

## Article

# Improvisation as Responsible Innovation in Organizations

Milena Gojny-Zbierowska <sup>1</sup> and Przemysław Zbierowski <sup>2,\*</sup>
<sup>1</sup> Department of Entrepreneurship, University of Economics in Katowice, 40-287 Katowice, Poland; milena.gojny@ue.katowice.pl

<sup>2</sup> Department of Human Resource Management, University of Economics in Katowice, 40-287 Katowice, Poland

\* Correspondence: przemyslaw.zbierowski@ue.katowice.pl; Tel.: +48-32-2577-350

**Abstract:** Improvisation might be seen as a method of responsible innovation in organizations, due to its potential to be more responsive and enable bottom-up initiative. Considering that improvising involves the ability to pivot we argue that enhancing entrepreneurial orientation of existing firms means that their entrepreneurial behaviors can be also displayed in more responsible manner. The paper aims at investigating the influence of improvisation on entrepreneurial orientation (EO). While intuitively improvisation is closely connected to EO, surprisingly, there is very little theoretical and empirical evidence on that relation. The paper closes that gap by empirically investigating the role that improvisation plays in enhancing EO. Building on empirical evidence on the role of improvising in individual entrepreneurship, we use Hmieleski and Corbett's framework of improvisation as a three-dimensional construct (creativity and bricolage, ability to function and excel under pressure and in stress-filled environments, and spontaneity and persistence) and entrepreneurial orientation as a three-dimensional construct (innovativeness, proactiveness, and risk taking) to investigate the impact of improvisation on individual components of EO. Using the data from 567 senior managers from medium and large organizations we find that improvisation has moderate effect on entrepreneurial orientation. Importantly, different dimensions of improvisation shape components of EO in different way: Creativity and bricolage have positive impact on innovativeness and proactiveness and ability to function and excel under stress has impact on propensity to take risk. The study has implications for the theory of responsible innovation by highlighting the potential of improvising to generate more responsive and stakeholder-involving and, in consequence, more responsible innovation.

**Keywords:** responsible research and innovation; improvisation; entrepreneurial orientation



**Citation:** Gojny-Zbierowska, M.; Zbierowski, P. Improvisation as Responsible Innovation in Organizations. *Sustainability* **2021**, *13*, 1597. <https://doi.org/10.3390/su13041597>

Academic Editors: Tatiana Iakovleva, Elin Merethe Oftedal, Luciana Maines and John Bessant

Received: 30 October 2020

Accepted: 27 January 2021

Published: 3 February 2021

**Publisher's Note:** MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



**Copyright:** © 2021 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

## 1. Introduction

Responsible innovation recently became one of the cross-cutting themes in innovation and, more generally, management research [1–3]. New ways are sought to innovate, but at the same time maintain sustainable growth and be responsible towards stakeholders. Responsible innovation explicitly takes into account the social and ethical aspects of innovating without neglecting economic and financial outcomes. In broader terms, it addresses the critical issues of today's world—poverty, inequality, aging populations, and availability of care [2], and can be defined as “a transparent, interactive process by which societal actors and innovators become mutually responsive to each other with a view to the (ethical) acceptability, sustainability, and societal desirability of the innovation process and its marketable products (in order to allow a proper embedding of scientific and technological advances in our society)” ([1], p. 9).

While the concept of responsible innovation gains recognition, there is still much to be done in the field of implementing it in business environment. Responsible innovation is widespread among social entrepreneurs [4]; however, the methods of making the commercial entrepreneurs and established businesses more responsibly innovating are still being sought [5]. At the same time, innovation in the context of corporate entrepreneurship is

very often a resource-consuming process, demanding large resource endowments [6–8]. Therefore, in this paper we are seeking for factors that have the potential to switch the entrepreneurial companies towards more responsible innovation. We argue that a way to combine the dynamic spirit of entrepreneurship in organizations with the scope for social and ethical innovating is improvisation, defined as a process “occurring when the design and execution of novel action converge” [9]. Improvisation in most cases enables responsible innovation as it is more sustainable and gradual, consumes less resources [10] allows to involve stakeholders in innovation process [2,11], which is more bottom-up than other form of innovation [12] and produces outcomes that are desirable from the social point of view, such as well-being of employees [13].

The notion of improvisation comes from the observation that some people have a unique ability to create things out of existing limited resources—to improvise [10]. That ability allows them to do things in a way that is different from the others—and sometimes that difference results in forming a venture in a resource-saving way. Additionally, improvisation involves more iterative and pivoting action [14] which is in line with one of the key principles of responsible innovation—responsiveness [11]. There is evidence that improvising is therefore beneficial for individual entrepreneurs [10]. However, does it also matter for making existing organizations more entrepreneurial and at the same time, more responsible? If it does, is that context specific—does improvisation have effect on entrepreneurial orientation of organizations only under certain conditions? In other words, is the potential of improvisation to create more responsible organizations universal? Answering these questions is important for both theory of responsible innovation and for addressing the gap in implementation of responsible innovation in business organizations. It will advance the discussion on the role of improvising in responsible entrepreneurial process and will allow strategic leaders to make their enterprises more responsible and entrepreneurial by agile introduction of improvisation in their day-to-day functioning. Eventually, it will allow to improve the results of the business as the positive effect of entrepreneurial orientation on organizational performance is well-evidenced (e.g., [15,16]).

Some evidence supporting the suggestion that improvisation has the potential to create responsible and entrepreneurial organizations is provided by Miner, Bassoff, and Moorman [9]; however, no such research has been carried out before. Furthermore, it is unknown if improvising enhances entrepreneurial orientation of the enterprise universally or only in certain external and organizational contexts, more specifically in certain industry environment or in companies that are well-managed: Highly performing, sustainable, and long-term oriented? Contextualizing this effect would be beneficial both for theory development and business practice as it will allow strategic leaders to adjust the implementation of improvisation techniques to external and internal conditions and align it with responsible innovation and management practices that are already used. It is especially important to take into consideration unfriendly environments that are experienced by the businesses also during crises, like the one caused by the pandemic. At the same time, it has to be taken into consideration that in face of the pandemic, the organizations approach the opportunity to become more socially responsible [17].

In this study we aim at answering the above questions and closing the gap in the theory. The paper’s purpose is then to investigate the influence of improvisation on entrepreneurial orientation. Considering that improvising involves the ability to pivot [9,10,14], we argue that enhancing entrepreneurial orientation of existing firms means that their entrepreneurial behaviors are also displayed in more responsible manner. We empirically test the hypotheses on the effect of three dimensions of improvisation (creativity and bricolage, ability to function and excel under pressure-filled and stressful environments, spontaneity and persistence) [10] on three dimensions of entrepreneurial orientation (innovativeness, proactiveness, and risk taking). We also relate the effect of improvising to the way in which the company is managed using the framework of high-performing organization [18,19] with five facets reflecting the performance but also social responsibility of the organization (con-

tinuous improvement, openness and action orientation, management quality, workforce quality, and long-term orientation).

The current study contributes to four bodies of knowledge. We argue that improvisation is beneficial for responsible research and innovation (RRI) for a number of reasons that were already mentioned. It might be therefore a good carrier of RRI into companies. Incorporating improvisation to the stream of responsible innovation also allows to move the boundaries of what is still a rather flexible concept. Second, it adds to the discussion of the antecedents of entrepreneurial orientation. Considering the beneficial effect of entrepreneurial orientation on organizational performance and economic development in the long run [7,20,21] the studies of the drivers of EO are of high practical relevance. Furthermore, the study adds to the discussion on unidimensionality versus multi-dimensionality of entrepreneurial orientation. The third contribution is to the discussion on improvising started by Baker, Miner, and Eesley [14]. We take this discussion to the field of entrepreneurship in organizations, investigate improvising at organizational level and introduce the necessary contextualization. By combining those two contributions the paper also adds to the literature in entrepreneurship in general. Fourth, the paper contributes to the body of knowledge of high performing organizations by pointing to behaviors within organization that are supplementary to the characteristics of highly performing enterprises. In practical terms, we provide contribution to the companies and managers on how to enhance entrepreneurial attitudes and behaviors of employees by improvising at the same time switching the entrepreneurial companies towards more responsible innovation. We argue that improvising is a more bottom-up process, therefore allows stakeholders to be involved at early stages of innovation process, making it more responsive and responsible [4].

The research was carried out within research project 2014/13/B/HS4/01618 funded by National Science Centre, Poland.

## 2. Responsible Innovation, Entrepreneurial Orientation, and Improvisation

The main assumption of the paper is that improvisation has the potential not only to enhance the entrepreneurial orientation, but to switch the entrepreneurial organizations towards more responsible innovation. We claim so for a number of reasons. First, the critical part of improvising is the process that is very iterative and responsive [9,10,14]. This is in line with one of the principles of responsible innovation—responsiveness and pivoting [11]. Therefore, the innovation that is based on improvising is more flexible and dynamic, the actors of innovation process are more linked to external environment [9], which also makes this process more stakeholder-involving [11]. Stakeholders, mainly employees, are also involved in improvising process for another reason—they have more access to the information that is necessary in the innovation process, for instance, the perception of customers or technological details, therefore they feel more empowered [22,23]. The scarcity of resources in improvisation process [14] might also lead to involving further stakeholders—customers, and empowering employees leads to another critical feature of responsible innovation—socially positive outcomes, such as well-being of employees [13]. Employees empowered by innovating by improvising in general experience higher well-being [24].

Entrepreneurial orientation has proven its positive effect on firm performance [15,16], including sustained effect in the long run [7,21], and on economic development (e.g., [20]). The base assumption for entrepreneurial orientation scale is that entrepreneurial firms differ from other types of firms. They tend to take more risk than other types of firms, proactively search for new business opportunities and have strong emphasis on new product innovation [25–27]. Most researchers operationalized the behavior of entrepreneurial firms as consisting of product-market innovation, proactiveness of decision making, and risk-taking. The most widely used operationalization of entrepreneurial orientation construct comes from Covin and Slevin [8], based on Khandwalla [25] and Miller and Friesen [26]. They stated that innovativeness, proactiveness and risk-taking act together creating unidimensional strategic orientation, and should be aggregated together. This assumption and the

operationalization itself proved reliable and valid in many studies, however, later works raised concern pertaining to the dimensionality of the measure and the independence of the sub-dimensions [15,28]. As opposite to unidimensional measure as constructed by Covin and Slevin [8] multi-dimensional measure reflecting each of the sub-dimensions was proposed (e.g., [15]). Proponents of the later approach argued that each sub-dimension of entrepreneurial orientation construct uniquely contributes to entrepreneurial process. They highlight the potential of each sub-dimension to have a different impact for key outcome variables such as firm performance [16].

