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Abstract

The purpose of the study was to empirically find out the relationship between organizational climate (OC) and innovation in Market and Social Research Firms (MSRFs) in Kenya. There has been inconsistent conclusions and little attention on the effect of organizational climate on innovation. To assess such a relationship, organizational climate was measured by training support, workplace support and transformational leadership characteristics. On the other hand innovation was measured by idea generation and implementation. The study adopted a cross-sectional research design and the data was collected using a structured questionnaire. Further, the data was analysed using multivariate methods and covariance based Structural Equation Modelling (SEM). The study found training and workplace support had statistically insignificant effect on innovation while transformational leadership had a positive significant influence to innovation. The findings offer more insights to the theorists of intrinsic motivation that intrinsic motivation taps on some organizational climate factors to promote innovation. The result might help the human resources practitioners and policy makers when deciding on a mix of organizational climate factors to promote innovation in institutions. Consideration of multiple organisational factors as opposed to a single factor to enhance innovation at micro level in their work place is hinted.

Key Words: *Organizational Climate and Innovation*

Introduction

The 21st century global business environment is bedevilled with fast changing technology, growing volatility, global competition, organization change, social conflicts, environmental degradation and high rate of unemployment among others (George, 2007; Runco, 2004). To overcome these challenges, nations and organizations need to hire creative and innovative employees (Zhou & Oldham, 2004; Eustace & Martins, 2014). This is because innovation has been found to be one of the most critical tools in today's fast changing environment that can enable nations, organizations, change managers, employees and society to overcome the many challenges and enhance the common good of the society (George, 2007; Batey, 2012).

Innovation is one of the most critical factors that promote competitiveness and success for any organization. That is why Blue Ocean Strategy is developed to create value to the customer, employees and to the organization. Moreover, this strategy makes competition irrelevant and it helps to gain sustainable competitive advantage. Many organizations in the world are making profit due to value innovation. Consequently, without innovation companies will hardly to be competitive (George, 2007; Batey, 2012). In most cases, organisations consider innovation from a financial perspective and at a strategic level, neglecting other factors at micro level which too have an impact on the innovation. Among such factors include innovation at employee level.

Scholars are attracted with an aim to study, understand and document the influence organisational climate has on innovation. However, the scholars have used different measurements, some based on outcomes, others based on levels of operations, while others based on different rating styles, different models, and different techniques of data analyses (Amabile, 1996, Csikszeutmihalyi, 1976; Furnham *et al*., 2008; Amabile, Gryskiewicz, 1989; Sylvia, 2008; Kaufaman, Plucker & Baer, 2008; Mumford, 2003; Runco, 2004; Alice, 2011). Use of different models and different number of questions in the instrument used by different scholars have resulted in inconsistent findings on the relationship between organizational climate and innovation (Hunter *et al*. 2004). For example, Fenlin, (2007) found inverted U-shape relationship, Ndanuko (2012) found a positive significant relationship while Prohit and Wadhwa (2012) and Haque (2014) found a negative association. This unreliable results caused Mathsen and Einasen (2004), Boso (2013), Mumford and Hunter (2004) and Hunter *et al*. (2007) to argue that the inconsistency could be due to something else which is not yet known. Besides, Muturi, Ochieng and Douglas (2015) argued that lack of such model test has left organisations scantly aware of organizational climate variables to focus on if they aim at yielding high levels of innovations.

Wenberge and Banas (2000) posited that the way out of this inconsistency would be to test certain organizational climate factors which are not yet tested. Based on the available literature review, training support is omitted from the organizational climate factors. It is on this premise that the researchers considered a model with some omitted OC variables to find out the influence they have on innovation in organizations. Moreover, Alice (2011) argued that the analytical methodology applied may result in inconsistent results because most of the previous studies have used correlation and regression. However, correlation and regression

cannot solve such problems because the OC factors were measured by more than one manifest variable. In such a situation, it is SEM which can help to address the problem. Therefore, this study applied SEM modelling technique to analyse these multiple relationships to address the research objectives.

Literature Review

Concept of Organizational Climate

These are the perceptions or feelings employees form about the working environment (organizational climate) and characteristics of certain employees within the environment such as supervisors and leaders (Amabile, 1996; Dul & Ceylun, 2011). Such feelings influence behaviors and attitudes of employees to innovate or not. If these organizational climate factors and individual characteristics are assessed, they can help estimate the level of innovation existing and propose interventions to improve it (Dodd, Smith & Wards, 2002; Moss, 2007). According to Amabile, 1996; Dul & Ceylun, (2011), the perception of working environment (organizational climate) and characteristics of certain individuals within the environment such as supervisors and leaders can either promote or inhibit the level of innovation. On their part, Nystrom, Ramamurthy & Wilson, 2002, posited that organizational climate dimensions, size and resources combined positively to promote innovation. An organizational climate perceived to allow employees to access information on organizational vision and individual performance was found to improve level of innovation (Speitzer *et al.,* 1995). Further to the assessment of how organizational climate factors influence innovation, some scholars focused on organizational formal rules and structures as organizational climate dimensions and reported that the two factors can positively influence level of innovation in organizations, but are inadequate in the absence of psychological empowerment of employees and their managers (Spreitzer *et al*., 1995).

