



RESEARCH ARTICLE

Distinct effects of intrinsic motivation and extrinsic rewards on radical and incremental creativity: The moderating role of goal orientations

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Summary

Previous studies have investigated the role of intrinsic motivation and extrinsic rewards in enhancing employee creativity. However, the possibility that these motivational factors affect the creativity of different types remains largely unexplored, particularly in the organizational settings. Moreover, the potential that personality traits may moderate the function of these motivational factors toward creativity is another underresearched area. By drawing on the person–situation interaction perspective, we propose that both intrinsic motivation and extrinsic rewards predict creativity but of different types. Thus, we diverge from the view that creativity is a uniform criterion domain by adopting the distinction between radical and incremental creativity. Our empirical analysis of 220 independent employee–supervisor dyads confirmed that intrinsic motivation and extrinsic rewards predict radical and incremental creativity, respectively. Moreover, the effects of intrinsic motivation on radical and incremental creativity are more positive for employees with higher learning goal orientation. By contrast, the effect of extrinsic rewards on incremental creativity is more positive for employees with higher performance goal orientation. This study offers elaborate and nuanced perspectives and insights into the role of different motivational processes in the development of different types of creativity.

KEYWORDS

extrinsic rewards, goal orientation, incremental creativity, intrinsic motivation, radical creativity

1 | INTRODUCTION

Employee creativity is a critical success factor for contemporary organizations (Anderson, Potočník, & Zhou, 2014). Given the increasing appreciation for workplace creativity, organizations design various interventions to promote employee creativity (Amabile, 1996), and researchers exert considerable efforts to identify its predictors (Hirst, Knippenberg, & Zhou, 2009; Malik, Butt, & Choi, 2015). Despite the intensity of this research stream, creativity researchers must continue resolving several unsettled issues. A recent issue relates to the classification of different types of creativity and the identification of

antecedents and boundary conditions of each creativity type (Malik & Butt, 2017). Another issue concerns the importance of intrinsic motivation versus extrinsic rewards in promoting creativity (Gerhart & Fang, 2015). The current study aims to combine these debates and address them by studying the effects of intrinsic motivation and extrinsic rewards on different types of creativity and by identifying the boundary conditions within which these effects occur.

For decades, creativity has been conceptualized and operationalized as a unidimensional construct, often defined as the generation of novel and useful ideas (Amabile, 1996; Shalley, Zhou, & Oldham, 2004). However, recent scholars increasingly discussed distinct types

of creativity, such as radical versus incremental types (Dane, 2010; Mainemelis, Kark, & Epitropaki, 2015). Gilson and Madjar (2011) indicated that the prevailing view of creativity as a unidimensional construct may be a potential source of confounding in the creativity literature. Radical or incremental creativity can function practically as a key driver of performance in different task domains or stages (Benner & Tushman, 2003). Radical creativity is important in dynamic and changing environments and at the early parts of the problem-solving process, such as problem identification and construction, whereas incremental creativity is important in stable and mature environments and at the later parts of the problem-solving process, such as solution identification and execution (Gilson & Madjar, 2011). Hence, encouraging and achieving a specific type of creativity desired at the given organizational and task conditions are crucial for managers (Alexander & van Knippenberg, 2014; Byron & Khazanchi, 2012). Despite this theoretical and practical significance, empirical studies that identify drivers and boundary conditions of different creativity types remain scarce (Gilson, Lim, D'Innocenzo, & Moye, 2012). The present study fills these research gaps by identifying and empirically investigating distinct motivational underpinnings and dispositional contingencies involving the radical and incremental creativity of employees.

Expanding prior research exploring the motivational processes of different types of creativity (Gilson et al., 2012; Gilson & Madjar, 2011), we specify the motivational processes underlying the radical and incremental creativity of employees. Research on the effects of intrinsic and extrinsic rewards on creativity has a long history filled with controversies (Cerasoli, Nicklin, & Ford, 2014; Malik & Butt, 2017), and the role of extrinsic rewards remained at the center of this debate because of inconsistent and mixed findings (Shalley et al., 2004). In the meta-analysis of Byron and Khazanchi (2012), they concluded that extrinsic rewards associated with generalized performance may harm creativity, whereas extrinsic rewards offered for creativity have an overall positive effect on creativity. The present study contributes to this debate by proposing that both intrinsic task-driven motivation and extrinsic rewards may promote creativity but of different types, thereby elaborating the distinct roles of these motivational factors toward creativity.

Recent reviews highlighted the importance of identifying boundary conditions that shape the function of extrinsic rewards or intrinsically motivating task properties toward general creativity (Byron & Khazanchi, 2012; Liu, Jiang, Shalley, Keem, & Zhou, 2016; Malik & Butt, 2017). Given that creativity is largely a spontaneous or voluntary behavior, employees' personal dispositions become both relevant and important in shaping their creative behavior. Drawing on the person-situation interaction perspective, we propose that employees' individual dispositions function as moderating contingencies for the effects of intrinsic task motivation and extrinsic rewards on the different types of creativity. To this end, we attend to the role of dispositional goal orientations involving learning and performance goals, which may channel the interpretation and subsequent reactions of employees in achievement situations (Elliot & Church, 1997). Specifically, we suggest that learning goal orientation (LGO) shapes the

effects of intrinsic motivation on both incremental and radical creativity, whereas performance goal orientation (PGO) shapes the effects of extrinsic rewards on incremental creativity.

In summary, the present study contributes to the organizational creativity literature in several aspects. First, it addresses the increasing demand to investigate the distinct predictive mechanisms underlying different types of creativity that may have differing organizational implications (Unsworth, 2001). Second, it addresses the controversy of rewards for creativity by showing that the effects of extrinsic rewards for creativity are positive but are limited to incremental creativity, which differ from intrinsic task motivation that may affect both incremental and radical creativity (Cerasoli et al., 2014). Finally, the present study elaborates the disparate moderating roles of dispositional goal orientations, including LGO and PGO, targeted at different motivational drivers of the two types of creativity. This notion highlights the important yet largely ignored role of employees' personality in reward for creativity debate (Malik & Butt, 2017). Figure 1 summarizes the overall theoretical framework of this study. This framework is empirically tested using field data collected from 220 independent employee-supervisor dyads representing various industries.

2 | LITERATURE REVIEW AND HYPOTHESES

2.1 | Radical and incremental types of creativity

Creativity researchers have increasingly conceptualized creativity as a multidimensional construct with distinct antecedents (Dane, 2010; Mainemelis et al., 2015; Sung, Antefelt, & Choi, 2017). In particular, the literature acknowledges the distinction between radical and incremental creativity. The extent to which an idea differs from the current product, process, or structure ascertains whether the idea is incremental or radical (Mumford & Gustafson, 1988; Shalley et al., 2004). Thus, radical creativity is defined as the generation of "ideas that differ substantially from an organization's existing practices," whereas incremental creativity refers to the generation of ideas that "imply few changes in frameworks and offer only minor modifications to existing practices and products" (Madjar, Greenberg, & Chen, 2011, p. 731). Different organizations may value radical or incremental creativity,

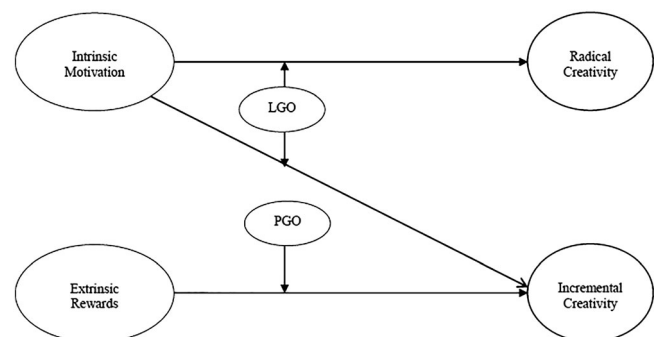


FIGURE 1 Conceptual framework

depending on specific circumstances and task requirements (Shalley et al., 2004).

Theoretical discussions and empirical investigations regarding the potential diversion of underlying processes responsible for radical versus incremental creativity have flourished in recent literature. Researchers have theorized on several personal and contextual factors that have unique effects on different types of creativity, such as domain expertise (Dane, 2010), structural strain and creative deviance (Mainemelis, 2010), and creative leadership (Mainemelis et al., 2015). Empirical investigations associated radical creativity with a willingness to take risks and resources for creativity, whereas incremental creativity was related to organizational identification and the presence of creative coworkers (Madjar et al., 2011). Considering that radical and incremental creativity are predicted by different factors, exploring the divergent predictive processes for the two creativity types is a meaningful research question. To this end, we utilize the person–situation interaction perspective to reveal differing motivational underpinnings of radical versus incremental creativity.