What is of interest in the current study is how improvisation contributes to each of the dimensions of entrepreneurial orientation and, in consequence, to responsible innovation. Improvisation is understood as the creative and spontaneous process of attempting to achieve an objective in a new way [29]. Improvisation is by some authors used as an alternative for radical innovation [30]. We follow the view on improvisation presented by Hmieleski and Corbett [10] and widely accepted in entrepreneurship research. According to it improvisation is a multi-stage process, in which at first an individual is presented with a problem. Next, the individual compares the problem to others that he or she has previously faced and based on a past experience selects a referent—a plan or strategy for reacting to the problem. After identifying the referent, the individual considers its feasibility given the constraints that characterize the problem. If the referent is feasible and has a high probability of success, then it should be followed. Otherwise, the individual improvises by either extending or reconfiguring the referent to construct a novel course of action. This entire process occurs simultaneously, the individual is assessing probabilities and formulating strategy while acting on the solution.

Hmieleski and Corbett [10] also present a coherent framework of improvisation composed of three dimensions: Creativity and bricolage, ability to function and excel under pressure-filled and stressful environments and spontaneity and persistence. Creativity and bricolage represents the extent to which individuals are able to produce novel solutions under constrained conditions by recombining available resources. Individuals high in this dimension are likely to seek out opportunities to display their ingenuity. This is in line with one of the features of responsible innovation—reflexivity [11]. The actors in improvisation process take into consideration that there are many different views and ways to achieve the desired result, which also allows to be more inclusive towards stakeholders. Ability to function and excel under pressure-filled and stressful environments represents the ability of individuals to excel in uncertain and rapidly changing environments. Individuals who are high in this dimension tend to rise to the occasion and perform best under pressure. This highlights another feature of responsible innovation—responsiveness [11]. Responsiveness and pivoting are critical in rapidly changing environments that enforce frequent and fast changes of focus and direction in innovation processes [31]. Spontaneity and persistence represent the action orientation and determination of individuals toward achieving goals and solving problems in the moment. Individuals who are high in this dimension tend to prefer action rather than analysis and are highly focused on the problem at hand. These individuals are opportunistic and act with an instinct. Spontaneity is characteristic for responsive behaviors typical for responsible innovation [11]. Persistence on the other hand is enabled by anticipating both positive and negative consequences. Balancing expectations allows not to give up in front of adversity and negative consequences [32].

Hmieleski and Corbett [10] confirmed the three-dimensional nature of improvisation using principal components confirmatory factor analysis. They also propose an aggregation of results in separate dimension to form a total score representing an individual's overall proclivity for improvisation. However, due to the differences in meaning of creativity and bricolage, ability to function and excel under pressure-filled and stressful environments and spontaneity and persistence we argue that they might be measured separately as components of multi-dimensional construct to provide more insight into the impact of improvisation on entrepreneurship in organizations.

### 3. Improvisation as Part of Individual Entrepreneurship

Hmieleski and Corbett [33] argue against understanding the process of entrepreneurship as being linear and volitional. They claim that this process is very often unplanned, circuitous, and responsive to mid-term results, especially under the conditions of environmental constraints and cognitive limitations. Later Hmieleski and Corbett [10] presented another example of link between improvising, entrepreneurship and responsible innovation by providing a framework for explaining how entrepreneurs deviate from strategic plans and cognitive biases and heuristics in order to responsively exploit opportunities in the moment when they arise. Additionally, Hmieleski and Corbett [10] suggest that improvisation is the best course of action when resource constraints are high and the entrepreneur is confronted with a novel problem or opportunity.

When it comes to empirical evidence, Hmieleski and Corbett [34] prove that improvisational behavior has a positive effect on venture performance if the owners were high in self-efficacy. They also discovered that entrepreneurial self-efficacy has a negative moderating effect on the relationship between entrepreneur improvisational behavior and work satisfaction. Baker, Miner and Eesley [14] claim that improvisation is often the critical component in the process of formation of new ventures as it is useful for the exploitation of opportunity. Best and Gooderham [35] on the other hand investigate improvisation as part of entrepreneurial behavior.

Jahanmir [36] in her study on the decision making styles of entrepreneurs, where she sets apart trade-off and paradoxical thinking, states that sometimes entrepreneurs are able to reconcile a contradiction of improvisation against planning, especially at later stages of venture creation. Some scholars also use improvisation as procedural trait of actions undertaken by entrepreneurs. Evers and O’Gorman [37] claim that improvisation matters for internationalization. This process is under the effect of two resources: Entrepreneurs’ knowledge and social ties. They observed intensive improvisation during internationalization process of new ventures, accompanied by using effectuation logic.

The critical part of improvisation is bricolage which often is used by many authors as an independent variable, not being a part of a wider concept of improvisation. The concept of bricolage is also used referring to social bricolage to research entrepreneurship in specific forms and contexts, such as social entrepreneurship [38] and arts entrepreneurship [39]. The latter paper highlights the importance of six key elements for the success of bricolage, including: Making do, a refusal to be constrained by limitations, improvisation, social value creation, stakeholder participation, and persuasion. The notion of spontaneity as part of improvisation process is present in approaches to entrepreneurial passion [40], there is also a body of literature that highlights spontaneity as part of the entrepreneurial process [41], especially in “lifestyle entrepreneurship” [42]. As for the ability to work under pressure, the most evidence in entrepreneurship literature is provided under the notion of resilience [43,44].

#### *Improvisation on Organisational Level*

Apart from the importance for entrepreneurs in forming new ventures, many scholars stress its role in organizational life. This field is promising as having the potential for the use of improvisation in switching the companies towards more responsible innovation. Davis, Eisenhardt, and Bigham [45] in their study exploring the tension concerning the amount of structure argue that in some environments the strategy of combining improvisation with low and moderately structured rules to exploit opportunities is the most beneficial. In this kind of strategy important role is played by responsive action characteristic for responsible innovation.

Linna [46] in her study on significance of bricolage especially as a way to mobilize resources recognizes three different types of bricolage: A socially aware mindset combined with resourcefulness; utilizing the resources at hand; and improvisation as way of proceeding. She argues that improvisation is an effective way of introducing responsible innovation, especially that this process involves variety of stakeholders. Smets, Morris,

and Greenwood [47] state that improvisations at work can generate institutional change by shifting field-level logic to focus on innovations.

Miner, Bassoff, and Moorman [9] indicate that improvisation can be embedded in the organizational processes, so that ventures may be able to plan for improvising by creating opportunities for improvisation and supporting the improvising process. That view reconciles a contradiction between improvisational innovation and planned innovation that is suggested by some authors. The product of this reconciliation is the innovation strategy that is reflective and responsive, hence responsible.

All of the above views treat improvisation as an organization-level phenomenon. It means that improvisational activities are shared among employees and become a part of organizational culture and are further reinforced by the recruitment and selection of employees, in consequence providing a shift towards responsible innovation. Therefore, there arises the question on the impact of improvisation on some other organization-level phenomena, such as entrepreneurial orientation. To research this, we treat entrepreneurial orientation as a three-dimensional construct (innovativeness, proactiveness, and risk taking) as opposed to other forms of the construct with four or five dimensions (autonomy, aggressiveness). We also approach entrepreneurial orientation as multi-dimensional construct as opposed to unidimensional one. It means that we investigate each dimension separately instead of aggregating the results to a single score, although of course the dimensions are closely related.

The impact of improvisation on innovativeness is clearly apparent in above evidence—improvisation is a way to achieve innovations, so we hypothesize that:

**Hypothesis 1 (H1).** *Improvisation has positive influence on innovativeness.*

The relation between improvisation and proactiveness is less obvious and has not been a matter of empirical investigation and conceptualizing. Proactiveness is opposed to reacting to actions of competitors and is connected with gaining first-mover advantage. We argue that proactiveness is at the heart of improvisation. Although improvisation is by some authors used as an opposite for radical innovation [30] there are suggestions that it is no less proactive and might form the foundation of sustainable innovation [12], also because proactiveness can be supported by the involvement of stakeholders, who are at the front line and can faster read the signals from the market, act upon them, and whose involvement makes the proactive process more responsible [11]. Moreover, proactiveness is researched quite often in the context of expanding the business, including the international expansion. It involves certain attitude which combines the ability to spot opportunities, willingness to exploit them and the drive to achieve first-mover advantage [26]. We therefore argue that foreign market entry is also a good circumstance to investigate the role of improvisation for proactivity. There is empirical evidence that improvisation plays an important role in this type of proactive behaviors. Hilmersson and colleagues [48] argue that deviating from previous ways of working and applying improvisation allows not only to generate innovations but to create opportunities, which entails proactivity. Bingham [49], based on evidence from foreign market entries of entrepreneurial firms with headquarters in Singapore, US and Finland proves that success in foreign market entry is linked with decreased improvisation in opportunity selection but increased improvisation in opportunity execution. This provides the wider picture of proactive behaviors that are aimed at narrowing the pool of available opportunities which, in turn, increases the likelihood of fast exploitation of some of them. Bingham [49] also sheds light on the role of improvisation in entrepreneurial cognition by introducing the term of “oscillating improvisation” which allows for creating proactive cycles of cognition, action, amended cognition and redirected action. This type of behavior allows for proactivity and taking the above into consideration we hypothesize:

**Hypothesis 2 (H2).** *Improvisation has positive influence on proactiveness.*

Similarly to the above arguments, improvisation might be perceived as less risky than radical innovation. Moreover, there is evidence that improvisation demands less investments in risky activities than other forms of innovation [30]. In that view, improvisation is a good way of balancing risk and innovating with low to medium level of risk. On the other hand, Hodgkinson, Hughes, and Arshad [50] argue that risk-taking is universally linked to improvisation both under high and low turbulence. This view is also echoed by Shaw and Stacey [51]. In general, it has to be noted, that improvising, although less risky than resource-demanding radical innovation, is riskier than maintaining status-quo. This relationship has been observed even in music and theatre, which are the mother grounds for improvising [52]. Furthermore, Ciuchta, O'Toole, and Miner [53] in their extensive review of the field of organizational improvisation point to the fact that improvisation has an effect on employee confidence and ability to handle unique situations which in turn increases the propensity to take risk [54]. Therefore we hypothesize:

**Hypothesis 3 (H3).** *Improvisation has positive influence on risk taking.*

#### 4. Context of Improvisation

There are certain suggestions in the literature for the dependence of improvisation processes on the organizational context. Hughes, Hodgkinson, Hughes, and Arshad [55] claim that there are significant differences in that regard between high performance and low performance organizations. They conclude that improvisation as a learning mode works differently in those two groups. Hmieleski and Corbett [33] propose that some organization-level variables might be important for improvisation, for instance human capital and availability of resources. Vera and Kachra [56] attribute the effectiveness of improvisational model of strategic decision making to differences in variables of management team of the organization. In the similar vein, Gong and Terlaak [57] state that the effectiveness of improvisation within organization is more effective if the routines and practices are stored in internal memory of the organization and shared by management team.