The Concept of Innovation

Creativity and innovation constructs are reported to be closely related and significantly overlap in terms of characteristics (Angle, 1989). In contrast, creativity is the generation of novel and useful ideas, primarily at the macro level (Amabile *et al*., 1996). Innovation on its part is the process by which these ideas are captured, filtered, funded, developed, modified, clarified, and eventually commercialized and/or implemented. Creativity is the precursor of innovation. In order for an organization to remain relevant and competitive in pursuit of its purpose, leadership must pay attention to both ends of the process, generating creative ideas frequently and utilizing its innovation process to realize the potential value of those ideas. This growing importance of creativity and innovation portends the need for identifying those factors that promote or stifle creativity and innovation to solve the many global and organizational challenges experienced in this century (Eustace & Martins, 2014). This has resulted in many studies proliferating focusing on different interests and approaches in trying to identify those factors that influence creativity and innovation as well as understanding more about the two constructs (Govindarajan & Trimble, 2010). Some scholars interested in this area have focused on innovation on the premise of problem solving ability of the generated ideas (Govindarajan & Trimble, 2010). In all the studies, researchers have concurred that innovation is very critical for solving the global and organizational challenges sustainably (Dul & Ceylun, 2011; Nystrom, Ramamurthy & Wilson, 2002).

Although researchers have concurred that innovation is very critical for any organization, nations, society, change managers, scholars, individual development and change, organizations on their part have found it difficult to maintain high level of employee innovation in organizations (Shalley *et al*., 2009; Shalley *et al*., 2004; Shin & Zhou, 2003). To address the issue of low level of employee innovation in organizations, scholars have identified several factors that may influence innovation (Amabile & Khaire, 2008). Among the factors identified that can stimulate innovation is the perception or feeling employees form about the working environment (organizational climate) and characteristics of certain employees within the environment such as supervisors and leaders (Amabile, 1996; Dul & Ceylun, 2011). If these organizational climate factors and individual characteristics are assessed, they can help estimate the level of innovation existing and propose interventions to improve it (Dodd, Smith & Wards, 2002; Moss, 2007).

Theoretical Review

Organizational climate is a construct that has continued to attract many scholars in the last fifty years. This has, therefore, culminated in the development of many theories in the verge of understanding the construct as a management tool in a fast changing environment. Different theories have been fronted to explain the different variables constituting the organizational climate. Different Leadership theories on the same breath have also emerged to explain and demonstrate the influence of the construct to various business outcomes among them creativity and innovation. This research used transformational leadership theory to explain the construct of leadership influence on both organizational climate and innovation in businesses. Organizational climate theory will explain in general the effects of various organizational variables in general to the business outcome of creativity and innovation. Intrinsic motivation theory will be evaluated on the basis of self-motivation to deliver innovation and creativity. Contingency theory and organizational learning theory try to explain the constructs of training in the organizational climate among other variables.

Intrinsic Motivation Theories

The theory states that, an individual is intrinsically motivated to behave in a certain way when he feels internally rewarded by the behaviour chosen. To be creative and innovative on products, processes and services, individuals must feel internally motivated and rewarded. Intrinsic motivation is shaped externally by recognition, reward, co-operation, autonomy and curiosity. The big challenge is how the owners of the business can create an ideal climate for intrinsically promoting continuous creativity and innovation which is rewarding, challenging and interesting to all individuals (Brown, 2007; Elsevier, 2014). The two authors look at the leader as the person responsible for this kind of climate, this has motivated the researcher to consider transformational leadership which fits the above characteristics as one organisational climate variable to assess the effect of organizational climate on innovation which from the reviewed literature has not been applied before. Theorists of intrinsic motivation have identified and generalized the factors that increase intrinsic motivation for creativity and innovation (recognition, challenges, curiosity, rewards and fun) but have not assessed industry specific factors that may increase creativity and innovation. This study

additionally used training and workplace support in an attempt to delve deeper to find out their effect on innovation in market research industry to estimate innovation which has not been applied in the past.

Transformational Leadership Theory

Burns (1978) is said to be the proponent of this theory. The theory states that a transformational leader creates high performance team who deliver value through high level of morality and motivation. This kind of leadership is a process found in all levels of the business, teams, departments, divisions and organizations as a whole. This leadership style demonstrates a visionary, inspiring, daring, risk taking and challenging mind set on all the activities of the business. These are ideal characteristics for the business to try new things to survive and grow (innovation). These leaders are said to deliver change in organizations and possess inspirational motivation, intellectual stimulation, idealized influence and individualized consideration ideal for creativity and innovation (Burns, 1978). This leadership encourages new ideas from workers and allows them to make and learn from mistakes. They challenge the inefficient processes and discard them. They mentor followers and reward them for creativity and innovation. They allow followers to make decisions and support them to implement their ideas (Bass, 1985). This leadership uses social and spiritual values to influence followers. Transformational leaders are far looking for the survival of the business, emphasize co-operation, ethics and community value add. It is a leadership that is said to be critical to the proper functioning of the society and social institutions (Atonakis & Sternberg, 2004). This makes this leadership preferred from transactional leadership which is said to be selfish and short-lived. This leadership is measurable in terms of the leader influence to the followers and can be used to predict their behaviour and performance outcomes (Bass, 1985). The proponent of the new instrumental leadership postulates that although unique and goes beyond transformational leadership, it was proposed to foster transformational leadership activities (Atonakis & House, 2004). Critics of transformational leadership assert that it is a self-promotional leadership that is hard to train and teach. Followers are likely to be manipulated by transformational leaders. They also claim that it is not ideal in stable business environments and on less educated/trained workforce which is the kind of environment facing 21st century businesses.

