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THE INFLUENCE OF CREATIVITY INHIBITORS AND COLLECTIVIST DYNAMICS

Anthony Abidemi Olalere

Abstract
This study examines the mediating influence of creativity inhibitors on collectivist dynamics and faculty creativity in higher education organizations. Complexity theory was employed to frame how collectivist dynamic (Complexity Interaction) and creativity inhibitor foster faculty creativity in higher education. The Partial Least Square of Structural Equation Model (PLS-SEM) was used to analyze data using the PLS algorithm, and mediating effect to assess the predictive accuracy on creativity among 73 tenure and tenure-track faculty members in a southeast research-based university in the United States. The result showed that creativity inhibitors have positive influence on the interaction between complexity interaction (collectivist) and faculty creativity. Additionally, indicator-types like organizational impediments, psychological safety, organizational encouragement, freedom, organizational pressure, fun and novelty/ originality had the greatest impact on faculty creativity in higher education. These findings are consistent with the argument that appropriate amount of pressure encourages workers to seek creative solutions to challenges in an effort to control that pressure.

Introduction
Creativity in organizations is the outcome of interactions between individuals and groups that is fostered by enabling contextual conditions. Woodman et al, defined creativity as the "creation of valuable, useful, new products, service, idea, procedure or process by individuals work together in a complex social system (1993, p. 293)". Creativity emerges from an interaction of creative minds, and the experiences these creative minds have within their environment can ultimately affect the generation and development of novel ideas. It is therefore the outcome of the individual and collectivist dynamics based on the influence of prevailing context (Amabile, 1988; George, 2007).

What has been examined before now in the literature on a collectivist or group approach are group and team compositions, their categorization and the conditions of interaction. Less emphasis has been placed on empirical research regarding the complexities in higher education and contextual characteristics that foster this interaction to enable creativity. In this paper, the contextual characteristics that nurture creativity among faculty in higher education from the entity and collectivist perspective are examined.

Additionally, it is argued that creativity is an outcome of interactions between individuals and groups in a complex system like higher education and it is hypothesized that entity based creativity (inhibitors) mediates the interaction between complexity theory and creativity among faculty. The purpose of this study therefore is to examine the influence of creativity inhibitors on collectivist faculty creativity by assessing the contextual characteristics of

entity based perspective (inhibitors) on the interaction between collectivist contexts and creativity among faculty members in higher education.

Theoretical Framework

The KEYS model by Teresa Amabile (1996) suggested inhibitors as obstacles to creativity in an organizational environment. Organizational inhibitors were divided into organizational impediment and workload pressure. The organizational impediments are organizational culture, management style, and organizational policies. The workload pressure represents how faculty members expend their time and the implication of workload pressure on teaching and research productivity (Olalere, 2015). Both pressures mentioned by the KEYS model and pressure by complexity theory are somewhat identical. Complexity further explains the meaning of pressure to include task related conflicts. In addition, Uhl-Bien et al (2007) explicated the features of complexity as interaction, workload Pressure and Psychological safety with psychological safety representing job security, risk taking supervisor support etc. Finally, this study deploys the KEYS model and the complexity theory constructs to explicate faculty members response to contextual changing conditions.

Methodology

The purpose of this paper is to examine the influence of collectivist dynamics and creativity inhibitors and on faculty creativity in higher education, In this study, a non-experimental design was employed which is a study "in which the researcher collects data without introducing any new treatment or data" (McMillan & Schumacher, 2001; Polit & Hungler, 1983, p. 618).

This study adopted the complexity theory and the KEYS model constructs to frame and make meaning of data and findings. In other to verify and refine our understanding of the process, the post-positivist philosophy was employed (Creswell, 2009). Previous studies KEYS model constructs (Amabile, 1996) were tested in a business environment but little or nothing has been done in the higher education environment. Situating this model in a higher education workplace tests the suitability of this model in higher education organization with its complex dynamics (Olalere, 2015).