The evidence and suggestions on the dependence of results of application of improvisation on organizational context are also provided by Vera, Rerup, Crossan, and Werner [58]; Miner, Bassoff, and Moorman [9]; Davis, Eisenhardt, and Bigham [45]; and Smets, Morris, and Greenwood [47]. To conclude, how improvisation works within the organization depends on wide variety of factors. As a way to organize those factors we use the framework of high performance organization (HPO thereafter) provided by De Waal [18,19]. It provides a coherent and useful tool and validated measure to assess the robustness of the organization. It consists of five dimensions: Continuous improvement (strong vision, constant change in organization processes, performance orientation), openness and action orientation (open communication, knowledge sharing, involvement in action), management quality (trust, decision making, leadership), workforce quality (responsibility, resilience, flexibility), and long-term orientation (good relationships, value creation, secure workplace, internal recruitment). Continuous improvement entails adopting the strategy that will allow to develop new alternatives of action [18]. Openness and action orientation means valuing the opinions of internal stakeholders and incorporating them in all important business and organizational processes. Workforce quality enables organization to assemble “a diverse and complementary workforce and recruit people with maximum flexibility to help detect problems in business processes and to incite creativity in solving them” [18]. We argue that the impact of improvisation on entrepreneurial orientation depends mainly on continuous improvement, workforce quality and openness and action orientation. The importance of improvisation in creating long-run growth and improvement is highlighted by Häkkinen, Kannampuzha, Baker, Hmieleski, Honig, Miner, Powell, and Sarasvathy [59]. They state that in the contemporary turbulent and constantly changing economic environments, it is difficult to predict the outcomes of an action and thus plan the societal, organizational, and entrepreneurial goals beforehand. This is why improvisation is effective in the continuous process of improvement, that is

open reflective and pivotal. Also Vera and Crossan [29] suggest six factors enhancing the effectiveness of improvisation: Environmental turbulence, experimental culture, real-time information and communication, memory, expertise, and teamwork skills. Experimental culture is enabled by continuous improvement and openness and action orientation. At the same time, workforce quality assures memory, expertise and teamwork skills necessary for improvisational processes, especially occurring in the network of stakeholders. The component of workforce quality stresses the fact that employees are internally promoted and the ties with internal stakeholders are strong. Therefore, using the framework of high performance organization and the above evidence we hypothesize that:

**Hypothesis 4 (H4).** *The characteristics of high performance organization moderate the relationship between improvisation and entrepreneurial orientation (innovativeness, proactiveness and risk-taking) in a way that in high-performance-enabled organizations the relationship is stronger.*

**Hypothesis 4a (H4a).** *Continuous improvement moderates the relationship between improvisation and entrepreneurial orientation (innovativeness, proactiveness, and risk-taking) in a way that in continuously improving organizations the relationship is stronger.*

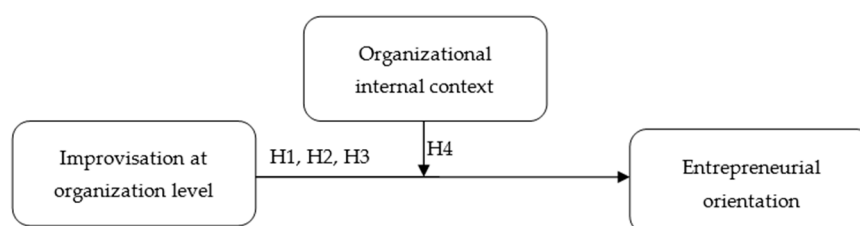
**Hypothesis 4b (H4b).** *Openness and action orientation moderates the relationship between improvisation and entrepreneurial orientation (innovativeness, proactiveness, and risk-taking) in a way that in open and action-oriented organizations the relationship is stronger.*

**Hypothesis 4c (H4c).** *Management quality moderates the relationship between improvisation and entrepreneurial orientation (innovativeness, proactiveness, and risk-taking) in a way that in organizations with higher management quality the relationship is stronger.*

**Hypothesis 4d (H4d).** *Workforce quality moderates the relationship between improvisation and entrepreneurial orientation (innovativeness, proactiveness, and risk-taking) in a way that in organizations with higher workforce quality the relationship is stronger.*

**Hypothesis 4e (H4e).** *Long-term orientation moderates the relationship between improvisation and entrepreneurial orientation (innovativeness, proactiveness, and risk-taking) in a way that in long-term-oriented organizations the relationship is stronger.*

The hypothesized relationships are presented in conceptual framework in Figure 1.



**Figure 1.** Conceptual framework.

## 5. Method, Sample, Variables, and Measures

To empirically test the above hypotheses we conducted a cross-sectional study on a randomly selected sample of 567 firms from Poland. The data collection was carried out in two waves: By contracted company using CAPI technique in January 2018 (406 cases) and additionally between September and October 2018 (248 cases). The complete data usable for the analysis was acquired from 567 enterprises. In each of the firm senior manager was asked to answer the questions. We invited the participants by sending around 2000 email invitations using randomly selected e-mail addresses from the official register of Polish companies (response rate of 33%), the data was collected over the phone from those

who replied to the invitation. We used the phone-based data collection to assure higher reliability of the data.

The approached organizations were of various industry and size, excluding micro-enterprises (up to 10 employees). The average size of the enterprise in our sample is 51 employees, the average age of the business is 170.5 years. The average age of the respondent is 40 years and the average tenure (in current company) is 90.25 years. 32% of businesses in our sample are production companies (including those in extractive industry), 12% are trade firms and 55% are companies in service industry (both b2b and b2c).

The methods of statistical analysis include reliability analysis, correlation analysis and regression analysis with interaction terms. Statistical analysis was carried out using SPSS and Stata software. For each of the dimensions of entrepreneurial orientation (innovativeness, proactiveness, and risk taking) three regression models were tested. In the first one only control variables (size and age of the company) were placed as independent variables. In second model both control variables and dimensions of improvisation (creativity and bricolage, ability to function and excel under pressure-filled and stressful environments, and spontaneity and persistence) were independent variables and in the third model they were also supplemented with dimensions of external environment (dynamism, hostility, and complexity) and facets of high performance organization (continuous improvement, openness and action orientation, management quality, workforce quality, and long-term orientation). The last model also includes the interaction terms between dimensions of improvisation and contextual variables, however, only those facets of improvisation that proved to be significantly related to EO were taken into account for moderation analysis, as suggested by Dawson [60]. We assessed the regression results by analyzing adjusted  $R^2$  values and compared the models statistically using likelihood ratio test. For each statistically significant moderation effect we present the slope plots. We present the relationship for two values of the moderator ( $+/-1SD$  from the mean value). For each of them we have also carried out the simple slope test to investigate the boundary condition by measuring if the main effect is significant for two values of the moderator ( $+/-1SD$  from the mean value).

We use size of the business, age of the business and performance as control variables. Usually, performance is used as the antecedent of EO, however, we control for it to filter out the alternative explanation of EO change, which is in line with the practice of controlling for firm performance [61]. As age of the business and size of the business were characterized by high skewness we decided to use natural logarithms of age (in years) and size (in number of employees). Performance was calculated as the mean from comparison with competitors regarding profit, return on assets and market share dynamics. External environment characteristics, such as dynamism, hostility, and complexity of the environment were initially included as controls. Since findings indicate those controls were non-significant, we removed them from the analysis. Environment dynamics was measured by two items [31]: environment hostility by two items [50], and environment complexity by one item [26].

Improvisation was measured by modified measure adapted from Hmieleski and Corbett [10]. Three items were used to measure each of the dimensions of improvisation: Creativity and bricolage ( $\alpha = 0.728$ ), ability to function and excel under pressure-filled and stressful environments ( $\alpha = 0.768$ ) and spontaneity and persistence ( $\alpha = 0.741$ ). Entrepreneurial orientation was measured by eight-item Kreiser, Marino, and Weaver [62] scale. Three items measure innovativeness ( $\alpha = 0.751$ ), three measure proactiveness ( $\alpha = 0.786$ ), and two items measure propensity to take risk ( $\alpha = 0.738$ ). High performance organization characteristics were measured using De Waal's [18,19] measure. Eight items were used to measure continuous improvement ( $\alpha = 0.854$ ), six items for openness and action orientation ( $\alpha = 0.827$ ), eleven items for management quality ( $\alpha = 0.928$ ), four items for workforce quality ( $\alpha = 0.731$ ), and six items for long-term orientation ( $\alpha = 0.752$ ).

## 6. Research Results

As the start of the statistical analysis we carried out the correlation analysis between the researched variables. Table 1 presents the analysis of Pearson's correlation between the

variables and descriptive statistics: Means and standard deviations.

