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The relationship between proactive personality and employees' creativity: the mediating role of intrinsic motivation and creative self-efficacy

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ABSTRACT

Employees' creativity is one of the most important factors in the success of organizations which has attracted the attention of researchers in recent years. Recent research has suggested that proactive personality fosters creativity. However, there is a lack of research into the mechanisms that make this link possible. The main purpose of this study was to examine the relationship between proactive personality and employee creativity by focusing on the mediating roles of intrinsic motivation and creative self-efficacy. Data from 178 Iranian agriculture experts were collected and analyzed by conducting structural equation modeling. The results indicated that proactive personality was directly and positively related to employees' creativity. Additionally, the results showed that intrinsic motivation and creative self-efficacy partially mediated the relationship between proactive personality and employees' creativity. The findings not only shed light on mechanisms that underlie in the proactive personality -creativity linkage but they also highlight the importance of intrinsic motivation and creative self-efficacy in the linkage. Together, the study extends the effect of proactive personality on creativity and the mediation mechanisms underlying this relationship. The theoretical and practical implications, limitations, and future research directions are discussed.

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1. Introduction

Employee's creativity is a key factor in the innovation, productivity, survival, and success of organizations in today's dynamic and ever-changing world (Amabile & Pratt, 2016; Anderson et al., 2014; Liu et al., 2016; Zhu et al., 2018). Creative employees can generate new and useful ideas concerning products, services, processes, and procedures in organizations. In turn, organizations can implement them to respond to market changes and customers' requirements or seize market opportunities (Alikaj et al., 2021). The extent to which employees engage in creative behavior has been

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found to be essential in determining organizational performance (Anderson et al., 2014). Considering the increasing importance and necessity of creativity in the workplace, many organizations have designed various interventions to promote employees' creativity (Hirst et al., 2009; Malik et al., 2015; Sears et al., 2018). Meanwhile, although researchers have attempted to identify effective factors and mechanisms regarding creativity, some problems remain that must be solved through further research. One of these problems is the mechanism of personality's effect on creativity.

Most studies of the promotion of creativity have been based on the Big Five model of personality (Costa & McCrae, 1992). However, in recent years, numerous researchers have described strict adherence to the Big Five personality traits as unreasonable (Borman, 2004), asserting that other personality constructs must therefore be considered (Li et al., 2017; Paunonen & Jackson, 2000). Among the personality factors affecting creativity, this research focuses on proactive personality. This trait has received a relatively small amount of scholarly attention in the context of the workplace, despite its potential importance in promoting creativity (Horng et al., 2016; Kim et al., 2010). Studies indicate that there is a positive relationship between proactive personality and employees' creativity (Horng et al., 2016; Jiang & Gu, 2015). However, less attention has been paid to the mechanisms underlying this relationship in the literature (Alikaj et al., 2021; Kim et al., 2010; Sears et al., 2018). It is not clear how and through which mechanisms employees' proactive personality is associated with their creativity.

Recently, research findings have recommended some presumable processes and emphasized on the role played by intrinsic motivation (Parker et al., 2010) and self-efficacy (Li et al., 2017). Based on the literature, intrinsic motivation and creative self-efficacy are two main factors of psychological readiness ('can' and 'will') affecting a person's behavior (Choi, 2004; Gu et al., 2017). However, few studies have examined the mediating roles of these two factors in the relationship between proactive personality and employees' creativity, especially in developing countries. Creativity theories and previous studies indicated that intrinsic motivation and creative self-efficacy have positive relationships with employees' creativity (Amabile & Pratt, 2016; Liu et al., 2016). Meanwhile, proactive persons are more likely to have more intrinsic motivation and a higher level of creative self-efficacy in the work environment (Bergeron et al., 2014; Li et al., 2017). Therefore, the main purpose of this study was to investigate the association between proactive personality and employees' creativity and extend the results from previous studies by exploring the mediating role of intrinsic motivation and creative self-efficacy in the public sector of a developing country, namely Iran.

This study adds a significant contribution to the literature of creativity. Prior research findings show the connection between proactive personality and creativity. However, it is not clear how and through which mechanisms proactive personality improves employees' creativity. Indeed, very little consideration is given to the mechanism about how to establish and maintain the relationship of proactive personality, creativity and the factors which affect this relationship (i.e., mediation). Subsequently, this research answers to the calls related to the proactive personality-creativity relationship directly and indirectly via any mechanisms. The findings from this research

can provide guidance to those managers intended to promote creativity among their employees via spending management and financial resources. Up to our knowledge, this is the first study focusing on proactive personality and its effect on creativity of employees in the Iranian government sector as a developing.