Componential Theory of Creativity and Innovation

The componential theory of creativity proposed by Amabile (1983) is founded on social and psychological components critical for individuals to be eliciting creative products or solutions. The theory bases its definition of creativity as the production of ideas or outcomes that are both novel and appropriate to some goal. This theory encompasses organizational innovation, with the effect of the work environments created by managers in organizations. The size of innovation that an individual produce at any given point is a function of the innovation components operating at that time, within and around that person. The theory is grounded on the premise that innovation is a deliberate introduction and application within a role, group or organization, ideas, processes, products or procedures, new to the particular department of adoption, started with a view to significantly benefit the individual, the team, the organization or the wider society. For organizations to survive and be sustainable,

innovation and creativity must be accelerated. The theory postulates that innovation is dependent on the level of expertise (skills, training and knowledge), environment he/she is operating in particularly social environment (personality) and the intrinsic motivation. Support of innovation by the leaders is critical for high level of innovation to be elicited. A weakness of this theory is that control of what to innovate is needed because not all innovations and creativities are beneficial while scholars have found controls to stifle innovations (Hunter 2007). The theory takes human being as the parameter for innovation rather than profit or outcomes. The theory stipulates that innovation of a person is dependent on the judgment of others. Innovation, which is taken to mean commercialization of creativities, can have both impersonal and interpersonal processes of social comparison and judgment. This assumption overlooks the fact that small innovation can also be important in the process. This argument from the theory motivated the researcher to consider employees as the unit of analysis to test their feelings with the leaders.

Empirical Literature Review

Effects of Organizational climate on employee innovation

Mc Laughlin (2014) grouped organizational climate into four distinct types, which are people oriented, innovation oriented, goal oriented and rule oriented climates. People oriented climate is depicted by the care and concern of the people behaviour exemplified by the organization leadership. Innovation oriented climate is denoted by the support of new ideas and implementation of those in the firm's policy. Rule oriented climate is denoted by organization strictness to details and reward and punishment of those who fail to adhere to the laid down procedures especially in dangerous work environments. Goal oriented climate emphasizes on production level of the organization and her workforce. Autonomy provided by the leader to the team members ensures timely completion of a task, Macdonough and Barczak (1991). Beyond the leadership influence mentioned above, high quality co-worker (support) interactions create a sense of belonging, a strong sense of social identity and meaning. Loss of social identity can lead to lack of meaning. Another observation is that when employees experience support from the supervisor and the co-workers at work they are likely to experience psychological meaningfulness at work as this support engenders feelings of being worthy, useful, and valued, that they are making a unique contribution and are not being taken for granted (Kahn, 1990) cited by Arora Kamalanabhan (2013). Co-worker support entails co-workers assisting one another in terms of sharing knowledge, expertise, encouragement and moral support (Zhou & George, 2001). Co-workers may bring their knowledge and expertise when an employee is faced with a difficult and novel task that requires a solution (Scott & Bruce, 1994). Employees may also acquire innovative ways from supportive co-workers that can result in efficiency (Perry Smith, 2006). Working with helpful, supportive co-workers promotes a climate where new ideas can be discussed more openly and freely. Co-worker support denotes the extent to which employees believe their co-workers willingly provide them with work-related assistance to aid in the execution of their tasks. Such co-worker support, motivate followers to enlarge their jobs and to engage in more pro-social behaviours that are needed to achieving collective goals. This is exemplified by helping co-workers with heavy workloads,

sharing resources, and providing advice to co-workers who encounter work problems among others. Existing empirical studies also demonstrate employees who receive more support from their co-workers might obtain more job resources to deal with stressful and innovative tasks. Employees' innovative behaviour depends greatly on their interaction with others in the workplace (Anderson *et al*., 2004; Zhou & Shalley, 2003).

Previous literature reported that some managerial practices that support capabilities development had positive effect on innovation. According to Damanpour and Schneider (2006), innovation is directly influenced by top managers' personal and positional characteristics. Phills *et al*. (2008) states that leaders influence social innovations involving the creation of new business models that can meet the needs of underserved populations more efficiently, effectively, and if not profitably, at least sustainably. Yukl (2002) asserted that specific leadership behaviours may influence innovation through compliance as part of the organizational culture. Leaders who increase in centralization hindered innovations (Sividaa & Swyer, 2000). Transformational leadership behaviours, characterized by individualized consideration and motivation, anchored on the leader's vision and values contribute to a culture that facilitates employee innovation (Elenkov & Manev 2005; Nutt 2002). However, Jung *et al*. (2003) revealed a contrary finding that some managerial practices have a negative effect on innovation. In the light of such contradictory results, our study found that leadership has significant and positive effects on innovation in MSRFs which differed with Jung *et al*. (2003).

