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#### Citation

TAN, Gilbert and CHONG, Wei Nurn. Pro-Creativity Leadership: An Exploratory Study on the Mediating Role of Intrinsic Motivation. (2010). *11th International Conference on Human Resource Development Research and Practice across Europe 2010*. 1-21.

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## **Pro-Creativity Leadership: An exploratory study on the the mediating role of Intrinsic Motivation.**

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**Keywords:** employee creativity, leadership, intrinsic motivation, positive expectation, empowerment, intellectual stimulation, supportiveness, role modeling.

### **Introduction**

Many scholars believe in the critical role leaders play in fostering creativity at the workplace (e.g. Amabile, 1998; Amabile, Conti, Coon, Lazenby, & Herron, 1996; Jung, 2000-2001; Mumford & Gustafson, 1988). Leaders have been described to occupy a boundary role position in organizations (Katz & Kahn, 1978) where they are tasked with influencing subordinate behavior in order to attain organizational goals (Fleishman, 1973; Mumford, 1986). As such, they are in the position to influence subordinate behavior considerably, including subordinates' creative behavior. Yet to date, not much research has been done on the effect of leadership on employee creativity (Jung, 2000-2001; Mumford, Scott, Gladdis, & Strange, 2002). Past research exploring the linkage between leadership and employee creativity is largely based on existing leadership frameworks, such as, transformational leadership (Chen, Li, & Tang, 2009; Gumusluoglu & Ilsev, 2009; Shin & Zhou, 2003).

There is a need to explore alternative theoretical frameworks on the types of leadership behaviors that directly affect employee creativity. This is in line with Tierney, Farmer, & Graen's (1999) call to have a more accurate portrayal of leadership's role in promoting employee creativity, as well as Waldman and Bass's (1991) observation that traditional leadership approaches are more relevant to the explanation and prediction of productivity outcomes than to innovation outcomes.

Although our literature review identified many studies relating intrinsic motivation to employee creativity (e.g. Amabile, 1983; 1996; Oldham & Cummings, 1996), there were a few studies which investigated the efficacy of intrinsic motivation as a mediator. Also, the findings on the mediating role of intrinsic motivation between

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leadership and employee creativity are inconclusive (Chen et al., 2009; Gumusluoglu & Ilsev, 2009; Shin & Zhou, 2003). Therefore, in this study we will develop an instrument to measure the Pro-Creativity Leadership, and use it to test the validity of the construct of pro-creativity leadership by showing the linkage between the pro-creativity leadership and employee creativity through the mediating effects of intrinsic motivation.

## **Literature Review**

Various studies have been conducted on the relationship between various aspects of leadership and employee creativity, like that of creativity goals, leader support, relationships between leaders and subordinates, leaders' traits, leadership styles, and leaders' trust in their subordinates.

### *Creativity Goals*

Shalley (1991, 1995) found that assigned creativity goals effectively enhanced creative performance. Similarly, Carson and Carson (1993) found that individuals who were assigned a creativity goal performed more creatively than those not assigned a creativity goal.

### *Quality of Relationship*

There have been a number of empirical studies on the effect of the quality of relationship and communication between the leader and employee, and employee creativity. In one of the pioneer studies in this area, Andrews and Farris (1967) found that scientists' creativity was higher when managers listened to their employees' concerns and asked for their inputs into decisions affecting them. Andrews and Gordon (1970) found that negative feedback from leaders inhibited scientists' creativity. In another early study on 300 scientists working in 20 different laboratories, Pelz (1963) found that intensity of interaction with group leaders was positively related to creativity, especially for the junior scientists. Also, exposure to poor supervision or poor role modeling, as measured by the leaders capability for scientific work, tended to result in unusually poor performance.

More recently, Scott and Bruce (1994) found that the quality of the exchange or relationship between a supervisor and his or her subordinate (i.e., leader-member exchange, LMX) was related to the subordinate's individual innovativeness, where individual innovativeness was viewed as a multistage process from that of idea generation to that of successful implementation of the idea, and was measured by a six-item scale. Likewise, Tierney, Farmer, and Graen, (1999) found that LMX was positively related to employee creativity. In addition, the following were found to relate to employee creative performance – 1) employee intrinsic motivation, 2) employee cognitive style, 3) interaction between employee and leader intrinsic motivation, 4) interaction between LMX and employee cognitive style.

