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LEAN MANUFACTURING PRACTICES AND EMPLOYEE BEHAVIOUR IN AUTOMOBILE INDUSTRY

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Abstract
Little research has explored what determines the employee motivation argued to be essential for successful implementation of Lean manufacturing practices. The paper explores the impact of various individual level factors (job-related, personality related and demographic) on reported employee willingness to adopt Lean behaviors. The findings carry important practical implications. Through suspiciously designed communication and preparation programs, it should be possible to manage employee motivation for and accessibility to Lean. The paper concludes with some discussion on future research avenues.

Keywords: Lean Manufacturing, Behavior Lean Practice and Quality of Work.

Introduction

The aim of lean thinking is to create a lean enterprise, one that sustains growth by aligning customer satisfaction with employee satisfaction, and that offers innovative products or services profitably while minimizing unnecessary over-costs to customers, suppliers and the environment. The basic insight of lean thinking is that if you train every person to identify wasted time and effort in their own job and to better work together to improve processes by eliminating such waste, the resulting enterprise will deliver more value at less expense while developing every employee's confidence, competence and ability to work with others. The idea of lean thinking gained popularity in the business world and has evolved in two different directions.

Lean thinking converts who keep seeking to understand how to seek dynamic gains rather than static efficiencies. For this group of thinkers, lean thinking continuously evolves as they seek to better understand the possibilities of the way opened up by Toyota and have grasped the fact that the aim of continuous improvement is continuous improvement. Lean thinking as such is a movement of practitioners and writers who experiment and learn in different industries and conditions, to lean think any new activity. Lean manufacturing adepts who have interpreted the term "lean" as a form of operational excellence and have turned to company programs aimed at taking costs out of processes. Lean activities are used to improve processes without ever challenging the underlying thinking, with powerful low-hanging fruit results but little hope of transforming the enterprise as a whole. This "corporate lean" approach is fundamentally opposed to the ideals of lean thinking, but has been taken up by a great number of large businesses seeking to cut their costs without challenging their fundamental management assumptions.

Review of Literature

Erik Drotz and Bozena Poksinska (2014) they found that, contribute toward a deeper understanding of the new roles, responsibilities, and job characteristics of employees in Lean healthcare organizations. The paper is based on three cases studies of healthcare organizations that are regarded as successful examples of Lean applications in the healthcare context. Data were collected by methods including interviews, observations, and document studies. The implementation of Lean in healthcare settings has had a great influence on the roles, responsibilities, and job characteristics of the employees. The focus has shifted from healthcare professionals, where clinical autonomy and professional skills have been the guarding principles of patient care, to process improvement and teamwork. Different job characteristics may make it difficult to implement certain Lean practices in healthcare. Teamwork and decentralization of authority are examples of Lean practices that could be considered countercultural because of the strong professional culture and uneven power distribution, with doctors as the dominant decision makers. Teamwork, value flow orientation, and company-wide involvement in CI were associated with positive effects on the organizations' working environment, staff development, and organizational performance. In order to succeed with Lean healthcare, it is important to understand and recognize the differences in job characteristics between Lean manufacturing and healthcare.

Frank Wiengarten et al (2015) the purpose of this paper is to assess the influence of cultural collectivism on the efficacy of lean practices. Furthermore, this study assesses whether or not potential cultural disadvantages related to the level of individualism at the national level can be compensated for at the organisational culture level Results suggest that cultural collectivism at the national and organisational level have a significant impact on the efficacy of lean practices. Furthermore, the negative impact of being situated in an individualistic country cannot be fully compensated for through practicing a

collectivistic organisational culture when practicing lean. This study represents a comprehensive attempt to simultaneously assess the collectivism cultural components of lean practices at the national as well as at the organisational level.

Glenn Parry et al (2010) this paper aims to develop a methodology for lean implementation that reduces the risk of damaging a company's key resources and abilities through the application of core competence theory. Academic literature provided background conceptual understanding of lean and core competence theory for an industrial working party of domain experts from 15 major aerospace companies in the UK to develop a methodology for lean implementation that would not damage firm's competences. The methodology was trailed through cooperative inquiry in a business unit of a leading global aerospace company using a case study approach. An accessible definition of core competence that captures academic theory was proposed through an industrial working group. Further a methodology for lean implementation, drawing upon core competence theories was developed. The method comprised four tools: market analysis, the visible value stream, customer value analysis, and financial modeling. Tools drew upon established practice and their joint application is intended to safeguard a company's key resources and capabilities from loss or impact during lean implementations. Application in a single case study company and the effects observed over a number of years indicated the methodology, though developmental, was capable of significant positive effects.

Goutam Kumar Kundu and Murali Manohar , (2016)The purpose of this study is to capture the perception of the IT support service practitioners regarding the applicability of the lean practices and prioritize them after analyzing the gaps with respect to current usage and importance from practitioners' perspective. It involved development of an instrument to capture the perceptions of the IT support service practitioners. The data collected was quantitatively analyzed by using statistical techniques and it involved testing of the hypotheses. The study conducted a gap analysis on the perceived current usage of the lean practices versus the perceived ideal usages of the lean practices from practitioners' perspective. The gap analysis report revealed that gaps of all practices are not same from the practitioners' viewpoint. This gap analysis was useful for prioritizing of the practices and resource allocation.