**Table 1.** Correlations between variables.

| Variable                 | No. | Mean  | SD    | 1     | 2     | 3     | 4     | 5     | 6     | 7     |
|--------------------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| EO innovativeness        | 1   | 30.92 | 10.79 |       |       |       |       |       |       |       |
| EO proactiveness         | 2   | 40.33 | 10.58 | 0.44  |       |       |       |       |       |       |
| EO risk taking           | 3   | 40.20 | 10.71 | 0.20  | 0.33  |       |       |       |       |       |
| Creativity and bricolage | 4   | 40.98 | 0.92  | 0.23  | 0.24  | 0.22  |       |       |       |       |
| Pressure—stress          | 5   | 40.65 | 0.91  | 0.10  | 0.11  | 0.27  | 0.52  |       |       |       |
| Spont. and persistence   | 6   | 50.11 | 0.80  | 0.16  | 0.17  | 0.19  | 0.52  | 0.44  |       |       |
| Size (ln)                | 7   | 30.52 | 0.88  | 0.04  | 0.07  | 0.11  | −0.03 | 0.07  | −0.03 |       |
| Age (ln)                 | 8   | 20.66 | 0.69  | −0.05 | −0.04 | −0.02 | 0.02  | −0.02 | −0.07 | 0.16  |
| Performance              | 9   | 40.39 | 0.96  | 0.21  | 0.19  | 0.19  | 0.28  | 0.24  | 0.36  | 0.14  |
| Continuous improve.      | 10  | 40.82 | 0.93  | 0.36  | 0.38  | 0.23  | 0.51  | 0.34  | 0.53  | 0.10  |
| Openness and act. ornt.  | 11  | 50.00 | 0.87  | 0.20  | 0.25  | 0.20  | 0.60  | 0.40  | 0.60  | −0.04 |
| Management quality       | 12  | 50.49 | 0.84  | 0.14  | 0.23  | 0.17  | 0.45  | 0.34  | 0.58  | −0.06 |
| Workforce quality        | 13  | 40.97 | 0.89  | 0.17  | 0.23  | 0.18  | 0.50  | 0.34  | 0.48  | −0.04 |
| Long-term orientation    | 14  | 50.77 | 0.74  | 0.18  | 0.39  | 0.16  | 0.41  | 0.26  | 0.49  | −0.08 |
| Variable                 | No. | 8     | 9     | 10    | 11    | 12    | 13    |       |       |       |
| Performance              | 9   | −0.03 |       |       |       |       |       |       |       |       |
| Continuous improve.      | 10  | −0.03 | 0.37  |       |       |       |       |       |       |       |
| Openness and act. ornt.  | 11  | 0.00  | 0.28  | 0.67  |       |       |       |       |       |       |
| Management quality       | 12  | −0.03 | 0.26  | 0.59  | 0.67  |       |       |       |       |       |
| Workforce quality        | 13  | −0.03 | 0.23  | 0.57  | 0.59  | 0.66  |       |       |       |       |
| Long-term orientation    | 14  | 0.02  | 0.19  | 0.53  | 0.59  | 0.67  | 0.57  |       |       |       |

The results of correlation analysis points to the possibility of existence of relationships between variables, especially between dimensions of improvisation and high performance organization characteristics. The correlation coefficients also suggest the multicollinearity between variables. To control for this effect, we carried out the analysis of multicollinearity using Variance Inflation Factor (VIF). The highest values for VIF were observed for characteristics of high performance organization. However, the highest values are at the level of 20.8, it can be said therefore that multicollinearity is not inflating the results of regression analysis. Table 2 presents the regression models with innovativeness as dependent variable.

**Table 2.** Regression models on Innovativeness.

| Variable                                                   | (1)                   | (2)                   | (3)                   |
|------------------------------------------------------------|-----------------------|-----------------------|-----------------------|
|                                                            | Innovativeness        | Innovativeness        | Innovativeness        |
| Creativity and bricolage (H1)                              |                       | 0.414 ***<br>(0.101)  | 0.577<br>(0.597)      |
| Pressure—stress (H1)                                       |                       | −0.108<br>(0.0959)    | −0.0412<br>(0.0939)   |
| Spont. and persistence (H1)                                |                       | 0.0389<br>(0.114)     | −0.109<br>(0.123)     |
| Size (ln)                                                  | 0.0429<br>(0.0858)    | 0.0887<br>(0.0853)    | 0.00467<br>(0.0840)   |
| Age (ln)                                                   | −0.123<br>(0.108)     | −0.151<br>(0.107)     | −0.125<br>(0.104)     |
| Performance                                                | 0.391 ***<br>(0.0774) | 0.284 ***<br>(0.0825) | 0.162 **<br>(0.0818)  |
| Continuous improvement                                     |                       |                       | 10.924 ***<br>(0.562) |
| Creativity and bricolage X<br>Continuous improvement (H4a) |                       |                       | −0.255 **<br>(0.111)  |
| Openness and act. ornt.                                    |                       |                       | −0.766<br>(0.607)     |

Table 2. Cont.

| Variable                                                    | (1)                   | (2)               | (3)                 |
|-------------------------------------------------------------|-----------------------|-------------------|---------------------|
|                                                             | Innovativeness        | Innovativeness    | Innovativeness      |
| Creativity and bricolage X<br>Openness and act. ornt. (H4b) |                       |                   | 0.121<br>(0.121)    |
| Management quality                                          |                       |                   | −0.618<br>(0.638)   |
| Creativity and bricolage X<br>Management quality (H4c)      |                       |                   | 0.0867<br>(0.131)   |
| Workforce quality                                           |                       |                   | 0.0738<br>(0.507)   |
| Creativity and bricolage X<br>Workforce quality (H4d)       |                       |                   | −0.0201<br>(0.102)  |
| Long-term orientation                                       |                       |                   | 0.187<br>(0.727)    |
| Creativity and bricolage X<br>Long-term orientation (H4e)   |                       |                   | −0.00584<br>(0.148) |
| Constant                                                    | 20.383 ***<br>(0.496) | 10.002<br>(0.659) | −10.132<br>(20.917) |
| Observations                                                | 567                   | 567               | 567                 |
| R-squared                                                   | 0.049                 | 0.085             | 0.196               |
| adj. R-squared                                              | 0.044                 | 0.075             | 0.163               |
| Likelihood ratio test                                       |                       | 210.91 *** (1)    | 730.40 *** (2)      |

Standard errors in parentheses; \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ ; the direct effects and interactions of environment are not shown in the table for clarity of presentation.

The explanatory power of the models (1) and (2) of regression with innovativeness as dependent variable is rather low and below the value 0.1. The only dimension of improvisation that influences innovativeness is creativity and bricolage and the relation is highly statistically significant. Therefore, hypothesis H1 is partly supported. The last model achieves the adjusted R2 much higher than other models (0.163). The improvement of model fit is also confirmed by the analysis of likelihood ratio test (730.40,  $p < 0.01$ ). Model (3) demonstrates much higher adjusted R2 value, moreover, it shows better model fit than model (2). It can be therefore said that the effect of creativity and bricolage on innovativeness is moderated by internal context. Further analysis of the regression coefficients brings to the conclusion that the only factor significantly moderating that relationship is continuous improvement. To further analyze the moderation effect, Figure 2 presents the slope plots.

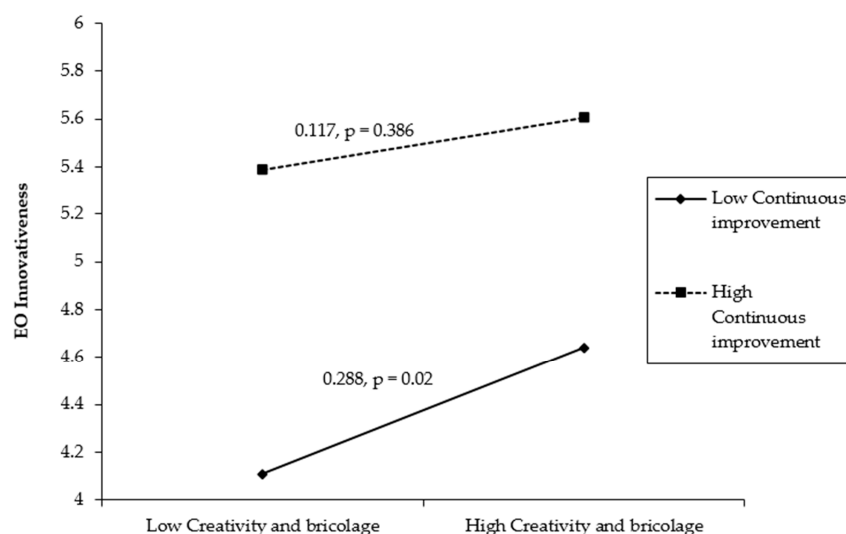


Figure 2. Slope plots: Relation between creativity and bricolage and innovativeness moderated by continuous improvement.

Slope plots present the effect of creativity and bricolage on innovativeness. High and low values of the independent variable and of the moderator are taken as  $+/-1$ SD from the mean value of the variable. The same way of presentation was used for further slope plots. Slope plots analysis reveals that in continuously improving organization the innovativeness is higher than in non-improvement driven organization. However, for enterprises lower in continuous improvement the effect of creativity and bricolage is stronger, in fact, it is statistically significant only up to a certain level of continuous improvement, above which it is non-significant. Table 3 presents the regression models with proactiveness as dependent variable.