The quantitative methodology was employed using the survey design to "provide a quantitative or a numeric description of trends, attitudes or opinions of a population by studying a sample of that population" (Creswell, 2009, p. 145). The researcher in survey design uses the population sample to infer, theorize, and make claims from the studied sample population studied. The college of a research based land grant university in a southeastern part of the United States was the setting of this study. The criteria for selections of these teams included creative collaborations across and partnership building across disciplines.

Electronic instrument called Qualtrics were used to send surveys to 110 tenure and tenure track faculty in the college comprising the departments of education, public health, nursing, human resource development and park recreation and tourism.

The data were collected within a space of eight weeks with 73 responses after making appropriation for missing data. The selection of this sample size was based on the sample size recommendation of 59 responses with a significance rate of 5% for PLS-SEM for a statistical power of 80% for maximum amount of arrows in (path modeling) pointing at a construct (Hair et al 2014, Olalere, 2015). The collectivist dynamic constructs measured interaction, interdependency, process conflict, heterogeneity and psychological safety (Marion, 2013).

Data Analysis

This study used the Partial Least Square which is a predictive statistical approach "for modeling complex multivariable relationships among observed and latent outcomes" (Vinzi et al., 2010, p. 1). The approach estimates the "causal theoretical network of relationships linking latent complex concepts, each measured by means of a number of observable indicators" (Vinzi et al., 2010, p. 2). The criteria for selection of this approach is because it can be used to analyze small samples like the research samples not normally distributed, is complex and have multiple indicators and relationships (Hair, Hult, Ringle, & Sarstedt, 2014).

Results

Results for the structural model are divided into four parts: 1st, the R^2 value of the endogenous latent variable (variables/constructs with arrows pointing into them are discussed in this model; the endogenous variables are creativity, motivation, inhibitor and stimulants). 2nd, is the path coefficients 3rd is the predictive relevance Q^2 and 4th, the mediating effects.

Coefficient of Determination (R^2).

In this study, structural model results are used to predict relationships between constructs. The PLS_SEM algorithm accounts for variance for R^2 in these predictions. Result show that stimulant-new thinking (R^2 = 0. 0417), stimulant-resources (R^2 = 0.275), and creativity (R^2 = 0.286 have the highest explained variances (See Figure 1). While inhibitors (R^2= 0.195), and motivation (R^2 = 0.189) have the lowest variance R^2, However, this explained variation is considered high in the social sciences. The rule of thumb for high R^2 is 0.20, and values below 0.10 are considered low levels of predictive accuracy (Olalere, 2015).

