). The present study suggests that it is particularly the proactive concretization that acts as a mechanism for the beneficial effects of taking action.

Concretization seemed to have two encouraging effects on resource allocation. First, providing an immediate, tangible agenda (such as working spaces for a report or event organization) for resource allocation created clear, immediate opportunities to which to provide initial input, rather than establishing vague collaboration agreements for the future. Potential individual and organizational stakeholders could join clearly defined, limited instances of collaboration initially. On the other hand, concretization provided visible feedback (such as the amount of event participants) on the results of investing resources, encouraging further input from stakeholders already involved in the opportunity. Both outside stakeholders and Aaltoes participants viewed demonstrating visible progress and traction as a key reason for attracting support. Further, the interviewees reported that others' positive reactions affirmed both the value and feasibility of their efforts. Indeed, social cues may play a significant role in increasing entrepreneurial intentions by enhancing both the perceived desirability and the perceived feasibility of entrepreneurial action (Krueger, 2000). Environmental cues essentially act as a feedback mechanism, affirming whether the tested direction or form of action is effective, and thus timely information in the ecosystem can be crucial for maintaining entrepreneurial behavior. As a result, the initial proactivity displayed by Aaltoes managed to create a virtuous spiral through concretization in increasing entrepreneurial activities in the ecosystem.

Implications for research

The current study provides further support for the emerging resource perspectives of bricolage and effectuation approaches to entrepreneurship. Although some measurement variables have been established for effectuation (Chandler *et al.*, 2011; Read *et al.*, 2009), empirical research is largely yet in the nascent phase (Perry *et al.*, 2012), and many open questions remain. While generalization to different contexts from a single case must be approached with caution, the pervasive role that the two resource-generating mechanisms of

proactive concretization and (re)formulating synergy played in the current case suggest a promising direction for further research. Attracting and sustaining resources through proactive concretization, in particular, can help to fine-tune previous action-based explanations for resource attraction.

For example, based on a study of six web-based companies, Fisher (2012) suggested that restraints were overcome by entrepreneurs by devoting small chunks of time or other resources while working on other jobs, actively experimenting with low-cost solutions, leveraging resources at hand and sharing crude solutions to elicit feedback, which can all be traced back to tangible agendas to contribute towards and feedback on progress created by proactive concretization efforts. Bricolage has also been found to act as a legitimizing mechanism for new social ventures (Desa, 2012), which can again be further explained in terms of the mutual benefit derived from concretization after initial formulation for synergy.

On the other hand, the current case was primarily based on retrospective interviews, thus suffering from limited details and possible recall bias (Eisenhower *et al.*, 2004). Given the high degree of interplay between the entrepreneur and the ecosystem, contextual studies seem to be a necessity for understanding the rich, situated process of acquiring and utilizing resources towards opportunity construction – a wealth of information is lost if one attempts to remove the opportunity from its context. Future research would benefit from adopting longitudinal case designs, connecting perceptions and their antecedents to subsequent actions and their impacts more reliably and in more detail. Such designs would thus provide researchers with further insights on the co-evolution of entrepreneurial intentions, behavior, and ecosystems – which perceived opportunities are allocated with resources, how (and which) entrepreneurial intentions lead to realized action, and what the subsequent impact of such actions is on the perceptions and ecosystem of the entrepreneur. In other words, studying the dynamics between the perceptions and actions of the (potential) entrepreneur and the surrounding ecosystem can provide new insights on both resource generation and utilization, and the opportunity construction process in general.

As entrepreneurship is culturally bound, research should also extend the study of the observed dynamics in other cultures. “If policy-makers are to formulate policies which will actively create entrepreneurs and increase the wealth of nations, then research is necessary to understand the values and aspirations of cultures and their people, before imposing a policy on them.” (Dana & Dana, 2005, 81) Although students have played a large role in entrepreneurship initiatives in other countries as well, more research is needed to understand the contingencies on which successful resource acquisition and utilization depend on, as for example Dana (1995) found marked differences between ethnocultural groups in approaching opportunities. While the current study sample included Finnish-speaking Finns and an English-speaking immigrant, the bilingual country has a large Swedish-speaking minority (in 2014, approximately 290 000 Finns spoke Swedish as their mother-tongue, compared to 4 870 000 Finnish speakers). The country also has many immigrants from for example neighboring Russia and Estonia (approximately 70 000 and 46 000, respectively, by the end of 2014), and a small Sami population (approximately 2 000).² Future research could compare current findings to entrepreneur-environment interaction in Finland within these ethnocultural groups. On the other hand, “entrepreneurial spirit” can be expected to have some universal principles, even if manifestations differ across cultures. As entrepreneur-environment interaction plays such a large role in successful opportunity construction, further research on how entrepreneurs can actively influence local culture and ecosystems is clearly warranted. Here again case studies seem particularly well positioned for accumulating both a practical and theoretical knowledge-base.

