

**Implementation of Six Sigma as an Innovative Technology in  
Business Management with Special Reference to Education Domain**

**A.P. Arul Jeevaraj, M.Sc., MBA and Prof. Dr. S. Raju, Ph.D.**

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**Abstract**

**Six Sigma** is a technique used to control quality. In too many companies six sigma is used as a tool for measuring the quality with continuous improvement also looking for the perfection in their organization. Main focus of **Six Sigma** is to deliver world-class performance, reliability and value to the end customer. This study is mainly done for improving overall quality of Education Management in and around Madurai zone, for this we selected both engineering and arts colleges in and around Madurai. **Six Sigma** in education is divided into Primary and Secondary factors. The Primary factors included are, Teaching and Researches and then the Secondary factors are Administrative function, University coordination and supporting activities. This survey was conducted with Management, Faculty and Students in Education Management to know their service standard and present education quality. The sample size of my project is 150 and researcher selected 1 management staff 4 faculties and 15 students from every college. In this project research used simple percentage, bar chart and graph and DMAIC (Define Measure Analysis Improve and Control) METHODOLOGY used to improve and control the quality of Education Management. Researcher also suggested that the institution can also concentrate with University Collaboration, knowledgeable curriculum, extra transportation facilities with reasonable fees, yearly alumni meets, EDC implementation, maintaining the mentor & mentee relationship with student and faculty for improving the morale for every student.

**Keywords:** Six Sigma, Education Management, Quality control, Business Management, Innovation Technology.

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## Introduction

The six sigma method is a project-driven management approach to improve the organization's products, services, and processes by continually reducing defects in the organization. It is a business strategy that focuses on improving customer requirements understanding, business systems, productivity, and financial performance. Dating back to the mid-1980s, applications of the six sigma methods allowed many organizations to sustain their competitive advantage by integrating their knowledge of the process with statistics, engineering, and project management. In the business world, **six sigma** is defined as a 'business strategy used to improve business profitability, to improve the effectiveness and efficiency of all operations to meet or exceed customer's needs and expectations. The six sigma approach was first applied in manufacturing operations and rapidly expanded to different functional areas such as marketing, engineering, purchasing, servicing, and administrative support, once organizations realized the benefits. Particularly, the widespread applications of six sigma were possible due to the fact that organizations were able to articulate the benefits of six sigma presented in financial returns by linking process improvement with cost savings. Six sigma is a systematic, data-driven approach using the *Define, Measure, Analysis, Improve, and Control* (DMAIC) process and utilizing design for six sigma method (DFSS). The fundamental principle of six sigma is to take an organization to an improved level of sigma capability through the rigorous application of statistical tools and techniques. It generally applies to problems common to production summarizes six sigma business strategies, tools, techniques, and principles.

## Six Sigma in Business Management (Education Domain)

Six Sigma in education is a Quality Philosophy. It's a philosophy that talks about attainable short-term goals while striving for long term objective. Six Sigma in Education is an art of learning through a study of orientation to the customers' the ultimate parents and the children studying at a college in particular. It is a the pride and enhancement of the products to get recognition out of the Quality Environment of Learning and Study Culture which replicates and laminates the success at large among the masses. The inception of Six Sigma technique in Education is implemented as a novice inception using the quality learning tools, brainstorming

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and benchmarking over all. The work on implementation of the SIX SIGMA IN ACADEMICS would not only spread the cause but shall also give a new dimension to the standard of education in particular.

## **Review of Literature**

According to **Harry and Schroeder (1999)**, Six Sigma is a powerful breakthrough business improvement strategy that enables companies to use simple and powerful statistical methods for achieving and sustaining operational excellence. It is a business strategy that allows companies to drastically improve their performance by designing and monitoring everyday business activities in ways that minimize waste and resources while increasing customer satisfaction.