2. Theoretical framework and hypotheses

Creative behavior refers to 'the development of ideas about products, practices, services or procedures that are (a) novel and (b) potentially useful to the organization' (Shalley et al., 2004, p. 934). As the cornerstone for innovation and success of organizations, this behavior has elicited a lot of scholarly attention (Alikaj et al., 2021). As a result, severally studies have explored myriad factors that may influence the creativity of employees. In this regard, Componential Theory of Creativity is one of the better-known theories (Amabile, 1988; Amabile & Pratt, 2016), according to which individual creativity is a produce of an interaction between an individual and their environment. Salient factors that affect creativity include within-individual components such as personality and intrinsic motivation (Amabile & Pratt, 2016). Inexorably, personality traits differ from one person to another and have a strong impact on the results. Understanding the specific personality trait that is conducive for creativity has been an important area of research in recent years. To that end, research has shown that 'nature' factors help creativity more than 'nurture' factors (Dul et al., 2011). Considering the significance of proactive personality and the fact that a few studies have been carried out in this respect (e.g., Horng et al., 2016), the present study examined this personality.

2.1. Proactive personality and creativity

Proactive personality is considered as a certain personality trait being less affected by situational pressures and can be challenging to current status. They even can create changes by affecting the environment. Individuals with proactive personality are looking for finding an opportunity to show their initiatives; and, they insistently make an effort to create a desirable situation (Bateman & Crant, 1993). In other words, they enjoy discovering or solving problems to influence their surrounding environment (Bateman & Crant, 1993). Proactive persons follow organizational goals and try to affect their surrounding environment. However, passive persons intend to match existing conditions instead of changing them (Parker et al., 2010).

As suggested by Parker et al. (2010), proactive employees have three main characteristics: they have a tendency towards change, beginning with themselves and focusing on the future. These three characteristics can optimize creativity (Jiang & Gu, 2015). They can develop their own knowledge and skills to find new working methods and to proceed towards creative outcomes (Kim et al., 2009). Due to the tendency of proactive persons towards change and the formation of the surrounding environment to become more matched with their requirements, they are more likely to show creative behaviors (Pan et al., 2018). Proactive personality motivates people to affect their environment through the prediction of problems and provision of solutions

(Bateman & Crant, 1993; Crant, 2000); and, this promotes innovation and creativity (Seibert et al., 2001). Several previous studies have also shown that proactive personality has a positive relationship with employees' creativity (Akgunduz et al., 2018; Kim et al., 2010; Li et al., 2020; Tai & Mai, 2016). For example, Kim et al. (2009) demonstrated in a sample of Hong Kong Chinese employees from various organizations that proactive employees showed higher creativity levels. In addition, Li et al. (2017) reported that proactive personality was positively associated with the creative behavior of teachers in Chinese high schools. Also, Kim's (2019) study on employees of industrial companies in South Korea indicated that proactive personality had a positive relationship with employees' creativity. Based on the above discussion, the following hypothesis is formulated:

H1: Proactive personality is positively related to employees' creativity.

2.2. Intrinsic motivation and creativity

Scholars have distinguished between two main types of motivation: intrinsic and extrinsic motivations (Amabile et al., 1994; Ryan & Deci, 2000). While intrinsic motivation is stemmed from inherent value of a person, extrinsic motivation is stemmed from enjoying the achievement of those outcomes separated from the work itself (Amabile et al., 1994; Ryan & Deci, 2000). In other words, intrinsic motivation refers to the tendency of a person towards performing an action to enjoy it with no expectation or tendency towards external award (Lepper et al., 1973). However, extrinsic motivation refers to financial and non-financial rewards provided by organizations to their employees to promote a specific behavior.

According to the new model developed by Amabile and Pratt (2016), intrinsic motivation shows psychological readiness ('will') as a key factor to improve creativity. Peoples' tendency towards engagement in creative activity or producing creative outcomes somehow depends on intrinsic motivation (Prabhu et al., 2008). This is due to intrinsic motivation being the most important determinant of the difference between what can be performed by a person and what he wants to do (Amabile, 1988, p. 133). As suggested by Csikszentmihalyi (1988), creativity needs a deep interest in one field to facilitate problem detection, endurance and perseverance during the long term and ambiguous discovery process, and lack of satisfaction regarding the status quo of knowledge in that field. All these three conditions seem to have a strong relationship with intrinsic motivation (Sears et al., 2018). Intrinsic motivation can improve creativity by increasing positive emotions, cognitive flexibility, risk taking, and perseverance (Grant & Berry, 2011). These psychological states, along with intrinsic motivation, will probably be aiming at creative involvements. With these psychological states, employees may spontaneously consider various task parameters. They may explore more creative and even risky solutions to solve the fundamental problem through cognitive, vigorous and deep involvements (Mainemelis et al., 2015). Empirical studies also show a positive relationship between intrinsic motivation and employees' creativity (Fischer et al., 2019; Hur et al., 2018; Malik et al., 2019; Zhu et al., 2018). In addition, several meta-analyses indicate that intrinsic motivation is

positively related to creativity (de Jesus et al., 2013; Liu et al., 2016). Therefore, the following hypothesis is presented:

H2: Intrinsic motivation is positively related to employees' creativity.