According to the person–situation interaction perspective, dispositional factors play an important role in shaping the effects of situational factors on individual behavior (Ford, 1996). For example, the effects of intrinsically motivating job design on employees' performance depend on their growth need strength (Hackman & Oldham, 1976). Empirical studies also demonstrated that the effects of environmental factors, such as leadership styles and extrinsic rewards, were dependent on employees' values and personality traits (Baer, Oldham, & Cummings, 2003; Ehrhart & Klein, 2001; Malik et al., 2015). Drawing on the person–situation interaction perspective, we suggest that radical and incremental creativity is triggered by the interaction of personal factors, such as employees' goal orientation, and situational factors, such as extrinsic rewards and intrinsic task motivation.

2.2 | Differential effects of intrinsic motivation and extrinsic rewards on radical and incremental creativity

The effects of intrinsic motivation and extrinsic rewards on general creativity have been long debated in the literature (Cerasoli et al., 2014). Intrinsic motivation is defined as the desire to perform an activity as an end in itself, to enjoy performing the activity without any expectations, or the desire to obtain external rewards (Lepper, Greene, & Nisbett, 1973). Intrinsic motivation is driven by dispositional and task characteristics. Consequently, several researchers have conceived intrinsic motivation as a dispositional trait (e.g., Amabile, Hill, Hennessey, & Tighe, 1994), whereas others have operationalized it as a task-specific factor (Yoon, Sung, & Choi, 2015). We acknowledge the influence of dispositional and situational factors on intrinsic motivation. However, for the present study, we operationalize intrinsic motivation as a task-specific situational motivation. Accordingly, it represents a task situation given to employees, in which their motivation to indulge in creativity comes from the task itself as opposed to originating from external factors. By contrast, extrinsic rewards refer to financial and nonfinancial rewards offered by organizations to their

employees to promote a specific behavior. In this study, the presence of extrinsic rewards for creativity represents situations wherein the motivation of employees to indulge in creativity at work comes from external factors, such as social expectation and monetary rewards (cf. Byron & Khazanchi, 2012).

Compared with the behavior initiated by extrinsic rewards, a behavior driven by intrinsic interest in the task itself induces a deeper and more persistent involvement in that activity (Shin, Yuan, & Zhou, 2017). Thus, intrinsically motivated individuals “expend effort based on interest, curiosity, and a desire to learn. Intrinsic task motivation is thought to enhance creativity by increasing positive affect, cognitive flexibility, risk taking, and persistence” (Grant & Berry, 2011, p. 73). These psychological states accompanying intrinsic task motivation are likely targeted at creative engagements (Kray, Galinsky, & Wong, 2006; Ward, 2004). With these psychological states, employees may consider various task parameters spontaneously and further explore creative and even risky solutions to address the fundamental problem through in-depth and persistent cognitive engagements (Mainemelis et al., 2015).

Employees with intrinsic task motivation exhibit a wide spectrum of creative behavior. These individuals spend their cognitive resources, efforts, and time in creative endeavors without the desire of getting extrinsic rewards, and thus, they are not bound by evaluation criteria imposed by others. The absence of plausibility or utility concerns and nonregard for any external evaluation criteria result in no or low restrictions on the creative behavior that these employees exhibit. Such behavior can range from radical to incremental creativity, depending on their task interest, problem at hand, and other situational contingencies. Owing to a deep involvement with and inherent interest in the task at hand, they might produce breakthrough ideas and exhibit radical creativity, even when it is not required or rewarded. At other times, these individuals exhibit incremental creativity by producing practical ideas that offer gradual improvements in the current practices. This scenario might happen if solving immediate problems or current deficiencies provides intrinsically rewarding task experiences, even when the organization rewards only breakthrough or radical ideas. In sum, we suggest that deep involvement, curiosity, and enjoyment coming from intrinsic task motivation enable employees to exhibit multiple types of creativity. In turn, these cognitive and affective processes stemming from intrinsic motivation for creativity expand the range of their creative actions, including both radical and incremental types. Thus, we hypothesize the following relationship:

Hypothesis 1. *Intrinsic motivation for creativity is positively related to (a) radical creativity and (b) incremental creativity.*

Although extrinsic rewards for generalized performance may harm creativity, extrinsic rewards contingent on creativity drive employees toward creative behavior (Byron & Khazanchi, 2012). However, the desire to attain extrinsic rewards might limit the type of creativity that employees exhibit. Employees driven by extrinsic rewards for creativity are, by definition, constrained by the evaluation criteria imposed by others, which often represent immediate applicability and practical

utility concerns (Malik & Butt, 2017). Accordingly, their idea generation processes are entrenched in practical concerns of feasibility and expected benefits. This entrenchment in practicality limits the mobilized cognitive resources. Moreover, focusing on external rewards as opposed to the task itself may hinder radical and risky attempts, which effectively suppresses groundbreaking and radical forms of creativity (Dane, 2010; Gilson & Madjar, 2011). Thus, although extrinsic rewards for creativity drive employees to exhibit creative behavior, the resultant creativity comes with certain constraints and restrictions and is increasingly specific and narrow. Gilson et al. (2012) suggested that the persistence and absorption needed for radical creativity can only come from intrinsic interest in the activity and not from extrinsic rewards.

Overall, we propose that extrinsic rewards contingent on creativity motivate employees to exhibit creativity. However, the psychological states accompanying extrinsic rewards, such as reduced risk taking, low task involvement, and shifting employees' focus away from task itself, may not drive radical creativity. Concerns for the evaluation criteria imposed by others set limits on the creative behavior of these employees; moreover, they produce rather practical and safe ideas, often on the basis of minor modifications and slight redefinitions of current practices (Kray et al., 2006). This discussion leads to the following hypothesis:

Hypothesis 2. *Extrinsic rewards for creativity are positively related to incremental creativity.*

2.3 | Dispositional goal orientations as a moderating contingency

Organizational research identifies managerial and task situations necessary for employee performance and then considers how these managerial practices (e.g., job design, leadership styles, and reward systems) work differently for employees with varying individual dispositions (Hofmans, De Gieter, & Pepermans, 2013; Oldham & Hackman, 2010). In order to apply the person-situation interaction perspective to the present theoretical framework, identifying employee dispositions related and pertinent to the function of intrinsic task motivation and extrinsic rewards for creativity is important. Of the traits relevant to achievement situations, where various rewards and motivational properties are at play, an important trait pertains to the dispositional goal orientations of employees (Elliott & Dweck, 1988). Given the potential of goal orientations in directing employees' task behavior and strategy, the dispositional goal orientations of employees may shape the way they respond to intrinsic task motivation or extrinsic rewards, thereby modifying the significance of these situational motivational processes on employee creativity.

Janssen and Van Yperen (2004) identified two primary goal orientations, namely, LGO and PGO. Individuals with high LGO are eager to increase their competence and abilities, learn new skills, and master various tasks. They are not negatively affected by failures and unfavorable evaluations of others and thus continue to focus on task

activities even if the situation is challenging. By contrast, individuals with high PGO are eager to demonstrate their ability, gain positive evaluation, and prove their competencies by successfully completing a given task (Elliott & Dweck, 1988). These individuals focus their attention more on performance indicators than task activities (Brown, 2001; Fisher & Ford, 1998).

Employees' goal orientations have been shown to affect their creative behavior. LGO is positively associated with cognitive flexibility, which is beneficial for creativity (Miron-Spektor & Beenen, 2015). However, the effect of PGO on creativity depends on the context that prescribes the nature of expected "performance" and evaluation criteria (Hirst et al., 2009). Extending previous work mostly focusing on the main effects, we propose the moderating functions of dispositional goal orientations in shaping the effects of intrinsic motivation and extrinsic rewards on the two types of creativity.¹

2.4 | LGO: Moderating the effects of intrinsic motivation

We expect that LGO accentuates the relationship between intrinsic task motivation and creativity for two reasons. First, enjoyment, excitement, and engagement in the task at hand, which constitute the core of intrinsically rewarding tasks, are more likely to motivate individuals with high LGO than those with low LGO (Elliott & Harackiewicz, 1996; Mun & Hwang, 2003). Accordingly, the effects of intrinsic task motivation on creative efforts may be stronger among those with high LGO, who are susceptible to such task-driven intrinsic motivation and are willing to persist under uncertain and risky situations than those with low LGO (Alexander & van Knippenberg, 2014; Barron & Harackiewicz, 2000).

Second, intrinsic task motivation for creativity results in rigorous engagement with and exploration of different aspects related to the task at hand, which should provide opportunities for acquiring new skills (Amabile et al., 1994). Employees with high LGO often find these situations—characterized by additional learning opportunities—exceptionally rewarding. Moreover, they are eager to learn new ideas and skills, which in turn, lead to increased creativity. By contrast, those with low LGO may discount the value of additional learning opportunities and hence would be less willing to engage in the task. Thus, compared with employees with low LGO, those with high LGO are more attentive to intrinsically motivating task situations, which accentuates the effects of intrinsic motivation on creativity (Bakker, Petrou, Op den Kamp, & Tims, 2019).

