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OPTIMIZATION OF HUMAN POTENTIAL THROUGH CONTINUOUS IMPROVEMENT IN EDUCATION SECTOR

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ABSTRACT

Purpose*: The purpose of this paper is to explore the need of various management tools in improving the quality education in the education sector. To evaluate the role, that successful implementation of these kaizen tools may result better administrative process. The most important idea of the paper is 'utilization of human potential in achieving continuous improvement and competitiveness in the field of quality education'.*

Methodology*: This is a review paper, and based on secondary database. The paper examines an extensive body of research, which looked at the various continuous improvement tools of Kaizen technique from exclusive perspectives, and critically explores there potential advantages in education sector.*

Findings*: The finding of the paper is that various management tool such as 5S, Kaizen, Lean management, PDCA, Six Sigma etc., can make different process of education better. The most important concept of the paper is utilization of these human ability in attaining continuous improvement and competitiveness inside the area of high-quality education in different universities, in which it is supposed to attain by these continuous improvement tools. These tools can assist better academic institutions to compete more successfully against both traditional non-profit and newer profit resources of higher education.*

Suggestions*: These tools may be used and implemented in proper manner to get the effective results in the education sector. Proper implementation may give many benefits in the education such as quality education, better teaching skills also it can provide better productivity, employee satisfaction, better utilization of resources etc.*

Keywords: *Continuous improvement, Kaizen, 5S, PDCA, Lean management, Six Sigma, Education.*

Introduction

Education is an inseparable asset of an individual and also considered as a very important investment of an individual for the enhancement in quality of living of human resource of any country. Education is a process of gaining knowledge, skills and moral values. Good education is a right and important for each and every individual to enjoy economic freedom and better living standard. Since education is considered as an important part of life of each and every individual, so it is very important to make continuous improvement in education which will help the people to have maximum benefit of it. There are many tools of continuous improvement. Here in this paper we have explored few of them i.e. 5 S, Six-Sigma, Kaizen, PDCA and Lean management. These tools of continuous improvement play a vital role in making effective changes in the education sectors resulting into better teaching techniques, course quality (H. M. O. Khayum, 2015; Kregel, 2019; Supriyanto et al., 2020), improving administrative process(Doman, 2011), quality improvement and productivity (Supriyanto et al., 2020).

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Kaizen is an approach to continuous improvement based on the idea that small, ongoing positive changes can bring in significant improvements; it is a Japanese term where 'Kai' stands for 'Change' and 'Zen' stands for 'Good' together it means 'improvement' and 'good change'(Mukhopadhyay, 2022). In 1986, Father of Kaizen Masaaki Imai introduced the concept of Kaizen in his book. Kaizen is an approach to make the improvement through elimination of waste." Since kaizen is practiced and implemented by human so, it can be implemented to all the sectors even in our personal life for making continuous changes for quality improvement.

Six Sigma is world-wide renowned high-quality development technique that particularly works on getting rid of defects from the products, services and the processes throughout the sectors. Six Sigma is considered one of the prominent methods for Quality Management(Mandlecha, 2018). There are four fundamental steps, which help in the better implementation of Kaizen. these steps are PDCA – Plan, Do, Check and Act (R. Kumar, 2019). The PDCA cycle is also known as the Deming Cycle or Shewhart cycle, the Deming wheel of continuous improvement spiral. In any small scale industry, school, hospital etc. the implementation of the PDCA cycle has been found more effective than others techniques and also easy technique to be implemented (Loyd & Gholston, 2016; Patel & Deshpande, 2017)

Lean and the Kaizen, the two most important approach where lean approach is very effective in elimination of non-value added activities and Kaizen approach is for continuous improvement, as a result together these Lean-Kaizen approach continuously removal of waste through small improvements (S. Kumar et al., 2018). Lean is a comprehensive method for operating various activities of an enterprise, with a primary cognizance on the identification and elimination of waste inside its techniques. Lean is now a well-established exceptional practice in business globally (Doman, 2011). Continuous Quality Improvement technique helps to improve quality, efficiency, and departmental competitiveness of the education institutes (Thalner, 2005)

"5S" is a systematic technique used by manufacturing as well as service organisations."5S" comes from five Japanese words- Seiri (sort), Seiton (set in order), Seiso (shine), Seiketsu (standardize) and Shitsuke (sustain). "5S" was implemented in educational institute focusing on the better management of students, teaching and non- teaching members (Joshi & Shinde, 2014). Proper guidance from management level is essential to have potential advantages from 5S implementation (Narasimhan, 2009;Gupta & Jain, 2014). Homes, faculties, groups and workplaces all of them can be improved through 5S activities (Gapp et al., 2008; Gupta & Jain, 2014)

Literature Review

- **Six Sigma**

In 1980's Motorola Company invented this six step approach as a quality improvement technique (Tjahjono et al., 2010; Mandlecha, 2018; Zhuo, 2019). In the initial time its use was limited to manufacturing and production industries only as a quality improvement technique but slowly and gradually its popularity increased and it is now used in other sectors too. It was most popular in electronics industries.