2.3. Creative self-efficacy and creativity

Based on social cognitive theory (Bandura, 1986), the concept of creative self-efficacy has been developed by Tierney and Farmer (2002), which refers to how much an individual believes in their ability to produce creative outcomes. Creative efforts are risky and challenging. They require those people who would be engaged in continuous trial and error and learning process (Tierney & Farmer, 2011) and those who create strong inner powers to achieve creative outcomes. Creative self-efficacy is the source of motivation for the can-do for creativity and provides an internal driving force for creativity (Liu et al., 2016). The social cognitive theory emphasizes the point that if people believe in their ability to produce desired effects and preventing harmful results, and if they believe in having the required knowledge and skills for creativity; they will invest sufficient time, effort and resources in their works, and they will feel more comfortable in accepting work challenges and being involved in creative tasks (Bandura, 2001).

Creative self-efficacy helps employees to resist failures and threats and to have skill-oriented goal orientation (Tierney & Farmer, 2011). Therefore, when facing with setbacks and risks, people with higher creative self-efficacy are less prone to give up their creative efforts or processes (Liu et al., 2016). Tierney and Farmer (2002) were the first to study the role of creative self-efficacy in determining employees' creativity. After their study, creative self-efficacy was considered as one of the important components in understanding how individual and organizational creative performance would be taken into consideration (Carmeli & Schaubroeck, 2007; Choi, 2004). According to previous studies, creative self-efficacy has a positive relationship with employees' creativity (Cai et al., 2019; Chen & Zhang, 2019; Gong et al., 2009; Huang et al., 2020; Karimi et al., 2021). A meta-analysis by Liu et al. (2016) also showed that creative self-efficacy was positively related to employees' creativity. Therefore, the following hypothesis is provided:

H3: Creative self-efficacy is positively related to employees' creativity.

2.4. Proactive personality and intrinsic motivation

In the research literature, positive effect of intrinsic motivation on creativity has been emphasized; however, insufficient attention has been paid to the role that personality traits play in shaping intrinsic motivation. As motivation results from situational conditions and personal characteristics, assuming intrinsic motivation to be shaped by personality traits would also be reasonable (Tan et al., 2019). In other words, although some parts of motivational orientation can be shaped by environmental factors (i.e., organizational, occupational, and social characteristics), there is also evidence suggesting that those with a stable, trait-like nature and high intrinsic motivation choose activities and tasks that stimulate them to develop new skills and enhance their creativity (Amabile et al., 1994). These individuals focus more on their

work and gain more enjoyment from the process. The rationale is that, although an individual's levels of intrinsic and extrinsic motivation vary across situations and times (states), everyone differs in their general tendencies (traits) to be intrinsically and extrinsically motivated across situations and times. Thus, motivation stems from elements of both nature and nurture (Amabile, 2018). As suggested by Watanabe and Kanazawa (2009), environmental factors have been more taken into consideration than individual differences in studies related to intrinsic motivation. Not much research has been conducted on the topic. Some studies have examined the relationship between proactive personality and intrinsic motivation (Horng et al., 2016; Joo & Lim, 2009; Sears et al., 2018). For instance, Horng et al. (2016) found that employees with proactive personality possessed greater intrinsic motivation. From the discussion above, the following hypothesis is formulated:

H4: Proactive personality is positively related to intrinsic motivation.

2.5. Proactive personality and creative self-efficacy

Based on Bandura's self-efficacy theory (1986), Gist and Mitchell (1992) developed a work-related self-efficacy model. They discuss that self-efficacy is malleable and can change overtimes (Li et al., 2017). Also, personal and contextual resources are effective on self-efficacy. In this respect, it was concluded by Tierney and Farmer (2002, 2011) that external and internal factors are two determinant groups of factors that have a relationship with creative self-efficacy. Proactive personality is an internal and stable factor; so, expecting it to be a precursor for creative self-efficacy is reasonable (Li et al., 2017). Empirical research also supports the idea. For example, in a study of Chinese teachers, Li et al. (2017) found that proactive personality had a positive and significant effect on creative self-efficacy. Also, Fuller et al. (2018) study among American university students showed that proactive personality has a positive relationship with creative self-efficacy. Therefore, proactive personality can be expected to have a positive relationship with creative self-efficacy of employees. This discussion leads to the following hypothesis:

H5: Proactive personality is positively related to creative self-efficacy.