In short, we propose that intrinsic motivation and LGO lead to a synergistic, positive interaction that can enhance both radical and incremental creativity. However, we do not expect these synergistic

¹Research consistently reported the negative effects of AGO on creativity (Gong, Huang, & Farh, 2009; Hirst et al., 2009). In the current study, we were interested in identifying the moderation effects of goal orientation on creativity. Thus, we focused exclusively on LGO and PGO, whose roles might change for intrinsic motivation and extrinsic rewards in predicting different creativity types. However, we collected data on the employees' AGO for the sake of completeness. As expected, AGO has significant negative effects on both radical and incremental creativity. Furthermore, AGO does not moderate the effects of intrinsic motivation and extrinsic rewards on radical and incremental creativity.

effects of LGO on the relationship between extrinsic rewards and creativity, because learning goals are relatively independent from and thus unaffected by external evaluation and rewards. Extrinsic rewards for creativity do not generate any additional learning opportunities, thereby rendering LGO irrelevant. Therefore, we propose the following moderation hypotheses:

Hypothesis 3. *LGO moderates the relationship between intrinsic motivation for creativity and radical creativity, such that the positive relationship is stronger when LGO is high than when it is low.*

Hypothesis 4. *LGO moderates the relationship between intrinsic motivation for creativity and incremental creativity, such that the positive relationship is stronger when LGO is high than when it is low.*

2.5 | PGO: Moderating the effect of extrinsic rewards

Individuals with high PGO have a propensity to prove their competence by fulfilling given performance criteria, and with such a goal, they heavily resort to performance evaluation and reward contingency (Elliott & Dweck, 1988). Accordingly, they are keen on obtaining extrinsic rewards, because achieving these rewards by meeting performance expectation is necessary for them to demonstrate their competence. For these individuals, the perceived value of extrinsic rewards is greater than the pure materialistic or economic value attached to the rewards; once these rewards are achieved, they can also satisfy additional needs by signaling their competence and proving their ability to others (VandeWalle, 2001). Accordingly, high-PGO individuals will extract considerable benefit and become highly motivated in the presence of extrinsic rewards. Thus, the effect of extrinsic rewards—that are contingent on creativity—may be strengthened for individuals with high PGO (VandeWalle, 1997). By contrast, the effects of intrinsic motivation on creativity may not vary for employees with high versus low PGO, because intrinsic motivation serves no additional utility in proving competence to others. In summary, a high PGO is expected to strengthen the relationship between extrinsic rewards and creativity, but it has no relevance with respect to the relationship between intrinsic motivation and creativity.

Although employees with high PGO respond strongly to extrinsic rewards for creativity, their focus largely remains on the attainment of rewards and the display of their competence. Neither the desire to attain extrinsic rewards nor the disposition of PGO to prove their competence can provide rigorous involvement and task-targeted interest, persistence, and absorption that radical creativity requires (Gilson et al., 2012). Therefore, employees with high PGO are unlikely to provide the depth of task involvement and risk taking required to develop radical ideas, particularly when extrinsic rewards for creativity are readily apparent (Mainemelis, 2010; Miron-Spektor & Beenen, 2015). Thus, in the following hypothesis, we propose that the positive moderating role of PGO on the relationship between extrinsic rewards

and creativity is limited to incremental creativity and not applicable to radical creativity:

Hypothesis 5. *PGO moderates the relationship between extrinsic rewards and incremental creativity, such that the positive relationship is stronger when PGO is high than when it is low.*

3 | METHOD

3.1 | Sample and data collection

The population for the current study consisted of employees working full time in either the private or public sector in Pakistan. Given that existing reward–creativity studies have been mostly conducted in the North American and European countries, the present study provides a unique opportunity to study these relationships in a different context. Two approaches were employed for data collection. First, we solicited participation in this study from managers attending executive education programs at two private universities in Pakistan. Second, with the assistance of HR managers of the participating companies, we distributed the survey instruments to employees and their supervisors. Participation in both cases was at the discretion of respondents, and participants were assured of data confidentiality.

For the first approach, we distributed the questionnaires to executive education participants and requested them to fill and return them directly to the researchers. These employees provided the contact details of their supervisors and granted their consent for us to approach their supervisors for further data collection. The supervisors were then approached through email and were requested to rate the creativity of the focal employees. Another email was sent 1 week after the first email to remind the supervisors of their participation in the study. This method generated data consisting of 88 employee–supervisor dyads with a response rate of 83% based on the number of questionnaires distributed to focal employees.

For the on-site survey administration, access to employees was gained after their HR managers granted consent. The employee and supervisor questionnaires were identically numbered before administration and were distributed to pairs consisting of a focal employee and his/her supervisor. The employees and supervisors independently completed the questionnaires and directly submitted them to the researchers on site. This on-site data collection provided data of 132 employee–supervisor dyads, with a response rate of 75%. The data collection method was also included in the list of control variables to ensure that it did not affect the results of the study. Dyads from both data collection methods comprised the final analysis sample. Of the 220 employee–supervisor dyads from 113 organizations, 101 dyads were from the manufacturing industries (e.g., electronics, steel, and printing), whereas 119 belonged to the service-providing industries (e.g., retailing, banking, and utilities). Each supervisor rated only one employee under his/her supervision; thus, all dyads were unique.

The average age of employees was 39.9 years, with females representing 20.9% of the sample. The employees reported an average of 13.4 years of education. The average total work experience and the average experience in the current position were 16.4 and 4.4 years, respectively. The employee-supervisor dyads also worked together for an average of 2.6 years. In terms of hierarchical position, the participating employees occupied positions of associates (19.1%), first-line supervisors (48.2%), and middle or senior managers (32.7%). Finally, the number of participants belonging to one organization ranged from 1 to 9 (mean = 1.94).

3.2 | Measures

To avoid potential confounding associated with common method variance, perceptual constructs (i.e., presence of intrinsic task motivation or extrinsic rewards for creativity) and personality constructs (i.e., dispositional goal orientations) were directly collected from employees. Conversely, behavioral performance variables (i.e., incremental and radical creativity) were assessed by supervisors. This method is consistent with the finding that self-reports are plausible indicators of cognitive, nonobservable personality traits and situational perceptions; whereas others are reliable sources of observable behavioral outcomes (Hogan, Hogan, & Roberts, 1996; Johnson, 1997). Original scales in English were utilized. This is because English is the official language of Pakistan and is extensively used in all organizations. All items utilized a 5-point Likert scale that ranged from 1 (*strongly disagree*) to 5 (*strongly agree*).

3.2.1 | Intrinsic motivation and extrinsic rewards for creativity

The present study conceives and operationalizes intrinsic motivation as a task-specific, situational motivation representing a work situation, in which employees are motivated by their task at hand that urges them to indulge in creativity at work. The five-item scale ($\alpha = .76$) employed to measure intrinsic motivation for creativity in the present study is developed specifically to assess task-specific, situational motivation of employees (Malik et al., 2015; Yoon et al., 2015). The five items were as follows: "(a) I feel satisfaction when I perform creatively, (b) I feel competent about my creative performance at work, (c) I feel achievement when I suggest new task ideas, (d) I feel confident when I perform creativity at work, and (e) creative performance helps me in personal growth."

We were interested in extrinsic rewards specifically offered for creativity as opposed to extrinsic rewards for general performance. Thus, we utilized the scale employed in previous studies (Malik et al., 2015; Yoon et al., 2015) and asked employees to rate eight items ($\alpha = .86$) to assess the extent to which they receive extrinsic rewards for exhibiting creativity in their work. Sample items included the following: "When I perform creatively, I can receive financial rewards, such as incentives or bonuses" and "When I perform creatively at work, my company will offer corresponding benefits in return."

3.2.2 | Goal orientations

LGO and PGO were measured using the scale items developed by VandeWalle (1997). Sample items included the following: "For me, further development of my work ability is important enough to take risks" (LGO, four items, $\alpha = .71$) and "I prefer to work on projects where I can prove my ability to others" (PGO, four items, $\alpha = .82$).

3.2.3 | Radical and incremental creativity

We adopted six items developed by Madjar et al. (2011) to assess the two different types of creativity. Supervisors rated the creativity of focal employees in two different types, namely, radical creativity (three items, $\alpha = .80$, e.g., "This employee suggests radically new ways of doing his/her work") and incremental creativity (three items, $\alpha = .74$, e.g., "This employee easily modifies previously existing work processes to suit current needs").

3.3 | Control variables

Given that the data were collected from participants with diverse backgrounds and industries using two different methods, we included the following control variables that may have implications for employee creativity and the current analysis.

