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KAIZEN IMPLEMENTATION AND PRACTICE AT NIFAS SILK TVET COLLEGE

BY

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ADDIS ABABA, ETHIOPIA

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A THESIS SUBMITTED TO ST. MARY'S UNIVERSITY, SCHOOL OF GRADUATE STUDIES, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF GENERAL MANAGEMENT

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DECLARATION

I, the under signed, declare that this thesis is my original work, prepared under the guidance of Dr. **Wubeshet Bekalu**. All sources of material used while working on this thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any other higher learning institution for the purpose of earning any type of degree.

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Name   Signature and Date

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ACRONYMS

CI   Continuous Improvements

ETP   Education and Training Policy

HR   Human Resource

MOE   Minister of Education

QCC   Quality Control Circles

SOP   Standard Operating Procedures

TPS   Toyota Production System

TQM   Total Quality Management

TVET   Technical and Vocational Education and Training

UK   United Kingdom

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ABSTRACT

The purpose of this research was to analyze kaizen implementation on Nifas Silk TVET College using a descriptive research design; particularly, this research was designed to answer the level of successfulness of kaizen implementation and examine whether the implementation of kaizen brings better performance. Data were collected from 92 randomly selected trainers. The findings of the study revealed that the practice and implementation of kaizen was not at expected level; meaning that the overall kaizen implementation was not well organized and didn't include an effective level of participation and involvement. The finding further, revealed that, although, the principle of kaizen analyze and thoroughly understand the situation before making decisions, however, it is constrained by resistant to accept kaizen concepts, doesn't involve employees in providing planning, employees and trainers didn't know their role & responsibility; trainers are not committed to give feedback, and etc. In principle majority of the trainers believed that kaizen have an effect on organizational performance such as productivity and quality improvement, Elimination of waste, and improvement of health and safety records; however, in practice this was not at place. Since kaizen is a continuous improvement continuous follow up and supervision is required till the implementation reached at standardized level and adopted by the college community. And the management body should concerned and assign entities who follow and supervise the implementation of kaizen.

Key Words: Kaizen Nifas Silk, Implementation

CHAPTER ONE

INTRODUCTION

1.1. Background of the Study

Improvement has become an integral part of theories and models of change such as structuration theory (Pettigrew, 1990), Ideal types of change (Van De Ven and Poole, 1995), and cycles of organizational changes within revolutionary, piecemeal, focused, isolated and incremental changes (Mintzberg and Westley, 1992). Globalization era has affected the institutions and industries worldwide. Stiff global competition is one of the many challenges faced by the companies due to the globalization. As a result, manufacturers need to do something to ensure that they remain competitive in the market. One of the strategies implemented by many companies to improve their competitiveness is to apply the continuous improvement or Kaizen concept in their organization (Teece, 2007). The Kaizen philosophy is based on the understanding that the way of our life requires a consistent improvement. Therefore, the best way to react to this increase global competitiveness is for companies to conduct the improvement activities continuously with the objectives to reduce wastes.

The word Kaizen is derived from two Japanese words "Kai" which means change and "zen" which means for the better (Palmer, 2001). Kaizen is a Japanese philosophy that promotes small improvements made as a result of continuing effort. These small improvements involve the participation of everyone in the organization from the top management until the lower level employees. The long-term improvement is achieved by having the employees working gradually towards higher work standards. Kaizen strategy has been successfully implemented by the Japanese industry after the World War II (Imai, 1986). Kaizen was initiated as a response towards problem faced by the Japanese industry after the World War II such as limited resources and difficulties to obtain raw material. Therefore, the Japanese companies started to look into how to improve their production processes by minimizing waste and optimizing process efficiencies (Imai, 1986).

The benefits of KAIZEN management practices includes immediate results, waste reduction, improvement in all areas, decreasing the general production costs, sustainable improvement of quality, delivery deadlines, working conditions, motivation and involvement of employees in the continuous improvement of enterprise's performance, ensuring discipline and standardization. KAIZEN practice helped many firms in India to achieve better operational

excellence and improve their productivity (Endale, 2016). KAIZEN implementing package is focused on improving productivity, quality, cost reduction, quick delivery, establishing safety and raising workers moral in order to achieve better customer satisfaction and maximize the success of the enterprises (Addis Ababa Technica Vocational Education and Training Bureau, 2014).