Training for innovation entails acquiring skills that are needed for innovation that enhances imagination, curiosity, behaviour change, building self-confidence, eliciting energy, passion, leadership, corroborations and persuasions. Introduction of critical mathematics, for example, in a curricular was taken to enhance innovation by virtue of its complexity (OECD Report, Critical Math for Innovative Society, 2014). Training and teaching help individuals to discover and hone their creative potentials. Complimentary training provided when studying a certain discipline encourages creativity and innovation. According to Indian National Council of Colleges of Education (N.C.C.E, 2005), experiential learning increases the chances of innovation where the real world projects, internships, case studies and business planning are applied. Literature has shown that continuous training results in more effective and sustainable creativity and innovation and should not be stopped irrespective of budgets. Instead, alternative training like virtual training, e-learning and digital readers should be applied to reduce cost. Offering training opportunities to workers reduces misunderstandings which may stifle creativity and innovation (Sieczka, 2011). Employees' willingness to train and acquire knowledge was found to enable companies to improve innovation capabilities (Patterson, West, Shackleton & Dawson, 2005). Empowerment and organizational climate was found to have a significant negative relationship with innovation while transformational leadership was found to have significant and positive relationship with innovation and empowerment (Montes, Moreno & Farnandez, 2006).

While wide trainings result in personal transformational and skills building, Meader (2005) argues that sometimes formal education can be a barrier that confines individuals to a single way of thinking and limits creativity and innovation. He sites that the likes of Thomas

Edison, Steve Jobs and David Darwin were renowned creators and innovators yet had little higher education. Fenlin (2007) found in Taiwan, that individual knowledge efficacy and enjoyment to help others together with the top management support significantly influence knowledge sharing process. Available literature has reported that CEOs leadership training, management coaching and networking have immediately impacted on economic growth through innovation and job creation. It has been found that poverty bedevilling Africa can be addressed through leadership and practical innovation in the private sector (Hamilton, 2016).

Problem based learning has reported as being an effective way to develop different disciplines specific and transferable skills for innovation (Prompting Skills for Innovation in Higher Education Report, 2014). Human capital is the basic innovation input (Corrado, Hunter & Sichel, 2006). Firms that invest in research and development (R&D) and workers skills (on-the-job training) are hoped to be successful in innovation. However, from research it is less evident the extent to which these investments enhance the impact of one another on innovation. It is generally believed that R&D is more effective when firms have more skilled personnel due to investment in worker training (González, Miles & Pazó, 2013).

METHOD

This study was conducted in Marketing and Social Research Association (MSRA) firms in Kenya. These marketing research firms operated across African countries only. According to the annual report of MSRA (2013), penetrating into a new market, especially to the western countries, was a key challenge due to lack of access to recent technology such as computerized data collection, slow rate of adoption of online research, access to new sophisticated and affordable software, poor collaboration among the firms, high cost of operations, inefficient resources (HR and capital resources), high competition and lack of standardized quality control. The study adopted a cross-sectional survey research design. The population of the study consisted of all the employees in the marketing research firms in Nairobi because most of these MSRA firms are domiciled in Nairobi.

To select the 520 respondents from the target population (4000), probability sampling was used. The validity of this study was measured using convergent and discriminant validity. The latent exogenous variables for this study were; training, supervisor support, co-worker support, and leadership while the latent endogenous variable was innovation. The manifest variables of each latent variable were presented in the Table 1.

Table 1: Operationalization of the variables

Latent Variable	Manifest Variable
Training (Latent Exogenous variable)	X1 = Size of training budget X2 = Cost of training per employee X3 = Frequency training
supervisor support (Latent Exogenous variable)	X4 = Frequently of supervisor recognition per employee X5 = Supervisor's contact time to the employee X6 = Employee excretion by the supervisor in decision making
Co-worker support	X7 = Co-workers willingness to share their expertise

(Latent Exogenous variable)	X8 = Frequency of co-workers assistance in the work X9 = Encouragement of co-workers beyond the organization.
leadership (Latent Exogenous variable)	**X10. Idealized influence** X10.1 = the leader makes employees feel good to be around him/her. X10.2 = complete faith in leader. X10.3 = the leader makes friendship among the employees. X10.4 = the leader goes beyond self- interest for the good of the group. X10.5 = the leader consider ethical consequences of decisions. **X11. Inspirational motivation** X11.1 = the leader express with a few simple words that could be done easily X11.2 = the leader provide appealing images about what can be done X11.3 = the leader helps to find meaning in the work **X12. Intellectual stimulation** X12.1 = the leader enables to think about old problems in new ways X12.2 = the leader provides with new ways of looking at puzzling things X12.3 = the leader gets to rethink ideas that they had never questioned before **X13. Individualized consideration** X13.1 = the leader help to develop every employee. X13.2 = the leader alert each employee how the employees are doing. X13.3 = the leader give personal attention to the employee during rejection **X14.Contigent reward** X14.1 = the leader tells what to do to be rewarded. X14.2 = the leader provides recognition/rewards. X14.3 = the leader call attention. **X15. Management-by-exception** X15.1 = I am satisfied when others meet agreed-upon standards. X15.2 = As long as things are working, I do not try to change anything. X15.3 = I tell others the standards they have to know to carry out their work. **X16. Laissez-faire leadership** X16.1 = I am content to let others continue working in the same ways always. X16.2 = Whatever others want to do is ok with me. X16.3 = I ask no more of others than what is absolutely essential.
Innovation (Latent endogenous variable)	Y1 = development of new ways or idea/s to achieve objectives Y2 = generation of new idea Y3 = generate original solutions for problems Y4 = new working methods, techniques or instruments?

