

## **IMPACT OF SUPPLY CHAIN MANAGEMENT TRAINING OVER EDUCATIONAL QUALIFICATION AT MANUFACTURING SHOP FLOOR**

**Gayathri.R**

Research scholar, Department of business administration Annamalai university

**Dr.Priya Annamalai**

Assistant professor, Department of business administration Annamalai university

### **INTRODUCTION**

Supply chain management will join all parts of the line; this synchronizes all parts of the raw material equipment to the processing and final products. This allows the manufacturer to set value addition on each and every process so that it helps with cost cutting for the overall processes. It also connects the raw material supplier to the product until it reaches the consumers hands. Supply chain management is one of the lean manufacturing subjects related to the input process and the output. It helps reduce the cycle time and helps us run the line without any breaks.

### **HISTORY OF SUPPLY CHAIN MANAGEMENT**

In the year 1982, Allen Hamilton introduced the word supply chain management to the manufacturing firms, followed by the year 1983, when a German-based company started to implement the system of supply chain management in the public sector shop floor. In the year 1990, the supply chain management concept earned the credibility of other countries because of the successful implementation of the supply chain management in the manufacturing shop floor. In 1996, supply chain management started to be used in the south-east Asian countries.

### **PLANNING**

The operational manager should plan all 4 M conditions, namely man, machine, material, and method, so that customer demands are met and targets are achieved on time.

### **SOURCING**

First, the manager of the OEM should decide whether to make or buy so that the sources in the name of the subcontracts are well established.

### **MANUFACTURING**

In simple terms, manufacturing means converting the raw material into finished products with the quality the customer expects.

### **DELIVERY AND LOGISTICS**

Delivering the correct products at the expected quality to the customer on time is delivery.

### **RETURNING**

Establishing the proper supply chain network and using the network for a proper and healthy manufacturing environment

## **REVIEW OF LITERATURE**

### **LEAN MANUFACTURING CONCEPTS AND IT TYPES**

Stadtler, H. (2015). There are a number of examples of lean production in the manufacturing system, but few are analyzed through the review of literature. Lean manufacturing is the process of reducing unwanted waste in man, material, machine, and method and making cost cuts where ever possible.

### **RESOURCE BASED VIEW**

Houlihan, J. B. (1985). The organization resource says that price positioning, quality positioning, innovation positioning, and service positioning are all the major positioning that are viewed.

### **MATERIAL REQUIREMENTS PLANNING (MRP)**

Cox, A. (1999). To ensure raw materials that are available for production and products that are available for delivery at the right time .Maintain the lowest possible material and product level in store. Planning the proper man, material, machine, and method

### **JUST IN TIME**

Davis, T. (1993). Just in time is the inventory management method in which goods are received from the suppliers only as they are needed. The main objective of the study is to reduce the inventory holding cost and increase the inventory turn over.

### **5s MANUFACTURING**

Davis, T. (1993). 5S manufacturing is one of the cost-cutting operation tools that has a number of subjects that reduce the processes time and unwanted waste, which reduces costs and helps improve production performance.

### **TOTAL PRODUCTIVE MAINTENANCE**

Davis, T. (1993). **In short, total productive maintenance is called TPM.. TPM is the Japanese concept that helps to increase the value of production and reduce the cost of non-value-added activities. It has a total of 8 pillars: autonomous maintenance, planned maintenance, quality maintenance, development management, office TPM, safety, education, education and training. This is one of the important lean manufacturing concepts.**

### **VAM VALUE ADDED MAPPING**

Davis, T. (1993). **Value-added mapping is one of the concepts of lean manufacturing. There are four important resources in the manufacturing area: man, material, machines, and methods by which non-value-added activities should be found and rejected so that manufacturing processes will be improved and cost cutting will be done in the processes.**

### **HOW SUPPLY CHAIN MANAGEMENT DIFFERS FROM OTHER LEAN SUBJECTS**

Davis, T. (1993). All lean manufacturing subjects are targeted with the improvement of the manufacturing concepts, cost cutting, and manpower reduction, but only the supply chain management concepts will be inspected from the start of the processes to the end of the processes so that from the raw material to the finished product, all processes are verified, the non-value-added activities of all processes are reduced, and the manufacturing processes are improved without any doubt.

## **OBJECTIVE OF THE STUDY**

The study is pragmatic, and it is an experimental design conducted by the HR manager to find out if the implementation of supply chain management has any effects because of the educational qualifications and experience of the employees.

- 1) The training given by the supply chain management has an impact on the educational qualifications of the employees.
- 2) The training given by the HR department in supply chain management has an impact on the previous work experience on the shop floor.

The human resources department head wants to check that the supply chain management OJT will have any differences in educational qualifications and previous experience.

## **HYPOTHESIS OF THE STUDY**

A hypothesis is subject to possible rejection on the assumption that it is true. There is no significant impact on educational qualification and the employees in pragmatic manufacturing output.

There are two objectives are there for these research both are tested separately through proper tools .

- 1) The training given by the supply chain management has an impact on the educational qualifications of the employees.