3.3.1 | Education

Education is an important control variable, because job types and performance expectations tend to differ with varying educational levels. Therefore, previous studies on creativity (e.g., Baer et al., 2003; Madjar et al., 2011; Shin et al., 2017; Yoon et al., 2015) included educational level as a control variable. Different educational systems simultaneously exist in Pakistan, resulting in different degrees or qualifications. Thus, we evaluated education in number of years as a balanced measure of education in the current research context.

3.3.2 | Hierarchical level

The nature of jobs and responsibilities in terms of creative requirements may vary across different hierarchical levels. Hierarchical level is related to high involvement in creative activities (e.g., Ibarra, 1993). Thus, consistent with previous studies on creativity (e.g., Baer et al., 2003; Tierney & Farmer, 2004), we controlled for hierarchical level and classified employees in three hierarchical levels (i.e., 1 = associate, 2 = first-line supervisor, and 3 = manager).

3.3.3 | Work experience

Existing studies reported that career stage and work experience are significantly related to employee creative behavior (e.g., Scott & Bruce, 1994). To control for these effects, we included total work experience in years in our analysis.

3.3.4 | Association period

The length of the employee-supervisor dyadic relationship may affect the supervisor rating patterns of the dependent variable. Thus, following Liu, Liao, and Loi (2012), who controlled for the length of employee-team leader relationship, we controlled for the length of employee-supervisor relationship in years.

3.3.5 | Industry

Creativity requirements, expectations, and type may vary among different industry types (i.e., service and manufacturing industries; Mothe & Nguyen-Thi, 2012; Peng, Zhang, Fu, & Tan, 2014). Thus, controlling for industry type allowed us to control for any industry-specific idiosyncrasies and effects related to rewards and creativity. We also followed previous research and classified industries into two types (i.e., 0 = service and 1 = manufacturing).

3.3.6 | Data collection method

Given that we collected data using two different methods, we controlled for the method (0 = executive education and 1 = on-site administration) to ascertain that it did not affect the results of this study.

3.4 | Analytical strategy

Hypotheses 1 and 2 predicted the effects of motivation and rewards on creativity, whereas Hypotheses 3–5 predicted the moderation of these relationships through the goal orientations of employees. To test the first two hypotheses, we employed regression analysis by first entering the control variables into the equation, followed by the independent variables (i.e., intrinsic motivation and extrinsic rewards). To

test the moderation hypotheses, the control, independent, and moderating variables (i.e., goal orientations) were entered first into the equation that predicted creativity, followed by their interaction terms. All variables involved in the interaction analysis were centered to reduce multicollinearity among predictors (Aiken & West, 1991). We also included all possible interaction terms between independent and moderating variables to verify that only the hypothesized interactions are statistically significant.

4 | RESULTS

Before we tested the hypotheses, we checked the empirical distinctiveness of the measures reported by employees and supervisors using a series of confirmatory factor analyses (CFAs). First, we performed CFA on four employee-reported variables (i.e., intrinsic motivation, extrinsic rewards, LGO, and PGO), which produced acceptable fit indices ($\chi^2[df = 183] = 289.59, p < .001, CFI = 0.93, RMR = 0.037$; Hu & Bentler, 1999). The hypothesized four-factor model performed significantly better than any of the alternative three- or two-factor models (χ^2 difference tests, all $p < .001$), thereby supporting the distinctiveness of the four scales. Second, we conducted another CFA on the two supervisor-rated variables (i.e., radical and incremental creativity). The two-factor model exhibited a decent fit to the data ($\chi^2[df = 8] = 4.57, p > .50, CFI = 1.00, RMR = 0.014$) and outperformed the single-factor model (χ^2 difference test, $p < .001$). Table 1 reports the descriptive statistics and correlations among the study variables.

4.1 | Main effects of intrinsic motivation and extrinsic rewards for creativity

Hypothesis 1 suggests that intrinsic motivation predicts radical creativity (Hypothesis 1a) and incremental creativity (Hypothesis 1b). We

TABLE 1 Means, standard deviations, and correlations among the study variables

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12
1 Education	13.36	1.62	—											
2 Hierarchical level	2.14	0.71	0.61**	—										
3 Work experience	16.35	9.66	-0.28**	0.20**	—									
4 Association period	2.57	1.55	-0.29**	-0.04	0.37**	—								
5 Industry	0.46	0.50	-0.32**	-0.22**	0.18**	0.11	—							
6 Data collection	1.60	0.49	-0.30**	-0.21**	0.19**	0.12	0.11	—						
7 Intrinsic motivation	4.33	0.44	-0.02	-0.04	-0.03	-0.07	0.02	0.03	0.76					
8 Extrinsic rewards	3.26	0.67	0.07	0.03	-0.16*	-0.14*	-0.04	-0.06	0.07	0.86				
9 LGO	4.01	0.42	-0.06	0.02	0.11	0.02	0.15*	0.02	0.12	0.05	0.71			
10 PGO	3.08	0.64	0.00	0.03	0.09	0.03	0.08	0.12	-0.04	-0.49**	0.02	0.82		
11 Radical creativity	2.89	0.45	-0.04	0.00	-0.02	0.07	0.05	-0.04	0.25**	-0.06	0.29**	0.10	0.80	
12 Incremental creativity	2.84	0.80	0.03	0.02	-0.06	0.03	0.03	-0.04	-0.03	0.17**	0.06	0.44**	0.18**	0.74

Note: Reliability coefficients on the diagonal. Industry coded as service, 0; manufacturing, 1. Hierarchical level coded as associates, 1; supervisors, 2; managers, 3. Data collection coded as executive education, 1; on site, 2. $N = 220$ dyads.

Abbreviations: LGO, learning goal orientation; PGO, performance goal orientation.

* $p < .05$. ** $p < .01$.

used regression analyses (Tables 2 and 3) to test these hypotheses. The control variables were entered into the equation first, followed by intrinsic motivation and extrinsic rewards. Intrinsic motivation significantly predicted radical creativity ($\beta = .26, p < .001$) but not incremental creativity ($\beta = -.04, ns.$), thereby supporting Hypothesis 1a but not Hypothesis 1b. Hypothesis 2 suggests a relationship between extrinsic rewards and incremental creativity. This hypothesis underwent similar testing as Hypothesis 1, and results indicated that extrinsic rewards significantly predicted incremental creativity ($\beta = .17, p < .05$) but not radical creativity ($\beta = -.08, ns.$). Thus, Hypothesis 2 was supported.

4.2 | Moderating effects of goal orientations

In Hypotheses 3–5, we proposed that goal orientation moderates the effects of intrinsic motivation and extrinsic rewards on radical and incremental creativity. Specifically, we proposed that LGO strengthens the relationship between intrinsic motivation and radical creativity (Hypothesis 3) and also between intrinsic motivation and incremental creativity (Hypothesis 4). Model 3 in Table 2 shows that only LGO and not PGO is significantly related to radical creativity ($\beta = .27, p < .001$, and $\beta = .09, ns.$, respectively). The four interaction terms added to Model 4 in Table 2 further demonstrated that the interaction between intrinsic motivation and LGO was the only term that was significant among the four possible interactions ($\beta = .21, p < .01$). This

TABLE 2 Regression analysis predicting radical creativity

Independent variables		1	2	3	4	
Control variables	Education	–0.10	–0.09	–0.08	–0.06	
	Hierarchical level	0.08	0.09	0.07	0.07	
	Experience total	–0.09	–0.09	–0.12	–0.15	
	Association period	0.08	0.09	0.10	0.08	
	Industry	0.05	0.05	0.00	0.02	
	Data collection method	–0.05	–0.06	–0.07	–0.04	
Motivational factors	Intrinsic motivation (IM)		0.26***	0.23***	0.24***	
	Extrinsic rewards (ER)		–0.08	–0.05	–0.07	
Dispositional factors	LGO			0.27***	0.26***	
	PGO			0.09	0.03	
Interactional effects	IM × LGO				0.21**	
	IM × PGO				0.14	
	ER × LGO				–0.11	
	ER × PGO				0.03	
R^2			.02	.09*	.16***	.22***
R^2 Change				.07***	.08***	.06**

Note. $N = 220$ dyads. Standardized regression coefficients (β) are reported. Abbreviations: LGO, learning goal orientation; PGO, performance goal orientation.

* $p < .05$. ** $p < .01$. *** $p < .001$.

TABLE 3 Regression analysis predicting incremental creativity

Independent variables		1	2	3	4	
Control variables	Education	–0.01	0.00	–0.03	–0.01	
	Hierarchical level	0.05	0.04	–0.01	–0.03	
	Experience total	–0.10	–0.08	–0.07	–0.09	
	Association period	0.06	0.08	0.11	0.10	
	Industry	0.06	0.06	–0.01	–0.01	
	Data collection method	–0.03	–0.03	–0.10	–0.09	
Motivational factors	Intrinsic motivation (IM)		–0.04	–0.04	–0.03	
	Extrinsic rewards (ER)		0.17*	0.52***	0.43***	
Dispositional factors	LGO			0.04	0.04	
	PGO			0.71***	0.64***	
Interactional effects	IM × LGO				0.13*	
	IM × PGO				–0.02	
	ER × LGO				–0.08	
	ER × PGO				0.18**	
R^2			.01	.04*	.42***	.46***
R^2 Change				.03*	.37***	.04**

Note. $N = 220$ dyads. Standardized regression coefficients (β) are reported. Abbreviations: LGO, learning goal orientation; PGO, performance goal orientation.