2.6. Mediating role of intrinsic motivation

The mediating role of work motivation on the relation between personality and outcomes has been widely studied by scholars to identify organizational behaviors (e.g., Kuvaas, 2006). For example, as reported by Chen and Kao (2014), proactive personality affects employees' performance through intrinsic motivation. In creativity studies, some mediating mechanisms have been recommended concerning the association between proactive personality and creativity. In Parker et al. (2010) proactive motivation model, they discuss that intrinsic motivation and self-efficacy are key mediators of this relationship. This proposition was tested by Chen et al. (2013) and their results were generally supportive. In addition, Horng et al. (2016) reported that the relationship between proactive personality and employees' creativity was mediated through intrinsic motivation. A study by Sears et al. (2018) also concluded that

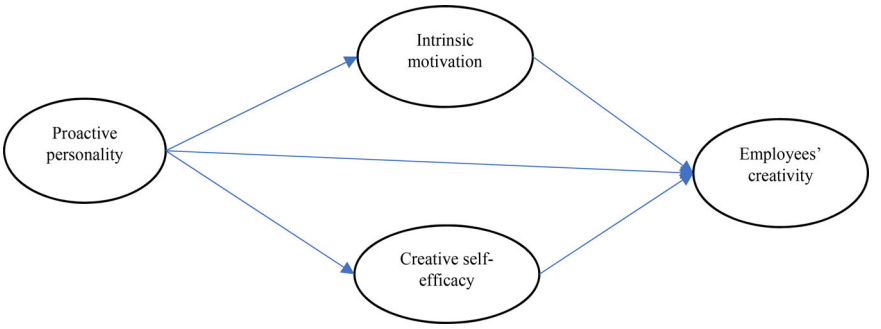

Figure 1. Conceptual model.

intrinsic motivation mediated the association between employee proactive personality and creativity. Given these findings, the following hypothesis is suggested:

H6: The relationship between proactive personality and employees' creativity is mediated via intrinsic motivation.

2.7. Mediating role of creative self-efficacy

As referred to before, creative self-efficacy plays an important role in explaining employees' creativity. On the other hand, many personal and background variables are related to creative self-efficacy (Liu et al., 2016). Therefore, as studied by researchers, creative self-efficacy can be a key mediating mechanism connecting personal and background factors to creativity outcomes. They believe that creative self-efficacy plays a mediating role in addition to a direct role. That is, it mediates the effects of distal background and individual variables (such as personality traits) on behavior (Cai et al., 2019; Gong et al., 2009; Karimi et al., 2021; Wang et al., 2014). For example, Chen (2016) reported that creative self-concept (creative self-efficacy and identity) mediates the relationship between openness to experience and creative behavior. Choi (2004) also found that creative self-efficacy mediates the effect of personal and background variables such as creative motivation and personality on creativity. Also, in a study by Li et al. (2017), it was found that proactive personality has an indirect effect on the innovative behavior of employees via creative self-efficacy. Therefore, in this study, it is assumed that proactive personality improves creative self-efficacy, which, in turn, leads to increased employees' creativity, i.e., it plays a mediating role (Figure 1). Based on the discussion mentioned above, the following hypothesis is proposed:

H7: The relationship between proactive personality and employees' creativity is mediated via creative self-efficacy.

3. Research method

3.1. Participants and data collection

The study utilized a cross-sectional descriptive design to examine the conceptual model. In this study, a paper-and-pencil survey questionnaire was used to collect data

from agriculture experts working in Agriculture Organization in Hamedan province in western Iran. Notwithstanding considerable progress in the agriculture of Iran over the last four decades and achieving a satisfactory level of self- sufficiency in domestic food production, it has confronted a variety of issues involving ecological sustainability, agricultural productivity and food security. Hence, agricultural organizations are constantly under pressure to improve their efficiency and develop innovations in order to respond to new market opportunities, diverse needs, problems and expectations of farmers and rural people (Karimi et al., in press). Innovative work behaviors should be practiced by employees with the aim to improve the current state and cope with these challenges and new demands.

The current study employed a convenience sampling method to collect data during the period from January to April 2020. The research sample consisted of experts in the field of R&D, agricultural engineering and extension whose jobs deal with substantial creativity and innovation. The questionnaire was developed in the English language and then translated into Persian via the back-translation method developed by Brislin (1970). To reduce biased answers, a cover letter was attached to the questionnaire in which the goal pursued by the research was explained, in addition to some guidance provided to respondents. They were asked to fill out the questionnaire in private and accurately. Also, they were assured of no wrong or right answer existing in this respect, as well as confidential analyses of the answers provided to questionnaires bearing no name on them (Podsakoff et al., 2003). In order to provide a psychological separation between the study variables, it was tried to add instructions like 'following items are not related to previous ones'. Before data collection, necessary coordination was made with the authorities and management of the organization. It took about one month to collect data. The questionnaires were distributed and completed during work hours. On the next visit, the respondents returned their surveys directly to the research team. Out of 220 distributed questionnaires, 200 questionnaires were returned (response rate of 91%). The completed questionnaires were screened for missing data and outliers (Hair et al., 2019), which resulted in 178 usable questionnaires.

