

Article

Proactive Personality and Creative Performance: Mediating Roles of Creative Self-Efficacy and Moderated Mediation Role of Psychological Safety

Suk Bong Choi ^{1,*} , S.M. Ebrahim Ullah ² and Seung-Wan Kang ^{3,*} ¹ College of Global Business, Korea University, Sejong 30019, Korea² HR Team, ACI Godrej Agrovet Pvt. Ltd., Dhaka 1212, Bangladesh; ebrahim.ullah@acigodrej.com³ College of Business, Gachon University, Seongnam 13120, Korea

* Correspondence: sukchoi@korea.ac.kr (S.B.C.); global7@gachon.ac.kr (S.-W.K.)

Abstract: Previous research has suggested that employees' proactive personality can enhance their creative performance. However, studies that address the underlying mechanism of the effect of proactive personality on creative performance have been scarce. Additionally, contextual factors that could serve as useful conditions have received insufficient academic attention. Therefore, the present study proposed that creative self-efficacy serves as a mediator and psychological safety serves as a moderator in the positive relationship between employees' proactive personality and their creative performance. The results of a large-scale survey revealed that a proactive personality was positively associated with creative performance. Furthermore, we found that the positive relationship between a proactive personality and creative performance was positively mediated by creative self-efficacy and further strengthened by psychological safety. Additionally, we found that psychological safety influenced the mediating role of creative self-efficacy in the link between employees' proactive personality and creative performance. We have discussed theoretical and practical implications with future research directions.

Keywords: proactive personality; creative performance; creative self-efficacy; psychological safety; moderated mediation



Citation: Choi, S.B.; Ullah, S.E.; Kang, S.-W. Proactive Personality and Creative Performance: Mediating Roles of Creative Self-Efficacy and Moderated Mediation Role of Psychological Safety. *Sustainability* **2021**, *13*, 12517. <https://doi.org/10.3390/su132212517>

Academic Editors:

Christian Vandenberghe and Hyo Sun Jung

Received: 11 August 2021

Accepted: 14 October 2021

Published: 12 November 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

Creativity is viewed as a key milestone of sustainable business growth in the current corporate world [1]. To accelerate business growth and sustainability, organizational management must strongly focus on developing employee creativity to generate innovative ideas and business processes to maintain a high level of organizational efficiency [2]. To date, scholars have paid significant attention to identifying the antecedents of organizational behavior and factors that can improve employee creativity [3,4]. Recent literature has exemplified that a proactive personality has a positive impact on employees' creative behavior [5,6]. The concept of a proactive personality has been widely investigated, focusing on its benefits such as career success [7], organizational success [8], job performance [9], and creativity [10]. Specifically, proactive behavior helps to develop various positive employee habits, such as self-initiative and future-oriented innovative action planning, and holistically leads employees to transform their traditional thoughts into creative trials [8,11,12]. On the other hand, prior literature on creativity has presented a significant amount of evidence regarding how job-related factors, such as information exchange, career satisfaction, and supervisory support, can enhance employee creativity [10,13,14].

Although prior studies have demonstrated the positive effect of proactive personality on individual level performance [7,9], there has been little or no attempt to examine comprehensive empirical evidence linking a proactive personality to creative performance directly in the context of Korean workplace. Thus, the rationale for conducting this research is as follows.

First, this study provides an important empirical treatment of the effects of a proactive personality on creative performance based on Korean employees. Some previous literature has indicated the positive role of proactive personality for employees' creative and innovative activities. For instance, Roopak et al. [15] have found that leader–follower congruence in proactive personality positively encouraged followers' creativity. Li et al. [16] have also confirmed the positive effect of proactive personality on creativity in the context of Chinese employees from high technology firms. In the similar sense, Kong and Li [17] identified a positive association between proactive personality and innovative behavior of employees. In contrast to these previous studies, this study will examine the role of proactive personality for direct creative performance rather than employee's personal and psychological trait, and attitude toward creative activity, and also extend findings of previous studies to the context of the Korean workplace.

Second, the current study will address an underlying mechanism linking proactive personality to creative performance of employees and the conditions that maximize this relationship. In other words, we assume that further investigation is required to deepen our understanding of the mechanisms and conditions underlying the effect of proactive personality on employees' creative performance and which conditions may strengthen this effect. Previous research [18–20] has highlighted the lack of research regarding the complex mechanism that connects proactive personality to employees' creative outcomes.

More specifically, in order to understand such processes connecting proactive personality to creative performance, this study examines the role of creative self-efficacy as a mediator. The trait theory [21] suggests that distinct personal characteristics may change the status quo of individual and organizational performance. Based on this theory, we suggest that creative self efficacy, i.e., the belief in one's own ability to develop and perform creative tasks, plays an important role in linking proactive personality to creative performance. Such individual traits lead to the development of new ideas to obtain value-added outcomes by enhancing employees' self initiative and self-engagement toward creative work, thereby positively improving the impact of proactive personality on creative work [22]. Thus, in the current study, we investigate the mediating role of creative self-efficacy as an important individual characteristic that links proactive personality to employees' creative performance.

On the other hand, although individual trait factors can enhance the level of creativity, some studies have stated that a risky interpersonal atmosphere within an organization may hinder creative performance [23]. Uncomfortable team attitudes toward positive failures, psychological tension arising from suspicious interpersonal relationships with supervisors, and unnecessary conflict among colleagues may create an unfavorable environment for proactive employees to pursue their creative activities [13]. Thus, we propose that psychological safety is a positive moderator in the relationship between proactive personality and creative performance. Psychological safety is concerned with employees' ability to perform creative but risky tasks without the fear of negative consequences related to self-image, status, or career [24]. A "safe and sound" psychological status may generate a better workplace environment for creative activities by reducing and eradicating uncomfortable workplace atmosphere, tension, and hurdles, thus leading to the development of creative solutions while implementing creative tasks. Therefore, organizational management must integrate employee psychological safety within the organizational culture [25]. We expect that promoting psychological safety based on mutual trust and shared values can ensure that employees can demonstrate their proactive personality and participate in creativity-enhancing activities within their organizations [26].

Third, we also propose that the indirect positive association between proactive personality and creative performance via creative self-efficacy may highly depend on creating a supportive and safe workplace climate to generate employees' psychological safety. This will provide the understanding of integrated picture linking proactive personality to creative performance of employees by identifying the moderated mediating role of psychological safety which has not been considered properly in the previous studies.

