


The Benefits of Human Element in Lean Manufacturing			Education
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Abstract			
<p>Now days the Lean principles have been evaluated and implemented successfully in different industries based on important factors such as the people-oriented principle. In today's management culture, the idea that human is the center of everything has gained a special meaning and significance. In human oriented lean principles the individual-based targets are observed. Consequently different point of views is provided to capture the elements of quality education based on human element. Likely human element is the point start of new educational reforms. The 21st century education reforms along with advancing technology focus on methods to increase the education level. New reforms demonstrated the need of new approach to the solution of educational problems and requirements. Sustainability, quality and ongoing progress must be kept as targets of new reforms and resolutions.</p>			

Introduction

The Lean production concept is both a methodology and philosophy that focuses on eliminating waste and reducing the time between customers' orders and delivery. The goal is to get the right things to the right place, at the right time, in the right quantities, while minimizing wastes.(Womack et al., 1991)

The globalisation effects the industrials that need to adapt themselves to support global market. Lean Production concept was not just only the reduction of unnecessary cost but also provided overall quality improvement (Womack et al., 1991). The empirical research demonstrated different of quality commitment between producer who has implemented lean production concept and producer that just begin apply lean production. The result of their research shown there are significantly relative between lean production concept and quality commitment. The more lean production has been applied, the more quality commitment was improved (Lee and Peccei, 2008)

The second half of the 19th century in industrialized countries occurred in parallel the increase in production efficiency and economic development, and despite technological advances, there has been no improvement in the management of human resources. The attention given to, the production, the understanding of the fundamental evil in the production process and production technology, which protects the validity of traditional factory management approach and working conditions, shaded the job security and the importance of employee's needs (Selamoğlu, 1998.574). Good working conditions raise the production and profitability of the organization while improving productivity and wages of employees and ensure that consumers purchase goods at low prices.

Recognized as the father of scientific management and for his contribution to human resource management in organizations with a functional management concept Frederick W. Taylor for the first time separate human resources to point out the need for management functions and the labor force (Dulebohn; Ferris; Stodd, 1996, 22-23).

There have been introduced continuous improvements in productivity and quality, given extensive training to supervisors who plays key role in workplace change, and used extensive job rotation and workgroup activities to enhance the skills ofthe workforce. Teamwork represents a lean manufacturing basis of success, flexibility, mutual trust, and human orientetad element in the forefront.

Referring to educationalist, teaching and learning are the core activities in educational institutions. As matterof fact the educational programs rely on investments cost base orientated. Thus, Lean principles incorporating the human factors and conntributions to be made on the education plan have been discussed in this paper.

1. What is Lean manufacturing?

There are many different definitions and perspectives of lean manufacturing. The core idea is to maximize **customer value** while minimizing waste. Simply, lean means creating more value for customers with fewer resources.

Eliminating waste along entire value streams, instead of at isolated points, creates processes that need less human effort, less space, less capital, and less time to make products and services at far less costs and with much fewer defects, compared with traditional business systems. Also, information management becomes much simpler and more accurate.

Taiichi Ohno, the Toyota engineer that initiated the TPS, suggested that any problem solving task should try to address at least five “why’s.” If the answer to “why a machine has broken” is because of overload, he explains, then the question “why did it overload?” should be asked, and so on, until a root of the problem is identified. (Ohno 1988).

However, it took a long time for western companies to understand the principles of Lean and to implement them in an appropriate way. Indeed, many managers were focusing more on the tools themselves rather than on the ideas and the philosophy behind it.

In the last 10 years, Lean implementation has been extended to other fields than manufacturing. Benefits have already been observed in sectors like logistics and distribution, services, retail, healthcare and even government.

And its implementation will keep growing as lean specialists assess that “lean consciousness and methods are only beginning to take root among senior managers and leaders in all sectors today”²⁴⁷.