Out of the 178 respondents, 69% (123) were male, and 31% (55) were female. Respondents ranged in age from 30 to 67, with a mean age of 43 years. In terms of education level, the majority of the respondents (66%) had a postgraduate degree. The length of their organizational tenure ranged from 1 to 34 years, with an average tenure of 18 years.

3.2. Survey measures

All study measures were adapted from established scales in the literature. All items were measured using the Likert five-point scale (from 1 = strongly disagree, to 5 = strongly agree).

3.2.1. Employees' creativity

The measurement of creativity has been the subject of much academic debate (Montag et al., 2012). Due to a lack of consensus and an accepted precedent within the field, we opine that this study warrants the use of a general self-report creativity

measure. Notably, scholars have suggested that employees can potentially be reliable informants of their own creativity and are best positioned to evaluate their creative behavior (Conway & Lance, 2010; Shalley et al., 2009; Xu et al., 2016). In fact, employees themselves can be more reliable evaluators of whether their new ideas are fundamental breakthroughs or minor adaptations than their supervisors or peers (Ng & Feldman, 2012). Furthermore, empirical evidence in early studies supports the notion that employees themselves could effectively rate their creativity. As a case in point, Janssen (2000) found that self-rated employee creativity has a significant correlation with supervisor-rated employee creativity. Correspondingly, Ng and Feldman's (2012) meta-analysis also found that the positive effective size of openness to experience for self-reported employee creativity is not significantly larger when compared with non-self-reported employee creativity. In this vein, recent studies have suggested that self-report scales can be used as effective and reliable indicators of creativity (Horng et al., 2016; Kaufman, 2019; McKersie et al. 2019; Ruiz-Palomino & Zoghbi-Manrique-de-Lara, 2020; Tai & Mai, 2016; Xu et al., 2016). In this study, a 13-item scale developed by Zhou and George (2001) was used to measure employees' creativity. Employees were asked to rate their ability to exhibit creativity and improve creative performance via statements such as 'I come up with new and practical ideas to improve performance'. Cronbach's alpha for this scale was 0.92.

3.2.2. Proactive personality

To measure proactive personality, a ten-item scale developed by Seibert et al. (1999) was applied. The respondents were asked to indicate their evaluation of their personal behaviors. Sample item includes: 'If I see something I don't like, I fix it'. Cronbach's alpha for this scale was 0.89.

3.2.3. Creative self-efficacy

To measure creative self-efficacy, a three-item scale developed by Tierney and Farmer (2002) was used. Employees were asked to indicate the degree to which the statements accurately describe their efficacy with regard to creative work. A sample item is 'I feel that I am good at generating novel ideas'. Cronbach's alpha for this scale was 0.83.

3.2.4. Intrinsic motivation

Intrinsic motivation was assessed using three items adapted from Amabile et al. (1994). The respondents were asked to rate the degree to which they enjoyed their work and performed it for its own sake. A sample item is 'What matters most to me is enjoying what I do'. Cronbach's alpha for this scale was 0.76.

3.3. Control variables

Previous studies on employees' creativity suggest that demographic variables of employees can affect the results from assumed relationships in the present study (Frosch, 2011; Gong et al., 2009). Therefore, age (year), gender (female = 0 and male = 1), work tenure (year), and education level (associate's degree = 1, bachelor's degree = 2, master's degree = 3, and doctorate = 4) were controlled.

Table 1. Means, standard deviations (SD), and correlations for study variables.

	Constructs	Mean	SD	1	2	3	4	5	6	7
1	Age	43.33	8.25	–						
2	Gender	0.31	.46	−0.31**	–					
3	Education	2.78	0.80	0.01	−0.14	–				
4	Experience	17.98	8.31	0.78**	−0.30**	−0.09	–			
5	Creativity	3.71	0.78	0.04	−0.09	0.10	−0.08	–		
6	Intrinsic motivation	4.01	0.79	0.19*	0.10	0.02	0.16	0.54**	–	
7	Creative self-efficacy	3.66	0.81	0.04	−0.19*	0.25*	−0.01	0.69**	0.52**	–
8	Proactive personality	3.66	0.67	0.03	0.04	0.05	−0.08	0.65**	0.66**	0.68**

Notes: * $p < 0.05$, ** $p < 0.01$.

3.4. Data analysis

To test the research model, partial least squares structural equation modeling (PLS-SEM) was employed using SmartPLS 3.3.2 (Ringle et al., 2020). PLS-SEM is a form of multivariate statistical analysis tool to simultaneously examine the relationships based on a research model (Hair et al., 2019). The method is performed in two stages. The first stage is related to the evaluation of measurement model to establish the validity and reliability of the model constructs. The second stage concerns evaluation of the structural model through bootstrapping. That is, hypotheses testing, explained variance of endogenous constructs, and prediction power of different variables. It has to be noted that PLS-SEM was used because of its capability in working with small samples, lack of sensitivity to the normality of the data, the ability of prediction and support of complex models with many constructs (Hair et al., 2019).