The structure of this paper is as follows. Following the main research issues and rationale for conducting the study, we discuss the hypothesis-centered theoretical background. We then present the survey procedures and measurement methods. After presenting the statistical results, the main findings of empirical analysis are discussed. In light of the findings, important theoretical and practical implications are presented.

2. Theoretical Background and Hypotheses Development

2.1. Proactive Personality and Creative Performance

Employee creativity has been considered as a key source for achieving sustainable competitive advantages of organization for long-term survival, especially in the context of hyper-competition, dynamic and change-oriented business environment [5,7,10,27]. This creativity lies beyond the boundaries of traditional task behaviors [4,6,7]. Previous studies on creativity found that the strong desire to generate creativity rose from individual personal characteristics such as self-efficacy, creative thinking, and proactive personality as well as job requirements and leadership [6,7,16,17,25,26]. Proactive employees tend to possess a strong initiative to generate creative outcomes [14]. A proactive personality includes individual traits, such as being self-initiated, change-oriented, and visionary. Such employee characteristics have influenced the development of creative thinking and actions in the course of job completion [7,8,28].

Thus, we assume that employees who have a proactive personality can enhance their creative performance in several ways. First, employees with a proactive personality focus on developing their self-initiative to generate new ideas for implementing changes on a task and organizational level [29]. Employees with proactive personalities are likely to accept a change-oriented organizational work culture, visionary initiatives, and organizational integrity, all of which are eventually key drivers of creative performance [8–10,18]. Thus, previous research has indicated that an organization's success is largely dependent on the creative endeavors of its proactive employees. For example, employees with proactive personalities continuously take an active role in creating new products and services, redefining the current product and service value, and developing new task procedures in innovative ways, which in turn induce key sources for enhancing creative performance [7,30]. Second, employees with proactive personalities often participate in learning-based organizational activities to obtain the benefits of self-development [31]. This learning initiative, promoted by proactive employees, encourages the acquisition of new knowledge and its creative application to their tasks given by organization [32], which ultimately enhance creative performance.

Third, proactive employees not only take initiative for their self-development but are also likely to share their acquired knowledge with other co-workers proactively. In turn, such a cooperative working climate facilitated by proactive employees may promote creative performance individually and collectively [33]. We assume that proactive employees enhance the cooperative capability at an individual and team level, which is a key source of creative performance by promoting interpersonal information exchange, idea sharing, and building trust-based relationships with their organizational members. Thus, we hypothesized:

Hypothesis 1 (H1). *Proactive personality is positively related to creative performance.*

2.2. Creative Self-Efficacy as a Mediator

Creative self-efficacy refers to the belief in one's own ability to develop innovative ideas to attain value-added outcomes [4,34]. Previous studies have shown that creative self-efficacy is an important stimulating factor for positive organizational actions such as creative performance [35,36], learning orientation [4], leadership [25,26], and creativity [4,10]. In this study, we argue that creative self-efficacy plays a positive mediating role in the relationship between proactive personality and creative performance.

Gong et al. [4] stated that creative self-efficacy mediated the relationship between employee learning orientation and employee creativity. Employees with proactive personality

are more likely to enhance their creative self-efficacy by proactively participating in individual and organizational learning activities [37]. This learning-oriented behavior practiced by proactive employees nurtures creative self-efficacy and self-development, which enables them to perform their tasks more innovatively. Thus, creative self-efficacy indirectly enhanced creative performance. Moreover, creative self-efficacy, strengthened by a proactive personality, increases employees' confidence and motivation to complete their given tasks in more creative ways [38]. Proactive employees tend to focus on self-change and take change-oriented initiative with regards to their job to achieve a competitive advantage, thus promoting creative and innovative problem-solving behavior [39,40]. Consequently, employees with a high level of creative self-efficacy strengthen their beliefs, motivation, abilities, and persistence toward achieving creative results. Moreover, proactive employees tend to have a keen interest in engaging in various network-building activities to develop relationships with internal and external peer groups [41]. Such active engagement and networking capabilities of proactive employees actively participate in various organizational changes by rethinking the traditional values, methods, and systems involved with their tasks with self-conference. These employees' flexible mind and various experiences enhance their creative self-efficacy and boost their psychological commitment toward creative tasks [42], which ultimately increase the creative performance. Thus, we proposed the hypothesis:

Hypothesis 2 (H2). *Creative self-efficacy positively mediates the relationship between proactive personality and creative performance.*

2.3. Psychological Safety as a Moderator

Psychological safety refers to employees' perceptions of the consequences of undertaking interpersonal risks in a particular context such as a workplace [13,43,44]. It can be defined as the shared belief among organizational members that it is safe for them to undertake interpersonal risk-taking. Thus, in such workplace climate, employees can actively participate in creative but risky work without any fear of negative consequences in terms of their self-image, status, or career [13,24,43,44]. Previous studies have suggested that a safe psychological status increases the interpersonal trust and leadership effectiveness [45,46], team affectivity [47], proactive personality and knowledge sharing [13], and learning behavior [44,46] by removing employees' fear and tension regarding negative outcomes for their status and position. These psychological safety features further strengthen the positive effects of a proactive personality on employee creativity [20,44,48]. Thus, we assume the positive moderating role of psychological safety in the link between a proactive personality and creative performance.

Psychological safety also encourages employees' risk-taking behavior in terms of creative problem-solving as well as interpersonal information exchange, idea sharing, and establishing trust-based relationships with their supervisors [45,47,49]. A proactive personality may enforce the development of risk-taking behavior enhanced by the working climate of psychological safety. Such a positive interaction between a proactive personality and psychological safety eventually facilitates the internal motivation and work environment for better creative performance. Employees with proactive personalities are also likely to improve integrity and mutual trust, which plays a significant role in uniting and cooperating employees toward the attainment of organizational goal [10,18,32]. In this way, employees with proactive personalities working in a psychologically safe workplace are likely to participate in interpersonal interactions and show a willingness to cooperate to attain organizational goals [50], ultimately increasing their psychological commitment toward creative performance to achieve organizational success [19]. In other words, psychological safety enhances the mutual trust between supervisors and employees, which enhances employees' creative capacity and inner motivation to develop creative ideas to achieve organizational competitiveness [47]. Employees with proactive personalities not only complete their individual tasks assigned by the organization but advance the procedures of task completion in more creative and effective ways which finally enhance a

sustainable competitive advantage for organizational survival [44]. In other words, psychological safety strengthens the process of leading a proactive personality to creative performance by assuring that employees receive psychological support by their supervisors and co-workers based on shared values and active knowledge exchange. Furthermore, this positive interaction between proactive personality and psychological safety may provide employees with important resources for enhancing the creative performance by boosting their confidence, motivation, and trust for organizational reward and support. Thus, we proposed:

Hypothesis 3 (H3). *Psychological safety positively moderates the relationship between proactive personality and creative performance.*

2.4. Integrative Model: Moderated Mediation Role of Psychological Safety

Based on a previously hypothesized pattern of moderation processing, we assume a moderated mediation model, whereby an indirect effect of mediation depends on the function of a moderating variable. More specifically, when the level of psychological safety is high, the indirect effect of proactive personality on creative performance via creative self-efficacy is significantly enhanced, thereby strengthening the mediating role of creative self-efficacy in the relationship between a proactive personality and creative performance. In contrast, when there is a low level of psychological safety, the level of a positive mediating effect of creative self-efficacy is relatively weakened. As discussed earlier, psychological safety is ultimately an important factor in improving employees' confidence, self-efficacy, enthusiasm, learning, and cooperation skills that promote individual creative activities [13,43,44,46,47,51]. Thus, the level of employees' creative performance depends on their perceived psychological status, wherein they have trust-based relationships with their supervisors and co-workers and faith that their organization will allow and understand any failures in the process of completion of their tasks creatively. Thus, in this study, we present an integrative model of psychological safety to represent its moderated mediation effect on the relationships among proactive personality, creative self-efficacy, and creative performance. In other words, a high level of psychological safety reinforces the positive indirect effect on creative performance through creative self-efficacy that induces employees to develop learning and creative problem-solving trials. Conversely, the lack of psychological safety undermines employees' trust in the organization and hinders the integration of the organization's future and individual-level career paths [36,45]. Therefore, a low level of psychological safety negatively impacts the effectiveness of proactive personality on creative performance by reducing employees' motivation to enhance their creative self-efficacy and discouraging their dedicated efforts for discovering creative solution to the task problem [19,45,46]. Thus, we hypothesized the following:

Hypothesis 4 (H4). *The strength of the relationship between proactive personality and creative performance, mediated by creative self-efficacy, varies depending on the extent of psychological safety, i.e., the indirect effect of proactive personality on creative performance via creative self-efficacy is stronger when psychological safety is high.*

Figure 1 summarized the proposed relationships.

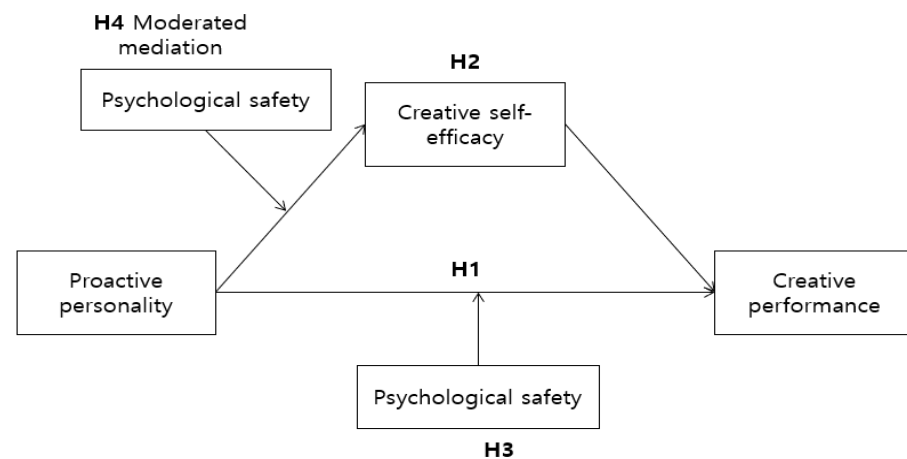


Figure 1. Research model.

3. Method

3.1. A Non-Random Sample and Procedure

For the empirical analysis in this study, we adopted a non-random sampling method by considering the specific features of employees' perception on key variables used in this study, such as psychological safety and creative performance. This is because employees are expected to exhibit compulsory creative performance, which can misrepresent the actual situation due to fear of pressure from managers or colleagues. Following previous studies' suggestion using this non-probability method [52,53], we could more effectively select sample groups based on our judgment and preference for their research objectives. We collected data by administering online and offline questionnaires to Korean manufacturing and service firms. Before administering the survey, we addressed the intent of the survey to team managers and received their permission. Among the 500 questionnaires distributed, 445 were returned, i.e., there was a response rate of 89%. After excluding invalid data due to omitted or incorrect answers, a total of 439 responses were used for the data analysis. The demographic characteristics of the respondents were as follows: among the 439 respondents, 306 (69.7%) were male and 133 (30.3%) were female; the respondents had an average age of 41.60 years ($SD = 9.63$), a mean organizational tenure of 10.29 years ($SD = 5.85$), and average educational duration of about 14.03 years ($SD = 0.92$).

3.2. Measures

A five-point Likert scale (1 = strongly disagree, 5 = strongly agree) was applied for the response scale for all variables. For proactive personality, we applied the 10-item proactive personality scale used by Kim et al. [14], and Seibert et al. [54]. Representative questions included "I am constantly on the lookout for new ways to improve my life", and "I can spot a good opportunity long before others can". We calculated the confidence coefficient (Cronbach's α) to check for the internal consistency of the survey questions and obtained a result of 0.811.

Psychological safety refers to the extent to which the organizational members can reveal themselves without fear of negative consequences such as image impairment and status degradation [24]. We utilized the five questions developed by Carmeli et al. [45] and Edmondson [46] to measure psychological safety. Sample items included, "I am safe and think even if I take risks in the organization" and "No one intentionally hinders my efforts". This scale had a Cronbach's α value of 0.911.

Creative self-efficacy was defined as the extent to which organizational members have the confidence to perform various and complex problems creatively while performing their duties. We measured creative self-efficacy using Tierney and Farmer's [34] three measurement questions. Sample items included "I have the confidence to solve problems

creatively” and “I have the ability to come up with brilliant ideas”. This scale had a Cronbach’s α value of 0.823.

Creative performance was selected as a measure to reflect the purpose of this study and related items were based on the questions used by Zhou and George [55]. Examples of representative items were “I propose new ways to achieve goals” and “I propose new ways to improve work or product quality”. The Cronbach’s α value of this scale was 0.811.

Control variables

The employee age, education, and gender were applied as control variables in our analysis since they were previously associated with creative performance and statistically controlled for in empirical analyses in personality and creativity studies [4,35,56]. We measured age as the chronological age of employees in years. Gender was dummy coded as 1 for female and 0 for male. For tenure, we measured the amount of time (in years) an employee worked at an organization. We measured education background as the number of years of formal education received by employees. The task type was measured as a category variable, i.e., 1 = management support; 2 = sales and marketing; 3 = manufacturing (production); 4 = research and development (R&D); 5 = other. Additionally, the position rank was measured as a category variable, with 1 = employee, 2 = assistant manager, 3 = deputy director, and 4 = director or higher.