Continuous improvement in a process is an important concept sof total quality management (TQM) and there are other methodologies also like six sigma, lean management etc. which give effective results for improving any process (Gupta et al., 2018; Adeodu et al., 2021). The improvement on the manufacturing wastes was achieved by implementation of lean-six sigma approaches (Adeodu et al., 2021). Six Sigma applications is not limited only to manufacturing but can be extended to the whole supply chain which include the provision of services. It helps in reducing the cost, reducing project time and also improves the quality (Tjahjono et al., 2010). As six sigma shows effective result of quality improvement in other sectors when used in education sectors showed valuable result in improving quality education and teaching methodologies by reducing/ eliminating defects/ errors/ waste instead of cutting cost by reducing budgets (Mandlecha, 2018)

Six Sigma is a quality improvement tool, which enhances the effectiveness of an organization by improving the quality of its operations. It is an effective management approach for companies to gain competitiveness and sustainable development in a new economic environment (Zhuo, 2019) and also solve real time problem of productivity, help in increasing customer satisfaction (Adeodu et al., 2021).

Effective six sigma principles and practices will succeed by refining the organizational culture continuously; with the proper implementation of quality improvement technique six sigma in education sector, education system is able to achieve the generally accepted goals of education, central to which is knowledge and skill development (Mehrabi, 2012).

- **5 S Technique**

5 S is another important technique that aims in improving the operational efficiency. It was developed by Hiroyuki Hirano in Japan for maintaining a clean, safe and an organized area for work by eliminating wastes. It also provides a better work environment for employees (Joshi & Shinde, 2014).

"5S" comes from five Japanese words- Seiri (sort), Seiton (set in order), Seiso (shine), Seiketsu (standardize) and Shitsuke (sustain) (Rivera et al., 2008; Shaikh et al., n.d.; Singh & Ahuja, 2015;Goswami et al., 2019) .The successful implementation of 5S approach increases manufacturing competencies and also eliminates barriers which comes in its operations (Singh & Ahuja, 2015).

Sort helps to remove all unneeded items: only what is needed stays. *Set* establishes locations and quantities needed for efficient operation. *Shine* represent cleaning through inspection. *Standardize* implements visual displays and controls. *Sustain* helps to keep the organization effort in place through training and total employee involvement (Agrahari et al., 2015).

Proper implementation of 5S & Kaizen helps in achieving higher space utilization, employees' safety, less error, improvement in productiveness and inventory system. This additionally allows in increasing machine's usage, maintenance & the cleanness of devices, to maintain the wholesome workplace, easy to check, brief informing approximately damages, eliminates the possibility of accidents in the business enterprise (Shaikh et al., n.d. 2018).

The successful implementation of "5S" helped the organization in increasing the interest of the students in their studies and helps to increase work satisfaction between the faculty members' and non teaching staff, also can make classrooms, staffrooms, library etc more organized places which increases the interest to work or study there. (Joshi & Shinde, 2014)

- **Kaizen**

Kaizen was introduced as a Japanese technique after Second World War by Masaki Imai in 1986 (H. Khayum, 2017; Kregel, 2017; Macpherson et al., 2018; Batubara et al., 2018; Rosak-Szyrocka, 2019; Supriyanto et al., 2020). Masaki Imai defined kaizen as- *"Kaizen means improvement. Moreover, it means continuing improvement in personal life, home life, social life, and working life. When applied to the workplace Kaizen means continuing improvement involving everyone- managers and workers alike."*

Curriculum development is an ongoing process in which curriculums are updated in the context of current needs of society, individuals and states. Since it needs regular updating therefore Kaizen approach is considered to be most effective tool for it because pays emphasize on continuous improvement (Duran & Mertol, 2020). Educational institutions considered a place where we can produce quality, better, and characterized educational population and it has become a necessity in the management system to prioritize quality-based principles, for quality or continuous improvement kaizen is right approach to be used (Supriyanto et al., 2020)

Kaizen is considered to be an effective process for improving graduate business school courses and helps in higher education institutes compete more effectively to make profit with the value proposition for students (Emiliani, 2005) also improve the quality of teaching according to the course (Kregel, 2017).