**Park (2002)** described that Six Sigma implies three things: Statistical measurement, management strategy and quality culture. It is a measure of how well a process is performing through statistical measurement of quality level.

Although the literature (**Werkema, 2002**) pointed out that the first successful six sigma experience started in 1997, where the Brasmotor Group registered (in 1999) a US\$ 10 million saving, one respondent introduced the programme in its operation in Brazil in 1995 and three respondents in 1996.

The goal of Six Sigma is to design processes that do what they are supposed to do with very high reliability, ultimately producing very consistent products and services (**Coronado and Antony, 2002**).

The numerical goal of Six Sigma is reducing defects less than 3.4 parts per million (PPM) also known as 'Defects Per Million Opportunities' (DPMO), reducing cycle time and reducing costs dramatically, which impact the bottom line (**Behara, et al., 1995; Goh and Xie, 2004**).

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## Objectives of the Study

- To study the effects of implementing six sigma in Education Management to ensure and to provide quality education for the students.
- To develop the service standards of Education Management through induction of six sigma Technology.
- To know the perception of students, faculty and management about six sigma and its implications in institutions.

## Methodology

The nature of sampling used for the study is convenient sampling for selection of homogeneous sample for the study. It refers to selecting samples of study objects on convince located. Research findings based on convenient sampling however, cannot be generalized. The period of study was limited to 4 months including data collection, data analysis and report preparation. Questionnaires are prepared and personal survey was conducted. Most of the questions consist of multiple choices and the secondary data was collected from Internets, various books, Journals, and college data. The researcher has used the simple percentage analysis to investigate and interpret the processed data. Statistical Package for Social Sciences (SPSS) was used for analytical purpose of the study.

## Quality in Education Management

Quality is the culture of demand and education as an industry today has mushroomed from over the years to a mega segment for profit making and learning to earn for more. The essence of Quality demands commitment and as one of our Quality Gurus, Jadish Gandhi, the Founder of the Worlds' Biggest School, CMS, Lucknow, INDIA and the awardees' of the UNESCO Peace Prize, says, the mantra has to be Catch Them Young and Innocent. There is a time now to encapsulate the art and cult of this routine otherwise job of the academicians. We need to evaluate our system of educational and of course the education process to produce best of Quality and Quantity being faced by two customers the Parents and the Students'.

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The ultimate talking of Six Sigma, the phenomenon of Zero Defect to negligence of the theory of 3.14 per million, sounds farfetched. It is good to agree and comment of the fact that the very business of education today is just that—a business. It focuses more today on the bottom line and it is important to stay on the competitive edge for all of its customers from the students and their parents to the faculty, staff, and donors, as well.

At the same time it needs to consider of the view that the act of education also has a greater accountability today. This means that installing quality improvement across the board is more important today than ever before. It is important from both the business and academic sides. A quality improvement program can improve all areas of education.

### Analysis and Interpretation

**Table 1: Table showing the service standards in the academic**

Services	Management	Faculty	Students
Barrier environment	100	100	85.6
Canteen	100	100	96
Electric supply	100	100	95
First aid	100	100	78.3
Institution website	100	92	80
Laboratory & Library	100	100	87.5
Notice board	100	88	100
Potable water supply	100	100	84.5
Safety provision	100	100	85.5
Separate hostel facilities	100	92	96
Sewage disposal system	100	100	84.4
Transportation	80	80	60.8
Vehicle parking	100	100	90
Placement Assistance	100	88	70