4. Results

Table 1 presents the means, standard deviation, and reliabilities of the key variables, along with the correlations among them. The reliability values for the measures were all above 0.80, and their correlations were as expected.

Table 1. Means, standard deviations, correlations, and reliabilities.

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10
1. Gender ^a	1.30	0.46	-									
2. Age	41.60	9.63	-0.097*	-								
3. Education ^b	14.03	0.92	-0.001	0.038	-							
4. Task type	1.92	1.59	-0.042	-0.047	-0.011	-						
5. Position rank	2.12	0.78	-0.243***	0.479***	0.154**	-0.009	-					
6. Tenure ^c	10.29	5.85	-0.170***	0.636***	0.083	-0.074	0.532***	-				
7. Proactive personality	3.34	0.47	-0.023	0.039	0.037	-0.102*	0.114*	0.132**	(0.811)			
8. Psychological safety	2.91	0.79	-0.058	-0.020	0.072	-0.042	0.027	0.023	0.492***	(0.911)		
9. Creative self-efficacy	3.28	0.63	-0.085	0.037	0.034	-0.065	0.102*	0.103*	0.651***	0.361***	(0.823)	
10. Creative performance	3.38	0.51	-0.071	0.088	0.073	-0.063	0.120*	0.161**	0.737***	0.403***	0.669***	(0.811)

Note. N = 439; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; reliability alpha (α) coefficients are reported in the diagonal; ^a Male = 1; Female = 0; ^b Education = years of formal education, ^c Tenure = number of years.

4.1. Confirmatory Factor Analysis

A confirmatory factor analysis (CFA) of the measures was used in this study to examine the construct validity. We modeled four correlated factors: proactive personality, creative self-efficacy, psychological safety, and creative performance. This theoretical four-factor model provided a reasonable fit for the data ($\chi^2 = 698.13$; degrees of freedom, $df = 246$; comparative fit index, CFI = 0.905; Tucker–Lewis index, TLI = 0.893; root mean square error of approximation, RMSEA = 0.036). A series of chi-square difference tests indicated that a four-factor model is much more suitable for data than a variety of alternative models (See Table 2). In all comparisons, the alternative model showed significantly worse fit. Overall, the results preferred a theoretical four-factor model, thus supporting the validity of the discriminations between the measurements.

Table 2. Model fit statistics for measurement models.

Model	x2(df)	CFI	TLI	RMR	RMSEA	$\Delta x2(df)$
Theoretical four-factor model (PP, PS, CSE, CP)	698.130(246)	0.905	0.893	0.036	0.065	
Three-factor model I (PP & CSE, PS, CP)	816.348(249)	0.880	0.867	0.038	0.072	118.218(3) ***
Three-factor model II (PS & CSE, PP, CP)	1317.201(249)	0.775	0.751	0.069	0.099	619.071(3) ***
Three-factor model III (PP & PS, CSE, CP)	1444.574(249)	0.748	0.721	0.070	0.105	746.444(3) ***
Two-factor model (PP & PS & CSE, CP)	1751.819(251)	0.684	0.652	0.069	0.117	1053.689(5) ***
One-factor model	1820.526(252)	0.670	0.638	0.073	0.119	1122.396(6) ***

Note. PP: proactive personality; PS: psychological safety; CSE: creative self-efficacy; CP: creative performance; RMR: root mean square residual. The chi-square difference for each model reflects its deviation from the four-factor model. *** represents that $p < 0.001$.

4.2. Hypothesis Testss

We tested hypothesis 1–3 using hierarchical regression. The results are presented in Table 3. Proactive personality was found to be positively related to creative performance ($\beta = 0.731$, $p < 0.001$) after controlling for gender, age, education level, task type, position rank, and tenure in Model 5. Thus, Hypothesis 1 was supported.

Table 3. Hierarchical multiple regression for proactive personality and creative performance.

Variable	Creative Self-Efficacy			Creative Performance			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Gender	−0.062	−0.068	−0.071	−0.043	−0.049	−0.027	−0.054
Age	−0.061	0.000	0.006	−0.032	0.037	0.037	0.044
Education	0.019	0.009	0.007	0.056	0.044	0.042	0.043
Task type	−0.063	−0.002	0.001	−0.055	0.014	0.015	0.018
Position rank	0.064	0.011	0.013	0.039	−0.021	−0.025	−0.018
Tenure	0.090	−0.001	−0.007	0.145 *	0.041	0.042	0.034
Proactive personality		0.648 ***	0.616 ***		0.731 ***	0.521 ***	0.696 ***
Psychological safety			0.036				0.033
Creative self-efficacy						0.324 ***	
Proactive personality × Psychological safety			0.088 *				0.116 ***
R ²	0.024	0.429	0.438	0.036	0.552	0.612	0.566
ΔR^2		0.405 ***	0.009 *		0.516 ***	0.060 ***	0.014 **

Note. N = 439. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Reliability alpha (α) coefficients are reported in diagonal.

To test Hypothesis 2 regarding the mediating role of creative self-efficacy in the relationship between proactive personality and creative performance, we followed Baron and Kenny [57] procedure. First, by testing Hypothesis 1, we already confirmed that proactive personality has a positive effect on creative performance. Next, Model 2 showed that proactive personality, evaluated by followers, was positively associated with creative self-efficacy ($\beta = 0.648$, $p < 0.001$). Finally, Model 6 showed that creative self-efficacy was positively associated to creative performance ($\beta = 0.324$, $p < 0.001$), explaining the significant additional variance in creative performance ($\Delta R^2 = 0.060$, $p < 0.001$). In this case, the effect of proactive personality on creative performance was weaker but still significant ($\beta = 0.521$, $p < 0.001$), indicating partial mediation. To confirm this result, we applied Preacher and Hayes [58] indirect effect test, which applies the bootstrap method to obtain more reliable estimates.