Figure1
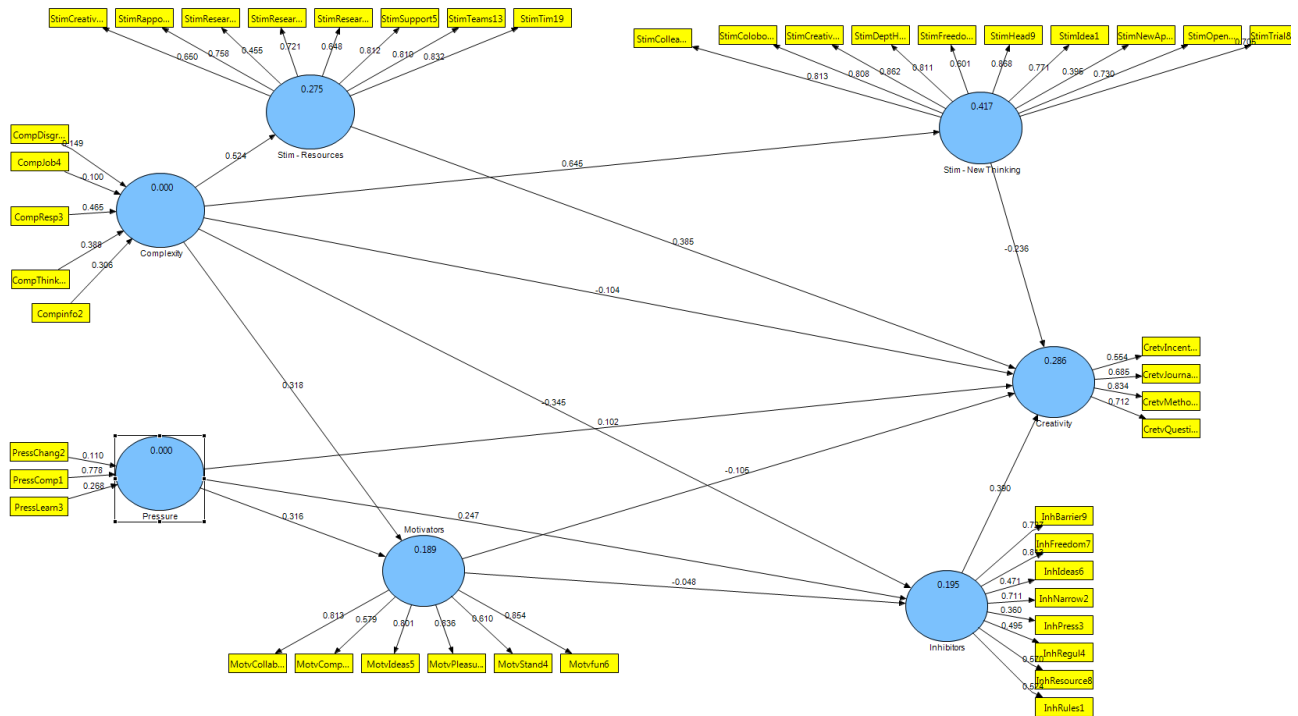
Path Coefficients

Table 1 shows the construct path coefficients
Constructs Path Coefficients

Com-plexity Inter-action	Creativity	Inhibitors	Motivators	Pressure	Stim – New Think-ing	Stim – Resources	
Complexity Interaction		-0.104	-0.345	0.318		0.645	0.524
Creativity							
Inhibitors		0.380					
Motivators		-0.105	-0.047				
Complexity Pressure		0.102	0.247	0.316			
Stim - New Thinking		-0.236					
Stim - Resources		0.385					

In this study, we are looking only at the influence of complexity interaction and creativity inhibitor on creativity. Results shows that stimulant-resources ($\beta = 0.385$) and inhibitors ($\beta = 0.380$) have the strongest direct paths effects on creativity. While stimulant new thinking ($\beta = -0.236$), motivation ($\beta = -0.105$), complexity pressure ($\beta = 0.102$), and complexity interaction. -0.104) have the lowest direct path effects on creativity (See table 1).

Complexity interaction is a positive predictor of stimulant resources ($\beta = 0.524$) but a negative predictor of the inhibitor ($\beta - -0.345$). Also, complexity interaction ($\beta = 0.318$) has a positive significance regarding motivation.

Predictive Relevance Q^2

The purpose of Q^2 statistic is to help to determine the predictive relevance of the reflective construct in a SEM model and not on the formative. The values greater than zero reveal that the construct predicts its data points for the said construct; if it is a zero or less, the construct for the said item are not accurately predicted. The cross-validated redundancy approach was used to assess the predictive relevancy of the constructs (Hair et al., 2014). The column labeled 1-SSE/SSO (squared prediction error/squared observations) is Q^2. Table 2 shows the construct cross validated redundancy.