4. Results

Table 1 shows the means, standard deviations, and correlations for the control variable and four research variables i.e., creativity, intrinsic motivation, creative self-efficacy, and proactive personality. All exogenous constructs were of reflective nature and significantly correlated with each other. As shown in Table 1, proactive personality was positively correlated with employee creativity ($r = 0.65$; $p < 0.01$), intrinsic motivation ($r = 0.66$; $p < 0.01$), and creative self-efficacy ($r = 0.51$; $p < 0.01$). Moreover, intrinsic motivation ($r = 0.40$; $p < 0.01$) and creative self-efficacy ($r = 0.68$; $p < 0.01$) were positively correlated with employee creativity. These bivariate results provided preliminary support for the hypothesized relations.

4.1. Measurement model assessment

To ascertain the distinctiveness of the four constructs, a series of confirmatory factor analyses (CFA) were first conducted using AMOS 24.0. As shown in Table 2, compared with three other models, the four-factor model (Model 1) fits the data significantly better. Moreover, the chi-square difference tests confirmed that this model fitted the data significantly ($p < .01$) better than each of the alternative models. These results indicated that the four-factor model had acceptable distinctiveness.

The Construct reliability was measured using the Cronbach's alpha (α), and Composite Reliability (CR) with PLS-SEM. The convergent validity was tested using

Table 2. Comparison of measurement models for study variables.

Models	Factors	χ^2	df	χ^2/df	CFI	IFI	TLI	RMSEA	$\Delta\chi2$ (Δdf)
Model 1	Four factors	450.328	260	1.730	0.927	0.928	0.915	0.064	–
Model 2	Three factors: proactive personality and intrinsic motivation combined into one factor	475.134	263	1.807	0.918	0.919	0.907	0.068	24.806**(3)
Model 3	Two factors: proactive personality, intrinsic motivation, and creative self-efficacy combined into one factor	537.334	265	2.028	0.895	0.896	0.881	0.076	62.2**(2)
Model 4	One factor: all variables combined into one factor	641.599	266	2.412	0.855	0.856	0.837	0.089	104.265**(1)

Notes: **$p < .01$; Comparative Fit Index (CFI > 0.90), Incremental Fit Index (IFI > 0.90), Tucker-Lewis index (TLI > 0.90), Root Mean Square Error of Approximation (RMSEA < 0.08).

Table 3. Assessment results of the measurement and structural models.

	Measurement model						Structural model	
Variable	α	CR	AVE	HTMT criterion			Q^2	R^2
Creativity	0.92	0.93	0.61	–			0.34	0.62
Intrinsic motivation	0.76	0.86	0.68	0.69			0.33	0.46
Creative self-efficacy	0.83	0.90	0.75	0.84	0.65		0.29	0.49
Proactive personality	0.89	0.91	0.50	0.76	0.81	0.80	–	–

Notes: α: Cronbach's alpha; AVE: Average Variance Extracted; CR: Composite Reliability; Q^2: Predictive Relevance; R^2: Coefficient of Determination.

average variance extracted (AVE) (Fornell & Larcker, 1981). As shown in Table 3, The CR and α values were well above the recommended value of 0.70, and the AVE values were above the recommended threshold of 0.5 (Hair et al., 2017). Additionally, the discriminant validity was tested using the new criterion of the Heterotrait-Monotrait (HTMT) (Henseler et al., 2015). All HTMT values were lower than the suggested value of 0.9 (Table 3). Therefore, the convergent and divergent validity and reliability of all constructs were established.

4.2. Structural model assessment

After verifying the reliability and validity of the measurement model, the structural model was determined. First, the structural model was checked for multicollinearity by calculating the variance inflation factor (VIF) values. All VIF values for the three endogenous variables (intrinsic motivation, creative self-efficacy and creativity) were lower than the maximum threshold of 5. Therefore, multicollinearity was not an issue in the model. Next, the overall model fit was assessed by using the standardized root mean square residual (SRMR) (Henseler et al., 2016). The SRMR value was 0.07, lower than the threshold value of 0.08, confirming the overall model fit of the PLS path model.

To assess the significance of the path coefficients in the research model, a bootstrapping approach with a resample of 5000 was used (Hair et al., 2019). As shown in Table 4, all hypotheses are confirmed. The results indicated that intrinsic motivation ($\beta = 0.15$; $p < 0.05$), creative self-efficacy ($\beta = 0.46$; $p < 0.01$), and proactive personality

Table 4. Direct, indirect and total effects.