² Statistics obtained from the public Statfin database of Statistics Finland, with population structure data accessible at <http://pxnet2.stat.fi/PXWeb/pxweb/en/StatFin>

Implications for practice

The present study illustrates the power that relatively small interventions can have on the entrepreneurial ecosystem – changing the mindset or ecosystem can result in a virtuous spiral of enhancing perceptions of entrepreneurial opportunities and increasing entrepreneurial action. Generating resources by acting in a way that highlights synergy, and proactively concretizing efforts to promote initial commitment of resources and sustaining resource allocation towards the opportunity, goes largely against traditional account where first an opportunity is recognized, then resources mobilized, and finally the opportunity is exploited (Hsu, 2008). The present study provides further evidence on the importance of providing potential entrepreneurs with first-hand and vicarious experience in constructing opportunities (already recognized in many entrepreneurial education efforts, utilizing for example problem based learning, experts scripts, and counterfactual thinking, as reported by Krueger, 2007).

Creating an ecosystem which offers practice in proactive construction activities in a rich feedback environment would seem particularly beneficial for budding entrepreneurs. Rich, and particularly timely, access to environmental information was perceived as an important success factor for Aaltoes, as it offered a source for both motivation for and feedback on actions. Here educators have the opportunity to organize first-hand experience with constructing and pursuing opportunities complemented by rich and frequent feedback that might otherwise be hard to access for to-be-entrepreneurs, for example by assigning mentors and expert revisions of work. Students can also practice creating rich feedback conditions for themselves, building feedback mechanisms in their activities that make progress more tangible both to them and their stakeholders. As the present results emphasize the importance of proactive concretization in generating resources, certainly proactiveness should be encouraged, monitored, and rewarded in entrepreneurial training.

Becoming proficient in proactive resource generation and opportunity construction may however benefit from more than just personal experience, as entrepreneurial cognition precedes entrepreneurial behavior. Here, exposure to expert entrepreneurs' cognitions via expert mentoring and role modeling can provide invaluable learning opportunities for potential entrepreneurs, as previous research has demonstrated that expert entrepreneurs have more defined and extensive opportunity perceptions that are more connected to actually pursuing the opportunities (Baron and Ensley, 2006). In fact, experts' enhanced proactivity can be traced back to the very initial representations they form of problems (Björklund, 2013). Having richer and more purposeful representations of opportunities creates a better basis for identifying fruitful courses of action, and thus for pursuing the opportunities successfully. In other words, in order to effectively act entrepreneurially, students need to learn how to think entrepreneurially. Providing an ecosystem that facilitates exposure to expert cognitions can help do support this learning process. Furthermore, access to expert entrepreneurs and can help to create a beneficial micro-culture compatible with successful entrepreneurship, modifying or enhancing the effects of the broader local culture. As entrepreneurial thinking broadens and deepens, that in turn broadens and deepens the entrepreneurial ecosystem. Aaltoes is a powerful example of this co-evolution in a Finnish university environment. Although the events cannot, and should not, be copied as such in different settings, the case provides an inspiring practical example on how policy could extend from reactive entrepreneurial support into fostering entrepreneurial mindset or spirit, and thus increasing the number of persons attracted to entrepreneurial activity in the first place (Dana, 1995).

CONCLUSIONS

The present study explored the mechanisms that allow entrepreneurs to generate and utilize

resources together with stakeholders in a particular ecosystem in the context of forming and developing Aalto Entrepreneurship Society (Aaltoes), a student-based volunteer organization aiming to foster growth entrepreneurship. Two key mechanisms were identified: (1) opportunistically (re)formulating for potential synergy, and (2) proactive concretizing efforts. While formulating for synergy laid the broad opportunity for mutual benefit, creating tangible instances for contribution sparked initial input from potential stakeholders, which was then sustained through the feedback generated by concretization efforts. As a result, virtuous spirals of resource generation could be initiated by relatively small concretizing acts, and a co-evolution of the entrepreneur and surrounding ecosystem could be observed. The current study thus extends our understanding of the creative resource generation and utilization processes emphasized by previous research on effectuation and bricolage, and suggests that proactive concretization could provide a more detailed mechanism for understanding the beneficial effects of the action-orientation for entrepreneurs hailed by practitioners and academics alike. Entrepreneurs and educators alike can play an active role in creating micro-cultures more favorable to entrepreneurial thought and action. The co-evolution of the entrepreneur and the ecosystem becomes a key process to take into account in attempts to support opportunity creation efforts.