2. The Philosophy of Kaizen

There are five underpinning principles to Kaizen. The first is a heavy reliance on teamwork, in which everyone's opinion is valued and considered, involving their active participation in the form of suggestions aimed at continuous improvement, even when a system appears to be functioning adequately. Kaizen philosophy recognizes that there is always room for improvement. Finally, the system uses quality circles, groups of workers who meet and work together to solve problems and come up with innovative changes. This feature of Kaizen philosophy is clearly based on the Japanese cultural tradition, which puts greater emphasis on group consensus building. The focus on human resources building within Kaizen strategy has anticipated the post-modern developments in the field of management and competitive advantage.

The Key to Japan's Competitive Success published in 1986 that introduced Kaizen to the Western corporate world, Masaaki Imai defined it as: "a means of continuing improvement in personal life, home life, social life, and working life. At the workplace, Kaizen means continuing improvement involving everyone—managers and workers alike. The Kaizen business strategy involves everyone in an organization working together to make improvements without large capital investments." (Imai, 1986)

However, in seeking to explain the success of Japanese transplants in the United States, Shimada and MacDuffie (1986) stressed the human resources and organisational policies associated with the new production techniques, including: high levels of worker participation in problem solving or 'kaizen' processes, the use of multi-skilled workers organised into teams and the importance of highly skilled, motivated and adaptable workers (see also MacDuffie, 1995).

3. Areas addressing the fundamental principles of human factors – KAIZEN

1-Improve the human factor:

Human resources management is the most valuable asset in an organization. Each employee's qualification, member of a structure, improves efficiency. (Kavrakoğlu, 1998, p.13)

2-Problem solving techniques:

The biggest mistakes in problems solving techniques is the lack of deep analysis of symptoms and the underlying causes of problems. Thus, the problem solving manner should be directed toward the deepest layer of the underlying causes and the need to

²⁴⁷ Lean Enterprise Institute (February 2010)

solve complications in an irrevocable way. So ask why five times while researching the problem, not to have good results but to reveal the real reason. (Yamaga, 1998, p.162)

If we were to list the benefits of continuous improvement;

- Establishment of a viability occurs in all activities.
- Work is provided in accordance with the same goals and objectives of the Community.
- Diversification of departemnts in a structure carry out their jobs more effectively and efficiently.
- The shortest path problem in the part of the interaction and permanently resolved.
- Working knowledge and skill level rises, consequently increases motivation.
- Productivity and other key competitive factors indicate a faster development.

4. Kaizen in Education System

Adapting Kaizen methodology in education system would refere to the focus on staff. There are two directions to be directed at:

- Staff Trainings
- Staff Enviroment

Concentrating in Kaizen methodoly the cost are being reduced as problems are resolved at the roots and and gain are directed towards quality and motivation.

The table shown below represents the methods subject to motivation as per KAIZEN methodology.

Table 1.

Kaizen methods STAFF Training	Earnings of Kaizen Management	Kaizen methods STAFF Enviroment	Earnings of Kaizen Management
1- Training sessions Training Seminar in more than one area	1. QUALIFICATION GAINING 2. INFORMATION LEVEL INCREASE	1- comfortable work environments	MOTIVATION
2. Training opportunities		2- Rewards	
3- Incorporation of new technology. Trainings in techonolgy usage		3-salary standards	
4- Flexible thoughts		4-Technology supply	
5- Analysis ability training in evaluating the root cause.		5- The detection of the authority to forward the problem of the individual	
		6- The Manace to be fired	

Conclusions

The Japanese management and production with the basic principles of the innovation incorporates human-centered model in many sectors.

Education sector in our world of globalization and international competition requires constant innovation and manufacturer needs new models. Making innovations in many areas of education sector lead success and motivation. Alongside with technological developments the education system tools must construct motivation successes. Efficiently increases the working levels, but at the same time the development of team spirit.

As per Kaizen methodology being focused on staff training and environment development would increase the:

- Qualification gaining,
- Information level

- Motivation

Thus, lean models contribute to maximize the qualifications and skills of individuals. Adapting lean philosophy in education system can lead to new model of motivation and success.

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