International Journal of Psychosocial Rehabilitation, Vol. 24, Issue 10, 2020
ISSN: 1475-7192

Relationship of Organizational Learning and Interpersonal Learning with Psychological Safety of Employees in Engineering Firms

[1]Kennedy O. Ololo, [2]Eddiefloyd Maduabuchi Igbo, [3]Rowland Chukwuemeka Uwakwe, [4]Nneka Charity Nwosu, [5]Catherine Chiugo Kanu, [6]Patricia Nguwasen Mando, [7]Christian S. Ugwuanyi

Abstract

Empirical studies on the organizational learning, interpersonal learning and psychological safety of employees in engineering firms are rare in developing countries, including Nigeria. The current study examined the relationship of organizational learning and interpersonal learning with psychological safety of employees in engineering firms. A convenience sample of 150 employees from six engineering firms in the South-east and South-South zones of Nigeria completed measures of organizational learning, interpersonal learning and psychological safety. Data collected were analysis using regression statistics. Results revealed statistically significant relationship between organizational learning and psychological safety of employees in engineering firms. Also, a statistically significant relationship between interpersonal learning and psychological safety of the employees was found. These findings suggest the need for increased attention towards the industrial health and safety of employees in engineering firms.

Keywords: *employees; engineering firms, interpersonal relationship, learning behaviour; organizational learning, psychological safety*

I. Introduction

In the present-day business world, organizations are progressively more requiring their employees to throw in to the steady improvement of organizational practices and processes by means of behaviors that permit learning to occur (e.g., voicing new ideas, experimenting with new ways of doing things, and collaborating with other members of the organization[1,2]. While such actions may be of potential benefit to the organization, they

[1]*Faculty of Management and Social Sciences, Alex Ekwueme Federal University Ndufu-Alike Ikwo Ebonyi State, Nigeria*
[2]*Faculty of Management and Social Sciences, Alex Ekwueme Federal University Ndufu-Alike Ikwo Ebonyi State, Nigeria*
[3]*Department of Educational Foundations, Faculty of Education, Alex Ekwueme Federal University Ndufu-Alike Ikwo, Ebonyi State, Nigeria*
[4]*Department of Educational Foundations, University of Nigeria Nsukka, P.M.B. 410001, Enugu State, Nigeria.*
[5]*Department of Business Education, Faculty of Vocational and Technical Education, University of Nigeria, Nsukka, Enugu State, Nigeria*
[6]*Department of Educational Foundations and General Studies, Federal University of Agriculture, Makurdi, Benue State, Nigeria*
[7]*Department of Science Education, Faculty of Education, University of Nigeria, Nsukka.*

bring along certain risks for the individual worker who might have acquired such knowledge either through organizational or interpersonal learning. Interpersonal learning is said to occur when individuals, in the course of their interactions with others, obtain self-insight and learn new interpersonal skills [3]. Different from interpersonal learning, most researchers would concur with defining organizational learning as a change in the organization's knowledge that happens as a function of experience [4].

Psychological safety is a shared belief within a workgroup that people can speak up without the fear, felling and act of being sanctioned or ridiculed [1]. In the deficiency of psychological safety, people will be hesitating to speak up when they have questions or concerns about safety. Psychological safety fosters willful contribution of ideas and actions to a collective enterprise.[5] However, not much is known about the relationship of organizational learning and interpersonal learning with psychological safety of employees in the engineering industry. The current study aimed to examine the relationship of organizational learning and interpersonal learning with psychological safety of employees in engineering firms.

Research Questions

1. What is the relationship between organizational learning and psychological safety of employees in engineering firms?
2. What is the significant relationship between interpersonal learning and psychological safety of the employees in engineering firms?

II. Method

Research Ethics Committee at the authors' institutions approved this research. This is a cross-sectional survey in which a convenience sample of 150 employees from six engineering firms located in the South-East and South-South zones of Nigeria completed measures of organizational learning, interpersonal learning, and psychological safety which were developed by the researchers. The organizational learning questionnaire (OLQ) has 15 items with four-point scale of strongly agree to strongly disagree. The interpersonal learning questionnaire (ILQ) has 14 items on a four-point scale of strongly agree to strongly disagree. The psychological safety questionnaire (PSQ) has 17 items with four-point scale of strongly agree to strongly disagree. In all of the scales, more scores indicate more positive responses. Thus, for instance, higher scores in PSQ imply higher level of psychological safety. The questionnaires were validated by three experts in business education and two experts from psychology. The reliability of the OLQ, ILQ and PSQ are 0.71, 0.83, and 077 respectively. Each employee who agreed to participate in the study completed a consent form before completing the questionnaires. This research data were collected through the aid of three research assistants. The collected data was analyzed using linear regression statistics at 0.05 probability level. All analysis was completed using SPSS, version 20.