In the present days, Colleges and Universities want to be acknowledged as sources of good quality higher education. As such, they want to discover innovative ways of representing performance. They respond to students' demand for valuable teaching: students want to make sure that their schooling will lead to jobs and will provide them the abilities needed in the society of today and tomorrow. Mobility of students and escalation of fees amplify the consideration given by students to the quality of the teaching. The institutions need to develop pioneering approaches to measure the impact of their hold up on quality teaching (Mohammed and Khayum, 2017). As it is often believed, sometimes the only one difference between good and bad institutions is their people. And it is often forgotten. It could be because of forgetting to one big potential. It is just human potential. Therefore, the paper is directed to look at a methodology which deals with human potential for minor but continuous improvements (CI), its utilization for higher educational institutions' progress and trouble-free sustainability of changes. And also this motivation drives the study to present a task-oriented policy for implementing the Kaizen philosophy instead of the present inefficient policies to improve the outcomes of the universities.

Ethiopia is a country where shortage of skilled manpower affected its acceleration of development. Even though they have been many reasonable factors, the education and training system that the country used to adopt had its own contribution (Temesgen, 2012). The Government of Ethiopia realized that the education and training system has to be designed in a way that parallel to general education; hence, the government has launched Education and Training policy since the year 1994 (MOE, 1994). Education is highly essential in increasing the productivity of citizens in all aspects of the economy, UNESCO (2001) defines education as a force that develops well-rounded and engaged citizens, and builds more cohesive and participatory society. Based on this fact educational institutions are the key process which the education and training is provided to the individuals and the society. Therefore schools, institutions, colleges and universities are the focal points for the education and training system; and their objective is training in various skills in different

levels. One of the areas that the ETP has given due attention and action priority is to provide technical and vocational education and training for those who leave school from any level of education (Belayineh, 2014).

Technical and Vocational Education and Training (TVET) provides trainees with the technical skills applicable for the particular trade. In practice, different types of programs are included under the umbrella of TVET. Grubb and Ryan (1999) distinguish the following four types of programs. (1) Pre-employment VET – prepares individuals for the initial entry into the employment. The regular track of the TVET in Ethiopia falls under this category. (2) Upgrade training provides additional training for the employed individuals; (3) Retraining provides the training for individuals that have lost jobs or for those wishing to switch careers; (4) Remedial VET provides training to individuals out of the mainstream labor force. During the last couple decades, the World Bank's advice to developing countries seems to have been that basic education should be the top priority, and that public expenditure on VET should be reduced (Bennell & Segerstrom, 1998). Such advice is based on the proposition that provision and funding of VET is best left to the individuals, private enterprises and private institutions. This is justified by the fact that the demand-driven training systems have outperformed supply-driven systems. During the last couple decades, the interest in TVET was also low within the donor community, partly as a result of the increased focus towards the sectorial work. By its nature TVET is multi-sectoral and it was relatively neglected as a result (Krishnan and Shaorshadze, 2013).

By sharing kaizen management philosophy, Federal TVET Agency was kaizen implementer in the TVET agencies and bureaus all over the country. For the first time, Ethiopia kaizen institute prepared training for 380 sugar cooperation managers and supervisors. During training session Federal TVET presented its kaizen implementation experience for the trainees (EKI Yearly Booklet, 2011). After the training of "sugar cooperation managers and supervisors" Federal TVET Agency was the facilitator of the implementation of kaizen in sugar cooperation by selecting the implementer from all regional TVET trainers and regional TVET Agency experts, who participated in former kaizen implementation, and employees of the corporation. Finally, Federal TVET Agency expanded its experience to the different regional TVET agencies and bureaus. Therefore, this study will try to see the implementation of Kaizen on Nifas Silk TVET College

1.2. Statement of the Problem

Different countries in the world which have applied Kaizen Management techniques have various types of practice and encountered multi-dimensional challenges. Japan employed Lean Management and all the concepts which the term carries (such as Just-In-Time, Kaizen, [Sort, Set in order, Shine, Standardize, and Sustain-5S], and others) (Karn P., 2009). Germany also practices the suggestion system of Kaizen (Hultgren, 2008). There is an application of Continuous Improvement (CI) of Kaizen philosophy which consists of "improvement initiatives that increase successes and reduce failures" (Bhuiyan and Baghel, 2005). The application of Kaizen Costing as a tool of efficiency in production cost at PT. Coca Cola Bottling Company in Indonesia has been practised (Utari, 2011). In the same light, Becker and Snow (1997) found out that the United States of America has used the Deming Management Method or the Total Quality Management (TQM) of the Kaizen Techniques. In Ethiopia, there are the practices of both Western and Japanese Management techniques, like Business Process Reengineering (BPR), benchmarking, Balanced Sore Card (BSC) and Kaizen (Berihun, 2009).