Education is considered as continuous process where the information is processed as a result the knowledge and skills can be used for the betterment of both individual and society, kaizen can be effectively implemented in education as well to get immense benefits in the overall development of the student and the institution as well (H. M. O. Khayum, 2015) and compete more effectively with the help of human resource they have got (H. Khayum, 2017).

The main outcomes of continuous improvement technique were that it improved efficiencies, financial returns, and improved teamwork and communication (Thalner, 2005). Kaizen can be also used in weekly course evaluation in university teaching (Kregel, 2017). Proper training and education is to be given to the employees so that kaizen implementation can be successful and can give better result (Macpherson et al., 2018).

- **Lean Management**

The term lean thinking, or lean production (Womack et al., 1990; Womack and Jones, 1996), a well know term was first introduced in the field of operations management in the well-known book by James P. Womack and Daniel T. Jones called *The Machine that Changed the World* (Womack et al., 1990 ;Barraza et al., 2009).

The main objective of lean is to develop a culture for continuous improvement and a strong involvement of all the employees, it also creates more value to product to increase customer satisfaction

with the few resource present with less expenses and strongly focuses on process improvement to give better results in a systematic manner (Byfuglien et al., 2012), achieve zero defects and fast delivery at low cost (Adeodu et al., 2021). This technique was widely used in manufacturing and supply chain management, but recently gaining implementation in other discrete industrial organizations (Mwacharo, 2013;Adeodu et al., 2021) and even in education sector for improving university administrative process (Doman, 2011).

The Lean-Kaizen approach focuses on improving the quality of processes in organizations by reducing their cycle time and operating costs, creating continuous flows, satisfying customers and eliminating waste (S. Kumar et al., 2018). Lean tools and principles when used in engineering education will develop competencies needed by industry and contributes in increasing employability of engineering students (Vukadinovic et al., 2017)

Lean principles and practice in education sector results improved teaching and learning process and also in higher level of student satisfaction, which results their engagement in activities, better performance and benefits to educators by improvement in teaching process will flow without defects (Sremcev et al., 2018)

- **PDCA**

PDCA is considered as a quality management system which is used as a continuous improvement tool and is widely used in the service and manufacturing sectors. PDCA activities consist of four steps namely Plan, Do, Check, and Action. These four steps are used repeatedly and form a circular activity (Isniah et al., 2020).

Plan – what is needed, *Do*- It, *Check*- That it works and *Act*-To correct any problems or improve performance and is most suitable when there are no time constraints and enough resources to spend on the problem. The effective implementation of quality tools will show good results i.e., less labor cost and more profit (Patel & Deshpande, 2017).

An objective application of the PDCA method can result in the elimination of waste in the workplace such as idle time, defects, losses etc. and increasing productivity of the operations of the organization (Isniah et al., 2020)

PDCA helped students to learn good leadership skills with project based learning program (PBL) and also helped to achieve their learning goals (Tomoko Maruyama & Masahiro Inoue, 2016). PDCA can be used to design good training programs, use of updated PDCA version helps in software teaching more promising, effective and evaluation process more efficient, even work related issues can be resolved soon (Mergen et al., 2014). PDCA helps in analyzing the teaching problems exists in the teaching process and to minimize them, also to improve the quality of teaching (Kuai, 2015).

Objectives

The purpose of this paper is:

- To explore various continuous improvement management tools.
- To explore the need of various management tools in improving the quality education in education sector.
- To evaluate the role, that successful implementation of these tools may result better administrative process.
- To evaluate how human potential helps in achieving continuous improvement and competitiveness in the field of quality education.

Research Methodology

This is a review paper, and based on secondary database. The data obtained from various papers are compiled, analyzed, and concluded to obtain conclusions regarding the study of literature. The paper examines an extensive body of research, which looked at the various continuous improvement tools from exclusive perspectives, and critically explores there potential advantages in education sector.