Table 2. Construct Cross-validated Redundancy

Total	SSO	SSE	1-SSE/SSO
Creativity	292.000	262.666	0.100
Inhibitors	584.000	564.448	0.033
Motivators	438.000	405.647	0.073
Stim - New Thinking	730.000	587.404	0.195
Stim - Resources	584.000	522.859	0.104

Case 1	SSO	SSE	1-SSE/SSO
Creativity	39.051	35.561	0.089
Inhibitors	86.086	76.579	0.110
Motivators	57.380	56.015	0.023
Stim - New Thinking	106.782	84.432	0.209
Stim - Resources	81.548	71.214	0.126

Case 2	SSO	SSE	1-SSE/SSO
Creativity	42.663	39.835	0.066
Inhibitors	86.166	84.630	0.017
Motivators	47.036	42.877	0.088
Stim - New Thinking	103.869	76.182	0.266
Stim - Resources	72.896	62.623	0.140

Case 3	SSO	SSE	1-SSE/SSO
Creativity	44.626	37.572	0.158
Inhibitors	66.429	67.547	-0.016
Motivators	69.785	63.095	0.095
Stim - New Thinking	109.180	90.651	0.169
Stim - Resources	97.780	90.236	0.077

Case 4	SSO	SSE	1-SSE/SSO
Creativity	40.726	38.267	0.060
Inhibitors	71.935	65.338	0.091
Motivators	75.250	67.813	0.098
Stim - New Thinking	108.470	81.641	0.247
Stim - Resources	82.727	70.359	0.149

Case 5	SSO	SSE	1-SSE/SSO
Creativity	48.906	43.398	0.112
Inhibitors	102.302	98.429	0.037
Motivators	89.019	79.085	0.111

Stim - New Thinking	97.385	75.658	0.223
Stim - Resources	76.468	69.556	0.090
Case 6	**SSO**	**SSE**	**1-SSE/SSO**
Creativity	34.983	33.124	0.053
Inhibitors	82.616	82.576	0.000
Motivators	45.623	41.439	0.091
Stim - New Thinking	106.734	100.495	0.058
Stim - Resources	75.285	66.412	0.117

| **Case 7**	**SSO**	**SSE**	**1-SSE/SSO**
Creativity	41.043	34.907	0.149
Inhibitors	88.463	89.346	-0.009
Motivators	53.903	55.320	-0.026
Stim - New Thinking	97.570	78.343	0.197
Stim - Resources	97.292	92.455	0.049

The predictive relevance Q^2 the last column of each of the seven tables in 1-SSE/SSO, as represented in table 2. The highest predictive relevance is calculated for stim_new thinking (0.195) and the lowest is for inhibitor with (0.033). Q^2 values greater than 0 suggest that the construct has predictive relevance and values lower than zero suggest the construct lack predictive value. All variables have predictive relevance.

The Mediating Effects Analysis

The Mediating analysis establishes the theoretical indirect relationship between constructs. It determines the degree to which indirect effects through the mediating variables modify the hypothesized direct paths (Olalere, 2015). In this study, the entity variables for inhibitors were hypothesized to mediate the relationship between the collectivist complexity variables and creativity. The purpose is to identify significant path coefficients and explain important indirect effects of relationships.