* $p < .05$. ** $p < .01$. *** $p < .001$.

significant interaction was graphed on the basis of the simple slope analysis (Aiken & West, 1991). As shown in Figure 2, the effect of intrinsic motivation on radical creativity was positive and significant for employees with high LGO ($b = 0.43, p < .001$) but not significant for those with low LGO ($b = 0.04, ns.$). These findings provide empirical support for Hypothesis 3.

Hypothesis 4 suggests the positive moderating effect of LGO in predicting incremental creativity. Consistent with this expectation and as shown in Model 4 of Table 3, the interaction effect of intrinsic motivation and LGO on incremental creativity was significant and positive ($\beta = .13, p < .05$). Results of the simple slope analysis in Figure 3 indicated the effect of intrinsic motivation on incremental creativity was statistically nonsignificant for individuals with high LGO ($b = 0.11, ns.$). However, this effect was significantly negative for individuals with low LGO ($b = -0.14, p < .05$). Thus, although intrinsic motivation in the presence of high LGO is not enough to trigger incremental creativity, intrinsic motivation may actually reduce incremental creativity in the presence of low LGO. The interaction patterns shown in Figure 3 demonstrate that LGO positively moderated the relationships between intrinsic motivation and incremental creativity. Thus, although Hypothesis 4 was supported statistically, that is, effects of intrinsic motivation were significantly more positive for employees with high LGO than those with low LGO, the results did not follow our expectations. We hypothesized high LGO to accentuate the positive effects of intrinsic motivation on incremental creativity, whereas the results suggested high LGO as a necessary



FIGURE 2 Moderation of the intrinsic motivation–radical creativity relationship by learning goal orientation (LGO)

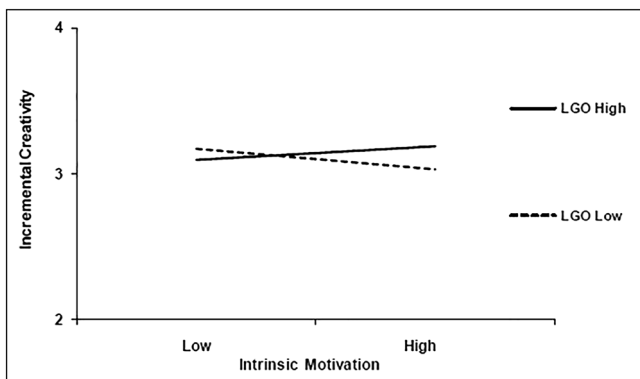


FIGURE 3 Moderation of the intrinsic motivation–incremental creativity relationship by learning goal orientation (LGO)

condition to avoid the negative effects of intrinsic motivation on incremental creativity.

Hypothesis 5 proposes that PGO positively moderates the effect of extrinsic rewards on incremental creativity. PGO exhibited a highly significant and positive main effect on incremental creativity ($\beta = .71$, $p < .001$, Model 3, Table 3). The interactions between intrinsic motivation and PGO were insignificant for radical and incremental creativity (Model 4, Table 2 and Model 4, Table 3). The interaction between

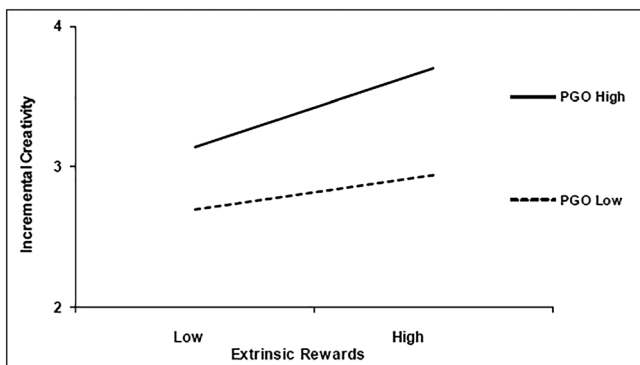


FIGURE 4 Moderation of the extrinsic reward–incremental creativity relationship by performance goal orientation (PGO)

extrinsic rewards and PGO was insignificant for radical creativity (Model 4, Table 2) but significant for incremental creativity ($\beta = .18$, $p < .01$, Model 4, Table 3). The results of simple slope analysis reported in Figure 4 further showed that PGO operated as a positive contingency for the relationship between extrinsic rewards and incremental creativity. Thus, this effect was stronger for those with high PGO than for those with low PGO ($b = 0.60$, $p < .001$ and $b = 0.26$, $p < .05$, respectively). These patterns supported Hypothesis 5.

4.3 | Post hoc analysis

Previous research argued that the interaction of intrinsic motivation and extrinsic rewards can trigger creativity (Amabile, 1993; Cerasoli et al., 2014). We verified this possibility by entering the interaction term, which was composed of intrinsic motivation and extrinsic rewards after controlling for their main effects. This interaction term proved to be an insignificant predictor of radical ($\beta = .31$, $p > .20$) and incremental creativity ($\beta = -.09$, $p > .20$).

In the present data, extrinsic rewards and PGO were negatively correlated with each other, but both were positively correlated with incremental creativity. When extrinsic rewards and PGO were entered into regression equations, they yielded beta weights larger than their respective bivariate correlations. These patterns signify the situation of reciprocal suppression (Pandey & Elliott, 2010; Rucker, Preacher, Tormala, & Petty, 2011). To address the possibility that the current analysis results may be biased due to reciprocal suppression, we conducted three additional regression analyses wherein the potential suppressor (PGO), independent variable (extrinsic rewards), and their interaction term were separately entered into the regression equations. The effects of extrinsic rewards, PGO, and their interaction term were all significant and positive even when they were individually entered into the equation alone. However, their corresponding regression coefficients increased when they were entered together, as shown in Table 3. These patterns demonstrated the presence of reciprocal suppression in our analysis. However, it did not affect the statistical significance and overall empirical patterns. Thus, despite the suppression, the main and interaction effect patterns reported in this study are substantively meaningful.²

The control variables did not appear to be statistically significant predictors of creativity in our analysis. To test whether their inclusion affected the current findings, we performed the following analyses. First, we removed the four control variables related to employees and supervisors (i.e., education, work experience, hierarchical level,

²The correlation pattern shows a strong negative correlation between extrinsic rewards and PGO, which is surprising because both extrinsic rewards and PGO have significant positive effects on incremental creativity. This negative correlation may be due to the tendency of individuals with high PGO to desire opportunities to receive extrinsic rewards and are apt to constantly demand and expect high levels of rewards. Those with high PGO are sensitive and actively pursue opportunities and reward contingencies that may offer social recognition of their competence (Elliott & Dweck, 1988). By contrast, those with low PGO are not that anxious to seek extrinsic rewards as the latter has no additional utility for them (VandeWalle, 2001). Hence, in any given situation, individuals high on PGO will perceive the availability of extrinsic rewards to be low and will wish for additional rewards to be present than those low on PGO. Thus, PGO and perceived presence of extrinsic rewards may have a negative association.

and association period with supervisor) and conducted the regression analyses to predict radical and incremental creativity. Second, we removed the remaining two control variables (i.e., industry and data collection method) and performed the same regression analyses again. Results of these two analyses without control variables were not different from those obtained in the presence of controls, thereby confirming that the inclusion of control variables did not change the results.

5 | DISCUSSION

This study aims to explore the possibility that intrinsic motivation and extrinsic rewards trigger different types of creativity and to contribute to the reward–creativity debate by identifying boundary conditions within which rewards affect creativity. The present analysis was conducted on multisource data consisting of 220 employee–supervisor dyads. This analysis showed that intrinsic motivation predicted radical creativity, whereas extrinsic rewards predicted incremental creativity. These differentiated effects were further enhanced by the goal orientations of employees, such that intrinsic motivation positively interacted with LGO but not with PGO to predict both creativity types. By contrast, extrinsic rewards positively interacted with PGO but not with LGO to predict only incremental creativity. The present analysis provides significant implications for research and practice as discussed below, where we also specify the limitations of this study to provide direction for further studies.

