Creative Self-efficacy and Innovation Speed of New Ventures: The Mediating Role of Entrepreneurial Bricolage

Y. W. Chen, H. L. Fan

Abstract—Evidence shows that start-ups success is positively correlated with the launch of the first product. However, new ventures are seldom able to acquire abundant resources for new product development (NPD), which means that entrepreneurs may depend on personal creativity instead of physical investments to achieve and accelerate innovation speed. This study accentuates the role of entrepreneurial bricolage, which defined as making do by applying combinations of the resources at hand to new problems and opportunities, in the relations of creative self-efficacy and innovation speed. This study uses the multiple regression analysis to test the hypotheses in a sample of 203 start-ups operating in various creative markets in Taiwan. Results reveal that creative self-efficacy is positively and directly associated with innovation speed, whereas entrepreneurial bricolage plays a full mediator. These findings offer important theoretical and practical implications.

Keywords—Creative self-efficacy, innovation speed, entrepreneurial bricolage, new ventures.

I. INTRODUCTION

NEW ventures attempting to spur growth and profits must successfully develop and introduce new products and manage their life cycle [1]. Reference [2] mentioned that the formation of the new product development (NPD) as a process of resources recombination, while assuming that NPD can be viewed as acquiring resources [3] and recombining existing materials [4]. This process becomes more complex as new ventures emerge at the very early stage of creating their firms and developing new products or services. While start-up ventures begin by selling unique products or services in leading markets, entrepreneurs rely on commercial skills and managerial expertise, as well as the ability to fully utilize resources. Although considerable attention has been paid to explore how entrepreneurial behavior is stimulated in the entrepreneurship literature, the entrepreneurship initiative of acquiring resources under constrained environmental conditions is seldom addressed. Furthermore, researches based on the resource-based view (RBV) research has suggested that entrepreneurs attempting to launch new ventures should develop valuable, rare, inimitable, and non-substitutable resources (VRIN) to achieve a sustainable and competitive advantage [5]. Those intangible resources, capabilities, or competences generally rely on firm age to nurture a cumulative experience, allowing firms to fully utilize “doing more with less” [6]. In terms of new firms, entrepreneurs always struggle for scarce resources [7] and strive “to create something from nothing” [8] from available resources, which is the first step in taking advantage of VRIN characteristics.

Most prior literature based on RBV has explored the valuable resources in the early stage of NPD [4], examined how resources are exploited, discovered, and constructed in limited surroundings [8], as well as studied how organizational capability, development efficiency, and the performance of NPD are related [9]-[11]. Although prior literature at firm level has suggested the feasibility of generating novelty by recombining knowledge, expertise or capabilities within a firm [12], [13]. Whether the novelty of a product can be created through the recombination of tangible resources remains unclear. Besides, RBV also neglected the dimension of inventing resources from existing materials which were critical to the development cost while focusing on the process efficiency and product effectiveness. The purpose of this study is to explain such phenomena by introducing the theoretical concept of bricolage [14].

Bricolage is defined as making do with what is at hand by applying combinations of available resources to new problems and opportunities [15], [16]. Bricolage has become increasingly prevalent focus of research on entrepreneurship [8], [16]-[18], organizational theory [19]-[21], and research and development (R&D) management [12]. For example, entrepreneurship scholars have proposed that bricolage is an innovative direction for start-ups as they are resource constrained [22]. A creator or an entrepreneur facing candidate resources recalls their memories retrospectively to utilize existing elements creatively and invent a new dimension. Therefore, we believe that the value of a new product can be created through bricolage. As our knowledge, this issue has not been examined in prior literature.

This work describes a novel construct of entrepreneurial bricolage and examines its consequence (i.e. innovation speed) and its mediating role between entrepreneur creative self-efficacy and innovation speed. However, while most of empirical studies adopted the bricolage concept to explain the entrepreneurship initiative process, those studies failed to explore the determinants which enables start-ups to do more with less.

As shown in Fig. 1, the conceptual model is developed based on two hypotheses introduced in the next section. This study argues that entrepreneurial bricolage activity is essential for
creators or entrepreneurs to construct resources and discover the values of new products that increase the speed of innovation, especially when creators or entrepreneurs attempt to initiate new ventures under a resource-constrained environment. Additionally, the creative self-efficacy is an essential element for them to recombine exiting materials for the entrepreneurial initiatives.

Bricolage improves innovative outcomes in the emerging stage of firm creation [22]. A commodity value can be created by recombining different recombined firm’s resources and capabilities [26]. A number of studies have emphasized the relation between bricolage and value creation. For example, in [25] qualitative study, they applied the bricolage concept to social entrepreneurial action and proposed a theoretical framework of social bricolage using qualitative data from eight social enterprises. They found that social value can be created in social enterprises from social bricolage processes (i.e. the processes of making do, refusal to be constrained by limitations, and improvisation). This situation also occurs during the entrepreneurship initiative process of product design area, in which an improved component in product design or development causes customers to perceive a similarity from the previous one. Recently, [27] found that entrepreneurial bricolage as a path to innovativeness for resource-constrained new firms, and they suggested that new ventures who engage in entrepreneurial bricolage behaviors can be more innovativeness under resource constraints. As a result, bricolage can improve the performance of NPD, including value creation, product innovativeness and time to market. We thus postulate the following:

- **Hypothesis 1**: Entrepreneurial bricolage has positive effect on innovation speed.