References

- Acs, Z.J., Autio, E. and Szerb, L. (2013), "National systems of entrepreneurship: Measurement issues and policy implications", *GMU School of Public Policy Research Paper No. 2012-08*. <http://dx.doi.org/10.2139/ssrn.2008160>
- Audretsch, D.B. (2002), "The dynamic role of small firms: Evidence from the US", *Small Business Economics*, Vol. 18 No. 1-3, pp. 13-40.
- Audretsch, D.B., Bönte, W. and Keilbach, M. (2008), "Entrepreneurship capital and its impact on knowledge diffusion and economic performance", *Journal of Business Venturing*, Vol. 23 No. 6, pp. 687-698.
- Baker, T. and Nelson, R.E. (2005), "Creating something from nothing: Resource construction through entrepreneurial bricolage", *Administrative Science Quarterly*, Vol. 50 No. 3, pp. 329-366.
- Baron, R. (2006), "Opportunity recognition as pattern recognition: How entrepreneurs "connect the dots" to identify new business opportunities", *Academy of Management Perspectives*, Vol. 20 No. 1, pp. 104-119.
- Baron, R. and Ensley, M. (2006), "Opportunity recognition as the detection of meaningful patterns: Evidence from comparisons of novice and experienced entrepreneurs", *Management Science*, Vol. 52 No. 9, pp. 1331-1344.
- Björklund, T.A. (2013), "Initial mental representations of design problems: Differences between experts and novices", *Design Studies*, Vol. 34 No. 2, pp. 135-160.
- Braun, V. and Clarke, V. (2006), "Using thematic analysis in psychology", *Qualitative Research in Psychology*, Vol. 3 No. 2, pp. 77-101.
- Brännback, M., Carsrud, A., Krueger, N. and Elfving, J. (2008), "Challenging the triple helix model of regional innovation systems: A venture-centric model", *International Journal of Technoentrepreneurship*, Vol. 1 No. 3, pp. 257-277.

- Certo, S.T., Moss, T.W. and Short, J.C. (2009), "Entrepreneurial orientation: An applied perspective", *Business Horizons*, Vol. 52 No. 4, pp. 319-324.
- Chandler, G.N., DeTienne, D.R., McKelvie, A., and Mumford, T.V. (2011), "Causation and effectuation processes: A validation study", *Journal of Business Venturing*, Vol. 26 No. 3, pp. 375-390.
- Chell, E. (2004), "Critical incident technique", in Cassell, C. and Symon, G. (Eds), *Essential Guide to Qualitative Methods in Organizational Research*, Sage, London, pp. 45-60.
- Cope, J. and Watts, G. (2000), "Learning by doing – an exploration of critical incidents and reflection in entrepreneurial learning", *International Journal of Entrepreneurial Behaviour & Research*, Vol. 6 No. 3, pp. 104-124.
- Dana, L.P. (1995). "Entrepreneurship in a remote sub-arctic community", *Entrepreneurship Theory and Practice*, Vol. 20 No.1, pp. 55-72.
- Dana, L.P. (1997). "The origins of self-employment in ethno-cultural communities: Distinguishing between orthodox entrepreneurship and reactionary enterprise", *Canadian Journal of Administrative Sciences*, Vol. 14 No.1, pp. 52-68
- Dana, L.P. and Dana, T.E. (2005). "Expanding the scope of methodologies used in entrepreneurship research", *International Journal of Entrepreneurship and Small Business*, Vol. 2 No. 1, pp.79-88.
- Desa, G. (2012), "Resource mobilization in international social entrepreneurship: Bricolage as a mechanism of institutional transformation", *Entrepreneurship Theory and Practice*, pp. 727-751.
- Dew, N. (2003), "Lipsticks and razorblades: How the auto ID center used pre-commitments to build the internet of things". Dissertation, University of Virginia, Charlottesville, VA.
- Dew, N., Read, S., Sarasvathy, S.D. and Wiltbank, R. (2008), "Outlines of a behavioral theory of the entrepreneurial firm", *Journal of Economic Behavior & Organization*, Vol. 66 No. 1, pp. 37-59.
- The Economist* (2013), "Entrepreneurs. If in doubt, innovate", in Wooldridge, A.: Northern lights, Special report: The Nordic Countries, Vol. 406 No. 8821, February 2nd-8th, pp. 10-11.
- Eisenhardt, K. (1989), "Building theories from case study research", *Academy of Management Review*, Vol. 14 No. 4, pp. 532-550.
- Eisenhower, D., Mathiowetz, N.A. and Morganstein, D. (2004), "Recall bias: Sources and bias reduction techniques", in Biemer, P.B., Groves, R.M., Lyberg, L.E., Mathiowetz, N.A. and Sudman, S. (Eds.), *Measurement errors in surveys*, John Wiley and Sons, Hoboken, NJ, pp. 127-144.
- European Commission (2010), "Entrepreneurship Survey of the EU25 - Secondary analysis: Finland", *Flash Eurobarometer No. 192*.
- Falck, O., Heblich, S. and Luedemann, E. (2012), "Identity and entrepreneurship: do school peers shape entrepreneurial intentions?", *Small Business Economics*, Vol. 39 No.1, pp. 39-59.
- Feld, B. (2013), *Startup Communities*, Wiley, Hoboken, NJ.