**Table 3.** Regression models on proactiveness.

| Variable                                                    | (4)                   | (5)                   | (6)                    |
|-------------------------------------------------------------|-----------------------|-----------------------|------------------------|
|                                                             | Proactiveness         | Proactiveness         | Proactiveness          |
| Creativity and bricolage (H2)                               |                       | 0.370 ***<br>(0.0886) | 10.230 **<br>(0.513)   |
| Pressure—stress (H2)                                        |                       | −0.0881<br>(0.0841)   | −0.0258<br>(0.0807)    |
| Spont. and persistence (H2)                                 |                       | 0.0812<br>(0.1000)    | −0.168<br>(0.106)      |
| Size (ln)                                                   | 0.0990<br>(0.0755)    | 0.143 *<br>(0.0748)   | 0.0840<br>(0.0722)     |
| Age (ln)                                                    | −0.114<br>(0.0949)    | −0.136<br>(0.0934)    | −0.148 *<br>(0.0892)   |
| Performance                                                 | 0.309 ***<br>(0.0681) | 0.197 ***<br>(0.0724) | 0.0606<br>(0.0703)     |
| Continuous improvement                                      |                       |                       | 10.860 ***<br>(0.484)  |
| Creativity and bricolage X<br>Continuous improvement (H4a)  |                       |                       | −0.258 ***<br>(0.0959) |
| Openness and act. ornt.                                     |                       |                       | −10.111 **<br>(0.522)  |
| Creativity and bricolage X<br>Openness and act. ornt. (H4b) |                       |                       | 0.202 *<br>(0.104)     |
| Management quality                                          |                       |                       | −0.734<br>(0.549)      |
| Creativity and bricolage X<br>Management quality (H4c)      |                       |                       | 0.149<br>(0.112)       |
| Workforce quality                                           |                       |                       | 0.853 *<br>(0.436)     |
| Creativity and bricolage X<br>Workforce quality (H4d)       |                       |                       | −0.174 **<br>(0.0876)  |
| Long-term orientation                                       |                       |                       | 0.741<br>(0.625)       |
| Creativity and bricolage X<br>Long-term orientation (H4e)   |                       |                       | −0.121<br>(0.127)      |
| Constant                                                    | 20.931 ***<br>(0.437) | 10.474 **<br>(0.577)  | −30.348<br>(20.509)    |
| Observations                                                | 567                   | 567                   | 567                    |
| R-squared                                                   | 0.044                 | 0.087                 | 0.228                  |
| adj. R-squared                                              | 0.039                 | 0.077                 | 0.1967                 |
| Likelihood ratio test                                       |                       | 250.78 *** (4)        | 950.29 *** (5)         |

Standard errors in parentheses; \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ ; the direct effects and interactions of environment are not shown in the table for clarity of presentation.

The results of regression analyses for proactiveness as the dependent variable are similar to those with innovativeness as the DV. The strongest and the only predictor of proactiveness is creativity and bricolage. This partly supports hypothesis H2. However, models (4) and (5) demonstrate rather low level of adjusted R<sup>2</sup> value. The explanatory power of the model rises significantly (0.197) when possible moderators and interaction

effects are added in the model (6). The improvement of model fit is also confirmed by the results of LR test (950.29,  $p < 0.01$ ). Out of five characteristics of HPO, three are moderators of the relationship between creativity and bricolage and proactiveness: Continuous improvement, openness and action orientation and workforce quality. The slope plots for those moderation effects are presented in Figures 3–5 respectively.

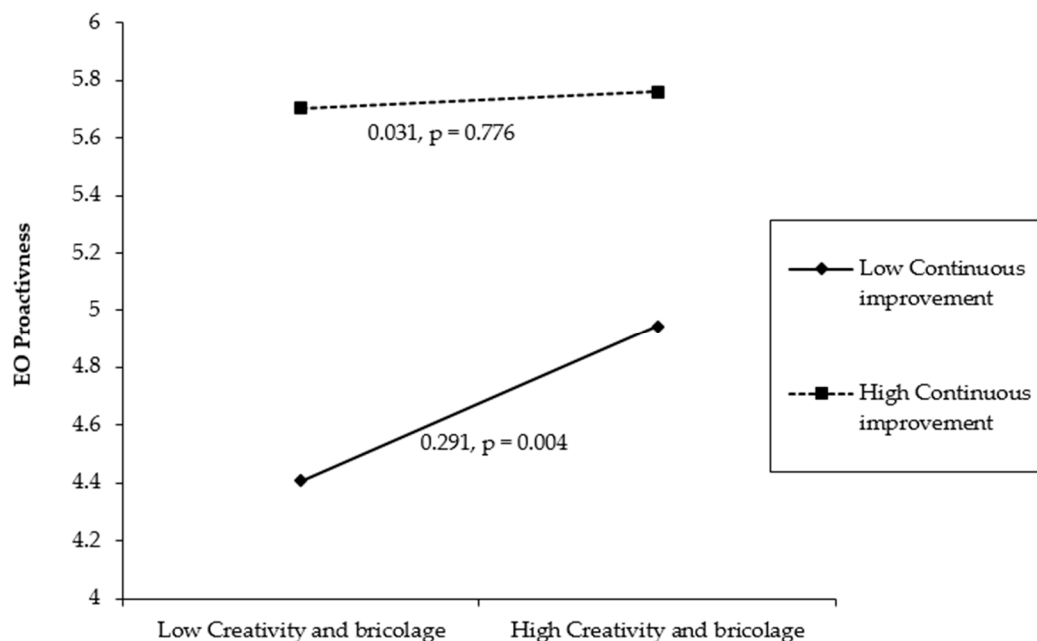


Figure 3. Slope plots: Relation between creativity and bricolage and proactiveness moderated by continuous improvement.

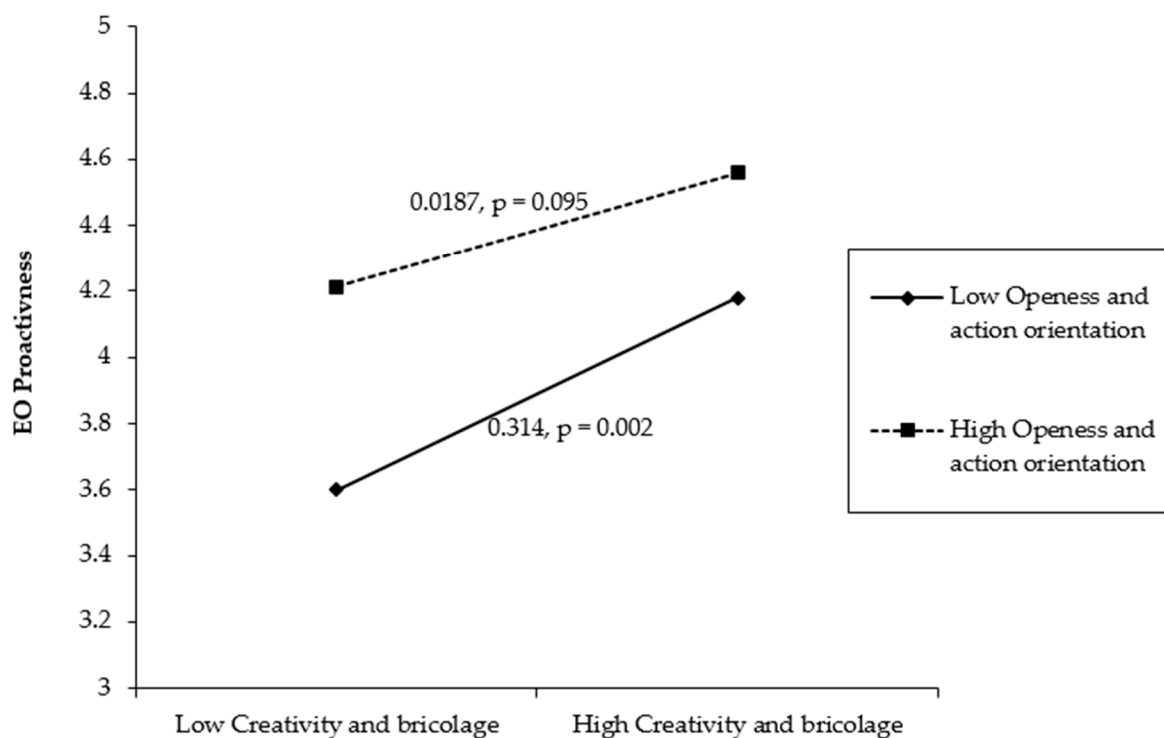
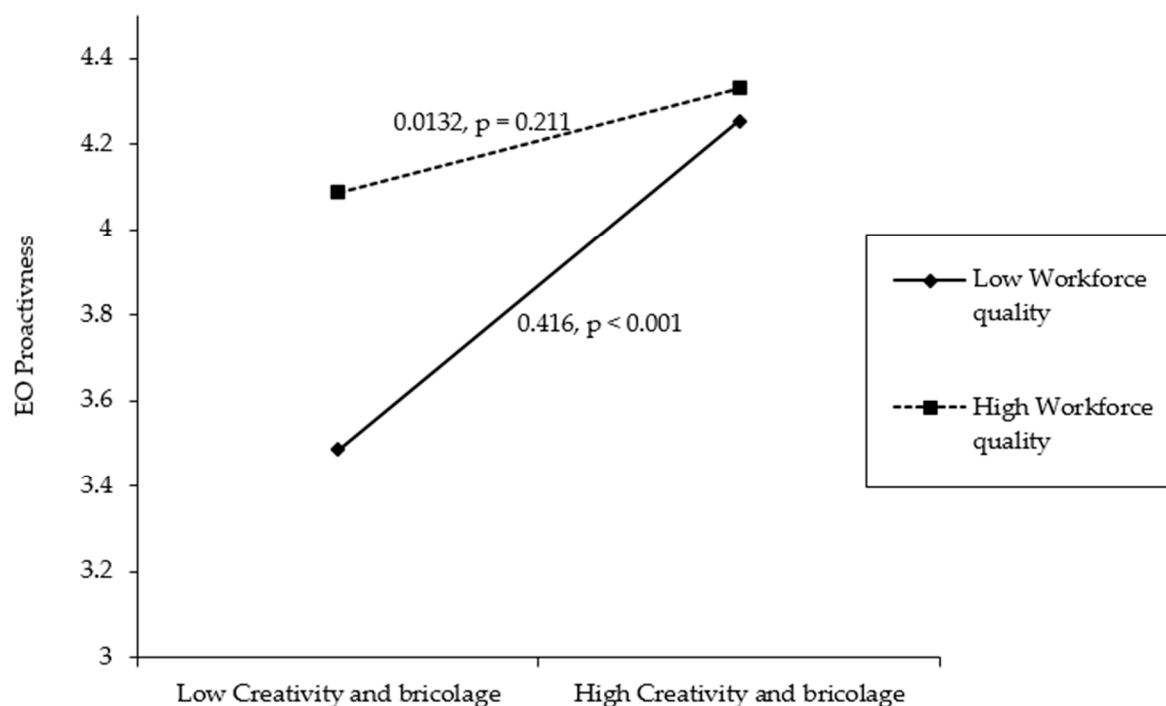


Figure 4. Slope plots: Relation between creativity and bricolage and proactiveness moderated by openness and action orientation.