Traditionally, Baron and Kenny's casual step method was used to test mediating effects [57]. However, the Baron and Kenny's casual step method for the mediating effect test assumes a normal sampling distribution of indirect effects [57] which is not the often case. Therefore, there is a problem that the analysis may not be sophisticated. According to previous study [59], the bootstrapping method has been recommended to solve this problem. By employing the bootstrapping process, an empirical approximation of the sampling distribution is built so that we can construct sufficient confidence intervals for the indirect effect [60]. It means that bootstrapping method can solves the problem caused by asymmetric and non-normal sampling distributions of indirect effects [61]. Thus, we additionally performed bootstrapping analysis as a complementary method to re-check

our result of mediation effect test [58,59]. As with previous outcomes based on Baron and Kenny's method, the results of bootstrapping analysis also showed a significant indirect effect (indirect effect = 0.2277, SE = 0.0395, 95 % CI (0.1520, 0.3063)). Thus, Hypothesis 2 was supported.

For the moderating role of psychological safety, the interaction term of proactive personality and psychological safety significantly predicted creative performance ($\beta = 0.116$, $p < 0.001$; $\Delta R^2 = 0.014$, $p < 0.01$) in Model 7. To facilitate our interpretation of the interaction pattern, we plotted two simple slopes at one standard deviation (SD) above and below the mean value of the leader–follower value congruence [62]. As shown in Figure 2, the positive relationship between a proactive personality and creative performance was stronger when psychological safety was high than when it was low. This significant interaction effect and interaction pattern supported Hypothesis 3.

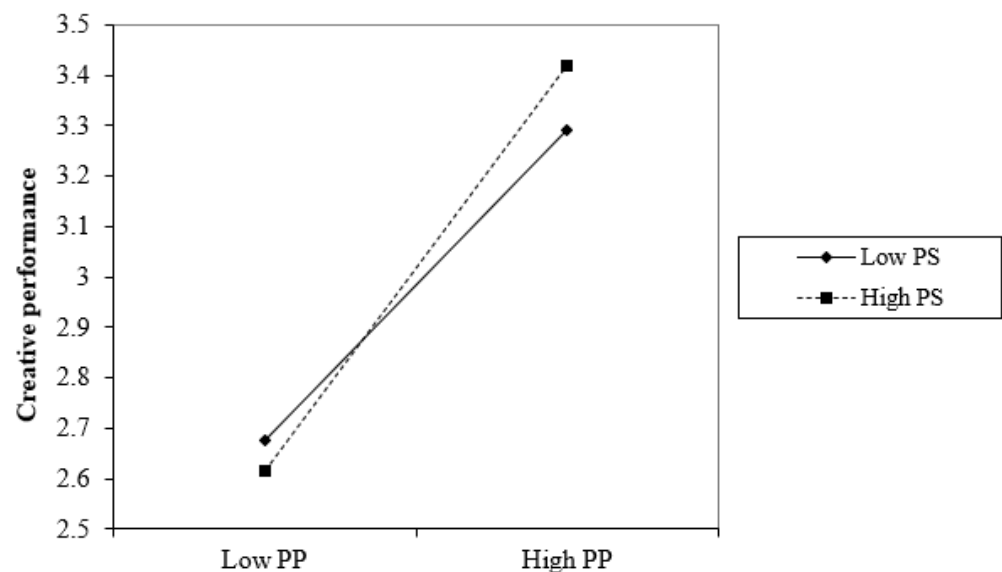


Figure 2. The moderating effect of psychological safety on the relationship between positive personality and creative performance. Note: PP: proactive personality; PS: psychological safety.

To test the integrated moderated mediation (Hypothesis 4), we investigated whether the indirect effect of proactive personality on creative performance via creative self-efficacy was moderated by psychological safety. The conditional indirect effect was tested by utilizing Hayes' [63] PROCESS program. The results are shown in Table 4. The indirect effect of a proactive personality on creative performance via creative self-efficacy was estimated at high (+1SD) and low levels (−1SD) of psychological safety using the bootstrap method. The results showed that this indirect effect was significant when the psychological safety was high (conditional indirect effect = 0.2293, SE = 0.0430, 95% CI (0.1470, 0.3169)) and less significant when the psychological safety was low (conditional indirect effect = 0.1829, SE = 0.0361, 95% CI (0.1157, 0.2577)). Thus, Hypothesis 4 was supported.

Table 4. Moderated mediation results for conditional indirect effect.

Psychological Safety	Boot Indirect Effect(β)	Boot SE	95% of Confidence Intervals	
			Boot LLCI	Boot ULCI
<i>M</i> −1SD	0.1829	0.0361	0.1157	0.2577
<i>Mean</i>	0.2061	0.0379	0.1337	0.2833
<i>M</i> +1SD	0.2293	0.0430	0.1470	0.3169

5. Discussion and Implication

This study empirically examined the effects of proactive personality on creative performance. It also examined the underlying process and conditions that enhance this relationship. Based on the empirical findings, the theoretical and managerial implications of this study are as follows.

5.1. Theoretical Implications

First, from the perspective of creativity research, this paper contributes to creative performance literature by uncovering that proactive personality enhances the creative performance of an organization. We found that employees' proactive personality enhanced the motivation and enthusiasm for creative problem-solving trials in the course of completing their tasks, which subsequently promotes creative performance [18]. Employees' proactive personalities encouraged learning-oriented behaviors, sharing knowledge, emotional stability, and cooperative capability among organizational members [13]. From the individual personality research perspective, many past studies have focused on the effect of proactive personality on job-related outcomes [7–10,20], and little research links a proactive personality to creative performance. We expect that our investigation into the role of a proactive personality in creative performance can inspire further creative and innovative performance research in a variety of contexts.

Second, another stream of research provided a one-sided understanding of how a proactive personality affected task-related performances. This study helps fill this gap in the previous research by identifying the important underlying mechanism that links a proactive personality to creative performance. We presented empirical evidence of how creative self-efficacy mediates the positive impact of proactive personality on creative performance when employees perform creative tasks in the organization [64]. We found that creative self-efficacy plays a key role in linking proactive personality to creative performance by enhancing employees' belief and confidence in their creative behaviors.

Third, our study extended prior creativity literature by investigating the moderating role of psychological safety in the link between proactive personality and creative performance. The empirical analysis showed that psychological safety was an important condition for maximizing the impact of proactive personality on creative performance in terms of eliminating the psychological fear, tension, and conflict associated with negative outcomes arising from the process of completing tasks in creative ways. Psychological safety provides a favorable and safe workplace environment by enhancing interpersonal trust and cooperation, integrated shared values, networking capacity, and supervisory support [13,43,44,47,50,51], all of which eventually increases employees' creative endeavors when performing their tasks.