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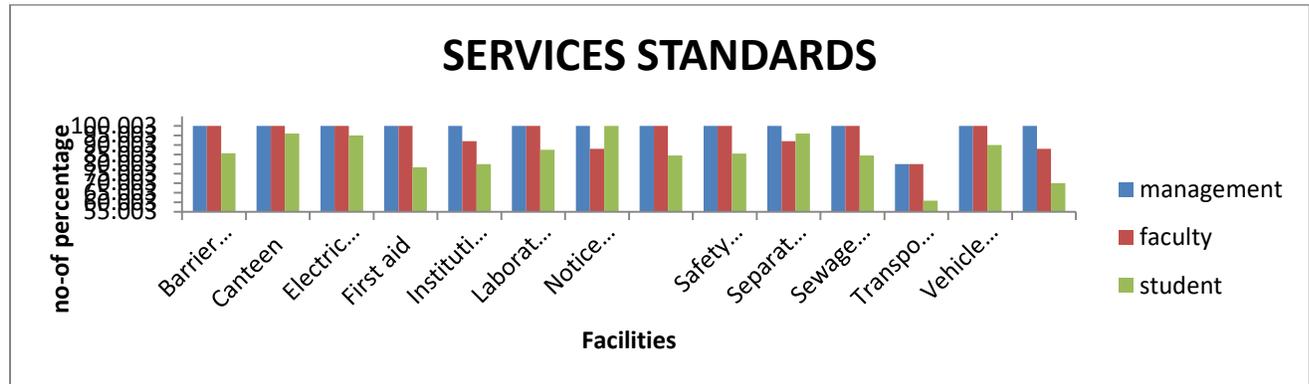
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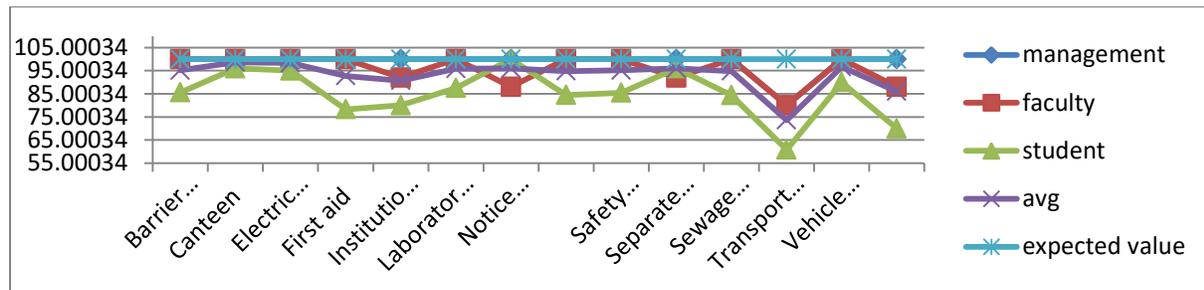
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**Chart-1.1: Chart showing the Service Standards in the Academic**



**Graph-1: Graph showing the Service Standards difference in the Academic**



**Inference**

From the above graph it is clear that 95.00007 % of institutions have implemented canteen and electric supply.,95.00034 % were implemented barrier free environment, library, notice board, water facility, safety provision, separate hostel facility, sewage disposal system.89.00034 % were implemented first aid also 88.003 % have their own website.,86.00034 % were providing placement assistance in their institutions and 75.003 % institutions transportation facility available. Our expected level of six sigma is 99.99966 %. We have concentrate on and below average as 80.00034%.