H0: There is association between education qualification and training program help for development of organization

- 2) The training given by the HR department in supply chain management has an impact on the previous work experience on the shop floor.

Ho: There is an association between experience and the training program provided by the company.

## **RESEARCH GAPS**

The research gap insists that the human resources department is very interested in knowing that there is a relationship between the day-to-day manufacturing and production activities and the educational qualifications on the shop floor.

The research gap insists that the human resources department is very interested in knowing that there is a relationship between the day-to-day manufacturing and production activities and the years of experience on the shop floor.

To implement supply chain management on the shop floor, the organization should know that educational qualifications are a must. Both research gaps should be identified as the research for the implementation of shop floor supply chain management before implementing full-time implementation.

## **RESEARCH DESIGN**

The research gap insists that the human resources department is very interested in knowing that there is a relationship between day-to-day manufacturing and production activities. The research is done in the shoe factory at Amboor, where the total population of the factory is 700, and the research is done on the two selected groups. The first group consists of 150 employees,

and the second group consists of 160 employees. The first group is tested for educational qualifications versus the implementation of supply chain management. The second research topic is employee experience vs. supply chain management.

### STATISTICAL TOOLS

A chi-square analysis has been done after collecting the 150 samples. 150 operators are chosen in the line. Various groups, namely up to school level, ITI, diploma, and undergraduate level operators, are taken. 140 samples are taken, and out of those, 8 samples are rejected. In simple chi-square analysis, various groups are analyzed, and hypotheses are tested to see if they are true or not.

A chi-square analysis has been done after collecting the 160 samples. 152 operators are chosen in the line. Various groups, namely up to 0-5, 5-10, 10-15, 15 and above years of experience, are taken. 152 samples are taken, and out of those, 8 are rejected. In simple chi-square analysis, various groups are analysed, and hypotheses are tested to see if they are true or not.

Both tests are made by the HR department so that the implementation of supply chain management will not be disturbed by both educational qualifications and shop floor experience.

### ABOUT THE COMPANY

The xyz company is the leading shoe manufacturer in Ambur, Tamil Nadu, and the management allotted 500 employees to do the experiment. The company has been at Ambur for more than 50 years; it manufactures shoes and exports them all over the world. There are 2000 employees in the company, of which only 500 are taken as the sample.

Factors	Educational Qualification				Grand Total	$\chi^2$	D.F	Sig.
	Up to School Level	ITI	Diploma	Degree(U. G)				
Better Performance	16	12	4		32	33.64	16	26.296(N S)
Reduction in cost of Production	28	20	4	4	56			
Reduced Supervision								
Increased morale	24	8		4	36			

Increased organization stability and flexibility	8	0	0	0	8			
Total	76	40	8	8	132			

**Table 1.1: Educational qualification criteria and training programmers to help in the development of the organization**

O	E	(O-E)	$\frac{(O - E)^2}{E}$	$\frac{(O - E)^2}{E}$
16	18.424	-2.424	5.876	0.319
28	32.242	-4.242	17.995	0.558
24	20.727	3.273	10.713	0.517
8	4.606	3.394	11.519	2.501
12	9.697	2.303	5.304	0.547
20	16.969	3.031	9.187	0.541
8	10.909	-2.909	8.462	0.776
4	1.939	2.061	4.248	2.191
4	3.394	0.606	0.367	0.108
4	3.394	0.606	0.367	0.108
4	0.485	3.515	12.355	25.475

From table 1.1, there are better performers: 32 employees are chosen for, 56 employees are tested for reduction in the cost of production line, 36 employees are tested for increasing in the work morale, and 8 employees are tested for increasing in the organization's stability. In total, 140 employees are selected, the sample questionnaires are distributed, and 8 questionnaires are rejected. In total, 132 questionnaire are final.

**CALCULATIONS**

Calculate the value = 33.642  
 Degree of freedom = {R-1} {C-1}  
 = {5-1} {5-1}  
 = 16

Degree of freedom at 5% level of significance = 26.296

Hence calculated value is more than tabulated value Our Hypothesis is rejected.

**FINDINGS**

No relationships are found between the educational qualification and the implementation of

lean management. There is no difference found in the manufacturing line with respect to the educational qualification Supply chain management is one of the lean manufacturing subjects that is based on the day-to-day pragmatic activities that can be understood and work can be done.