### *Leadership Styles*

In a study involving 96 undergraduate students, it was found that leader behavior contributing to problem construction and feelings of self-efficacy positively affected subordinate creativity (Redmond, Mumford, & Teach, 1993). In another study of 171 employees from two American manufacturing facilities, Oldham and Cummings (1996) found that supportive and noncontrolling supervision was positively related to

employee creativity. Leadership style may be defined as “a pattern of emphases, indexed by the frequency or intensity of specific leadership behaviors or attitudes, which a leader places on the different leadership functions” (Casimir, 2001, p. 246).

#### *Transformational Leadership*

Transformational leadership has been defined as influencing followers by “broadening and elevating followers’ goals and providing them with confidence to perform beyond the expectations specified in the implicit or explicit exchange agreement” (Dvir, Eden, Avolio & Shamir, 2002, p. 735), and Bass (1985) theorized that transformational leadership comprises four dimensions: intellectual stimulation, individualized consideration, charisma, and inspirational motivation.

A few studies have been conducted on the affect of transformational leadership on employee or subordinate creativity (Chen, Li, & Tang, 2009; Gumusluoglu & Ilsev, 2009; Shin & Zhou, 2003). They all found that transformational leadership positively affects employee creativity.

These three studies also explored the mediating effect intrinsic motivation has on the transformational leadership – employee creativity relationship, with mixed results. Chen et al. (2009) found that intrinsic motivation fully mediated transformational leadership and creativity in their sample of R&D employees from 50 companies in Taiwan. However, Gumusluoglu and Ilsev (2009) found that intrinsic motivation did not mediate the transformational leadership – creativity relationship based on their sample of 163 R&D personnel and managers at 43 small Turkish software development companies. On the other hand, Shin and Zhou (2003) found that intrinsic motivation partially mediated the transformational leadership – creativity relationship based on their sample of 290 employees and their supervisors from 46 Korean companies.

Other moderators and mediators of the transformational leadership – creativity relationship were also explored by these three studies. They include 1) followers’ “conservation,” a value favoring propriety and harmony in interpersonal and person-to-person relations (Schwartz, 1992), 2) creative thinking, 3) psychological empowerment, and 4) perception of support for innovation. Followers’ conservation was found to moderate the transformational leadership – employee creativity relationship, and intrinsic motivation was found to mediate the relationship between the interaction between transformational leadership and followers’ conservation, and employee creativity (Shin & Zhou, 2003). In the same study, followers’ conservation was also found to partially mediate the transformational leadership – employee creativity relationship. In Chen et al. (2009)’s study, creative thinking was found to fully mediate the transformational leadership – employee creativity relationship. Also, creative thinking was found to have a greater effect on creativity than intrinsic motivation does. Gumusluoglu and Ilsev’s (2009) study found that psychological empowerment mediated the transformational leadership – employee creativity relationship, but perception of support for innovation does not.

## Theoretical Model

Figure 1: *Intrinsic Motivation as a Mediator of the Pro-Creativity Leadership Behaviors and Employee Creativity*