5.1 | Theoretical implications

This study advances the literature on rewards and organizational creativity in several meaningful aspects. The most important contribution is related to theoretical insights driven by the finding that different motivational drivers can trigger different types of employee creativity. Consistent with Gilson and Madjar (2011), the current analysis using multisource field data shows that although intrinsic motivation and extrinsic rewards trigger creativity, they trigger different types of creativity. Specifically, intrinsic task motivation exerts a significant positive effect on radical creativity but not on incremental creativity. This pattern resonates with the finding that strong commitment to career and task predicts radical but not incremental creativity (Madjar et al., 2011). When employees perceive their task situation as deserving enthusiastic and persistent engagement to solve problems, they may regard incremental creativity as unworthy of their efforts and pursue radical, unconventional ideas (Weick, 1995). The results are in line with the findings of Gilson and Madjar (2011) and Gilson et al. (2012), thereby increasing confidence regarding the absence of any direct relationship between intrinsic motivation and incremental creativity. Moreover, although intrinsic motivation might have positive effects on both creativity types, the resulting creativity is likely to be radical or divergent from existing practices than incremental or adaptive.

By contrast, extrinsic rewards are responsible for incremental creativity without affecting radical creativity. The behavioral theory

perspective of extrinsic rewards treats creativity as a behavioral dimension that can be incentivized and reinforced; this approach suggests that extrinsic rewards can actually enhance creative behavior (Eisenberger, Armeli, & Pretz, 1998; Gerhart & Fang, 2015). Nevertheless, extrinsic rewards may fail to generate the intensive involvement, high commitment, and persistence required by radical creativity (Kray et al., 2006; Ward, 2004). When the primary reason for employees' creative efforts involves instrumental causes external to the task itself, their search for ideas can be directed to expedient solutions that are likely to be appreciated by others (Drazin, Glynn, & Kazanjian, 1999). Oftentimes, the outcomes of these solution-driven (rather than problem-driven) processes are small modifications and improvements that have been termed as incremental creativity (Gilson & Madjar, 2011).

Creativity researchers have called for further studies of boundary conditions, wherein rewards affect creativity (Malik et al., 2015). The meta-analysis conducted by Byron and Khazanji (2012) identified individual differences as “important unexamined moderators” (p. 825). The current study responded to this call and identified theoretically meaningful individual dispositions that may selectively drive or suppress situational motivational factors by drawing on person–situation interaction perspective (Ford, 1996). The present analysis showed that LGO and PGO promoted the effects of intrinsic motivation and extrinsic rewards, respectively and exclusively. This pattern emphasizes the importance of the domain congruence of the motivational context and the individual disposition in generating synergistic interactions toward creativity.

This study highlights the distinct role of LGO for the intrinsic motivation–creativity relationship. Specifically, LGO is a necessary condition for intrinsic task motivation to have a positive effect on radical creativity. Employees with LGO are willing to experiment with new approaches despite the risk of failure (Alexander & van Knippenberg, 2014). Hence, they are willing to risk and explore the untested terrain to expand their skills and knowledge (Janssen & Van Yperen, 2004). Thus, the present findings clarify that radical creativity emerges from distinct psychological states driven by motivational contingencies (i.e., intrinsic motivation for creativity) and individual dispositions (i.e., LGO and risk-taking willingness; Gilson & Madjar, 2011; Mainemelis, 2010). Interestingly, intrinsic motivation is negatively related to incremental creativity for employees with low LGO but not those with high LGO. Accordingly, LGO functions as a condition for ensuring that intrinsic motivation does not diminish incremental creativity (see Figure 3). This pattern suggests the possible detrimental effect of incongruence between the intrinsically motivating properties of a task and the attitude of individuals with low LGO, who may not welcome this task situation.

By contrast, the effect of extrinsic rewards was accentuated among employees with high PGO. Employees with high PGO are keen on the evaluations of others and eager to gain social approval by displaying socially expected behaviors (VandeWalle, 2001). Thus, although not hypothesized, PGO exhibits a significant positive effect on incremental creativity. Madjar et al. (2011) reported that organizational identification and personal tendency of conformity are

positively related to incremental creativity but not to radical creativity. Therefore, previous findings on the negative effect of PGO on creativity (Borlongan, 2008; Janssen & Van Yperen, 2004) require further reexamination by considering the different types of creativity and situational contexts, such as reward contingencies, which may change the role of PGO. Thus, incremental creativity may emerge when individuals pursue creativity for extrinsic rewards and social approval and when such extrinsic outcomes are consequential for them because of their attachment to the organization or the value they attach to social acceptance (Yoon et al., 2015). Overall, the current analysis shows that theoretical frameworks accounting for the effects of motivation and rewards on employee creativity should consider different types of rewards and creativity as well as dispositional factors of employees to whom the rewards are offered.

5.2 | Practical implications

This study provides important practical implications to manage creativity. The present findings may help managers promote radical or incremental creativity in accordance with organizational and task requirements. Benner and Tushman (2003) argued that both types of creativity are critical for organizational success, because they comprise key drivers of performance in different task domains or stages. Thus, one is not superior to the other. When radical creativity is beneficial for a given task, managers must make interesting and intrinsically rewarding tasks as motivations for employees to engage intensely and persistently in task-related problems. In this respect, enrichment based on the classic job characteristics model (Hackman & Oldham, 1976), or the recently emerged relational perspective on job redesign (Grant & Parker, 2009), can be implemented to improve the intrinsic values of tasks through increased job complexity or challenges.

The current analysis also proves that individuals with LGO and PGO may serve different functions regarding creativity. The situational requirements of radical creativity can be met by employees with high LGO working on intrinsically motivating tasks. Likewise, the situational requirements of incremental creativity may fit employees with high PGO, who appreciate extrinsic rewards for submitting practical and readily implementable ideas within the existing system or practices (Miron-Spektor & Beenen, 2015). Thus, managers attempting to enhance radical creativity should recruit employees oriented to learn from failures and are willing to undertake social and cognitive risks by deviating from existing routines and established procedures (VandeWalle, Brown, Cron, & Slocum, 1999). By contrast, if the task or organizational situation prefers incremental creativity, managers may adopt different approaches. Offering extrinsic rewards to trigger incremental creativity can also be an efficient solution for uninteresting tasks that are not intrinsically rewarding (Baer et al., 2003). Thus, managers should be sensitive to the adequate form of creativity in a given task situation and be able to identify the corresponding personal and motivational characteristics that fit specific creativity demands.

5.3 | Study limitations and directions for future research

This study has several limitations that inform directions for further research. First, the causal direction among variables cannot be ascertained in the current cross-sectional design. Particularly, the effects of intrinsic motivation and extrinsic rewards for creativity on radical and incremental creativity can be reversed because employees, who exhibit significant creativity, deem tasks as engaging or are sensitive to and appreciative of rewards contingent on creativity. Previous studies generally assumed the effect of rewards on creativity (Malik et al., 2015; Yoon et al., 2015). Nevertheless, investigating the possibility that different levels of radical and incremental creativity drive perceptions of rewards toward creativity using the longitudinal panel research design will provide interesting insights.

Second, the measures employed in this study can undergo further improvements to enhance the validity of the findings. For example, the measures of the two types of creativity are based on supervisor ratings. This approach has been widely used in organizational creativity research (Sung et al., 2017; Yoon et al., 2015; Zhou, 2003). However, further studies may utilize objective measures of creativity (e.g., number of patents and suggestions) or expert ratings of the originality and practical value of the ideas advanced by employees as employed in previous studies (Bain, Mann, & Pirola-Merlo, 2001; Oldham & Cummings, 1996).

Finally, the current sample of employees and their supervisors in Pakistani business organizations requires consideration in interpreting the findings owing to the distinct cultural characteristics in this region. Notably, Pakistani culture tends to be collectivistic and masculine (Islam, 2004). Furthermore, the levels of intrinsic motivation and LGO that are significantly higher than those of extrinsic rewards and PGO observed in the current data may reflect the highly spiritualistic nature of Pakistanis (Malik, Naeem, & Bano, 2014). Although the findings of this study are largely consistent with those reported based on Western samples (e.g., Gilson & Madjar, 2011; Hirst et al., 2009; Madjar et al., 2011), further research should validate the present findings to verify external validity and explore the potential implications of culture related to the effects of rewards on creativity.

Despite these limitations, this study contributes to the literature by demonstrating that intrinsic motivation and extrinsic rewards explain radical and incremental creativity, respectively, and by revealing the role of dispositional goal orientations as moderating contingencies of these motivational processes underlying creativity. Future studies can explore the reward-creativity relationship in settings where extrinsic rewards are offered to those who exhibit only radical or incremental creativity. Similarly, researchers may investigate further the role of PGO for the reward-creativity relationship in organizations, in which radical creativity (and not incremental creativity) inspires recognition and social acceptance.