III. Results

Research Question One: What is the relationship between organizational learning and psychological safety of employees in engineering firms?

Table 1: Regression analysis of the relationship between organizational learning and psychological safety of employees in engineering firms

	Mean	Std. Deviation	r	r^2
Psychological Safety	76.54	21.41	.651	.424
Organizational Learning	65.71	23.13		

Table 1 showed that the correlation coefficient between organization learning (*M* =65.71, *SD* = 23.13) and psychological safety of employees in engineering firms(*M* =76.54, *SD* = 21.41) is 0.651 with a coefficient of determination of 0.424. This indicates that there is a high positive relationship between organizational learning and psychological safety of employees in engineering firms.

Ho_1: There is no significant relationship between organizational learning and psychological safety of employees in engineering firms.

Table 2: Analysis of variance of the relationship between organizational learning and psychological safety of employees in engineering firms

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	28929.456	1	28929.456	108.747	.000[b]
	Residual	39371.717	148	266.025		
	Total	68301.173	149			

[a.]Dependent Variable: Psychological Safety

[b.]Predictors: (Constant), Organizational Learning

Table 2 revealed that there is a significant relationship between organizational learning and psychological safety of employees in engineering firms, F (1, 148) = 108.747, $p < .05$. Thus, the null hypothesis was rejected at $p < .05$.

Research Question Two: What is the significant relationship between interpersonal learning and psychological safety of the employees in engineering firms?

Table 3: Regression analysis of the relationship between interpersonal learning and psychological safety of employees in engineering firms

	Mean	Std. Deviation	r	r^2
Psychological Safety	76.54	21.41	.687	.472
Interpersonal Learning	59.05	22.57		

Table 3 showed that the correlation coefficient between interpersonal learning (*M* =59.05, *SD* = 22.57) and psychological safety of employees in engineering firms (*M* =76.54, *SD* = 21.41) is 0.687 with a coefficient of determination of 0.472. This indicates that there is a high positive relationship between interpersonal learning and psychological safety of employees in engineering firms.

Ho_2: There is no significant relationship between interpersonal learning and psychological safety of employees in engineering firms.

Table 4: Analysis of variance of the relationship between interpersonal learning and psychological safety of employees in engineering firms

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	32223.693	1	32223.693	132.191	.000[b]
	Residual	36077.480	148	243.767		
	Total	68301.173	149			

[a].Dependent Variable: Psychological Safety

[b].Predictors: (Constant), Interpersonal Learning

Table4 revealed that there is a significant relationship between interpersonal learning and psychological safety of employees in engineering firms, F (1, 148) = 132.191, $p < .05$. Thus, the null hypothesis was rejected at $p < .05$.

IV. Discussion

This study investigated the relationship of organizational learning and interpersonal learning with psychological safety of employees in engineering firms. One of the findings is that organizational learning and psychological safety of employees in engineering firms are significantly related. [6] reported that psychological safety

and organizational learning have been observed to positively impact team knowledge creation for both task and team associated knowledge. It was noticed that when a group exhibits more learning behaviors, more new team knowledge will be resultant.

More than a few researchers have confirmed that organizations involved in learning behaviors tend to do better in the particular task [7]. In a recent study conducted among three groups of engineers, Newman et.al discovered that, teams that portrayed themselves as a group of individuals are less hesitant to lunch forth and challenge or re-challenge the others to succeed in completing their tasks in what was referred to as "positive boundary spanning". Asides knowledge learning and transfer, lots of scholars have conceived of search (e.g., consult [8] as another organizational learning subprocess [9]. For instance, members can decide to search for novel or known experience and search in local or distant areas [10–12]. However, it is contentious whether search processes are best envisaged as part of organizational learning processes or precursor to those processes [13].