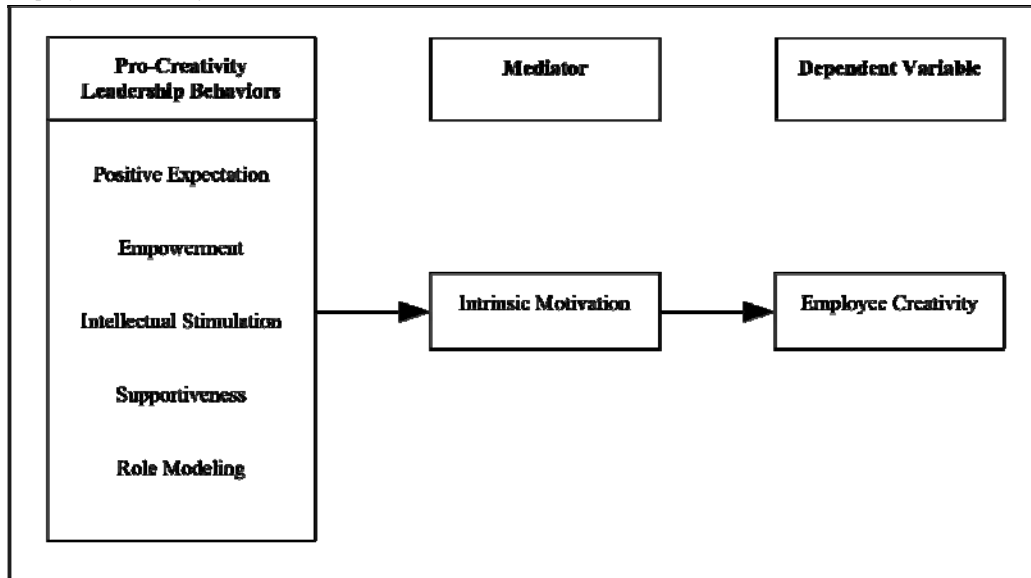


Figure 1 summarizes the theoretical model of this study. Our model specifies 5 pro-creativity leadership behaviors: (a) positive expectation, (b) empowerment, (c) intellectual stimulation, (d) supportiveness, and (e) role modeling. These leadership behaviors were based on responses of more than 1000 executives who attended the creativity workshops that were conducted by the first author. The workshop participants were asked to list supervisory behaviors that facilitated their creativity as well as supervisory behaviors that hindered their creativity. The responses were analyzed qualitatively and the five types of leadership behaviors emerged from the data.

These five leadership behaviors are also in line with existing literature on leadership and creativity. Mumford et al. (2002) cited in their review on the leadership of creative people that the findings of various researchers (e.g. Andrews, 1967; Enson, Cottam & Band, 2001; Oldham & Cummings, 1996) suggests that the following four dimensions are especially important in leading creative people – intellectual stimulation, involvement, support, and freedom. This is in line with Elkins and Keller (2003) conclusion that the key drivers of innovation and creativity at the workplace include vision, support for innovation, autonomy, encouragement, recognition, and challenge.

In our model, we propose that intrinsic motivation mediates the relationship between the pro-creativity leadership behaviors and employee creativity. To test this proposition, we specify the following hypotheses in accordance with Baron and Kenny's (1986) procedures for mediation regression:

*H1: The pro-creativity leadership behaviors will correlate positively with intrinsic motivation.*

*H2: The pro-creativity leadership behaviors will correlate positively with employee creativity.*

*H3: Intrinsic motivation will correlate positively with employee creativity.*

#### *Definitions of Pro-Creativity Leadership Behaviors*

*Positive expectation* refers to the display of behaviors that reflect the leader's confidence and assurance in the employees' abilities. Leaders with positive expectation truly believe that their employees will be successful. This is in line with Eden (1984) theorizing that managers' expectations of subordinates' performance are communicated to them through the managers' behaviors. *Empowerment* refers to the delegation of authority and responsibility to subordinates. It involves giving subordinates greater autonomy and discretion in decision-making. We allude to Bass' (1990) reference to the intellectual stimulation component in transformational leadership. We define *intellectual stimulation* as leadership behavior that promotes intelligence, rationality, the challenging of assumptions, and careful problem solving. *Supportiveness* refers to leaders doing whatever is necessary to foster conducive conditions for employees to exercise creativity at work. This includes providing emotional support (e.g. providing encouragement, showing concern for employees' feelings and needs, etc.) and work support (e.g. helping employees solve work-related problems, asking for their input into decisions affecting them, etc.). *Role modeling* is defined as the deliberate display of creative-inducing behavior by leaders as examples for employees to follow. These behaviors include risk-taking, challenging his/her own assumptions, and trying new ways of doing things.

#### **Pro-Creativity Leadership – Intrinsic Motivation**

Intrinsic motivation refers to the motivational state in which employees are interested in a task for its own sake, rather than for the external outcomes or rewards related to the task (Deci & Ryan, 1985).