- Fisher, G. (2012), "Effectuation, causation, and bricolage: A behavioral comparison of emerging theories in entrepreneurship research", *Entrepreneurship Theory and Practice*, pp. 1019-1051.
- Green, M. (2009), "Merger with innovation at its heart", *Financial Times*, 2009-3-2009.
- Hietanen, L. and Järvi, T. (2015), "Contextualizing entrepreneurial learning in basic and vocational education", *Journal of Enterprising Communities: People and Places in the Global Economy*, Vol. 9 No. 1, pp. 45-60.
- Hsu, D. (2008), "Technology based entrepreneurship", in Shane, S.A. (Ed.), *Handbook of technology and innovation management*, Wiley, Chichester, U.K., pp. 367-387.
- Isenberg, D.J. (2010), "How to start an entrepreneurial revolution", *Harvard Business Review*, Vol. 88 No. 6, pp. 40-50.
- Korsgaard, S. (2011), "Opportunity formation in social entrepreneurship", *Journal of Enterprising Communities: People and Places in the Global Economy*, Vol. 5 No. 4, pp. 265-285.
- Krueger, N. (1993a), "The impact of prior entrepreneurial exposure on perceptions of new venture feasibility and desirability", *Entrepreneurship Theory and Practice*, Vol. 18 No. 1, pp. 5-21.
- Krueger, N. (1993b), "Growing up entrepreneurial?", *Proceedings of the Academy of Management*, Atlanta, GA.
- Krueger, N. (2000), "The cognitive infrastructure of opportunity emergence", *Entrepreneurship Theory and Practice*, Vol. 24 No. 3, pp. 5-23.
- Krueger, N. (2007), "What lies beneath? The experiential essence of entrepreneurial thinking", *Entrepreneurship Theory and Practice*, Vol. 31 No.1, pp. 123-138.
- Krueger, N. and Brazeal, D. (1994), "Entrepreneurial potential and potential entrepreneurs", *Entrepreneurship Theory and Practice*, Vol. 18 No. 3, pp. 91-104.
- Krueger, N. and Dickson, P. (1994), "How believing in ourselves increases risk taking: Self-efficacy and perceptions of opportunity and threat", *Decision Sciences*, Vol. 25 No. 3, pp. 385-400.
- Kyrö, P. and Ristimäki, K. (2008), "Expanding arenas and dynamics of entrepreneurship education", *The Finnish Journal of Business Economics*, Vol. 57 No. 4, pp. 259-265.
- McBride, R., & Wuebker, R. (2014), "Is entrepreneurial opportunity objective? Implications from the ontology and epistemology of social institutions", *Implications from the Ontology and Epistemology of Social Institutions*, April 20, 2014. DOI: [10.2139/ssrn.2427142](https://doi.org/10.2139/ssrn.2427142)
- McBride, R., Wuebker, R. J., & Grant, J. (2013), "The ontology of entrepreneurial opportunity", in *Academy of Management Proceedings* (Vol. 2013, No. 1, p. 16582). Academy of Management.
- Nieminen, L. and Lemmetyinen, A. (2015), "A value-creating framework for enhancing entrepreneurial learning in networks", *Journal of Enterprising Communities: People and Places in the Global Economy*, Vol. 9 No. 1, pp. 76-91.