	Y5 = new approached to execute task Y6 = individual contribute to the implementation of your new ideas Y7 = co-worker contribute to the implementation of your new ideas Y8 = manager contribute to the implementation of your new ideas Y9 = increase quality in the organization

Exploratory Factor Analysis (EFA) was used to extract factors that represented the conceptual model's construct and Confirmatory Factor Analysis (CFA) was applied to test the appropriateness of the measurement model. Subsequently, data analysis was done using structural equation modelling. Therefore, the equations that help to address the research objectives were:

$$X_{(q\times1)} = \Lambda_{x(q\times n)}\xi_{i(n\times1)} + \delta_{i(q\times1)} \quad \text{.....1}$$

$$Y_{i(p\times1)} = \Lambda_{y(p\times m)}\eta_{i(m\times1)} + \epsilon_{i\ (p\times1)} \quad \text{.....2}$$

$$\eta_{i(m\times1)} = \Gamma_{(m\times n)}\xi_{i(n\times1)} + \zeta \text{.....3}$$

The questionnaire was administered to each of the 520 employees in MSRA firms situated within Nairobi. Out of these, 387 questionnaires were returned which makes up to 74.44% response rate.

Prior to application of SEM analysis, the data was subjected to diagnostic analysis to ascertain the appropriateness of its underlying parametric characteristics for this statistical application. This entailed the parametric tests of exploratory factor analysis, and confirmatory factor analysis as presented and scientifically discussed below.

RESULTS

Table 2: KMO, Bartlett test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.919
Bartlett's Test of Sphericity	Approx. Chi-Square	4870.924
	df	325
	Sig.	.000

a. Determinant = 2.406E-006

Exploratory Factor Analysis

The exploratory factor analysis test is to screen the data to establish its suitability for SEM. This is done using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (MSA), item correlations and partial correlations are used to assess the adequacy of the data for factor analysis. The overall measure of sample adequacy (MSA) exceeded the 0.50 criterion (MSA = 0.919), items' partial correlations were low (< 0.30) and the item correlations was not zero (determinant = 2.406E-006). Determinant greater than zero implied that the assumptions of positive definiteness were not violated. Bartlett's test of sphericity in Table 2 was significant (Chi-Square = 4870.924, df = 325, p = 0.000) indicating existence of significant non-zero correlations among the measurement items. These results provided support that the data was appropriate for factor analysis.

To extract the factors, maximum likelihood and promax oblique rotation method were used. This choice was found suitable since the underlying factors were suspected to be non-orthogonal and the factors were to be used in subsequent analysis of structural relationships. The unconstrained initial solution resulted in five factors explaining 53.516% of the item variance. The items were found to have good communalities (> 0.50), however, five items

were cross-loaded. The factor model was re-specified by iteratively trimming off the problematic sixteen items. The re-specified model extracted four factors explaining 77.846% of the item variance and the items loaded cleanly onto their prior factors as shown in Table 3 below.

Table 3: Pattern Matrix test

	Factor			
	Leadership	Innovation	Training	Support
X1			.712	
X2			.866	
X3			.554	
X7				.877
X8				.707
X10.2	.648			
X10.4	.639			
X10.5	.643			
X11.1	.758			
X11.2	.659			
X11.3	.759			
X12.1	.621			
X12.2	.784			
X12.3	.638			
X13.1	.718			
X13.2	.556			
X14.3	.465			
Y1		.763		
Y2		.798		
Y3		.810		
Y4		.805		
Y5		.797		
Y6		.689		
Y8		.769		
Y9		.505		

Extraction Method: Maximum Likelihood.

Rotation Method: Promax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

To assess the degree of internal consistency of the manifest variables, Cronbach's alpha coefficient was used. As seen in Table 4, the alpha coefficients exceeded 0.70. Hence, the reliability of these findings indicated that there was good internal consistency. Therefore, the research instrument had good reliability.

Table 4: Reliability Test

Variables	Cronbach's Test Results
Training	0. 742
Support	0. 727
Leadership	0. 897
Innovation	0. 908

Once the above data screening tests were satisfactorily carried out, data was subjected to measurement model test using confirmatory factor analysis. The results were presented and scientifically discussed below.

Confirmatory Factor Analysis

Confirmatory factor analysis started by testing whether the data fit a hypothesized measurement model or not. Subsequently, this tool helps to identify which manifest variables should be retained and which ones to be removed from further SEM analysis using unidimensionality. Twenty manifest variables (X4, X5, X6, X9, X10.1, X10.2, X10.3, X10.5, X11.1, X13.3, X14.1, X14.2, X15.1, X15.2, X15.3, X16.1, X16.2, X16.3, Y7 and Y9) were removed from further analysis because they did not significantly represent their construct. Then, the measurement model fit was tested and the results in Table 5 revealed that the adjusted chi-square confirmed that the data fits the measurement model because CMIN/DF was between 2 and 5. Likewise, the values of good fit index (GFI), incremental fit index (IFI), Tuck Lewis (TLI) and comparative fit index (CFI) were greater than threshold, which was 0.90. The value of Root Mean Square Error of Approximation (RMSEA) and RMR was less than the threshold, 0.50. Therefore, the data fitted well to measurement model.