Further conceptual and empirical efforts may also be directed to explore conditions, under which intrinsic motivation may trigger radical and/or incremental creativity by focusing on the effects of job

characteristics (e.g., complex vs. routine jobs), leadership styles (e.g., transformational vs. transactional leadership), and organizational practices (e.g., high-commitment vs. traditional HR systems). These factors may differentially affect the radical and incremental forms of creativity at the individual, group, and organizational levels of analysis. Further research efforts should inform researchers and practitioners of the distinct cognitive mechanisms and organizational pathways that connect distinct drivers of creativity with different types of creativity. All in all, the current theoretical and empirical analyses offer considerably elaborate and nuanced perspectives and insights into the role of rewards in explaining creativity beyond the extant literature and also provide guidelines for future research to further explore diverse motivational underpinnings of varying forms of creativity.

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REFERENCES

- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.
- Alexander, L., & Van Knippenberg, D. (2014). Teams in pursuit of radical innovation: A goal orientation perspective. *Academy of Management Review*, 39(4), 423–438. <https://doi.org/10.5465/amr.2012.0044>
- Amabile, T. M. (1993). Motivational synergy: Towards new conceptualizations of intrinsic and extrinsic motivation in the workplace. *Human Resource Management Review*, 3(3), 185–201. [https://doi.org/10.1016/1053-4822\(93\)90012-5](https://doi.org/10.1016/1053-4822(93)90012-5)
- Amabile, T. M. (1996). *Creativity in context*. Colorado, USA: Westview Press.
- Amabile, T. M., Hill, K. G., Hennessey, B. A., & Tighe, E. M. (1994). The work preference inventory: Assessing intrinsic and extrinsic motivational orientations. *Journal of Personality and Social Psychology*, 66(5), 950–967. <https://doi.org/10.1037/0022-3514.66.5.950>
- Anderson, N., Potočník, K., & Zhou, J. (2014). Innovation and creativity in organizations: A state-of-the-science review, prospective commentary, and guiding framework. *Journal of Management*, 40(5), 1297–1333. <https://doi.org/10.1177/0149206314527128>
- Baer, M., Oldham, G. R., & Cummings, A. (2003). Rewarding creativity: When does it really matter? *The Leadership Quarterly*, 14(4), 569–586. [https://doi.org/10.1016/S1048-9843\(03\)00052-3](https://doi.org/10.1016/S1048-9843(03)00052-3)
- Bain, P. G., Mann, L., & Pirola-Merlo, A. (2001). The innovation imperative: The relationship between team climate, innovation, and performance in research and development teams. *Small Group Research*, 32, 55–73. <https://doi.org/10.1177/104649640103200103>
- Bakker, A. B., Petrou, P., Op den Kamp, E. M., & Tims, M. (2019). Proactive vitality management, work engagement, and creativity: The role of goal orientation. *Applied Psychology*. <https://doi.org/10.1111/apps.12173>
- Barron, K. E., & Harackiewicz, J. M. (2000). Achievement goals and optimal motivation: A multiple goals approach. In C. Sansone, & J. M. Harackiewicz (Eds.), *Intrinsic and extrinsic motivation: The search for optimal motivation and performance* (pp. 229–254). New York: Academic Press. <https://doi.org/10.1016/B978-012619070-0/50031-3>
- Benner, M. J., & Tushman, M. L. (2003). Exploitation, exploration, and process management: The productivity dilemma revisited. *Academy of Management Review*, 28(2), 238–256. <https://doi.org/10.2307/30040711>
- Borlongan, M. D. D. (2008). Goal orientation-creativity relationship: Openness to experience as a moderator. Master's Theses, Paper: 3501, San Jose State University http://scholarworks.sjsu.edu/etd_theses/3501.
- Brown, K. G. (2001). Using computers to deliver training: Which employees learn and why? *Personnel Psychology*, 54, 271–296. <https://doi.org/10.1111/j.1744-6570.2001.tb00093.x>
- Byron, K., & Khazanchi, S. (2012). Rewards and creative performance: A meta-analytic test of theoretically derived hypotheses. *Psychological Bulletin*, 138, 809–830. <https://doi.org/10.1037/a0027652>
- Cerasoli, C. P., Nicklin, J. M., & Ford, M. T. (2014). Intrinsic motivation and extrinsic incentives jointly predict performance: A 40-year meta-analysis. *Psychological Bulletin*, 140(4), 980–1008. <https://doi.org/10.1037/a0035661>
- Dane, E. (2010). Reconsidering the trade-off between expertise and flexibility: A cognitive entrenchment perspective. *Academy of Management Review*, 35(4), 579–603.
- Drazin, R., Glynn, M. A., & Kazanjian, R. K. (1999). Multilevel theorizing about creativity in organizations: A sensemaking perspective. *Academy of Management Review*, 24(2), 286–307. <https://doi.org/10.5465/amr.1999.1893937>
- Ehrhart, M. G., & Klein, K. J. (2001). Predicting followers' preferences for charismatic leadership: The influence of follower values and personality. *The Leadership Quarterly*, 12(2), 153–179. [https://doi.org/10.1016/S1048-9843\(01\)00074-1](https://doi.org/10.1016/S1048-9843(01)00074-1)
- Eisenberger, R., Armeli, S., & Pretz, J. (1998). Can the promise of reward increase creativity? *Journal of Personality and Social Psychology*, 74(3), 704–714. <https://doi.org/10.1037/0022-3514.74.3.704>
- Elliot, A. J., & Church, M. A. (1997). A hierarchical model of approach and avoidance achievement motivation. *Journal of Personality and Social Psychology*, 72(1), 218–232. <https://doi.org/10.1037/0022-3514.72.1.218>
- Elliot, A. J., & Harackiewicz, J. M. (1996). Approach and avoidance achievement goals and intrinsic motivation: A mediational analysis. *Journal of personality and social psychology*, 70(3), 461–475. <https://doi.org/10.1037/0022-3514.70.3.461>
- Elliott, E. S., & Dweck, C. S. (1988). Goals: An approach to motivation and achievement. *Journal of Personality and Social Psychology*, 54(1), 5–12. <https://doi.org/10.1037/0022-3514.54.1.5>
- Fisher, S. L., & Ford, K. J. (1998). Differential effects of learner effort and goal orientation on two learning outcomes. *Personnel Psychology*, 51, 397–420. <https://doi.org/10.1111/j.1744-6570.1998.tb00731.x>
- Ford, C. M. (1996). A theory of individual creative action in multiple social domains. *Academy of Management Review*, 21, 1112–1142. <https://doi.org/10.2307/259166>
- Gerhart, B., & Fang, M. (2015). Pay, intrinsic motivation, extrinsic motivation, performance, and creativity in the workplace: Revisiting long-held beliefs. *Annual Review of Organizational Psychology and Organizational Behavior*, 2, 489–521. <https://doi.org/10.1146/-032414-111418>