OECD (2013), *Entrepreneurial ecosystems and growth-oriented entrepreneurship. Summary report of an international workshop organized by the OECD and the Netherlands Ministry of Economic Affairs*, The Hague, November 2013. Accessed 27.4.2015 at <http://www.oecd.org/cfe/leed/entrepreneurialecosystemsandgrowth-orientedentrepreneurshipworkshop-netherlands.htm>

Pajarinen, M. and Rouvinen, P. (2006), "Mistä yrittäjät tulevat?" (Where do entrepreneurs come from?), *Teknologiakatsaus 198/2006*, Finnish Funding Agency for Technology and Innovation, Helsinki.

Perry, J.T., Chandler, G.N. and Markova, G. (2012), "Entrepreneurial effectuation: A review and suggestions for future research", *Entrepreneurship Theory and Practice*, pp. 837-861.

Read, S., Song, M. and Smit, M. (2009), "A meta-analytic review of effectuation and venture performance", *Journal of Business Venturing*, Vol. 24 No. 6, pp. 573-587.

Ries, E. (2011), *The Lean Startup*, Crown Business, New York.

Rubin, H.J. and Rubin, I.S. (2011), *Qualitative Interviewing: The Art of Hearing Data*, 3rd ed., Sage, Thousand Oaks, CA.

Rönkkö, M.-L. and Lepistö, J. (2015), "Finnish student teachers' critical conceptions of entrepreneurship education", *Journal of Enterprising Communities: People and Places in the Global Economy*, Vol. 9 No. 1, pp. 61-75.

Sarasvathy, S.D. (2001), "Causation and effectuation: Towards a theoretical shift from economic inevitability to entrepreneurial contingency", *Academy of Management Review*, Vol. 26 No. 2, pp. 243-288.

Sarasvathy, S.D. and Dew, N. (2005), "Entrepreneurial logics for a technology of foolishness", *Scandinavian Journal of Management*, Vol. 21 No. 4, pp. 385-406.

Sarasvathy, S., Kumar, K., York, J.G. and Bhagavatula, S. (2014), "An effectual approach to international entrepreneurship: Overlaps, challenges, and provocative possibilities", *Entrepreneurship Theory and Practice*, pp. 71-93.

Shapiro, A. (1984). "The entrepreneurial event", in Kent C.A. (Ed.): *The Environment for Entrepreneurship*, Lexington, Heath, Massachusetts, DC, pp.21-40.

Shepherd, D.A., McMullen, J.S. and Jennings, P.D. (2007), "The formation of opportunity beliefs: Overcoming ignorance and reducing doubt", *Strategic Entrepreneurship Journal*, Vol. 1 No. 1-2, pp. 75-95.

Shepherd, D.A., Patzelt, H. & Haynie, J.M. (2010). "Entrepreneurial spirals: deviation-amplifying loops of an entrepreneurial mindset and organizational culture", *Entrepreneurship Theory and Practice*, 34(1), 59-82.

Stenholm, P., Kovalainen, A., Heinonen, J. and Pukkinen, T. (2011), "Global Entrepreneurship Monitor – Finnish 2011 report". *Turku School of Economics, University of Turku, TSE Entre, Centre for Research and Education, Series A Research Reports, A 1 / 2012*, Uniprint, Turku, Finland.

Stinchfield, B.T., Nelson, R.E. and Wood, M.S. (2013), "Learning from Levi-Strauss' legacy: Art, craft, engineering, bricolage, and brokerage in entrepreneurship", *Entrepreneurship Theory and Practice*, pp. 889-921.

Venkataraman, S., Sarasvathy, S.D., Dew, N. and Forster, W.R. (2012), "Reflections on the 2010 AMR Decade Award: Whither the Promise? Moving forward with entrepreneurship as a science of the artificial", *Academy of Management Review*, Vol. 37 No. 1, pp. 21-33.

Yin, R.K. (2003), *Applications of case study research*, 2nd ed., Sage, Thousand Oaks, CA.