#### *Positive Expectation – Intrinsic Motivation*

In Cognitive Evaluation Theory (thereafter CET), a sub-theory of self-determination theory, Deci and Ryan (1985) presented the social factors that affected intrinsic motivation. They argued that interpersonal events that contribute toward feelings of competence (or self-efficacy in other words) during action can enhance intrinsic motivation for that action because they allow satisfaction of the basic psychological need for competence. It is likely that when this need for competence is satisfied, it provides the employee with the self-confidence necessary to enjoy the task for its own sake. We therefore hypothesize that:

*H1a: The pro-creativity leadership behavior of positive expectation will correlate positively with employees' intrinsic motivation.*

#### *Empowerment – Intrinsic Motivation*

Employees who are given autonomy have the opportunity of self-direction, which appears to enhance intrinsic motivation (Zuckerman, Porac, Lathin, Smith, & Deci, 1978). As employees are afforded the freedom of self-direction, they get to choose

how to perform their work tasks, and thus may be allowed to perform tasks in ways that allow them to enjoy the tasks better.

In line with this, Oldham and Cummings (1996) reported that previous research provide support for the association between controlling supervision and lowered intrinsic motivation and creativity. An explanation for this is that controlling supervision undermines intrinsic motivation by shifting employees' attention away from the tasks toward external concerns (Deci et al., 1989; Deci & Ryan, 1987). As such, we hypothesize that:

*H1b: The pro-creativity leadership behavior of empowerment will correlate positively with employees' intrinsic motivation.*

#### *Intellectual Stimulation – Intrinsic Motivation*

A leader's intellectual stimulation is likely to energize the employees to explore and be more attracted to different dimensions of their tasks (Gumusluoglu & Ilsev, 2009), thereby stimulating employees to enjoy more dimensions of their tasks, which result in greater intrinsic motivation. Further, CET argues that interpersonal events that contribute toward feelings of competence during action can enhance intrinsic motivation for that action (Deci & Ryan, 1985). A leader stimulating his or her employees intellectually will also contribute to the employees' feeling of competence. It is therefore hypothesized that:

*H1c: The pro-creativity leadership behavior of intellectual stimulation will correlate positively with employees' intrinsic motivation.*

#### *Supportiveness – Intrinsic Motivation*

As tasks that require creativity to be exercised are often challenging and therefore high-strain tasks, supportiveness helps to enhance employees' intrinsic motivation by removing distractions to employees enjoying the tasks. Potential distractions include stress, loss of confidence, and difficult problems. Supportiveness involves superiors providing employees with emotional support such as helping to alleviate employees' stress, encouragement, and helping them solve work-related problems. Supportiveness can be viewed as a form of emotional/psychological resource given to the employees to enable them to focus on the challenge of the tasks at hand. It is therefore hypothesized that:

*H1d: The pro-creativity leadership behavior of supportiveness will correlate positively with employees' intrinsic motivation.*

#### *Role Modeling – Intrinsic Motivation*

Role modeling includes behaviors such as showing employees new ways of solving problems and challenging one's own assumptions. Employees often assimilate their supervisors' behaviors as their supervisors often act as reference points for behavior within the organization. As employees witness new ways of solving problems and their supervisors continually trying new ways of doing things, new cognitive pathways are opened up and new problem-solving techniques are learnt, and as they practice these behaviors and the techniques they learn over time, they begin to find themselves better able to solve problems which result in greater feelings of

competence. By the CET, self-efficacy is argued to enhance intrinsic motivation. As such, we hypothesize that:

*H1e: The pro-creativity leadership behavior of role modeling will correlate positively with employees' intrinsic motivation.*

## **Pro-Creativity Leadership – Employee Creativity**

### *Positive Expectation – Employee Creativity*

There has been little study of the positive expectation – creativity link. In one of the rare studies, Scott and Bruce (1994) found that the degree to which supervisors expect their subordinates to be innovative positively affects their subordinates' innovative behavior. This provides evidence of the Pygmalion effect in the context of innovation.

How the positive expectation of a manager leads to improved performance by a subordinate has been discussed in detail in the Pygmalion Effect literature (Livingston, 1969; Eden, 1992). The Pygmalion effect refers to enhanced learning or performance resulting from the positive expectation of others, and is a type of self-fulfilling prophecy. When managers have positive expectation of their subordinates, they tend to exhibit behavior to communicate their expectation, like setting high standards (Eden and Ravid, 1982) and helping subordinates meet them, preferential treatment, increased visibility, more explicit goals or standards, and increased attention to training (Eden & Shani, 1982; Rubovits & Maehr, 1973), setting challenging goals (Locke, Saari, Shaw, & Latham, 1981), management by objectives (Odiorne, 1969), speaking positively to and about employees, not harping on poor past records, and pointing out to subordinates that they have untapped potential (Eden, 1992), all of which provide employees with a good platform to unleash their energy towards producing creative output within their organization.