Jannis Angelis and Bruno Fernandes, (2012) Innovation is a key source of competitiveness in the knowledge economy, and continuous improvement (CI) is a key element of such corporate pursuit. The purpose of this paper is to explore links to prevalent shop floor conditions which support or prohibit the effective realisation of CI. Lean is a globally competitive standard for product assembly of discreet parts. Successful Lean application is conditioned by an evolutionary problem solving ability of the rank and file. The study identifies particular practices that impact employee participation in improvement activities and their performance outcomes. Process suggestions are driven by a combination of difficult working conditions that the workers seek to improve and team-based work. However, for suggestions on product improvements, significant practices are worker favorable industrial relations and human resource practices. To test work practices, work practice variables were measured with single items, trading lower measurement reliability for increased scope. Also, there is a moderate sample size, if addressed by selecting sites with a variety of practices.

Jostein Pettersen, (2009)The purpose of this paper is to investigate the definition of lean production and the methods and goals associated with the concept as well as how it differs from other popular management concepts. It is shown in the paper that there is no consensus on a definition of lean production between the examined authors. The authors also seem to have different opinions on which characteristics should be associated with the concept. Overall it can be concluded that lean production is not clearly defined in the reviewed literature. This divergence can cause some confusion on a theoretical level, but is probably more problematic on a practical level when organizations aim to implement the concept. This paper argues that it is important for an organization to acknowledge the different variations, and to raise the awareness of the input in the implementation process. It is further argued that the organization should not accept any random variant of lean, but make active choices and adapt the concept to suit the organization's needs.

Methodology

To measure the lean practices factors as perceived by employees of Manufacturing and examine the relationship between Behavior Lean Practice.

Data Collection : Primary and Secondary
Sampling Methods : Convenience Sampling
Research Design : Descriptive
Scale :Psychometric Scale
Tools Used :Regression and frequency Analysis

Results and Discussions

Table 1: Demographic Variables

		Frequency	Percent
Gender	Male	76	88.4
	Female	10	11.6
Level of Manager	Corporate Level	6	7.0
	Business Level	76	88.4
	Functional Level	4	4.7
Age	21-30	44	51.2
	31-40	24	27.9
	>40	18	20.9
Total		**86**	**100**

The analysis of the demographics in Table 1 shows that 88.4 percentages of respondents are Male and 11.6 percentages are Female. The percentage of female in is showing a decline. Designation shows that 7 belong to corporate level manager, 88.4 percentages are Business level manager and 4.7 percentages are Functional level manager. Thus it can be interpreted that highest percent was from business level manager.

According to the age group of respondents, it shows that 51.2 percentages of respondents were in the age group of 21 - 30 years, 27.9 percentages were 31-40 years old and 20.9 percentages of them were above 40 years. Thus it can be interpreted that highest percentage was in the age group of 21-30 years, as it is the normal age of working with manufacturing industry.

H_o 1: There is no significant relationship between Lean Manufacturing and Employee Behaviour.

Table 2: Regression Analysis of Independent Variables Vs Behavior Lean Practice

R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	Sig
.749[a]	.561	.528	.779	0.561	16.83	.000

	Sum of Squares	df	Mean Square	F	Sig.
Regression	61.267	6	10.211	16.83	.000[b]
Residual	47.942	79	.607		
Total	109.209	85			

a. Dependent Variable: Behavior Lean Practice
b. Predictors: (Constant), Company More Competitive, Work Smatter, Boost Morale, Quality of Work, Improve Efficiency, Communication

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.147	.651		.225	.822
Improve Efficiency	.483	.113	.437	4.288	.000
Work Smatter	.242	.092	.204	2.625	.010
Boost Morale	.313	.112	.233	2.782	.007
Quality of Work	.185	.107	.176	1.740	.006
Communication	.039	.106	.039	.365	.005
Company More Competitive	.334	.103	.384	3.261	.002

a. Dependent Variable: Behavior Lean Practice

R is the coefficient of correlation which is .749 and R square is coefficient of determination i.e. 0.561 which explains change in behaviour of employees may leads to change in lean manufacturing in terms of ratio. More the R square better the model, F value is 16.83 which is more than threshold value of 4, Since significant value is <.05 so it is significant at minimum 5% level.

The *b*-values in the table 2 represent the relationship between lean manufacturing and employee behaviour. If the value is positive we can tell that there is a positive relationship between the predictor and the outcome whereas negative coefficient represents a negative relationship. The *b*-value also tells us to what degree each independent variable affects the dependent variables if the effects of independent variables are held constant.

coefficient showed the unstandardized coefficient to predict the dependent variable based on independent variable and t values higher than the threshold value of 1.96 and significant value showed is less than .05, hence it is significant at 5% level. So Null hypothesis is rejected and the Alternative hypothesis is accepted.

Conclusion

The finding that attitudes directly influence employee intentions to adopt Lean behaviors carries an important message to the practitioner. Attitudes are amenable to persuasion and can change as new information is acquired. Communication is an effective mechanism for changing attitudes and their underlying beliefs. There is a large body of attitudinal research showing that, by presenting individuals with strong, high quality, self relevant arguments; it is possible to develop new, readily accessible attitudes that are persistent, resistant to counter persuasion and strong predictors of behavior. The current study identifies the principle beliefs underlying attitudes. Based on the findings, a communication strategy should certainly highlight and demonstrate how employee adoption of Lean behaviors will improve company efficiency and help employees to work smarter.

Future Scope

Employees in this study tended to report, on average, quite favorable attitudes and intentions towards adopting lean behaviors, findings which sit in stark contrast to previous research suggesting that employees react negatively to lean Prior to the lean implementation. The current study investigates the impact of individual-level variables on employee intention to adopt lean behaviors. Future research should explore how these variables influence actual employee engagement in lean behaviors. Although previous studies suggest that intention and behavior are highly correlated data is needed to confirm whether such a correlation exists for employee engagement in lean behaviors.

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