**Figure 5.** Slope plots: Relation between creativity and bricolage and proactiveness moderated by workforce quality.

The moderation of the effect of creativity and bricolage on proactiveness by continuous improvement is similar to that with the innovativeness as dependent variable. Similarly, in high continuous improvement organizations the proactiveness is much higher than in low-continuous-improvement organizations. Similarly too, the effect of creativity and bricolage on proactiveness is statistically significant up to a certain level of continuous improvement, above which it is no longer significant.

The moderating effect of openness and action orientation is a bit different from continuous improvement. Similarly, organizations that are open and action oriented demonstrate higher proactiveness than organizations that are not open and action oriented. However, in contrast to continuous improvement, also in organizations with high level of openness and action orientation creativity and bricolage are beneficial for proactiveness of the enterprise, although it has to be said that the effect is at very low level of significance for high openness and action orientation. The main effect is however stronger for lower levels of openness and action orientation.

The moderating effect of workforce quality follows the pattern described above—the lower workforce quality, the lower proactiveness but the stronger effect of creativity and bricolage on proactiveness. Again, above certain level of workforce quality the effect of creativity and bricolage is not significant any longer. What is different though is that at certain level of creativity and bricolage the proactiveness in organizations with low workforce quality is even higher than in the organizations with high workforce quality. Table 4 presents the regression models with risk taking as dependent variable.

Model 8 presents the effect of improvisation on risk taking. The explanatory power is rather low (0.099) and the only dimension of improvisation that is related to risk taking is ability to function and excel under stress and pressure filled environment. This supports partly hypothesis H3. That dimension of improvisation has been therefore taken for the model 9 to investigate the moderation effects. Unlike for the other dimensions of EO, for risk taking there is no internal moderation effect. There is no improvement in the model fit when moderators and interaction terms are added. The above results of moderation analysis also do not provide support for hypothesis H4—even though characteristics of HPO (continuous improvement (H4a), openness and action orientation (H4b), and workforce quality (H4d)) moderate the relationship between improvisation and entrepreneurial orientation, the

direction of the moderation is opposite to what was hypothesized—improvisation has stronger effect for companies that are lower in HPO characteristics. Management quality (H4c) and long-term orientation (H4e) do not have any moderating effect on the relationship between the dimensions of improvisation and dimensions of entrepreneurial orientation.

**Table 4.** Regression models on risk taking.

| Variable                      | (7)         | (8)            | (9)         |
|-------------------------------|-------------|----------------|-------------|
|                               | Risk Taking | Risk Taking    | Risk Taking |
| Creativity and bricolage (H3) |             | 0.174 *        | 0.0793      |
|                               |             | (0.0953)       | (0.108)     |
| Pressure—stress (H3)          |             | 0.339 ***      | 0.423       |
|                               |             | (0.0904)       | (0.583)     |
| Spont. and persistence (H3)   |             | 0.0681         | −0.0325     |
|                               |             | (0.107)        | (0.122)     |
| Size (ln)                     | 0.180 **    | 0.188 **       | 0.172 **    |
|                               | (0.0820)    | (0.0804)       | (0.0835)    |
| Age (ln)                      | −0.0804     | −0.0806        | −0.0603     |
|                               | (0.103)     | (0.100)        | (0.103)     |
| Performance                   | 0.319 ***   | 0.172 **       | 0.150 *     |
|                               | (0.0740)    | (0.0778)       | (0.0811)    |
| Continuous improvement        |             |                | 0.768       |
|                               |             |                | (0.525)     |
| Pressure—stress X             |             |                | −0.139      |
| Continuous improvement (H4a)  |             |                | (0.111)     |
| Openness and act. ornt.       |             |                | −0.475      |
|                               |             |                | (0.632)     |
| Pressure—stress X             |             |                | 0.110       |
| Openness and act. ornt. (H4b) |             |                | (0.134)     |
| Management quality            |             |                | 0.0201      |
|                               |             |                | (0.578)     |
| Pressure—stress X             |             |                | −0.0130     |
| Management quality (H4c)      |             |                | (0.125)     |
| Workforce quality             |             |                | 0.273       |
|                               |             |                | (0.497)     |
| Pressure—stress X             |             |                | −0.0518     |
| Workforce quality (H4d)       |             |                | (0.107)     |
| Long-term orientation         |             |                | −0.351      |
|                               |             |                | (0.661)     |
| Pressure—stress X             |             |                | 0.105       |
| Long-term orientation (H4e)   |             |                | (0.143)     |
| Constant                      | 20.377 ***  | 0.203          | −0.915      |
|                               | (0.475)     | (0.621)        | (20.609)    |
| Observations                  | 567         | 567            | 567         |
| R-squared                     | 0.046       | 0.108          | 0.127       |
| adj. R-squared                | 0.041       | 0.099          | 0.092       |
| Likelihood ratio test         |             | 380.14 *** (7) | 120.19 (8)  |

Standard errors in parentheses; \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ ; the direct effects and interactions of environment are not shown in the table for clarity of presentation.

## 7. Discussion

The conducted analyses bring some interesting results. First of all, there is a positive effect of improvisation on entrepreneurial orientation. That effect is manifested differently when it comes to individual dimensions of improvisation and entrepreneurial orientation, but is moderately strong and statistically significant. As assumed, creativity and bricolage have a strong effect on two dimensions of entrepreneurial orientation: Innovativeness and proactiveness. That supports the theorizing and empirical evidence of other authors stressing the role of improvisation in the process of innovation [9,46,47]. What is important, the measure of creativity and bricolage focuses on the process and the measure of

innovation focuses on the result. Therefore, “bricolaging” results in new products, services and processes being introduced. Moreover, it allows the companies that are improvising to be ahead of their competitors—pursue them aggressively and gain first-mover advantage. It shows that innovations created by improvising are not qualitatively lower than those created by radical innovation. There is another aspect of the bricolage that has to be mentioned. There is evidence that it involves stakeholders in the process of innovation, especially in relation to social enterprising [38,63], but also regarding the commercial ventures [64].

The dimension of improvisation that influences risk taking is the ability to function and excel under pressure-filled and stressful environments. This relationship seems natural, as individuals who are high in this dimension of improvisation are able to operate effectively under greater uncertainty which is related to taking more risk [10,65]. Moreover, individuals who are able to function and excel in stressful environments are better able to cope with stress and therefore are able to take more risk that is associated with it [66]. However, this relationship could also be reversed and partly explained by Attraction–Selection–Attrition theory—organizations that are already entrepreneurial, which includes the willingness to take risk, might be attracting, selecting and retaining entrepreneurial employees who are also able to excel under pressure. This aspect of improvisation also enhances the responsive ability of innovation actors as they are able to operate in dynamically changing environment with greater confidence and iterate back and forth with other stakeholders involved in the innovation process, thus making it more responsible.

Internal functioning of the organization has a significant moderating effect on the relationship between improvisation and entrepreneurial orientation. The strong effect of continuous improvement on dimensions of entrepreneurial orientation is not surprising. Continuous change and improvement create higher levels of innovativeness, proactiveness and risk taking [15,16]. However, that relation is not the focus of the current study. What is of interest is how continuous improvement moderates the effect of improvisation on entrepreneurial orientation. To put it in wider context, it is important to know how internal organizational context strengthens or hinders the beneficial effect of improvising on the organizational entrepreneurship.

What is interesting is that the moderating effect is opposite to what was hypothesized—improvisation has stronger effect for companies that are lower in HPO characteristics. In fact, analysis of the moderation effect reveals that the effect is significant only for organizations that do not qualify to be categorized as high performing organizations. What is important to note is that HPO characteristics do not necessarily have to be reflected in higher performance—they are management practices that are commonly associated and empirically proven to be associated with higher performance. Therefore, the effect of improvisation is not limited to lower-performing enterprises, but to those that are lower in continuous improvement, openness and action orientation and workforce quality. It seems that improvisation allows for compensation for the low level of those attributes when it comes for the level of entrepreneurial orientation. Improvising might be therefore a good way to build entrepreneurship for those organizations that struggle with the robustness of internal processes. Another possible explanation could involve more sustainable and responsible growth of non-HPO organizations. That kind of ventures might distribute their generated wealth among wider group of stakeholders, and, in those circumstances, improvisation seems to play a bigger role in creating more entrepreneurial, but at the same time, responsible organizations.

Finally, the analysis of the effect of control variables also brings some meaningful and interesting results. More specifically, positive influence of size of the company on risk taking supports findings of Smith and Blundel [67] who argue that in entrepreneurial processes big companies invest more money in risky activities while smaller companies use improvisation closely related to entrepreneurial bricolage as a means of accessing the resources required.

## 8. Practical Recommendations, Contribution, Limitations, and Future Research Directions

The study opens the scholarly opportunity to study improvisation as important method of responsible innovation [12], the research notion that is constantly growing (e.g., [1–3,68]). The improvisation is promising for responsible innovation mainly because it is very reflective and responsive, moreover, involves stakeholders in innovation process. This notion is also in line with responsible research and innovation (RRI) [69] and highlights the assurance that innovation is sustainable and has positive effect on variety of factors, including employee well-being [13]. Improvisation might have an important role in this process, especially that it might be a useful way to introduce RRI in companies, where the awareness of that concept is rather low [70]. Furthermore, critical component of responsible innovation is responsiveness [71], and, taking into consideration the possibility of building “improvisational alertness” among employees and other stakeholders [3], it would allow to create bottom-up responsiveness to innovation opportunities. Finally, improvisation could be used as a carrier of RRI on country and regional level [72] depending on the propensity of certain culture and readiness of the region to innovate.