Also when employees are treated with positive expectation, they gain a positive self-image and try to live up to that image and do what they know extraordinary employees are expected to do. In other words, they 'inherit' a positive expectation of self, and exhibit behaviors in line with this like sustained effort in their tasks, increased effort to learn what they need to, and thereby building up intellectual capital over time, all of which help to facilitate the production of creative output.

*H2a: Positive expectation will correlate positively with employee creativity.*

### *Empowerment – Employee Creativity*

According to Amabile et al. (1996), autonomy or freedom is an important determinant of organizational creativity because individuals produce more creative work when they perceive more personal control over how to accomplish given tasks. In line with this, Pelz (1956) in a study of scientists found that climates encouraging individual autonomy generated greater creativity from the scientists. We therefore hypothesize:

*H2b: Empowerment will correlate positively with employee creativity.*

### *Intellectual Stimulation – Employee Creativity*



There relationship between intellectual stimulation and creativity has been well-studied. Mumford and Gustafson (1988) argued that innovation is facilitated by an environment that “provides a cognitive basis for creative efforts through structures encouraging the creation of systematic understandings and ongoing exploration of alternative points of view” (p.38). Further, studies by Runco and Okuda (1988) and Smilansky (1984) show that the skill in application of the problem-finding process is related to creative performance on standard measures of creativity. Intellectual stimulation includes continually pressuring subordinates to re-think the way they do their work, showing employees new ways of conceptualizing old problems, teaching them to see difficulties as problems to be solved, and emphasizing rational solutions, all of which enable and equip employees to exercise their intellects towards the production of creative output. As such, it is hypothesized that:

*H2c: The intellectual stimulation will correlate positively with employee creativity.*

#### *Supportiveness – Employee Creativity*

There is much empirical support for the proposed positive relationship between supportiveness and employee creativity. For example, Thistlewaite’s (1963) and Knapp’s (1963) findings suggest that a warm, supportive, flexible but intellectually demanding environment is related to scientific productivity. Further, Eisenberger, Fasolo, and Davis-LaMastro (1990) found a positive relationship between employees’ perceptions of being valued and cared about by the organization, and innovation on behalf of the organization in the absence of anticipated direct reward or personal recognition. In line with these findings, we hypothesize that:

*H2d: Supportiveness will correlate positively with employee creativity.*

#### *Role Modeling – Employee Creativity*

Jung and Sosik (2002) remarked that although the utility of leaders serving as a role models for followers has been discussed in transformational leadership theory (Bass, 1990), the leadership literature has yet to make an explicit link between leader role modeling and follower creativity. As leaders deliberately display creative-inducing behavior, they set themselves up as points of reference that help to define the kinds of traits, values, beliefs and behaviors that employees should adopt. By modeling their leaders, employees naturally will come to become more creative and seek out creative endeavors, and consequently produce creative output. As such, it is hypothesized that:

*H2e: Role modeling will correlate positively with employee creativity.*

#### **Intrinsic Motivation – Employee Creativity**

Creative endeavors often require much sustained effort from employees, and in order to sustain the perseverance required to overcome the challenges faced in the creative work, some internal force within the employees is required (Amabile, 1983; Bandura, 1997). One such force is that of intrinsic motivation, which has been argued to be one of the most important sources of creativity (Amabile, 1983; 1998; Amabile et al., 1996). The intrinsic motivation perspective dominates creativity literature. In this

perspective, it is argued that people are most creative primarily through intrinsic motivation (e.g., Amabile, 1983; 1998; Tierney et al., 1999).

Empirical studies have shown that when employees are intrinsically motivated, they exhibit more creative performance (e.g. Tierney et al., 1999; Jaussi and Dionne, 2003). A number of studies have also found that intrinsic motivation leads to creativity because intrinsically motivated people tend to prefer novel approaches to problem solving (Amabile, Hill, Hennessey, & Tighe, 1994; Zhou, 1998). One explanation for this phenomenon is that intrinsically motivated employees tend to be cognitively more flexible and persevering (McGraw & Fiala, 1982; McGraw & McCullers, 1979). They are therefore more likely to find multiple novel approaches to solving problems and to be persistent.