Table 5: Measurement Model Fit

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	48	402.796	183	.000	2.201
Saturated model	231	.000	0		
Independence model	21	3761.381	210	.000	17.911
Model	**RMR**	**GFI**	**AGFI**	**PGFI**	
Default model	.041	.906	.882	.718	
Saturated model	.000	1.000			
Independence model	.281	.306	.237	.278	
Model	**NFI**	**RFI**	**IFI**	**TLI**	**CFI**
	Delta1	**rho1**	**Delta2**	**rho2**	
Default model	.893	.877	.939	.929	.938
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000
Model	**RMSEA**	**LO 90**	**HI 90**	**PCLOSE**	
Default model	.046	.048	.063	.097	
Independence model	.209	.203	.215	.000	

Furthermore, square multiple correlations were analysed to assess the extent to which the dependent variable was explained by the independent variables after X4, X5, X6, X9, X10.1, X10.1, X10.2, X10.3, X10.5, X11.1, X13.3, X14.1, X14.2, X15.1, X15.2, X15.3, X16.1, X16.2, X16.3, Y7 and Y9 were removed. The threshold for the square multiple correlation was 20%. This further helped to identify which manifest variables should be retained for further analysis and which have to be removed. Table 6 showed that all the manifest variables were statistically significant.

Table 6 demonstrated that the factor loadings were greater than 0.695, which implied that the manifest variables were significant indicators of the constructs. However, the study requires further investigation for discriminant validity and convergent validity to proceed to structural model fit test in order to address the research objectives correctly.

Table 6: Regression Weights and SMC for the Measurement Model

			Unstandardized Regression				SR	SMC
			Estimate	S.E.	C.R.	P	Estimate	Estimate
X3	<---	Training	.695	.070	9.911	***	.570	.325
X2	<---	Training	1.000				.881	.777
X1	<---	Training	.741	.066	11.313	***	.681	.464
X8	<---	Support	.786	.105	7.480	***	.713	.508
X7	<---	Support	1.000				.873	.762
X14.3	<---	Leadership	.803	.067	11.936	***	.596	.355
X13.2	<---	Leadership	.583	.051	11.445	***	.575	.330
X13.1	<---	Leadership	.798	.055	14.455	***	.701	.492
X12.3	<---	Leadership	.942	.063	14.877	***	.718	.516
X12.2	<---	Leadership	1.000				.798	.637
X12.1	<---	Leadership	.847	.062	13.638	***	.668	.446
X11.3	<---	Leadership	.914	.059	15.575	***	.745	.556
X11.2	<---	Leadership	.712	.056	12.734	***	.630	.397
X10.4	<---	Leadership	.799	.058	13.719	***	.671	.451
Y1	<---	Innovation	.743	.044	16.769	***	.761	.580
Y2	<---	Innovation	.829	.050	16.663	***	.758	.575
Y3	<---	Innovation	.860	.049	17.545	***	.787	.619
Y4	<---	Innovation	.817	.050	16.379	***	.748	.560
Y5	<---	Innovation	1.000				.829	.688
Y6	<---	Innovation	.771	.049	15.866	***	.731	.534
Y8	<---	Innovation	.784	.049	16.043	***	.735	.540

SR = Standardized Regression and SMC = Square Multiple Correlations

Based on CFA and EFA tests, discriminant validity of this study was established as shown in Table 7 because the correlations between the contracts were less than 0.60. Besides, the correlations square was less than the average variance extraction. This implied that the four constructs of this study were measuring

different things. Hence discriminant validity of this study was well established.

Table 7: Discriminant Validity Test Based on EFA and CFA Correlations

Correlations			CFA Estimate (r)	EFA Estimate	r^2	AVE_i	AVE_j	Discriminant Validity
Training	<-->	Support	.130	.267	0.0169	0.522	0.635	Established
Training	<-->	Leadership	.530	.492	0.2809	0.522	0.464	Established
Training	<-->	Innovation	.337	.301	0.1136	0.522	0.585	Established
Support	<-->	Leadership	.426	.489	0.1815	0.635	0.464	Established
Support	<-->	Innovation	.312	.351	0.0973	0.635	0.585	Established
Leadership	<-->	Innovation	.540	.472	0.2916	0.464	0.585	Established
CFA = Confirmatory factor analysis. EFA = Exploratory factor analysis, and AVA = Average variance extraction								

The convergent validity of this study was tested using the regression weights of the factor loadings, average variance extraction and composite reliability. The factor loading in Table 6 and average variance extraction in Table 8 were fairly greater than 0.50. This implied that convergent validity was established. Besides, the composite reliability was fairly greater than the threshold, which was 0.70 and therefore, the convergent validity of this study was also established.