### C. Creative self-efficacy and Entrepreneurial Bricolage

Reference [14] discovered that the bricolage behavior could facilitate bricoleurs to enter into a dialogue with what is at their hand and try to find the new use of materials. Reference [14] found that the bricoleur must turn to an already constituted set, formed by tools and materials; take, or re-take an inventory of it; finally, and above all, to index and engage into a kind of dialogue with it, right before choosing among those tools and materials, then the possible answers to the dialogue is what the set can offer to his problem. So, the bricolage activity can be considered as an experimental process that creators or entrepreneurs will try to solve problems with what is at their hands by trial and error process.

However, to elucidate the value of uselessness from existing resources is a very complex task. Reference [28] found that when individuals facing complex tasks will experience cognitive faculties and processes that generate creativities. Besides, [28] also mentioned that creative self-efficacy is an important role of solving complex tasks. Consequently, we propose that creative self-efficacy will benefit the behaviour of entrepreneurial bricolage.

- **Hypothesis 2**: Creative self-efficacy has positive effect on entrepreneurial bricolage.

### III. Method

#### A. Research Context and Data Collection

This study focuses on bricolage and innovation speed of innovative products, in which creativity markets in Taiwan are appropriate research contexts since new products are displayed. Creativity markets are commonly characterized by several unique features. First, participating creative workers are typically tiny start-ups or small scale design teams at the beginning stage that have greater challenge of obtaining resources. Second, the host organization demands a substantial
amount of "originality" with the products on display. There is even a "gate-keeping mechanism" to prevent large discrepancies in the product quality. New products were displayed on the street, square or plaza, so it was very convenient for researchers to investigate each start-up and collect questionnaires. 203 start-ups in the creative market agreed to participate in this study.

B. Measures

This study uses different questionnaires for measurement as Table I. The questionnaire rated all items on a 7-point Likert scale (1 = strongly disagree to 7 = strongly agree). Besides, innovation speed means time to speed. Finally, the capital of start-ups and perceived resource availability of asset (semantic differential scale) were being considered as control variables.

<table>
<thead>
<tr>
<th>TABLE I</th>
<th>RESEARCH QUESTIONNAIRES</th>
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<tr>
<td>Constructs</td>
<td>Items</td>
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<tr>
<td>Creative self-efficacy</td>
<td>[28]</td>
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<tr>
<td>Entrepreneurial bricolage</td>
<td>[27]</td>
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</tbody>
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C. Result

Table II lists the means, standard deviations and correlations among variables. The results of the zero-order correlation refer to a situation in which entrepreneurial bricolage was positively correlated with the innovation speed (r = -.143*, p < .01) and creative self-efficacy had a positive effect on entrepreneurial bricolage (r = .687**, p < .01).

<table>
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<tr>
<th>TABLE II</th>
<th>MEANS, STANDARD DEVIATIONS AND CORRELATIONS AMONG VARIABLES</th>
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<tr>
<td>Variables</td>
<td>Mean</td>
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<td>1187545</td>
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<tr>
<td>2.Perceived resource availability of asset</td>
<td>3.31</td>
</tr>
<tr>
<td>3.Creative self-efficacy</td>
<td>4.46</td>
</tr>
<tr>
<td>4.Entrepreneurial bricolage</td>
<td>4.38</td>
</tr>
<tr>
<td>3.Innovation speed</td>
<td>.32</td>
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*p<.05, **p<.01

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<th>TABLE III</th>
<th>HIERARCHICAL REGRESSION ANALYSIS</th>
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<tr>
<td>Variables</td>
<td>Innovation Speed</td>
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<tr>
<td>1. Capital</td>
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<tr>
<td>2. Perceived resource availability of asset</td>
<td>.09</td>
</tr>
<tr>
<td>3. Creative self-efficacy</td>
<td>-.13*</td>
</tr>
<tr>
<td>4. Entrepreneurial bricolage</td>
<td>-.25*</td>
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<tr>
<td>F</td>
<td>4.48*</td>
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<tr>
<td>R²</td>
<td>.07</td>
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<td>Adjusted R²</td>
<td>.05</td>
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</table>

*p<.05, **p<.01

We tested the hypotheses using hierarchical regression analysis. According to Table III, creative self-efficacy was positively related to innovation speed (β = -.13, p < .05). Based on Model 3, entrepreneurial bricolage had a positive effect on innovation speed (β = -.25, p < .05). However, creative self-efficacy was disassociated with innovation speed while entrepreneurial bricolage involved. According to [29], entrepreneurial bricolage was fully mediated by creative self-efficacy and innovation speed. Thus, H1 and H2 are supported.

IV. CONCLUSION

A. Theoretical Implications

Our results offer several theoretical contributions. First, we enrich the literature on entrepreneurship and innovation management by examining the relationship of personal creativity, entrepreneurial behavior and the speed of time to market as the recent research only focused on bricolage and innovation performance [22]. Second, prior literature has suggested the theoretical relationships proposed in this study [8]; it has primarily focused on resource, while neglecting the effects of personal creativity conditions. We found that entrepreneurial bricolage mediates the relationship between creative self-efficacy and innovation speed. Time to market decreases when the entrepreneur has a high level of creative self-efficacy under a high level of entrepreneurial bricolage. The results suggest that appropriate bricolage behaviors are beneficial for shortening innovation speed.

B. Practical Implications

Our results provide a valuable reference for new start-ups or firms attempting to identify existing elements through meaningful bricolage behaviors to develop new products less expensively. To discover new values for innovative products, bricolage activities involve creative self-efficacy to facilitate creators to enter into a dialogue with available resources and to accumulate in-depth knowledge.

C. Limitations and Suggestions for Future Research

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bricolage behavior of new ventures has changed over time. This topic requires continuous investigation for a more detailed description of bricolage behavior to help start-ups capture the advantages of innovation outcome in the future.

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