Also, when an employee is intrinsically motivated to perform a task, he or she is more likely to focus on it and explore and experiment with it, thereby exhibiting creative behavior (Gumusluoglu & Ilsev, 2009). We therefore hypothesize that:

*H3: Employees' level of intrinsic motivation will correlate positively with employee creativity.*

## **Method**

### *Sample*

A convenient sample was utilized in this study, with respondents recruited by the researchers to fill out online questionnaires. Respondents had to fulfill the criteria of (1) being at least 21 years of age, and (2) having worked full time in their present organization for at least 6 months. In total, 205 questionnaires were collected. 46% of the respondents were male, the modal age group was 26-30 (52%) and the mean age was 29 years.

### *Measures*

The scales for the 5 pro-creativity leadership behaviors were adopted from the scales developed by the first author based on the qualitative data collected from participants of creativity workshops conducted by him. Each of the scales consists of 6 items. All the pro-creativity leadership behaviors reported high reliability scores in this study: positive expectation ( $\alpha = 0.81$ ), empowerment ( $\alpha = 0.75$ ), intellectual stimulation ( $\alpha = 0.86$ ), supportiveness ( $\alpha = 0.75$ ), and role modeling ( $\alpha = 0.76$ ). The scales are presented in the Annex A. The intrinsic motivation scale was adapted from Tierney, Farmer, and Graen's (1999) study ( $\alpha = 0.90$ ). The employee creativity scale was adapted from the Zhou and George's (2001) scale ( $\alpha = 0.92$ ). All the scales were measured using a 5-point rating scale.

### *Control Variables*

This study utilized 4 demographic variables as control variables: job tenure (Gumusluoglu & Ilsev, 2009), position in organization (Tierney, Farmer, & Graen, 1999), age and gender (Wu, McMullen, Neubert, & Yi, 2008). Job tenure, position in organization, and age all affect employee creativity because creativity is the outcome of an individual's accumulated creative thinking skills and expertise based on education and past experience (Amabile, 1998), and all of these variables affect the accumulation of individuals' skills and expertise. Furthermore, as mentioned in

Gumusluoglu and Ilsev (2009), experience (job tenure) provides a level of familiarity which might be needed for creative performance (Shalley and Gilson, 2004). In addition to these control variables, respondents were asked to report their length of time with present supervisor, marital status, education level, and nature of organization.

#### *Data Analysis*

The Judd and Kenny's (1981) mediation regression procedures were utilized to test the mediation effect of intrinsic motivation on the pro-creativity leadership behaviors and employee creativity. The procedures include the following three regression equations: (1) regressing intrinsic motivation (mediator) on the pro-creativity leadership behaviors (independent variable), (2) regressing employee creativity (dependent variable) on the pro-creativity leadership behaviors (independent variable), and (3) regressing employee creativity (dependent variable) on intrinsic motivation (mediator). To establish mediation, the following conditions must hold: (a) the independent variable must affect the mediator in the first equation, (b) the independent variable must be down to affect the dependent variable in the second equation, (c) the mediator must affect the dependent variable in the third equation. Baron and Kenny (1986) stated that full mediation is supported if the independent variable has no significant effect when the mediator is controlled for, whereas partial mediation is indicated when the independent variable's effect is reduced in magnitude but is still significant when the mediator is controlled for.

### **Findings**

#### *Mediation Analyses*

Table 1 shows the results of the mediation analyses. There was a full mediation effect for the relationship between intellectual stimulation and employee creativity, and a partial mediation effect between positive expectation and employee creativity. No mediation effect was observed in the other 3 pro-creativity leadership behaviors – empowerment, supportiveness and role modeling.

Intrinsic motivation refers to the motivational state in which employees are interested in a task for its own sake. Our model predicts the relationship between intellectual stimulation and employee creativity is mediated by intrinsic motivation. This is because a leader who displays the behavior of intellectual stimulation will cause the employee to think about and improve in the various aspects of their tasks, causing the employee to appreciate and enjoy more dimensions of the task (intrinsic motivation), which helps to supply the much needed energy required for the production of creative output.