Table 8: Convergent validity test

	Training	**Support**	**Leadership**	**Innovation**
Average Variance Extraction	0.522	0.635	0.464444	0.585143
Composite Reliability	0.631017	0.68842	0.783783	0.852448
Convergent Validity	Established	Established	Established	Established

Since all the above analyses provided satisfactory results, the data was subjected to structural equation modelling test to address the research objectives. However, the procedure required for valid results to be obtained is that the data had to be subjected to structural equation model fit test before estimating the regression weights between latent exogenous and endogenous variables. The structural model fit was tested by adjusted chi-square, good fit index (GFI), normal fit index (NFI), incremental fit index (IFI), Tucker Lewis index (TLI), comparative factor index (CFI), Root Mean Square Error of Approximation (RMSEA) and RMR. The recommended threshold was the same as stated above in the confirmatory factor analysis. The results in Table 9 indicated that the data fitted with the structural equation modelling.

Structural Model Test

Table 9: Measurement Model Fit

Model	**NPAR**	**CMIN**	**DF**	**P**	**CMIN/DF**
Default model	49	353.311	182	.000	1.941
Saturated model	231	.000	0		
Independence model	21	3938.251	210	.000	18.754

Model	RMR	GFI	AGFI	PGFI	
Default model	.035	.920	.898	.725	
Saturated model	.000	1.000			
Independence model	.290	.291	.220	.264	
Model	**NFI**	**RFI**	**IFI**	**TLI**	**CFI**
	Delta1	**rho1**	**Delta2**	**rho2**	
Default model	.910	.896	.954	.947	.954
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000
Model	**RMSEA**	**LO 90**	**HI 90**	**PCLOSE**	
Default model	.049	.042	.057	.542	
Independence model	.214	.209	.220	.000	

Lastly, the relationships between latent exogenous and endogenous variables were interpreted using unstandardized regression weights at 5% level of significance from Table 10. The interpretation was the same as the factor loading in measurement model above except SEM mainly focuses on the relationship between constructs.

Findings on effect of Organizational Climate on Innovation

Based on the results in Table 10, all the assessed manifest variables had a positive significant effect on their respective construct. The Table further depicted that transformational leadership was found to have significant effect on employee innovations (P = 0.000). Employees felt that the leaders influenced their creative abilities to generate new ideas. These leaders supported the employees' efforts in the development of new ways or ideas to achieve objectives of the organization. Employees were able to generate original solutions for problems in the organization which include searching new working methods, techniques or instruments. The leaders helped employees track any new ideas they generated and encouraged co-worker participation to the implementation of the new ideas fronted. Such leadership support concurs with the transformational leadership theory which holds that this leadership is measurable in terms of the leader influence to the followers and can be used to predict follower's behaviour and performance outcomes (Bass, 1985). Transformational leadership behaviours, characterized by individualized consideration and motivation, anchored on the leader's vision and values, contribute to a culture that facilitates employee innovation (Elenkov & Manev, 2005; Nutt, 2002). The finding also concurred with the findings of Damanpour and Schneider (2006). Phills *et al.* (2008) also stated that leaders influence social innovations involving the creation of new business models that can meet the needs of underserved populations more efficiently, effectively, and if not profitably, at least sustainably. Yukl (2002) asserted that specific leadership behaviours may influence innovation through compliance as part of the organizational culture. Leaders who increased in centralization hindered innovations (Sividaa & Swyer, 2000).

Table 110 described that workplace support had slightly insignificant effect on innovation (P=0.066). The workplace support that made the employees to be innovative in generating

new ideas and implementing them is not yet effective. Consequently, the organizational climate based on workplace support in MSRFs did not have significant effect to innovation because the workplace support was not yet conducive to the employees. The finding did not support a previous study that found out that employees' innovative behaviour depended greatly on their interaction with others in the workplace (Anderson *et al*., 2004; Zhou & Shalley, 2003).

Table 10 showed that training support had insignificant effect on innovation (P = 0.204). The finding implies that adequacy of training budget, the cost of training per employee and frequency of trainings in MSRFs showed insignificant influence on employee feeling that training makes their job meaningful and important to the organisation they work for. Besides, the training offered to the employees did not make them feel self-determined to generate new ideas or technique in work methods. This might be that the training might not match the requirements or expectations of the employees. On the other hand, the training offered might not be able to help them to have adequate knowledge, skills, abilities and interests to develop new ideas, methods and approaches to make their work easy. The finding was inconsistent with the componential theory that postulates that creativity and innovation is dependent on the level of expertise (skills, training and knowledge), environment he/she is operating, particular social environment (personality) and the intrinsic motivation (Bass, 1983). The finding also differed with that of Sieczka (2011) who found that offering training opportunities to workers reduces misunderstandings which may stifle creativity and innovation. The findings did not harmonize with that of Patterson, West, Shackleton & Dawson (2005) who found that employees' willingness to train and acquire knowledge enable companies to improve innovation capabilities. Therefore, the insignificant result in this study could be due to low standard of training, inadequate manifest variables of training, or lack of autonomy and independence at MSRFs which according to a previous study by Jafari and Iranzadeh (2013) found critical for training support to result to innovation.