Hypotheses	Path	β	CI	Supported
	Direct effects			
H1	Proactivity →Creativity	0.28**	0.10-0.43	Yes
H2	Intrinsic motivation →Creativity	0.15*	0.02-0.27	Yes
H3	Creative self-efficacy →Creativity	0.46**	0.33-0.60	Yes
H4	Proactivity → Intrinsic motivation	0.70**	0.58-0.75	Yes
H5	Proactivity → Creative self-efficacy	0.68**	0.62-0.76	Yes
	Indirect effects			
	Proactivity → Intrinsic motivation →Creativity	0.10*	0.01-0.19	
	Proactivity → Creative self-efficacy →Creativity	0.32**	0.23-0.43	
	Total effects			
	Proactivity → Creativity	0.70**	0.61-0.77	

Notes: *$p \leq 0.01$, **$p \leq 0.05$; β, standardized path coefficient; CI, confidence interval.

($\beta = 0.28$; $p < 0.01$) were significantly related to employees' creativity. Therefore, H1, H2, and H3 were supported. Also, as shown by the results, there were significant relationships between proactive personality and intrinsic motivation ($\beta = 0.70$; $p < 0.01$) and creative self-efficacy ($\beta = 0.68$; $p < 0.01$). Thus, H4 and H5 were also confirmed.

In addition to assessing the significance of path coefficients, the model's predictive accuracy was also evaluated by looking at the coefficient of determination (R^2) values of the endogenous constructs (Hair et al., 2019). The model explained 62% of the variance in creativity, 46% of the variance in intrinsic motivation, and 49% of the variance in creative self-efficacy, demonstrating a valuable explanatory power. In addition, the predictive relevance of the model was evaluated using cross-validated redundancy (Q^2) with the blindfolding procedure. The results showed that the Q^2 value for creativity, intrinsic motivation and creative self-efficacy were 0.34, 0.33, and 0.29, respectively. Since all values were above zero, the research model had enough predictive relevance.

To test the mediating roles of intrinsic motivation and creative self-efficacy, a percentile bootstrapping method suggested by Zhao et al. (2010) was applied. If the confidence interval for an indirect effect does not include zero, it receives support that the indirect effect is significantly different from zero with 95% confidence. Results shown in Table 4 indicated that intrinsic motivation significantly mediated the relationship between proactive personality and employees' creativity ($\beta = 0.10$; 95% CI = [0.01, 0.19]). In addition, the relationship between proactive personality and employees' creativity was significantly mediated via creative self-efficacy creativity ($\beta = 0.32$; 95% CI = [0.23, 0.43]). As discussed above, as proactive personality was found to have a significant direct effect on employees' creativity, intrinsic motivation and creative self-efficacy partially mediated the link from proactive personality to employees' creativity.

5. Discussion and conclusion

Creativity is a complex behavior affected by different individual and environmental factors (Anderson et al., 2014). Considering previous theories about proactive personality (e.g., Parker et al.,2010) and creativity (e.g., Amabile, 1988; Amabile & Pratt, 2016), the present study explores the relationship between proactive personality and employees' creativity. In addition, it examines the mediation mechanisms underlying this relationship by examining the potential mediating role of intrinsic motivation and creative self-efficacy.

Consistent with previous studies (Akgunduz et al., 2018; Kim, 2019; Li et al., 2017), proactive personality was found to be positively associated with employees' creativity. This finding showed that proactive personality was a significant personality trait that promoted the creativity of employees. As shown by the results, intrinsic motivation had a positive and significant relationship with employees' creativity. This is consistent with componential theories of creativity literature (Deci & Ryan, 2015; Sternberg & Lubart, 1991) and recommends that employees shall be motivated to use their skills, knowledge, and intelligence ability for creativity. Intrinsic motivation reflects values and interests that can guide employees towards experiencing creativity in the workplace. In other words, employees can experience more creativity when they have higher intrinsic motivation due to interest in their tasks and enjoying them.

The research results also showed that creative self-efficacy had a positive and significant relationship with employees' creativity (Tierney & Farmer, 2002; Zhang et al., 2011). Creative self-efficacy can motivate creativity through self-fulfilling prophecy (Malik et al., 2015). That is, people with high creative self-efficacy are assured of their creativity and this forces them to make more effort towards creative activities; and, it finally will lead to more creativity. As shown by the findings, proactive personality had a positive and significant relationship with creative self-efficacy and intrinsic motivation, which are in line with the findings of previous studies (Li et al., 2017; Sears et al., 2018).

The most important result from the present study showed that proactive personality had a direct and indirect positive and significant relationship with employees' creativity through creative self-efficacy and intrinsic motivation. The results indicate the important and effective role of proactive personality in fostering employees' creativity and a partial mediating role played by intrinsic motivation and creative self-efficacy. The results are also consistent with those of previous studies (Horng et al., 2016; Li et al., 2017; Sears et al., 2018). This can be resulted from advantages of intrinsic motivation that can increase motivation and willingness of employees to do their works (Amabile et al., 1996), and creative self-efficacy also helps them to deploy sufficient psychological resources to perform creative behaviors (Tierney & Farmer, 2002; Liao et al., 2010; Li et al., 2017). One probable interpretation of partial mediating role can be the multiplication of the influence of proactive personality on employees' creativity when employees have intrinsic motivation and high self-efficacy. It is worth noting that the indirect effect of proactive personality on creativity through creative self-efficacy explains a larger portion of the total effect and thus, is more important than the indirect effect through intrinsic motivation. These findings are very meaningful and valuable for leaders and managers to have right and effective direction in improving creativity via building and developing employees' creative self-efficacy.