Positive expectation also appears to lead to employee creativity at least partially through intrinsic motivation. We allude to the cognitive evaluation theory (Deci & Ryan, 1985) to explain the mediation effect of intrinsic motivation on the relationship between positive expectation and employee creativity. When a leader displays behaviors that reflect positive expectation towards the employee, this will make the employee feels that what he/she is doing is meaningful and worthwhile and hence it will increase his/her intrinsic motivation which in turn leads to enhanced creativity.

The partial mediation effect of intrinsic motivation suggests that there may be other pathways through which positive expectation leads to employee creativity other than through intrinsic motivation, which in part justifies the partial mediation result garnered in our data analysis.

The 3 pro-creativity leadership behaviors (empowerment, supportiveness and role modeling) did not report any direct relationship with intrinsic motivation. Consequently, no mediation effects were observed. Out of these 3 behaviors, empowerment and role modeling reported strong significant direct relationships with employee creativity. As such, it is possible that they affect employee creativity through other mediators.

Our finding shows that intrinsic motivation does not mediate between supportiveness and employee creativity. In hindsight, supportiveness will most likely contribute to extrinsic motivation than to intrinsic motivation. What is surprising is that supportiveness does not correlate significantly employee creativity even though there is good literature support for this relationship (e.g. Thistlewaite, 1963; Knapp, 1963). Future research should explore the role of supportiveness in employee creativity.

### **Conclusion**

The results of our exploratory study are encouraging. Our study shows that four of the five pro-creativity leadership behaviors reported significant correlations with employee creativity, and the fifth reported a weak direct relationship with employee creativity (significant at the 10% level). All the sub-scales of pro-creativity leadership reported high internal reliability with alphas ranging from 0.75 to 0.86. In addition, our findings confirm that intrinsic motivation fully mediates intellectual stimulation and employee creativity, and partially mediates positive expectation and employee creativity. At least in some way, the results of our study make some inroads in the effort to answer Tierney, Farmer, & Graen's (1999) call to have a more accurate portrayal of leadership's role in promoting employee creativity.

Waldman and Bass's (1991) observed that traditional leadership frameworks are more relevant to the explanation and prediction of productivity outcomes than to innovation outcomes. Our study proposed an alternative leadership framework - pro-creativity leadership examined how it affects employee creativity. More importantly, we have provided some empirical evidence on the efficacy of pro-creativity leadership in affecting employee creativity in this study.

The results of this mediation study suggest that intrinsic motivation may not be the primary mechanism through which leadership affects employee creativity. Perhaps this is why the three studies of the mediation effect of intrinsic motivation on the relationship between transformational leadership and employee creativity produced mixed results (Chen et al., 2009; Gumusluoglu & Ilsev, 2009; Shin & Zhou, 2003). For future studies, other moderators and mediators can be explored for each of the pro-creativity leadership behaviors.

There are various limitations in our study. Firstly, our study may be vulnerable to common method variance as all the data was collected using the same method –

online questionnaires. However, we note that although researchers generally agree that common method variance has the potential to affect the results of a single-method study, there are scholars to believe that common method variance may not negatively affect the validity of the findings. For example, Crompton and Wagner (1994) found from their meta-analysis that although self-report methods cause biases in some cases, method effects do not have the serious and pervasive consequences that critics have alleged. Similarly, in Chan's (2009) attempt to look into the commonly alleged problems of the common method variance from the use of self-report data, he came to the conclusion that there is no strong evidence to lead us to conclude that self-report data is inherently flawed or that its use will always impede our ability to meaningfully interpret correlations or other parameter estimates obtained from the data. On the contrary, there are situations in which the use of self-report data appears to be appropriate and perhaps sometimes most appropriate.

Secondly, by nature of this empirical study utilizing cross-sectional data, there is a limitation to the location of the effects of causality (Lubatkin & Chatterjee, 1991). Longitudinal studies may be conducted in the future to overcome this limitation.