Table 10: Regression Weights

			Unstandardized Regression				SR	SMC
			Estimate	S.E.	C.R.	P	Estimate	
Innovation	<---	Training	.087	.068	1.272	.204	.083	.303
Innovation	<---	Support	.132	.072	1.839	.066	.112	
Innovation	<---	Leadership	.499	.083	5.986	***	.447	
Y1	<---	Innovation	.742	.044	16.672	***	.756	.572
Y2	<---	Innovation	.834	.050	16.714	***	.758	.574
Y3	<---	Innovation	.871	.049	17.799	***	.793	.629
Y4	<---	Innovation	.839	.050	16.901	***	.764	.583
Y5	<---	Innovation	1.000				.825	.680
Y6	<---	Innovation	.766	.049	15.669	***	.722	.521
Y8	<---	Innovation	.784	.049	16.038	***	.735	.540
X3	<---	Training	.697	.070	9.943	***	.571	.326

X2	<---	Training	1.000				.881	.775
X1	<---	Training	.742	.065	11.347	***	.681	.464
X14.3	<---	Leadership	.830	.070	11.816	***	.602	.362
X13.2	<---	Leadership	.600	.053	11.302	***	.578	.334
X13.1	<---	Leadership	.817	.058	14.048	***	.702	.492
X12.3	<---	Leadership	.962	.067	14.393	***	.717	.513
X12.2	<---	Leadership	1.000				.780	.608
X12.1	<---	Leadership	.829	.058	14.258	***	.639	.409
X11.3	<---	Leadership	.946	.062	15.258	***	.754	.568
X11.2	<---	Leadership	.736	.059	12.575	***	.636	.405
X10.4	<---	Leadership	.824	.061	13.470	***	.676	.457
X8	<---	Support	.784	.106	7.364	***	.712	.507
X7	<---	Support	1.000				.875	.765

CONCLUSION

This study yielded a moderate empirical validity for its theoretical models that was to establish the relationship between organizational climate and innovations. The findings supported transformational leadership and intrinsic motivation theories. However, the findings did not support the componential theory. Therefore, scientific justifications of each theory in relation to the findings of this study were critically discussed below respectively.

In tandem with transformational leadership theory it was found that transformational leadership is the most salient factor that influenced innovation. This certainly sheds some light to many scholars who have been avoiding inclusion of transformational leadership in their studies of relationship between organizational climate and innovations citing that it is hard to measure, self-promotional and hard to train. The findings concurred with the transformational theory, in that MSRFs operate in unstable business environments that previous scholars had found to favor transformational leadership to thrive. From this result it is therefore suspect that exclusion of this critical factor of transformational leadership in the previous studies of organizational climate and innovation relationship could have caused the inconsistent results. This study therefore strongly supports the theory of transformational leadership and calls for scholars to consider this very important variable as a climate factor and test its influence in other industries or sectors to verify the finding to accord its generalization.

It was found that MSRFs transformational leaders have idealized influence that goes beyond self-interest for the good of the group and express. Their leaders inspire them with appealing images, stimulate them intellectually and help them to think about old problems in new ways and to find meaning in their work. MSRFs leaders develop employees, give timely feedback and reward achievements. Although those who criticize transformational leadership say it is self-promoting and hard to train, business owners and managers should embrace it, encourage it and train all employees to have it because it is so critical for the functioning and growth of organizations. Its merits outweigh its demerits and theoretically has been found can reside at any level in the organization.

The study similarly supported intrinsic motivation theory. The theory states that an individual is intrinsically motivated to behave in a certain way when he/she feels internally rewarded by the behavior chosen. Intrinsic motivation is driven by self-desire to seek out new things and new challenges, to analyze individual's capacity, to observe and acquire knowledge. From the study, employees who felt intrinsically motivated had self-determination which significantly influenced their innovative behavior at MSRFs. This theory of intrinsic motivation holds that self-determination founded on competence, autonomy and relatedness innate empowered employees to function optimally and grow.

Further, it was also found that workplace support from leaders and supervisors who strengthened their competences and designed meaningful jobs empowered employees but did not affect their determination. This again put workplace support critical to drive a feeling of competent to innovate and a feeling that their job is important to the business success. This equally concurs with the transformational leadership theory where the leader influences employee's behavior and feelings. This verify why many scholars have considered workplace support in the studies of organizational climate to predict employee innovative behaviors.

Although training support empirically fitted very well as an organizational climate variable measured by cost, frequency and size of the budget, it had insignificant effect on innovation in MSRFs in Kenya just as it was hypothesized. This contrasted with componential theory which hold that skills, training and knowledge determine innovativeness of employees. This made us suspect why training might have been left out in many studies of organizational climate and innovation. This may call for incorporation of more indicators of training support to verify the true position of the impact of training support on innovation. Scholars and researchers may incorporate other variables like autonomy and independence which other scholars in the past had found critical to influence training outcomes.

The study indicated there is a positive relationship between organizational climate and innovation. It was found that organizational climate based on transformational leadership, training support and workplace partially support influence generation of new ideas and implementation of the same. Future studies may need to incorporate other training factors beyond training budget, frequency of training and size of the training budget to explore the role of any mediating and moderating variables such as work engagement, commitment, gender, education level, work experience and Human Resources policies to organizational climate to predict innovation given that scholars have concurred that organizations can sustainably remain afloat if only employees are innovative.

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