Results of the current study provide some of recommendations for business practice. As Miner, Bassoff, and Moorman [9] suggest, improvisation can be incorporated and become a part of the formal structure of the organization. It might also be planned and work alongside other forms of innovation to support them. Therefore, some activities should be undertaken by companies to foster improvising. Scarcity of resources could work as a trigger for those processes. Companies using improvising are able to achieve advantage, especially in a specific internal context. It should be considered though that improvising can be achieved at its highest level with a specific organizational structure and leadership style.

Valuable practical recommendation on creating improvisational and entrepreneurial spirit within organizations can be formulated putting in the context the recent evidence provided by Balachandra [73]. He points out that the literature so far does not provide evidence on how to improvise. The key to success in that regard, also considering the effect for entrepreneurial orientation is the training of employees to achieve “improvisational alertness”. This process could be incorporated within human resource management practices to assure the readiness to perform improvisation by employees when necessary. Additionally, the development of organization-wide improvisational alertness will enable the bottom-up improvisation by employees without further top-down incentive from the management.

The current study contributes to the discussion on the role of improvising in organizational processes. It investigates improvising at organizational level, takes this discussion to the field of entrepreneurial orientation and introduces the necessary contextualization. Apart from that the study contributes to the theory of entrepreneurial orientation. It seems that even though regression analysis does not show universal relationships among all dimensions of improvisation and entrepreneurial orientation, those that exist point to individual components of improvisation resulting in individual components of entrepreneurial orientation, which supports the thesis that both constructs are multi-dimensional instead of unidimensional [8,15,16]. Also, the effect of performance on all three dimensions of EO is most probably reversed which confirms the well-established evidence [7,15,16,21,28]. Finally, it adds to scholarly investigations on characteristics of HPOs. It seems that those factors are quite strong determinants of EO which echoes the previous evidence in that regard (e.g., [74]).

The study also contributes to wider discussion on the dimensionality and nature of entrepreneurial orientation, but also to the discussion on impact of EO on performance. This particular relationship is not the matter of investigation in the paper; however, with improvisation as the predictor of EO, it should be addressed. Recently, Putniņš and Sauka [75] point to the fact that the effect of entrepreneurial orientation on performance might not be universally positive across the dimensions of EO. They prove that while risk-taking contributes to performance, this contribution is conditional on level of innovativeness and proactiveness. Therefore, future research in relationship between improvisation, en-

trepreneurial orientation, and performance might take into consideration the complex effect of EO on performance.

The study has some limitations. One of them is simplified research model that is due to scarcity of empirical evidence in that regard. The other is using the cross-sectional design that does not allow to study true directional effects. The study might be also laden with some bias, especially common method bias, therefore, future researchers in the field might consider using more fine-tuned measures and multi-source approach. It could be also fruitful to research some possible mediation/moderation with other variables, for instance leadership style or the effects of leadership style and organizational structure and culture, such as psychological empowerment [23,24]. Those kind of extended research models might yield some more interesting results. To gain even more insight into complex relationship between improvisation and entrepreneurial orientation it could be considered in future research to use a mixed method approach and enrich the empirical investigation with some qualitative techniques.

**Author Contributions:** M.G.-Z. is the leading author of that paper and author of the concept. Conceptualization, M.G.-Z. and P.Z.; methodology, M.G.-Z. and P.Z., statistical analysis, P.Z. and M.G.-Z.; discussion, conclusions, M.G.-Z. Both authors have read and agreed to the published version of the manuscript.

**Funding:** The research was carried out within research project 2014/13/B/HS4/01618 funded by National Science Centre, Poland.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The data are not publicly available due to privacy.

**Conflicts of Interest:** The authors declare no conflict of interest.

## References

1. Iakovleva, T.; Oftedal, E.M.; Bessant, J. (Eds.) *Responsible Innovation in Digital Health*; Edward Elgar: Cheltenham, UK, 2019.
2. Oftedal, E.M.; Foss, L.; Iakovleva, T. Responsible for responsibility? A study of digital e-health start-ups. *Sustainability* **2019**, *11*, 5433. [\[CrossRef\]](#)
3. Da Silva, L.M.; Bitencourt, C.C.; Faccin, K.; Iakovleva, T. The role of stakeholders in the context of responsible innovation: A meta-synthesis. *Sustainability* **2019**, *11*, 1766. [\[CrossRef\]](#)
4. Lubberink, R.; Blok, V.; van Ophem, J.; Omta, O. Responsible innovation by social entrepreneurs: An exploratory study of values integration in innovations. *J. Responsible Innov.* **2019**, *6*, 179–210. [\[CrossRef\]](#)
5. Long, T.B.; Blok, V.; Dorrestijn, S.; Macnaghten, P. The design and testing of a tool for developing responsible innovation in start-up enterprises. *J. Responsible Innov.* **2020**, *7*, 45–75. [\[CrossRef\]](#)
6. Ma, H.; Guo, H.; Shen, R. Organisational regulatory legitimacy, entrepreneurial orientation, and SME innovation: An optimal distinctiveness perspective. *Technol. Anal. Strateg. Manag.* **2019**, *31*, 833–847. [\[CrossRef\]](#)
7. Wiklund, J. The Sustainability of the entrepreneurial orientation-performance relationship. *Entrep. Theory Pract.* **1999**, *24*, 37–48. [\[CrossRef\]](#)
8. Covin, J.G.; Slevin, D.P. The influence of organization structure on the utility of an entrepreneurial top management style. *J. Manag. Stud.* **1988**, *25*, 217–234. [\[CrossRef\]](#)
9. Miner, A.S.; Bassoff, P.; Moorman, C. Organizational improvisation and learning: A field study. *Adm. Sci. Q.* **2001**, *46*, 304–337. [\[CrossRef\]](#)
10. Hmieleski, K.M.; Corbett, A.C. Proclivity for improvisation as a predictor of entrepreneurial intentions. *J. Small Bus. Manag.* **2006**, *44*, 45–63. [\[CrossRef\]](#)
11. Stigloe, J.; Owen, R.; Macnaghten, P. Developing a framework for responsible innovation. *Res. Policy* **2013**, *42*, 1568–1580.
12. Chakrabarty, A.; Mudang, T. Smart and sustainable agriculture through IoT interventions: Improvisation, Innovation and Implementation—An exploratory study. In *IoT and Analytics for Agriculture. Studies in Big Data*; Pattnaik, P., Kumar, R., Pal, S., Panda, S., Eds.; Springer: Singapore, 2020; Volume 63.
13. Stahl, B.C.; Obach, M.; Yaghmaei, E.; Ikonen, V.; Chatfield, K.; Brem, A. The Responsible Research and Innovation (RRI) Maturity Model: Linking Theory and Practice. *Sustainability* **2017**, *9*, 1036. [\[CrossRef\]](#)
14. Baker, T.; Miner, A.; Eesley, D. Improvising firms: Bricolage, account giving and improvisational competency in the founding process. *Res. Policy* **2003**, *32*, 255–276. [\[CrossRef\]](#)