Figure 2 show the mediating effect of inhibitor on complexity and creativity

Figure 2 show the mediating effect of inhibitor on complexity and creativity
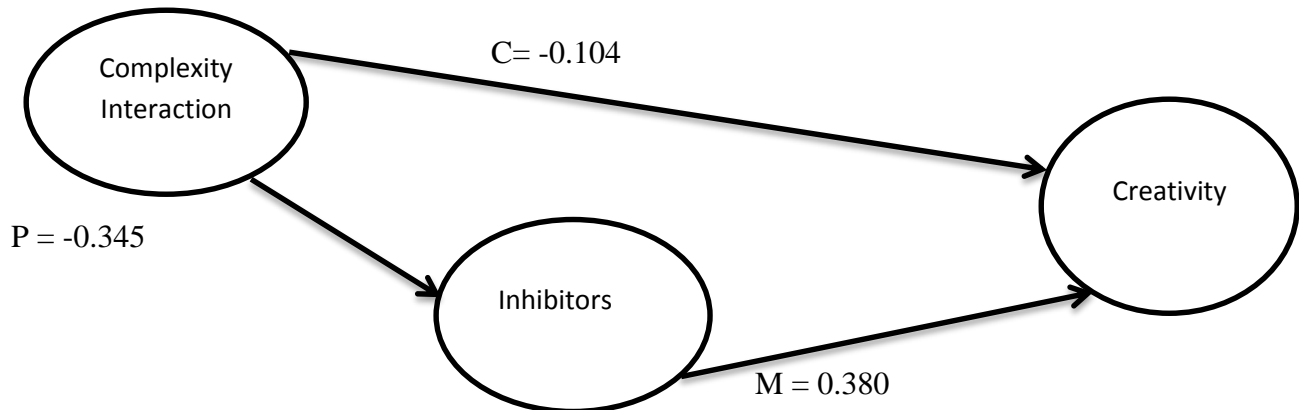
By definition, direct effects are relationships between two constructs that are connected by a single line. The indirect effects are relationships between constructs that pass through one or more other constructs. Even though the direct effect between complexity and creativity is -0.104, calculating the mediating effect results in the total and indirect effect being positive. Including the mediating effect can enable the identification of a real total relationship between constructs. The goal is to examine the total impact of exogenous constructs on endogenous constructs.

Conclusion and Implications

This study deployed Partial Least Square (PLS) and suggests the use of theory to compare with data in order to predict and support a model's argument (Hair et al, 2014). It supports the use data to confirm a models predictive relevance of a model. This approach is situated in the post-positivist assumption that identifies a theory or model, collects data to validate or invalidate the theory/model, and making inferences about the model (Olalere, 2015). PLS was used in this study to examine the effects of the exogenous variable (complexity interaction) on creativity and the mediating effect of the entity based construct (inhibitor) on the interaction between complexity interaction creativity. The results showed a positive significant effect of construct types like psychological safety, organizational impediment and freedom in explaining creativity.

Findings reveal creativity inhibitors have strong effects on creativity. The constructs have indicators like "open-mindedness of colleagues/research collaborators" (work group), encouragement from colleagues/research collaborators to be creative in research (work group), rapport with department head/supervisor (work group), confidence from other colleagues/research collaborators (organizational encouragement), encouragement from department head/supervisor to be creative in research (organizational encouragement), freedom to try new ideas/processes (freedom), suggesting a need for a new approach (organizational encouragement) and willing to learn through trial and error (challenging work).

The indicator for inhibitor with the highest level of significance is inh_freedon7 with 0.812: "Lack of freedom to exercise creativity". It is argued that organizational impediments like lack of freedom cause politicking and rivalry that does not foster creativity. This argument is supported by Secor (1995) who identified factors that demoralizes faculty in higher education as polarization of departmental issues, ideological positions and disrespect between junior and senior faculty members causing tensions and discouragements. .

This research also suggests that pressure is a catalyst for creativity. Pressure among faculty help to define what is legitimate. Pressure has it relates to time to meet research and publication deadlines and to be creative towards their work. It frames what is considered creative knowledge if it shapes freedom and what faculty focus their time on the most. The question is what is considered legitimate and how is legitimate knowledge is decided (Kelly, 2006)? We may begin to re-consider the way meanings are framed if data reveals that pressure fosters creativity. The criticisms on how faculties expend their time may need to be re-scrutinizing as data clearly exposes the gap between policy and practice if this data is to inform knowledge. This also explicates a lack of understanding about the criteria for what is considered legitimate by some constituencies (Olalere, 2015). There is a need for research that policy makers and administrators will more accurately be able to decipher in order to construct meaningful policies.

Further study may be needed to examine the moderating effects between complexity and creativity and unobserved heterogeneities associated with their interactions. This may include

differentiation between tenured and non-tenured faculty and inter-generational differences among faculty for greater understanding of faculty creativity in higher education organizations.

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