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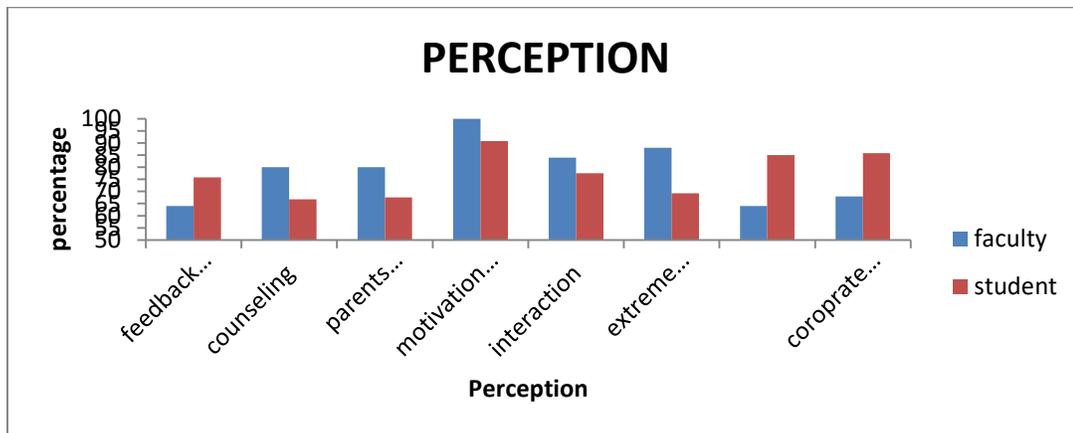
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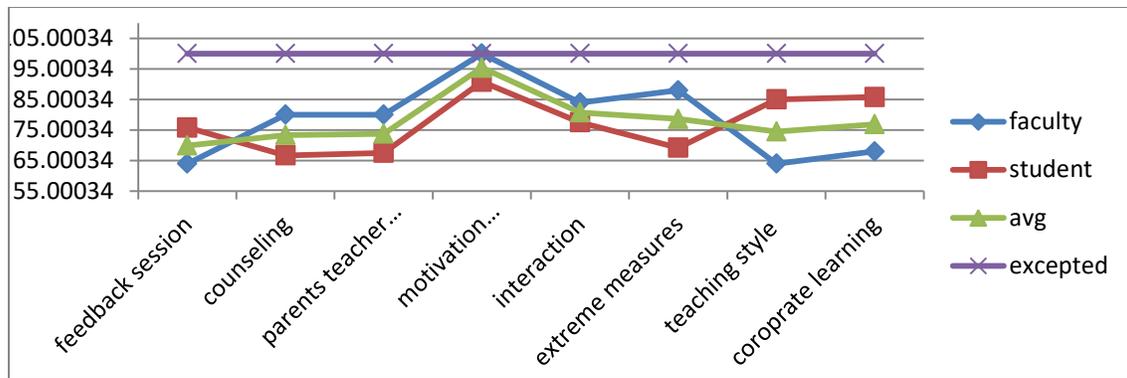
**Table-2: Table showing Perception of Faculty and Student**

ACTIVITIES	FACULTY	STUDENT
Feedback session	64	75.8
Counseling	80	66.7
Parent teachers meet	80	67.5
Motivation guidance	100	90.8
Interaction	84	77.5
Extreme measures	88	69.2
Teaching style	64	85
Corporate learning	68	85.8

**Chart-2.1: Chart showing the Service Standards in the Academia**



**Graph-2.3: Perception between Faculty and Student with Six Sigma Expected Value**



### Inference

From the above graph it is clear that 95.00034 % of institutions has motivational guidance.,80.00034 % were having interaction between faculty and student., 79.00034 % were conducting extreme measures for non-performing students.,76.00034 % were allowing their students for corporate learning.,75.00034 % were implemented modern teaching aids.,74.00034 % were conducting counselling and parents-teachers meeting for the welfare of their students.70.00034 % institutions were preferring for the feedback session accordingly. . Our expected level of six sigma is 99.99966 %. So, we have concentrate on and below average of 80.00034%.

### Conclusion

“The Six Sigma philosophy that has produced such good results for industrial concerns can be modified slightly and applied to academia. As in industry, here also the emphasis must be on the customer’s needs. The students need has to be defined as the most important. (Joan Burtner, 2004)”.

In this research, Researcher have studied the positive impact of implementing six sigma as a tool in Education Management and how its influencing in quality Education Management regarding its management, faculties and students. Hereby researcher can conclude that implementing six sigma in Education Management will take Education management into steps to the lead. It is also done by the means of benchmarking, brainstorming sessions along with the

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management and faculty should insist the importance of six sigma by the terms of quality circle to the students. Thus, Six Sigma is the continuous quality improvement process.

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