Fourth, the empirical findings of this study revealed the moderated mediation role of psychological safety on the indirect effect of proactive personality on creative performance via creative self-efficacy. Prior research mainly focused on identifying the simple mediator and moderator in this relationship between proactive personality and task performance [7,9,10,12,15]. Our study expands on existing perspectives concerning the situational factors that cause creative performance by providing an integrated view of the direct and indirect mechanisms and conditions of how a proactive personality enhances creative performance in a challenging and dynamic organizational environment.

5.2. Managerial Implications

The outcomes of our study also have several managerial implications. First, the results indicated that proactive employees are essential to creative performance of an organization. Thus, we suggested that managers should be aware of the positive benefits of proactive employees having a high level of creative self-efficacy for creative performance, and eventually sustainable organizational growth. In practical terms, managers and practitioners should take steps to encourage proactive and confident employees to do their jobs creatively. Organization also tries to build effective education and training programs to

develop employees' proactive personalities and creative self-efficacy. We also recommend that team leaders (or supervisors) conduct employee mentoring programs to boost the positive perception and belief of employees toward creative tasks, which will eventually increase their confidence and lead to better creative performance [65].

Second, managers should recognize the important role of psychological safety as a condition for enhancing creative performance. We found that the positive effects of a proactive personality on creative performance were influenced by the level of psychological safety perceived by employees. Thus, a safe and healthy workplace atmosphere is extremely important for increasing the level of proactive personality and self-efficacy on creative tasks. We should also note that organizations need to create a sound workplace environment, encouraging employees' psychological safety by eliminating any fear of negative consequences from supervisors and co-workers in the process of completing their task creatively.

Third, the results also indicate that psychological safety is an important condition for enhancing the indirect effect of employees' proactive personality on creative performance via creative self-efficacy. Thus, managers should support and facilitate a psychologically safe work climate, wherein employees can easily undertake risky work trials, as well as remove the psychological fear associated with negative outcomes arising from their involvement in creative work. This will promote the exchange of key knowledge among organizational members, the sharing of creative ideas based on interpersonal trust, and close cooperation among employees from different departments, which will ultimately serve as key drivers of creative performance [49]. In sum, organizations should pay more attention to the development of a psychological safe workplace aimed at reducing unnecessary fear from failure and increasing proactive behaviour and self-efficacy toward creative performance.

5.3. Limitations and Future Research Directions

This study has several limitations that should be addressed by future researchers. Since the data in this research were collected from South Korean firms, the results may be influenced by cultural bias or country-specific organizational practices. To avoid cultural bias, data must be collected from multicultural organizations or different demographic perspectives [66]. Moreover, due to the use of a non-random sample selection method in this study, the generalizability of our findings remains limited. Future research should address this limitation of sample selection bias by expanding samples to multiple sources and areas of organization and industrial sectors.

Second, previous studies have found that creativity is influenced by both team-level factors as well as individual characteristics [67]. Therefore, team-level or multi-level analyses should be performed. Finally, since creativity is a remarkable outcome of employees' intellectual efforts, rewards can better influence proactive employees to deliver creative output [14]. Therefore, future studies must identify the various psychological factors that serve as drivers of creative performance. Additionally, although we examined psychological safety as a key conditional variable strengthening the positive effect of proactive personality in this study, employees with proactive personalities may also be less likely to perceive a situation as being psychologically unsafe [9,44]. Thus, future studies can explore various other moderators, such as emotional stability, learning orientation as well as organizational and team level contextual factors such as team task feature and composition, to understand different perspectives.

5.4. Conclusions

This study examined the indirect impact of proactive personality on creative performance via creative self-efficacy. We empirically showed that employees' proactive personalities were significantly associated with their creative performance while creative self-efficacy was found to positively mediate the relationship between a proactive personality and creative performance. Moreover, we identified that psychological safety, an

important situational variable, strengthened employees' creative performance. Additionally, we identified that the moderating role of psychological safety enhanced the indirect effect of proactive personality on creative performance via creative self-efficacy. Despite the limitations of this study, our findings contribute to creative performance research by uncovering the complex mechanism and conditions underlying creative performance.

Author Contributions: Conceptualization, S.B.C. and S.M.E.U.; Formal analysis, S.-W.K. and S.B.C.; Investigation, S.B.C. and S.-W.K.; Methodology, S.-W.K. and S.B.C.; Supervision, S.B.C.; Validation, S.B.C.; Writing—original draft, S.M.E.U. and S.B.C.; Writing—review & editing, S.B.C. and S.-W.K. All authors have read and agreed to the published version of the manuscript.

Funding: This work was supported by the Gachon University research fund of 2020 (GCU-202002580001).