- Gilson, L. L., Lim, H. S., D'Innocenzo, L., & Moye, N. (2012). One size does not fit all: Managing radical and incremental creativity. *The Journal of Creative Behavior*, 46(3), 168–191. <https://doi.org/10.1002/jocb.12>
- Gilson, L. L., & Madjar, N. (2011). Radical and incremental creativity: Antecedents and processes. *Psychology of Aesthetics, Creativity, and the Arts*, 5(1), 21–28. <https://doi.org/10.1037/a0017863>
- Gong, Y., Huang, J. C., & Farh, J. L. (2009). Employee learning orientation, transformational leadership, and employee creativity: The mediating role of employee creative self-efficacy. *Academy of Management Journal*, 52(4), 765–778. <https://doi.org/10.5465/AMJ.2009.43670890>
- Grant, A. M., & Berry, J. W. (2011). The necessity of others is the mother of invention: Intrinsic and prosocial motivations, perspective taking, and creativity. *Academy of Management Journal*, 54(1), 73–96. <https://doi.org/10.5465/AMJ.2011.59215085>
- Grant, A. M., & Parker, S. K. (2009). Redesigning work design theories: The rise of relational and proactive perspectives. *The Academy of Management Annals*, 3, 317–375. <https://doi.org/10.1080/194165209.03047327>
- Hackman, J. R., & Oldham, G. R. (1976). Motivation through the design of work: Test of a theory. *Organizational behavior and human performance*, 16(2), 250–279. [https://doi.org/10.1016/0030-5073\(76\)90016-7](https://doi.org/10.1016/0030-5073(76)90016-7)
- Hirst, G., Knippenberg, D. V., & Zhou, J. (2009). A cross-level perspective on employee creativity: Goal orientation, team learning behavior, and individual creativity. *Academy of Management Journal*, 52(2), 280–293. <https://doi.org/10.5465/AMJ.2009.37308035>
- Hofmans, J., De Gieter, S., & Pepermans, R. (2013). Individual differences in the relationship between satisfaction with job rewards and job satisfaction. *Journal of vocational behavior*, 82(1), 1–9. <https://doi.org/10.1016/j.jvb.2012.06.007>
- Hogan, R., Hogan, J., & Roberts, B. W. (1996). Personality measurement and employment decisions: Questions and answers. *American Psychologist*, 51(5), 469–477. <https://doi.org/10.1037/0003-066X.51.5.469>
- Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural equation modeling: a multidisciplinary journal*, 6(1), 1–55. <https://doi.org/10.1080/10705519909540118>
- Ibarra, H. (1993). Network centrality, power, and innovation involvement: Determinants of technical and administrative roles. *Academy of Management Journal*, 36, 471–501.
- Islam, N. (2004). Sifarish, sycophants, power and collectivism: administrative culture in Pakistan. *International Review of Administrative Sciences*, 70(2), 311–330. <https://doi.org/10.1177/0020852304044259>
- Janssen, O., & Van Yperen, N. W. (2004). Employees' goal orientations, the quality of leader-member exchange, and the outcomes of job performance and job satisfaction. *Academy of Management Journal*, 47(3), 368–384. <https://doi.org/10.2307/20159587>
- Johnson, J. A. (1997). Units of analysis for the description and explanation of personality. *Handbook of Personality Psychology*, 73–93. <https://doi.org/10.1016/B978-012134645-4/50004-4>
- Kray, L. J., Galinsky, A. D., & Wong, E. M. (2006). Thinking within the box: The relational processing style elicited by counterfactual mind-sets. *Journal of Personality and Social Psychology*, 91(1), 33–48. <https://doi.org/10.1037/0022-3514.91.1.33>
- Lepper, M. R., Greene, D., & Nisbett, R. E. (1973). Undermining children's intrinsic interest with extrinsic reward: A test of the overjustification hypothesis. *Journal of Personality and Social Psychology*, 28, 129–137. <https://doi.org/10.1037/h0035519>
- Liu, D., Jiang, K., Shalley, C. E., Keem, S., & Zhou, J. (2016). Motivational mechanisms of employee creativity: A meta-analytic examination and theoretical extension of the creativity literature. *Organizational Behavior and Human Decision Processes*, 137, 236–263. <https://doi.org/10.1016/j.obhdp.2016.08.001>
- Liu, D., Liao, H., & Loi, R. (2012). The dark side of leadership: A three-level investigation of the cascading effect of abusive supervision on employee creativity. *Academy of Management Journal*, 55(5), 1187–1212. <https://doi.org/10.5465/amj.2010.0400>
- Madjar, N., Greenberg, E., & Chen, Z. (2011). Factors for radical creativity, incremental creativity, and routine, noncreative performance. *Journal of Applied Psychology*, 96(4), 730–743. <https://doi.org/10.1037/a0022416>
- Mainemelis, C. (2010). Stealing fire: Creative deviance in the evolution of new ideas. *Academy of Management Review*, 35(4), 558–578.
- Mainemelis, C., Kark, R., & Epitropaki, O. (2015). Creative leadership: A multi-context conceptualization. *Academy of Management Annals*, 9(1), 393–482. <https://doi.org/10.5465/19416520.2015.1024502>
- Malik, M. A. R., & Butt, A. N. (2017). Rewards and creativity: Past, present, and future. *Applied Psychology*, 66(2), 290–325. <https://doi.org/10.1111/apps.12080>
- Malik, M. A. R., Butt, A. N., & Choi, J. N. (2015). Rewards and employee creative performance: Moderating effects of creative self-efficacy, reward importance, and locus of control. *Journal of Organizational Behavior*, 36(1), 59–74. <https://doi.org/10.1002/job.1943>
- Malik, M. E., Naeem, B., & Bano, N. (2014). Linking workplace spirituality to intrinsic work motivation. Punjab University Working Papers, Pakistan. Retrieved on 5th January, 2016
- Miron-Spektor, E., & Beenen, G. (2015). Motivating creativity: The effects of sequential and simultaneous learning and performance achievement goals on product novelty and usefulness. *Organizational Behavior and Human Decision Processes*, 127, 53–65. <https://doi.org/10.1016/j.obhdp.2015.01.001>
- Mothe, C., & Nguyen-Thi, T. U. (2012). Non-technological and technological innovations: Do services differ from manufacturing? An empirical analysis of Luxembourg firms. *International Journal of Technology Management*, 57(4), 227–244. <https://doi.org/10.1504/IJTM.2012.045544>
- Mumford, M. D., & Gustafson, S. B. (1988). Creativity syndrome: Integration, application, and innovation. *Psychological Bulletin*, 103(1), 27–43. <https://doi.org/10.1037/0033-2909.103.1.27>
- Mun, Y. Y., & Hwang, Y. (2003). Predicting the use of web-based information systems: Self-efficacy, enjoyment, learning goal orientation, and the technology acceptance model. *International journal of human-computer studies*, 59(4), 431–449.
- Oldham, G. R., & Cummings, A. (1996). Employee creativity: Personal and contextual factors at work. *Academy of Management Journal*, 39(3), 607–634. <https://doi.org/10.2307/256657>
- Oldham, G. R., & Hackman, J. R. (2010). Not what it was and not what it will be: The future of job design research. *Journal of organizational behavior*, 31(2-3), 463–479. <https://doi.org/10.1002/job.678>
- Pandey, S., & Elliott, W. (2010). Suppressor variables in social work research: Ways to identify in multiple regression models. *Journal of the Society for Social Work and Research*, 1(1), 28–40. <https://doi.org/10.5243/jsswr.2010.2>
- Peng, J., Zhang, G., Fu, Z., & Tan, Y. (2014). An empirical investigation on organizational innovation and individual creativity. *Information Systems and e-Business Management*, 12(3), 465–489. <https://doi.org/10.1007/s10257-013-0227-y>
- Rucker, D. D., Preacher, K. J., Tormala, Z. L., & Petty, R. E. (2011). Mediation analysis in social psychology: Current practices and new recommendations. *Social and Personality Psychology Compass*, 5(6), 359–371. <https://doi.org/10.1111/j.1751-9004.2011.00355.x>

- Scott, S. G., & Bruce, R. A. (1994). Determinants of innovative behavior: A path model of individual innovation in the workplace. *Academy of Management Journal*, 37(3), 580–607.
- Shalley, C. E., Zhou, J., & Oldham, G. R. (2004). The effects of personal and contextual characteristics on creativity: Where should we go from here? *Journal of Management*, 30, 933–958. <https://doi.org/10.1016/j.jm.2004.06.007>
- Shin, S. J., Yuan, F., & Zhou, J. (2017). When perceived innovation job requirement increases employee innovative behavior: A sensemaking perspective. *Journal of Organizational Behavior*, 38(1), 68–86. <https://doi.org/10.1002/job.2111>
- Sung, S. Y., Antefelt, A., & Choi, J. N. (2017). Dual effects of job complexity on proactive and responsive creativity: Moderating role of employee ambiguity tolerance. *Group & Organization Management*, 42(3), 388–418. <https://doi.org/10.1177/1059601115619081>
- Tierney, P., & Farmer, S. M. (2004). The Pygmalion process and employee creativity. *Journal of Management*, 30(3), 413–432. <https://doi.org/10.1016/j.jm.2002.12.001>
- Unsworth, K. (2001). Unpacking creativity. *Academy of management review*, 26(2), 289–297. <https://doi.org/10.5465/amr.2001.4378025>
- VandeWalle, D. (1997). Development and validation of a work domain goal orientation instrument. *Educational and Psychological Measurement*, 57(6), 995–1015. <https://doi.org/10.1177/0013164497057006009>
- VandeWalle, D. (2001). Why wanting to look successful doesn't always lead to success. *Organizational Dynamics*, 30(2), 162–171. [https://doi.org/10.1016/S0090-2616\(01\)00050-X](https://doi.org/10.1016/S0090-2616(01)00050-X)
- VandeWalle, D., Brown, S. P., Cron, W. L., & Slocum, J. W. Jr. (1999). The influence of goal orientation and self-regulation tactics on sales performance: A longitudinal field test. *Journal of Applied Psychology*, 84(2), 249–259. <https://doi.org/10.1037/0021-9010.84.2.249>
- Ward, T. B. (2004). Cognition, creativity, and entrepreneurship. *Journal of Business Venturing*, 19, 173–188. [https://doi.org/10.1016/S0883-9026\(03\)00005-3](https://doi.org/10.1016/S0883-9026(03)00005-3)
- Weick, K. E. (1995). *Sensemaking in organizations* (Vol. 3). Sage.
- Yoon, H. J., Sung, S. Y., & Choi, J. N. (2015). Mechanisms underlying creative performance: Employee perceptions of intrinsic and extrinsic rewards for creativity. *Social Behavior and Personality*, 43, 1161–1180. <https://doi.org/10.2224/sbp.2015.43.7.1161>
- Zhou, J. (2003). When the presence of creative coworkers is related to creativity: Role of supervisor close monitoring, developmental feedback, and creative personality. *Journal of Applied Psychology*, 88(3), 413–422. <https://doi.org/10.1037/0021-9010.88.3.413>

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