15. Lumpkin, G.T.; Dess, G.G. Clarifying the entrepreneurial orientation construct and linking it to performance. *Acad. Manag. J.* **1996**, *21*, 135–172.
16. Lumpkin, G.T.; Dess, G.G. Linking two dimensions of entrepreneurial orientation to firm performance: The moderating role of environment and industry life cycle. *J. Bus. Ventur.* **2001**, *16*, 429–451. [\[CrossRef\]](#)
17. Stephan, U.; Zbierowski, P.; Hanard, P.-J. *Entrepreneurship and Covid-19. Challenges and Opportunities: An Assessment of the Short- and Long-Term Consequences for UK Small Businesses*; King's Business School Covid-19 Research Impact Papers, No. 2; King's Business School: London, UK, 2020.
18. De Waal, A.A. *What Makes a High Performance Organization: Five Validated Factors of Competitive Advantage that Apply Worldwide*; Global Professional Publishing: Amsterdam, The Netherlands, 2012.
19. De Waal, A.; Linthorst, J. Future-Proofing the High-Performance Organization. *Sustainability* **2020**, *12*, 8507. [\[CrossRef\]](#)
20. Iakovleva, T. Entrepreneurial orientation of Russian SME. In *The Emergence of Entrepreneurial Economics (Research on Technological Innovation, Management and Policy, Volume 9)*; Vinig, G.T., Van Der Voort, R.C.W., Eds.; Emerald Group Publishing Limited: Bingley, UK, 2005; pp. 83–97.
21. McGee, J.E.; Peterson, M. The long-term Impact of entrepreneurial self-efficacy and entrepreneurial orientation on venture performance. *J. Small Bus. Manag.* **2019**, *57*, 720–737. [\[CrossRef\]](#)
22. Spreitzer, G.M. Psychological empowerment in the workplace: Dimensions, measurement, and validation. *Acad. Manag. J.* **1995**, *38*, 1442–1465.
23. Spreitzer, G.M. Social structural characteristics of psychological empowerment. *Acad. Manag. J.* **1996**, *39*, 483–504.
24. Inceoglu, I.; Thomas, G.; Chu Ch Plans, D.; Gerbasi, A. Leadership behaviour and employee well-being: An integrated review and a future research agenda. *Leadersh. Q.* **2018**, *29*, 179–202. [\[CrossRef\]](#)
25. Khandwalla, P.N. *The Design of Organizations*; Harcourt Brace Janovich: New York, NY, USA, 1977.
26. Miller, D.; Friesen, P.H. Innovation in conservative and entrepreneurial firms: Two models of strategic momentum. *Strateg. Manag. J.* **1982**, *3*, 1–25. [\[CrossRef\]](#)
27. Mintzberg, H. Strategy-making in three modes. *Calif. Manag. Rev.* **1973**, *16*, 44–53. [\[CrossRef\]](#)
28. Zahra, S.A. Environment, corporate entrepreneurship, and financial performance: A taxonomic approach. *J. Bus. Ventur.* **1993**, *8*, 319–340. [\[CrossRef\]](#)
29. Vera, D.M.; Crossan, M.M. Improvisation and its impact on performance: Insights from a city government. In *Academy of Management Annual Meeting Proceedings*; Academy of Management: Briarcliff Manor, NY, USA, 2003.
30. Ozgen, E.; Minsky, B. Innovative entrepreneurial approach in Vietnamese companies. *J. Bus. Divers.* **2016**, *16*, 95–105.
31. Naman, J.L.; Slevin, D.P. Entrepreneurship and the concept of fit: A model and empirical tests. *Strateg. Manag. J.* **1993**, *14*, 137–153. [\[CrossRef\]](#)
32. Luthans, F.; Youssef, C.M.; Avolio, B.J. *Psychological Capital: Developing the Human Competitive Edge*; Oxford University Press: Oxford, UK, 2007.
33. Hmieleski, K.M.; Corbett, A.C. Improvisation as a framework for investigating entrepreneurial action. In *Academy of Management Best Paper Proceedings*; Academy of Management: Briarcliff Manor, NY, USA, 2003.
34. Hmieleski, K.M.; Corbett, A.C. The contrasting interaction effects of improvisational behavior with entrepreneurial self-efficacy on new venture performance and entrepreneur work satisfaction. *J. Bus. Ventur.* **2008**, *23*, 482–496. [\[CrossRef\]](#)
35. Best, S.; Gooderham, P. Improvisation: A legitimate strategy in the face of adversity. *Small Enterp. Res.* **2015**, *22*, 49–68. [\[CrossRef\]](#)
36. Jahanmir, S.F. Paradoxes or trade-offs of entrepreneurship: Exploratory insights from the Cambridge eco-system. *J. Bus. Res.* **2016**, *69*, 5101–5105. [\[CrossRef\]](#)
37. Evers, N.; O'Gorman, C. Improvised internationalization in new ventures: The role of prior knowledge and networks. *Entrep. Reg. Dev.* **2011**, *23*, 549–574. [\[CrossRef\]](#)
38. Di Domenico, M.L.; Haugh, H.; Tracey, P. Social bricolage: Theorizing social value creation in social enterprises. *Entrep. Theory Pract.* **2010**, *34*, 681–703. [\[CrossRef\]](#)
39. Preece, S.B. Social bricolage in arts entrepreneurship: Building a jazz society from scratch. *Artivate J. Entrep. Arts* **2014**, *3*, 23–34.
40. Cardon, M.S. Is passion contagious? The transference of entrepreneurial passion to employees. *Hum. Resour. Manag. Rev.* **2008**, *18*, 77–86. [\[CrossRef\]](#)
41. Pongracic, I. *Employees and Entrepreneurship. Co-Ordination and Spontaneity in Non-Hierarchical Business Organizations*; Edward Elgar: Cheltenham, UK, 2009.
42. Ateljevic, I.; Doorne, S. "Staying Within the Fence": Lifestyle Entrepreneurship in Tourism. *J. Sustain. Tour.* **2000**, *8*, 378–392. [\[CrossRef\]](#)
43. Korber, S.; McNaughton, R.B. Resilience and entrepreneurship: A systematic literature review. *Int. J. Entrep. Behav. Res.* **2018**, *24*, 1129–1154. [\[CrossRef\]](#)
44. Chadwick, I.C.; Raver, J.L. Psychological Resilience and Its Downstream Effects for Business Survival in Nascent Entrepreneurship. *Entrep. Theory Pract.* **2020**, *44*, 233–255. [\[CrossRef\]](#)
45. Davis, J.P.; Eisenhardt, K.M.; Bingham, C.B. Optimal structure, market dynamism, and the strategy of simple rules. *Adm. Sci. Q.* **2009**, *54*, 413–452. [\[CrossRef\]](#)
46. Linna, P. Bricolage as a means of innovating in a resource-scarce environment: A study of innovator-entrepreneurs at the BOP. *J. Dev. Entrep.* **2013**, *18*, 1–23. [\[CrossRef\]](#)

47. Smets, M.; Morris, T.; Greenwood, R. From practice to field. A multilevel model of practice-driven institutional change. *Acad. Manag. J.* **2012**, *55*, 877–904. [\[CrossRef\]](#)
48. Hilmersson, M.; Johanson, M.; Lundberg, H.; Papaioannou, S. Opportunity novelty, improvisation and network adaptation in the internationalization of Swedish SMEs. *Thunderbird Int. Bus. Rev.* **2020**, 1–15. [\[CrossRef\]](#)
49. Bingham, C.B. Oscillating improvisation: How entrepreneurial firms create success in foreign market entries over time. *Strateg. Entrep. J.* **2009**, *3*, 321–345. [\[CrossRef\]](#)
50. Hodgkinson, I.R.; Hughes, P.; Arshad, D. Strategy development: Driving improvisation in Malaysia. *J. World Bus.* **2016**, *51*, 379–390. [\[CrossRef\]](#)
51. Shaw, P.; Stacey, R.D. *Experiencing Risk, Spontaneity and Improvisation in Organizational Change: Working Live*; Routledge: London, UK; New York, NY, USA, 2006.
52. Azzara, C.D. An aural approach to improvisation. *Music Educ. J.* **1999**, *86*, 21–25. [\[CrossRef\]](#)
53. Ciuchta, M.P.; O'Toole, J.; Miner, A.S. The organizational improvisation landscape: Taking stock and looking forward. *J. Manag.* **2020**, 1–29. [\[CrossRef\]](#)
54. Densberger, K. The self-efficacy and risk-propensity of entrepreneurs. *J. Enterprising Cult.* **2014**, *22*, 437–462. [\[CrossRef\]](#)
55. Hughes, P.; Hodgkinson, I.R.; Hughes, M.; Arshad, D. Explaining the entrepreneurial orientation–performance relationship in emerging economies: The intermediate roles of absorptive capacity and improvisation. *Asia Pac. J. Manag.* **2018**, *35*, 1025–1053. [\[CrossRef\]](#)
56. Vera, D.M.; Kachra, A.P.U. Improvisational model of strategic decision-making: Characteristics-antecedents-performance outcomes. In *Academy of Management Annual Meeting Proceedings*; Academy of Management: Briarcliff Manor, NY, USA, 2004.
57. Gong, Y.; Terlaak, A. Beyond improv comedy: Advisor network and firm effects on organizational improvisation. In *Proceedings of the Academy of Management Annual Conference*, Montreal, QC, Canada, 6–10 August 2010.
58. Vera, D.M.; Rerup, C.; Crossan, M.; Werner, S. Planning and improvisation: Reconciling cognitive and behavioural perspectives on action. In *Academy of Management Annual Meeting Proceedings*; Academy of Management: Briarcliff Manor, NY, USA, 2010.
59. Häkkinen, R.A.; Kannampuzha, M.J.; Baker, T.; Hmieleski, K.; Honig, B.; Miner, A.S.; Powell, E.; Sarasvathy, S.D. Emerging Theories of Entrepreneurial Behavior in Uncertain and Resource Constrained Environments. In *Academy of Management Annual Meeting Proceedings*; Academy of Management: Briarcliff Manor, NY, USA, 2016.
60. Dawson, J.F. Moderation in management research: What, why, when, and how. *J. Bus. Psychol.* **2014**, *29*, 1–19. [\[CrossRef\]](#)
61. López-Iturriaga, F.J.; Rodríguez-Sanz, J.A. Wwnership structure, financial decisions, and institutional setting: An international analysis through simultaneous equations. *Econ. Res. Int.* **2012**, 1–12. [\[CrossRef\]](#)
62. Kreiser, P.M.; Marino, L.; Weaver, K.M. Assessing the psychometric properties of the entrepreneurial orientation scale: A multi-country analysis. *Entrep. Theory Pract.* **2002**, *26*, 71–94. [\[CrossRef\]](#)
63. Molecke, G.; Pinkse, J. Accountability for social impact: A bricolage perspective on impact measurement in social enterprises. *J. Bus. Ventur.* **2017**, *32*, 550–568. [\[CrossRef\]](#)
64. Phillips, N.; Tracey, P. Opportunity recognition, entrepreneurial capabilities and bricolage: Connecting institutional theory and entrepreneurship in strategic organization. *Strateg. Organ.* **2007**, *5*, 313–320. [\[CrossRef\]](#)
65. Milliken, F.J. Three types of perceived uncertainty about the environment: State, effect, and response uncertainty. *Acad. Manag. Rev.* **1987**, *12*, 133–143. [\[CrossRef\]](#)
66. Baron, R.A.; Franklin, R.J.; Hmieleski, K.M. Why entrepreneurs often experience low, not high, levels of stress: The joint effects of selection and psychological capital. *J. Manag.* **2016**, *42*, 742–768. [\[CrossRef\]](#)
67. Smith, D.J.; Blundel, R.K. Improvisation and entrepreneurial bricolage versus rationalism. *J. Gen. Manag.* **2014**, *40*, 53–78.
68. Von Schomberg, R.A. Vision of responsible innovation. In *Responsible Innovation*; Owen, R., Heintz, M., Bessant, J., Eds.; John Wiley: London, UK, 2013.
69. Rip, A. The past and future of RRI. In *Life Sciences, Society and Policy*; Springer: Cham, Switzerland, 2014.
70. Gurzawska, A.; Mäkinen, M.; Brey, P. Implementation of Responsible Research and Innovation (RRI) practices in Industry: Providing the Right Incentives. *Sustainability* **2017**, *9*, 1759. [\[CrossRef\]](#)
71. Lubberink, R.; van Blok, V.; van Ophem, J.; Omta, O. Lessons for Responsible Innovation in the Business Context: A Systematic Literature Review of Responsible, Social and Sustainable Innovation Practices. *Sustainability* **2017**, *9*, 721. [\[CrossRef\]](#)
72. Thapa, R.K.; Iakovleva, T.; Foss, L. Responsible research and innovation: A systematic review of the literature and its applications to regional studies. *Eur. Plan. Stud.* **2019**, 1–21. [\[CrossRef\]](#)
73. Balachandra, L. The improvisational entrepreneur: Improvisation training in entrepreneurship education. *J. Small Bus. Manag.* **2019**, *57*, 60–77. [\[CrossRef\]](#)
74. Putniņš, T.J.; Sauka, A. Why does entrepreneurial orientation affect company performance? *Strateg. Entrep. J.* **2019**. [\[CrossRef\]](#)
75. Holbeche, L. *The High Performance Organization. Creating Dynamic Stability and Sustainable Success*; Elsevier/Butherworth Heinemann: Oxford, UK, 2005.