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

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

References

- Shalley, C.E.; Zhou, J.; Oldham, G.R. The effects of personal and contextual characteristics on creativity: Where should we go from here? *J. Manag.* **2004**, *30*, 933–958. [\[CrossRef\]](#)
- Hülshager, U.R.; Anderson, N.; Salgado, J.F. Team-level predictors of innovation at work: A comprehensive meta-analysis spanning three decades of research. *J. Appl. Psychol.* **2009**, *94*, 1128–1145. [\[CrossRef\]](#) [\[PubMed\]](#)
- Anderson, N.; De Dreu, C.K.; Nijstad, B.A. The routinization of innovation research: A constructively critical review of the state-of-the-science. *J. Organ. Behav.* **2004**, *25*, 147–173. [\[CrossRef\]](#)
- Gong, Y.; Huang, J.C.; Farh, J.L. Employee learning orientation, transformational leadership, and employee creativity: The mediating role of employee creative self-efficacy. *Acad. Manag. J.* **2009**, *52*, 765–778. [\[CrossRef\]](#)
- Runco, M.A. Everyone has creative potential. In *Creativity: From Potential to Realization*; Sternberg, R.J., Grigorenko, E.L., Singer, J.L., Eds.; APA Books: Washington, DC, USA, 2004.
- Zhou, J. When the presence of creative coworkers is related to creativity: Role of supervisor close monitoring, developmental feedback, and creative personality. *J. Appl. Psychol.* **2003**, *88*, 413–422. [\[CrossRef\]](#) [\[PubMed\]](#)
- Seibert, S.E.; Kraimer, M.L.; Crant, J.M. What do proactive people do? A longitudinal model linking proactive personality and career success. *Pers. Psychol.* **2001**, *54*, 845–874. [\[CrossRef\]](#)
- Crant, J.M. Proactive behavior in organizations. *J. Manag.* **2000**, *26*, 435–462. [\[CrossRef\]](#)
- Chan, D. Interactive effects of situational judgment effectiveness and proactive personality on work perceptions and work outcomes. *J. Appl. Psychol.* **2006**, *91*, 475–481. [\[CrossRef\]](#)
- Kim, T.Y.; Hon, A.H.; Crant, J.M. Proactive personality, employee creativity, and newcomer outcomes: A longitudinal study. *J. Bus. Psychol.* **2009**, *24*, 93–103. [\[CrossRef\]](#)
- Hon, A.H.Y.; Kim, T.Y. Work overload and creativity: Goal orientation, task feedback from supervisor, and reward for competence. In *Current Topics in Management*; Rahim, M.A., Ed.; Transaction Publishers: New Jersey, NJ, USA, 2007; Volume 12, pp. 193–212.
- Kim, T.Y.; Wang, J. Proactive personality and newcomer feedback seeking: The moderating roles of supervisor feedback and organizational justice. In *Current Topics in Management*; Rahim, M.A., Ed.; Transaction Publishers: New Jersey, NJ, USA, 2008; Volume 13, pp. 91–108.
- Gong, Y.; Cheung, S.Y.; Wang, M.; Huang, J.C. Unfolding the proactive process for creativity integration of the employee proactivity, information exchange, and psychological safety perspectives. *J. Manag.* **2012**, *38*, 1611–1633.
- Kim, T.Y.; Hon, A.H.; Lee, D.R. Proactive personality and employee creativity: The effects of job creativity requirement and supervisor support for creativity. *Creat. Res. J.* **2010**, *22*, 37–45. [\[CrossRef\]](#)
- Roopak, K.; Mishra, S.K.; Sikarwar, E. Linking leader–follower proactive personality congruence to creativity. *Pers. Rev.* **2019**, *48*, 454–470. [\[CrossRef\]](#)
- Li, H.; Jin, H.; Chen, T. Linking proactive personality to creative performance: The role of job crafting and high-involvement work systems. *J. Creat. Behav.* **2020**, *54*, 196–210. [\[CrossRef\]](#)
- Kong, Y.; Li, M. Proactive personality and innovative behavior: The mediating roles of job-related affect and work engagement. *Soc. Behav. Personal. Int. J.* **2018**, *46*, 431–446. [\[CrossRef\]](#)
- Crant, J.M.; Bateman, T.S. The central role of proactive behavior. In *Proactivity: Enhancing Understanding of Self-Starting and Dynamic Action within Organizations*; Parker, S.K., Collins, C.G., Eds.; Symposium Conducted at the Meeting of the Academy of Management: New Orleans, LA, USA, 2004.
- Madjar, N.; Ortiz-Walters, R. Customers as contributors and reliable evaluators of creativity in the service industry. *J. Organ. Behav.* **2008**, *29*, 949–966. [\[CrossRef\]](#)

20. Fuller, B.; Marler, L.E. Change driven by nature: A meta-analytic review of the proactive personality literature. *J. Vocat. Behav.* **2009**, *75*, 329–345. [[CrossRef](#)]
21. Tett, R.P.; Guterman, H.A. Situation trait relevance, trait expression, and cross-situational consistency: Testing a principle of trait activation. *J. Res. Personal.* **2000**, *34*, 397–423. [[CrossRef](#)]
22. Farmer, S.M.; Tierney, P.; Kung-McIntyre, K. Employee creativity in Taiwan: An application of role identity theory. *Acad. Manag. J.* **2003**, *46*, 618–630.
23. Johnson, M.D.; Hollenbeck, J.R.; Humphrey, S.E.; Ilgen, D.R.; Jundt, D.; Meyer, C.J. Cutthroat cooperation: Asymmetrical adaptation to changes in team reward structures. *Acad. Manag. J.* **2006**, *49*, 103–119. [[CrossRef](#)]
24. Kahn, W.A. Psychological conditions of personal engagement and disengagement at work. *Acad. Manag. J.* **1990**, *33*, 692–724.
25. Shin, S.J.; Zhou, J. Transformational leadership, conservation, and creativity: Evidence from Korea. *Acad. Manag. J.* **2003**, *46*, 703–714. [[CrossRef](#)]
26. Zhang, X.; Bartol, K.M. Linking empowering leadership and employee creativity: The influence of psychological empowerment, intrinsic motivation, and creative process engagement. *Acad. Manag. J.* **2010**, *53*, 107–128. [[CrossRef](#)]
27. Mumford, M.D. *Handbook of Organizational Creativity*; Elsevier: London, UK, 2012.
28. Bindl, U.; Parker, S.K. *Proactive Work Behavior: Forward-Thinking and Change-Oriented Action in Organizations*; American Psychological Association: Washington, DC, USA, 2010; Volume 2, pp. 567–598.
29. Fuller, J.B.; Marler, L.E.; Hester, K. Promoting felt responsibility for constructive change and proactive behavior: Exploring aspects of an elaborated model of work design. *J. Organ. Behav.* **2006**, *27*, 1089–1120. [[CrossRef](#)]
30. Thompson, J.A. Proactive personality and job performance: A social capital perspective. *J. Appl. Psychol.* **2005**, *90*, 1011–1017. [[CrossRef](#)] [[PubMed](#)]
31. Choi, H.S.; Thompson, L. Old wine in a new bottle: Impact of membership change on group creativity. *Organ. Behav. Hum. Decis. Process.* **2005**, *98*, 121–132. [[CrossRef](#)]
32. Major, D.A.; Turner, J.E.; Fletcher, T.D. Linking proactive personality and the Big Five to motivation to learn and development activity. *J. Appl. Psychol.* **2006**, *91*, 927–935. [[CrossRef](#)] [[PubMed](#)]
33. Pettigrew, T.F.; Tropp, L.R. Does intergroup contact reduce prejudice: Recent meta-analytic findings. In *Reducing Prejudice and Discrimination: The Claremont Symposium on Applied Social Psychology*; Oskamp, S., Ed.; Lawrence Erlbaum Associates, Inc.: New Jersey, NJ, USA, 2000; pp. 93–114.
34. Tierney, P.; Farmer, S.M. Creative self-efficacy: Its potential antecedents and relationship to creative performance. *Acad. Manag. J.* **2002**, *45*, 1137–1148.
35. Malik, M.A.R.; Butt, A.N.; Choi, J.N. Rewards and employee creative performance: Moderating effects of creative self-efficacy, reward importance, and locus of control. *J. Organ. Behav.* **2015**, *36*, 59–74. [[CrossRef](#)]
36. Tierney, P.; Farmer, S.M. Creative self-efficacy development and creative performance over time. *J. Appl. Psychol.* **2011**, *96*, 277–293. [[CrossRef](#)]
37. Dweck, C.S. *Self-Theories: Their Role in Motivation, Personality, and Development*; Psychology Press: New York, NY, USA, 2000.
38. Perry-Smith, J.E. Social yet creative: The role of social relationships in facilitating individual creativity. *Acad. Manag. J.* **2006**, *49*, 85–101. [[CrossRef](#)]
39. Hejazi, E.; Shahrray, M.; Farsinejad, M.; Asgary, A. Identity styles and academic achievement: Mediating role of academic self-efficacy. *Soc. Psychol. Educ.* **2009**, *12*, 123–135. [[CrossRef](#)]
40. Yuan, F.; Woodman, R.W. Innovative behavior in the workplace: The role of performance and image outcome expectations. *Acad. Manag. J.* **2010**, *53*, 323–342. [[CrossRef](#)]
41. Baas, M.; De Dreu, C.K.; Nijstad, B.A. A meta-analysis of 25 years of mood-creativity research: Hedonic tone, activation, or regulatory focus? *Psychol. Bull.* **2008**, *134*, 779–860. [[CrossRef](#)]
42. Shalley, C.E. Creating roles: What managers can do to establish expectations for creative performance. In *Handbook of Organizational Creativity*; Zhou, J., Shalley, C.E., Eds.; Psychology Press: New York, NY, USA, 2008; pp. 147–164.
43. Edmondson, A.C.; Lei, Z. Psychological safety: The history, renaissance, and future of an interpersonal construct. *Annu. Rev. Organ. Psychol. Organ. Behav.* **2014**, *1*, 23–43. [[CrossRef](#)]
44. Frazier, M.L.; Fainshmidt, S.; Klinger, R.L.; Pezeshkan, A.; Vracheva, V. Psychological safety: A meta-analytic review and extension. *Pers. Psychol.* **2017**, *70*, 113–165. [[CrossRef](#)]
45. Carmeli, A.; Reiter-Palmon, R.; Ziv, E. Inclusive leadership and employee involvement in creative tasks in the workplace: The mediating role of psychological safety. *Creat. Res. J.* **2010**, *22*, 250–260. [[CrossRef](#)]
46. Edmondson, A. Psychological safety and learning behavior in work teams. *Adm. Sci. Q.* **1999**, *44*, 350–383. [[CrossRef](#)]
47. Hood, A.C.; Bachrach, D.G.; Zivnuska, S.; Bendoly, E. Mediating effects of psychological safety in the relationship between team affectivity and transactive memory systems. *J. Organ. Behav.* **2016**, *37*, 416–435. [[CrossRef](#)]
48. Grant, A.M.; Ashford, S.J. The dynamics of proactivity at work. *Res. Organ. Behav.* **2008**, *28*, 3–34. [[CrossRef](#)]
49. Amabile, T.M.; Khaire, M. Your organization could use a bigger dose of creativity. *Harv. Bus. Rev.* **2008**, *86*, 101–109.
50. Cooper, W.H.; Withey, M.J. The strong situation hypothesis. *Personal. Soc. Psychol. Rev.* **2009**, *13*, 62–72. [[CrossRef](#)]
51. Bunderson, J.S.; Sutcliffe, K.M. Comparing alternative conceptualizations of functional diversity in management teams: Process and performance effects. *Acad. Manag. J.* **2002**, *45*, 875–893.