Findings

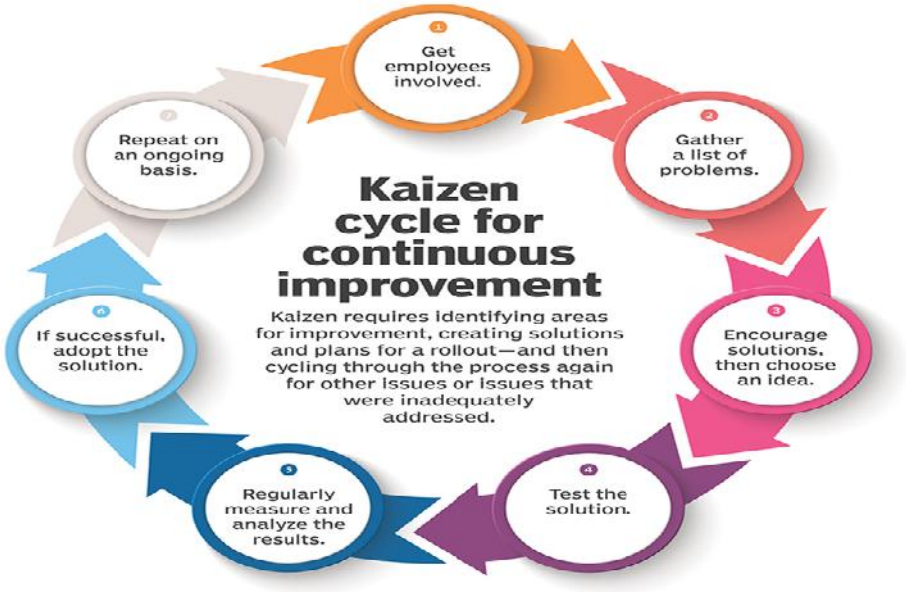
The finding of the paper is that various management tool such as 5S, Kaizen, Lean management, PDCA, Six Sigma etc., can make different process of education better. Every type of organization whether manufacturing, producing, service giving etc. need to develop a habit to use the different tools of continuous improvement which will help them to make organization's process better and more effective. Even on the other hand it may help employees to enhance their skills and to work more

efficiently, to increase their satisfaction towards their tasks, and also would be helpful in improving that the overall performance of the organization will get better. If we talk about continuous improvement it does not means to make drastic change but it means small and manageable changes that can make the place a better place to work more effectively and also the improve the process.

It may be good for both education institutes and students to learn the usage of various management tools of continuous improvement such as lean, 5S, kaizen etc. With the help of these management tools students and teachers may make their work more easy and efficient anbe able to accomplish their task on time without wasting any of the resources. Even, with the help of these tools education institutes will be able to improve their functioning such as teaching methods, learning, evaluation process etc. with the help of resources they have without any extra expenses and wastage of time.

The most important concept of the paper is utilization of these human ability in attaining continuous improvement and competitiveness inside the area of high-quality education in different universities, in which it is supposed to attain by these continuous improvement tools. These tools can assist better academic institutions to compete more successfully against both traditional non-profit and newer profit resources of higher education.

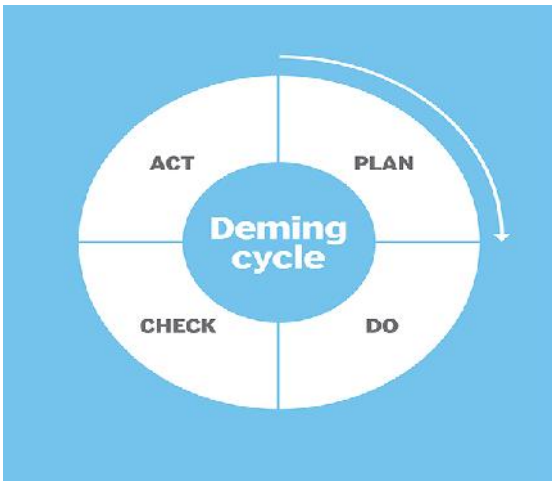
Kaizen can be implemented as a seven-step cycle to create an environment based on continuous improvement in higher education.



With the help of human ability and proper implementation of kaizen tools in the field education it is possible to have continuous improvement without any heavy investment and can result high-quality education in different universities. Proper learning and training of continuous improvement tools strengthens students, faculty members and non teaching staff to work as a team for accomplishment of their respective goals and also motivates them to follow work ethics.

Conclusion

After having comprehensive literature review on various continuous improvement approaches it can be concluded that these practices (5S, Kaizen, Six sigma, Lean and PDCA) may be used in education sector also for making improvement in teaching and learning process. Students, teachers and non-teaching staff need some basic knowledge, training and motivation to use these continuous improvement approaches so that it becomes easy for users to implement them in schools, colleges, and universities. If individual learn them at school college level it will help them when they start working in any organization as these are very popular continuous improvement tools now in organizations. Kaizen seven steps may be used with PDCA for effective results in education which may increase the interest of students in their studies and work satisfaction in teaching and non-teaching staff.



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