5.1. Theoretical and practical implications

Our research findings have important theoretical and practical implications. First, the research is an important addition to the literature on creativity. As found by previous studies, proactive persons show a greater tendency toward higher levels of creativity (e.g., Kim et al., 2009; Seibert et al., 2001); however, few studies have tried to state how this effect is implemented. To answer recent calls for more research into the

mediation mechanisms underlying the association between employees' proactive personality and their employees' creativity (Anderson et al., 2014; Liu et al., 2017), the present study showed that two psychological cognitive factors among employees—creative self-efficacy and intrinsic motivation—play important mediating roles in this relation. As demonstrated by the results, proactive employees have greater intrinsic motivation and higher levels of creative self-efficacy, both of which are essential for creativity (Amabile & Pratt, 2016). Proactive people not only enjoy working and experience more inner satisfaction from their work, but they also feel self-efficacy and autonomy more. This facilitates and forms a high level of creative self-efficacy. Finally, these factors will lead to the development of the creativity of employees.

The research findings suggest that organizations attempting to foster creativity and innovation should make a greater effort to employ proactive workers. Proactive personalities can be measured. In practice, a proactive personality scale can be used in organizations that are willing to employ highly creative people. A proactive personality reflects a stable character; however, it can increase intrinsic motivation and creative self-efficacy, in turn fostering creative performance. Considering the mediating role of intrinsic motivation in improving creativity, managers should design jobs that intrinsically motivate their employees. In doing so, managers can ensure tasks performed by their employees are attractive, satisfying and of value. For example, managers could follow the model designed by Hackman and Oldham (1980), which recommends that jobs should have five key characteristics: autonomy, feedback, skill variety, task identity and task significance. Managers could make jobs more motivating by combining tasks, providing employees with opportunities to interact with clients and customers, or by designing feedback channels. They could also motivate employees through job enlargement (additional tasks) or task rotation (a change of job) to increase task variety and versatility. Both options could increase intrinsic motivation and simultaneously help employees to acquire more experience and boost their creative self-confidence (Ruiz-Palomino & Zoghbi-Manrique-de-Lara, 2020).

Based on self-determination theory (Deci & Ryan, 1985; Ryan & Deci, 2000), meeting autonomy requirements (through job autonomy) promotes intrinsic motivation very effectively. Considering the mediating and positive role of creative self-efficacy in improving employees' creativity, managers can use certain training methods to increase their creative motivation level (Frayne & Latham, 1987; Gist et al., 1989). For example, they can use creative role models and orally encourage employees that they can be creative. Also, managers can support and encourage employees to reduce their fear and anxiety of employees which can be raised from the uncertainty of creative efforts (Gong et al., 2009). This support also should improve employees' creative self-efficacy.

5.2. Limitations and future research directions

Although this study is based on a vigorous analysis, it also has some limitations that provide opportunities for future research. First, the research is based on a cross-sectional design. Thus, it may not provide a causal association between constructs. Future studies can use an empirical or longitudinal research design to explain better causal nature of the research variables. Second, creativity was measured using a self-

report scale. This method like other ones, is not without error. The limitations of this measure are acknowledged and are encouraged to examine the proposed model through alternative methods (e.g., creativity tests and supervisor-rated creativity) to enhance the objectivity of the findings. Third, the sample used for the research only includes agriculture experts in Iran. Therefore, the generalization of the results can be limited to the country; because, cultural values and differences can be effective on employees' creativity. Future studies can increase data generalization through usage made of intercultural research, and collecting data from different countries. Fourth, in the present study proactive personality was studied as a single-factor construct; however, as recommended by new studies, proactive personality can be considered as a multi-factor construct. For example, it was found by Belwalkar and Tobacyk (2018), proactive personality is formed of three perception, execution and perseverance dimensions. The present research focused on the basic mechanisms of the relationship between proactive personality and creativity instead of how different dimensions of proactive personality are associated with creativity. Future studies can explore the effects of different dimensions of proactive personality on creativity. Finally, the study has dealt with mediating role played by two personal variables on the relationship between proactive personality and employees' creativity. There are other personal (personality traits) and environmental factors (such as various leadership styles) that can make increase or decrease in creativity. Their effect on employees' creativity can be studied in future researches. Also, the role of moderating variables (such as culture and organizational atmosphere) can also be taken into consideration.

Disclosure statement

No potential conflict of interest was reported by the authors.

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