52. Castagna, F.; Centobelli, P.; Cerchione, R.; Esposito, E.; Oropallo, E.; Passaro, R. Customer knowledge management in SMEs facing digital transformation. *Sustainability* **2020**, *12*, 3899. [CrossRef]
53. Yildiz, B.; Elibol, E. Turnover intention linking compulsory citizenship behaviours to social loafing in nurses: A mediation analysis. *J. Nurs. Manag.* **2021**, *29*, 653–663. [CrossRef]
54. Seibert, S.E.; Crant, J.M.; Kraimer, M.L. Proactive personality and career success. *J. Appl. Psychol.* **1999**, *84*, 416–427. [CrossRef]
55. Zhou, J.; George, J.M. When job dissatisfaction leads to creativity: Encouraging the expression of voice. *Acad. Manag. J.* **2001**, *44*, 682–696.
56. Madjar, N.; Oldham, G.R.; Pratt, M.G. There's no place like home? The contributions of work and nonwork creativity support to employees' creative performance. *Acad. Manag. J.* **2002**, *45*, 757–767.
57. Baron, R.M.; Kenny, D.A. The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations. *J. Personal. Soc. Psychol.* **1986**, *51*, 1173–1182. [CrossRef]
58. Preacher, K.J.; Hayes, A.F. SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behav. Res. Methods Instrum. Comput.* **2004**, *36*, 717–731. [CrossRef]
59. Williams, J.; MacKinnon, D.P. Resampling and distribution of the product methods for testing indirect effects in complex models. *Struct. Equ. Modeling Multidiscip. J.* **2008**, *15*, 23–51. [CrossRef]
60. Li, A.N.; Tan, H.H. What happens when you trust your supervisor? Mediators of individual performance in trust relationships. *J. Organ. Behav.* **2013**, *34*, 407–425. [CrossRef]
61. MacKinnon, D.P.; Lockwood, C.M.; Williams, J. Confidence limits for the indirect effect: Distribution of the product and resampling methods. *Multivar. Behav. Res.* **2004**, *39*, 99–128. [CrossRef] [PubMed]
62. Aiken, L.S.; West, S.G. *Multiple Regression: Testing and Interpreting Interactions*; Sage Publications: Newbury Park, CA, USA, 1991.
63. Hayes, A.F. PROCESS: A Versatile Computational Tool for Observed Variable Mediation, Moderation, and Conditional Process Modeling. Available online: <http://www.afhayes.com/public/process2012.pdf> (accessed on 13 October 2021).
64. Bandura, A.; Locke, E.A. Negative self-efficacy and goal effects revisited. *J. Appl. Psychol.* **2003**, *88*, 87–99. [CrossRef] [PubMed]
65. Tolli, A.P.; Schmidt, A.M. The role of feedback, causal attributions, and self-efficacy in goal revision. *J. Appl. Psychol.* **2008**, *93*, 692–701. [CrossRef]
66. Hofstede, G.H.; Hofstede, G. *Culture's Consequences: Comparing Values, Behaviors, Institutions and Organizations across Nations*; Sage: California, CA, USA, 2001.
67. Tasa, K.; Taggar, S.; Seijts, G.H. The development of collective efficacy in teams: A multilevel and longitudinal perspective. *J. Appl. Psychol.* **2007**, *92*, 17–27. [CrossRef]