Table 1: Results on the mediating effects of Intrinsic Motivation (IM) on the relationship between the Pro-Creativity Leadership Behaviors and Employee Creativity (EC)

<b>Mediator: Intrinsic Motivation (IM)</b>						
DV	Regression Model	Independent Variables				
		Positive Expectation	Empowerment	Intellectual Stimulation	Supportiveness	Role Modeling
EC	<b>Step 1: M on IV</b>	<b>0.22***</b>	<b>0.04</b>	<b>0.14*</b>	<b>0.01</b>	<b>0.04</b>
	<b>Plus Control Variables:</b>					
	1. Age	-0.01	0.04	0.04	0.04	0.04
	2. Length of time in Organization	-0.05	-0.06	-0.06	-0.06	-0.06
	3. Gender	-0.02	-0.01	-0.01	-0.01	-0.01
	4. Position in Organization	-0.06	-0.05	-0.08	-0.06	-0.06
	<b>Step 2: DV on IV</b>	<b>0.32***</b>	<b>0.24***</b>	<b>0.14*</b>	<b>0.08<sup>†</sup></b>	<b>0.18**</b>
	<b>Plus Control Variables:</b>					
	1. Age	0.19*	0.25**	0.25**	0.24**	0.27**
	2. Length of time in Organization	-0.16*	-0.18*	-0.17*	-0.16*	-0.18*
	3. Gender	-0.18**	-0.17**	-0.17**	-0.16**	-0.16**
	4. Position in Organization	-0.11 <sup>†</sup>	-0.08	-0.14*	-0.13 <sup>†</sup>	-0.12 <sup>†</sup>
	<b>Step 3: DV on IV and M</b>	<b>0.27***</b>	<b>0.23***</b>	<b>0.10<sup>†</sup></b>	<b>0.08<sup>†</sup></b>	<b>0.17**</b>
<b>Plus Control Variables:</b>	<b>0.25***</b>	<b>0.30***</b>	<b>0.30***</b>	<b>0.31***</b>	<b>0.30***</b>	
1. Age	0.19*	0.24**	0.24**	0.23**	0.26**	
2. Length of time in Organization	-0.15*	-0.16*	-0.15*	-0.14 <sup>†</sup>	-0.17*	
3. Gender	-0.18**	-0.17**	-0.17**	-0.16**	-0.16**	
4. Position in Organization	-0.10 <sup>†</sup>	-0.07	-0.11 <sup>†</sup>	-0.11 <sup>†</sup>	-0.10 <sup>†</sup>	
<b>Mediation Effect</b>		Partial	None	Full	None	None

\*\*\* p < 0.001 (1-tailed)  
 \*\* p < 0.01 (1-tailed)  
 \* p < 0.05 (1-tailed)  
 † p < 0.10 (1-tailed)

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## Pro-Creativity Leadership Instrument

### Empowerment

- My supervisor makes most of my work decisions for me. [R]
- My supervisor encourages me to exercise my initiative and not rely on his/her instructions.
- My supervisor allows me to decide on how to go about doing my work.
- My supervisor allows me to work under minimal supervision.
- My supervisor shares his/her authority with me.
- My supervisor allows me to determine what needs to be done and how to do it.

### Positive Expectation

- My supervisor has confidence in me.
- My supervisor trusts me to do a good job.
- My supervisor believes that I am capable of contributing good ideas.
- My supervisor thinks positively about me.
- My supervisor has little faith in my abilities. [R]
- My supervisor believes that I need to be closely supervised. [R]

### Intellectual Stimulation

- My supervisor sets challenging tasks for me.
- My supervisor challenges me to rethink the ways I do my work.
- My supervisor challenges me to look at problems from different angles.
- My supervisor encourages me to generate more than one solution to a problem.
- My supervisor challenges me to question whether my assumptions are appropriate.
- My supervisor challenges me to seek differing perspectives when solving problems.

### Supportiveness

- My supervisor punishes me harshly for making mistakes. [R]
- My supervisor rewards me for good suggestions.
- My supervisor blames me when things go wrong at work. [R]
- My supervisor helps me solve work-related problems.
- My supervisor shows concern for my feelings and needs.
- My supervisor asks me for my input for decisions that affect me.

### Role Modeling

- My supervisor tries new ways of doing things.
- My supervisor accepts existing practices as standards of behavior at work. [R]
- My supervisor finds changes disruptive. [R]
- My supervisor challenges his/her own assumptions.
- My supervisor dares to take risks.
- My supervisor shows me new ways of solving problems creatively.