**Table 1.2 OBJECTIVE -2 Experience and training programs provided by the company that has impact on scm implementation**

Factors	Education Qualification				Grand Total	$\chi^2$	D.F	Sig
	0-5 Years	5-10 Years.	10-15 Years	Above 15 Years				
Orientation Training	8	4	15	4	31	10.791	20	31.41
Safty Training	8	12	20	16	56			
Remedial Training					0			
Promotional Training					0			
Refresher	4			4	8			
Quality of Life	12	12	24	12	60			
Total	32	28	56	36	152			

O	E	(O-E)	(O-E) <sup>2</sup>	(O-E) <sup>2</sup> /E
8	5.895	2.105	4.431	0.752
8	11.789	-3.789	14.357	1.216
4	1.684	2.316	5.364	3.185
12	12.631	-0.631	0.398	0.032
4	5.158	-1.158	1.341	0.260
12	10.316	1.684	2.836	0.275
12	11.035	0.965	0.931	0.084
12	10.316	1.684	2.836	0.275
20	20.632	-0.632	0.399	0.019
24	22.105	1.895	3.591	0.162
4	60.632	-2.632	6.927	1.045
16	13.737	2.263	5.121	0.373
4	1.895	2.105	4.431	2.338
12	14.21	-2.211	4.889	0.344

From table 1.2, there are better performers: 31 employees are chosen orientation training for, 56 employees are tested for safety training , 8 employees are chosen for the refresher training 60 employees trained for the quality work. In total, 160 employees are selected, the sample

questionnaires are distributed, and 8 questionnaires are rejected. In total, 152 questionnaire are final.

Calculation

Calculate Value = 10.797

Degree of Freedom =  $(R-1)(C-1)$   
=  $(6-1)(5-1)$   
= 20

Ho: There is association between experience and training program provided by company.

H1: There is no association between experience and training program provided by company.

## **FINDINGS**

No relationships are found between the experience on the shop floor and the implementation of lean management. There is no difference found in the manufacturing line with respect to the experience on the shop floor. Supply chain management is one of the lean manufacturing subjects that is based on the day-to-day pragmatic activities that can be understood and work that can be done.

## **CONCLUSION**

There is no relation found between the educational qualification and the supply chain management, and in the same way, experience on the shop floor since the Chi Square test answers are below the value, supply chain management is the practical concept that should be learned by all the operators both theoretically and Any lean manufacturing subject, including supply chain management, is based on pragmatic cognition, not theoretical education. If the supply chain practise is done in a sincere manner pragmatically, then the shop floor and line effectiveness will improve in all 4M conditions, namely, the man, material, machine, and methods will work with full effectiveness, and the overall performance of the line and the shop floor will improve a lot.

## **LIMITATION**

Employees of different qualifications respond in the same way to the training given by supply-chain management. There are three types of employees in the manufacturing organization: the top management (CEO-level employees), the middle management, and the bottom-level operators. This shop floor research only focuses on the bottom-level employees of the shop floor.

The top and medium-level middle managers are neglected in the sample because supply chain management is the subject that deals with operators in the line. The experiment is done at one company at a time with limited employees.

## **SCOPE FOR FURTHER RESEARCH**

The same experiment should be experimented in the various types of shop floors in higher order with different sample sizes.

## REFERENCE

- 1) Stadler, H. (2015). Supply chain management: An overview. *Supply chain management and advanced planning: Concepts, models, software, and case studies*, 3-28.
- 2) Houlihan, J. B. (1985). International supply chain management. *International Journal of Physical Distribution & Materials Management*, 15(1), 22-38.
- 3) Cox, A. (1999). Power, value and supply chain management. *Supply chain management: An international journal*, 4(4), 167-175.
- 4) Lambert, D. M., & Cooper, M. C. (2000). Issues in supply chain management. *Industrial marketing management*, 29(1), 65-83.
- 5) Davis, T. (1993). Effective supply chain management. *Sloan management review*, 34, 35-35.
- 6) Croxton, K. L., Garcia-Dastugue, S. J., Lambert, D. M., & Rogers, D. S. (2001). The supply chain management processes. *The international journal of logistics management*, 12(2), 13-36
- 7) Lamming, R., & Hampson, J. (1996). The environment as a supply chain management issue. *British journal of Management*, 7(1).
- 8) Hugos, M. H. (2018). *Essentials of supply chain management*. John Wiley & Sons.
- 9) Copacino, W. C. (1997). *Supply chain management: The basics and beyond* (Vol. 1). CRC Press.
- 10) Ellram, L. M. (1991). Supply-chain management: the industrial organisation perspective. *International Journal of Physical Distribution & Logistics Management*, 21(1), 13-22
- 11) Tan, K. C. (2001). A framework of supply chain management literature. *European Journal of Purchasing & Supply Management*, 7(1), 39-48.
- 12) Blanchard, D. (2021). *Supply chain management best practices*. John Wiley & Sons.
- 13) Choon Tan, K., Lyman, S. B., & Wisner, J. D. (2002). Supply chain management: a strategic perspective. *International journal of operations & production management*, 22(6), 614-631.
- 14) Power, D. (2005). Supply chain management integration and implementation: a literature review. *Supply chain management: an International journal*, 10(4), 252-263.
- 15) Bechtel, C., & Jayaram, J. (1997). Supply chain management: a strategic perspective. *The*



*international journal of logistics management*, 8(1), 15-34.

16) Min, S., & Mentzer, J. T. (2004). Developing and measuring supply chain management concepts. *Journal of business logistics*, 25(1), 63-99.

17) Kopczak, L. R., & Johnson, M. E. (2003). The supply-chain management effect. *MIT Sloan Management Review*.