Again, the current study arrived at a positive correlation between interpersonal learning and psychological safety. [14] results suggest that psychological safety is coupled to the way people act and feel in relationships with one another. In fact, both the functional capacities of high-quality relationships in terms of connectivity, tensility and carrying capacity, as well as the way individuals experience these bonds in terms of mutuality and positive regard, are linked exclusively with a sense of interpersonal safety, which itself is associated with the opinion of more extensive learning behaviors.

Considering the relationship between psychological safety, interpersonal and organizational learning in the engineering industry was the focus of this paper, and as such, has allowed us to offer a more exact specification of how characteristics of relational ties between organizational members add to psychological safety and as well as learning behaviors. By doing so, we also contributed to a wider line of thinking that emphasizes the relational foundation of capabilities that facilitates better organizing in work settings [14–18].

V. Conclusion

In view of our findings, we note that organizational learning and psychological safety of employees in engineering firms are significantly related. Also, interpersonal learning and psychological safety of the employees in engineering firms are significantly related. These findings further the need for increased awareness of the industrial health and safety of employees in engineering firms.

References

1. Edmondson A. Psychological Safety and Learning Behavior in Work Teams Amy Edmondson. *Adm Sci Q*. 1999;44(2):350–383.
2. Nembhard IM, Edmondson AC. Psychological safety. In: *The Oxford Handbook of Positive Organizational Scholarship*. ; 2012.
3. Hammond KR, Wilkins MM, Todd FJ. A research paradigm for the study of interpersonal learning. *Psychol Bull*. 1966;65(4):221.

4. Fiol CM, Lyles MA. Organizational learning Academy of Management Review, 10 (4), 803-813. *Gart W B1985 Concept Framew Descr Phenom New Venture Creat Acad Manag Rev I*. Published online 1985:696–706.

5. Edmondson AC, Lei Z. Psychological safety: The history, renaissance, and future of an interpersonal construct. *Annu Rev Organ Psychol Organ Behav*. 2014;1(1):23–43.

6. Cauwelier P, Ribiere VM, Bennet A. The influence of team psychological safety on team knowledge creation: a study with French and American engineering teams. *J Knowl Manag*. 2019;23(6):1157-1175. doi:10.1108/JKM-07-2018-0420

7. Newman A, Donohue R, Eva N. Psychological safety: A systematic review of the literature. *Hum Resour Manag Rev*. 2017;27(3):521–535.

8. Knudsen T, Levinthal DA. Two faces of search: Alternative generation and alternative evaluation. *Organ Sci*. 2007;18(1):39–54.

9. Huber GP. Organizational learning: The contributing processes and the literatures. *Organ Sci*. 1991;2(1):88–115.

10. Katila R, Ahuja G. Something old, something new: A longitudinal study of search behavior and new product introduction. *Acad Manage J*. 2002;45(6):1183–1194.

11. Rosenkopf L, Almeida P. Overcoming local search through alliances and mobility. *Manag Sci*. 2003;49(6):751–766.

12. Sidhu JS, Commandeur HR, Volberda HW. The multifaceted nature of exploration and exploitation: Value of supply, demand, and spatial search for innovation. *Organ Sci*. 2007;18(1):20–38.

13. Argote L, Miron-Spektor E. Organizational Learning: From Experience to Knowledge. *Organ Sci*. 2011;22(5):1123-1137. doi:10.1287/orsc.1100.0621

14. Carmeli A, Brueller D, Dutton JE. Learning behaviours in the workplace: The role of high-quality interpersonal relationships and psychological safety. *Syst Res Behav Sci Off J Int Fed Syst Res*. 2009;26(1):81–98.

15. Dutton JE, Worline MC, Frost PJ, Lilius J. Explaining compassion organizing. *Adm Sci Q*. 2006;51(1):59–96.

16. Gittell JH, Cameron K, Lim S, Rivas V. Relationships, layoffs, and organizational resilience: Airline industry responses to September 11. *J Appl Behav Sci*. 2006;42(3):300–329.

17. Powley EH, Cameron KS. Organizational healing: Lived virtuousness amidst organizational crisis. In: *The Virtuous Organization: Insights from Some of the World's Leading Management Thinkers*. World Scientific; 2008:21–44.

18. Vogus TJ. *The Structural and Relational Bases of Mindful Organizing*. Working paper, Vanderbilt Univeristy; 2007.