Through most of the twentieth century, Ethiopia was one of the most disadvantaged countries in terms of access to education. As a legacy, in 2008, the literacy rate in Ethiopia was estimated to be 36% and the average educational attainment of the population 15 years or older was an astonishing 1.5 years. School enrolment has expanding rapidly in recent decades. By 2010, there was near universal access to the first cycle of the primary education, but only half of the relevant group was enrolled in the second cycle (Joshi & Verspoor, 2013). There has been considerable expansion in TVET institutions in Ethiopia, both in terms of public spending and increased provision by private institutions. Number of TVET institutions in Ethiopia is also provided by non-governmental organizations. During the years 2004 – 2009, average annual increase in enrolment in TVET was 30.5% (MOE, 2008). In the year 2008/09 (2001 E.C), there were total of 458 TVET institutions in Ethiopia. These institutions enrolled total of 308,501 students in regular, evening, summer and distance programs. In 2007, Ethiopia was the second in Africa in terms of number of training institutions (Krishnan and Shaorshadze, 2013).

Kaizen is a management philosophy which instructs how a human should conduct his or her life. It focuses on the way people approach work. It shows how management i.e., deans and

trainers can change their mindset together to improve their productivity trained man power (Imai, 1986). Different countries in the world which have applied kaizen management technique have various types of practices and encountered multi-dimensional challenges. Development indicators still remain at very low levels compared with the rest of the world (Addis Ababa City Administration TVET Agency, 2012). So far, there have been limited and inconclusive studies conducted on the implementation of Kaizen in business organizations at different levels in Ethiopia and it shows the implementation of the Kaizen policy was found to increase labor productivity by reducing, on average of 50%, time wastage for searching tools; improved a defect ratio which ranged from 50% to 70%; and improved lead time in the range of 16% to 90% (Seid 2012).

The implementation of Kaizen and the Kaizen training implementation in the Enterprises were not being fully implemented. In line with this therefore, the purpose of this study is to analyze the implementation of Kaizen in Nifas Silk TVET College.

1.3. Objectives of the Study

1.3.1. General objective

The general objectives of the study is to assess the implementation of Kaizen in Nifas Silk TVET College

1.3.2. Specific Objectives

- To evaluate the procedures followed to implement Kaizen
- To examine the challenges observed in the implementation of Kaizen
- To examine whether kaizen is a problem solving approach?
- To examine whether the implementation of kaizen brings better performance

1.4. Research Questions

- What are the practice and procedures followed to implement Kaizen
- What are the challenges that have been observed in the implementation of kaizen?
- To what extent the kaizen is problem solving approach
- does the implementation of Kaizen strategy helps to bring better performance

1.5. Significances of the Study

The assessment of practice, successes and challenges of Kaizen implementation in TVET colleges helps to understand kaizen practice, successes and its obstacles to sustain the system in Addis Ababa Nifas-Silk TVET College. For administrators, it is essential to understand

how the practice of kaizen is stretched over the work of multiple employees in an organization since it is highly unlikely that only a dean, vise dean, department head of the trainers and trainers can improve kaizen implementation in the college. Also, administrators need skills and knowledge that allow them to work with other implementers in the colleges. In sum, the findings of the study will helps all stakeholders within the TVET program mainly; researchers, educators and policy makers, to improve the practice of the kaizen implementation process and create some awareness in kaizen philosophy so that implementation will receive due attention.

1.6.   Scope and limitation of the study

The scope of this research is not outside the geographical location of Addis Abeba particularly a single college due to time and other constraint. Further, in terms of concept this research was limited to analyze the implementation of kaizen in Nifas Silk TVET College. The survey was carried out between August and September 2018. The study is limited in terms of its respondents. The bias and hesitations of respondents affect the analysis of the survey in a significant manner and the research also limited to one College which is Nifas Silk.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

The chapter provides a theoretical base for the study by reviewing of the related literature pertaining to TVET colleges and concept of kaizen and its implementation for project base training. The chapter is organized into major sections. The first section looks at the general view of Technical and vocational education and training while the second part deal with the concept of kaizen, the role and responsibility of TVET employees toward kaizen implementation, pillar of kaizen, and its benefits for quality production "trained manpower" as seen by different scholars; Finally the importance of the establishment of Ethiopia Kaizen Institute in the country has been treated.

2.1.Theoretical Review

2.1.1.The Concept of Kaizen

The philosophy of Kaizen was developed by Imai (1986). Though his book is aimed at applications of Kaizen in the businesses and especially in manufacturing, the principles outlined by Imai are able to be applied in the improvement of higher education. Newitt (1996) has given a new insight into the old thinking. The author also has stated that Kaizen philosophy in the management will liberate the thinking of both management and employees at all levels and will provide the climate in which creativity and value addition can flourish. Bassant and Caffyn (1994) define the CI concept as 'an organization-wide process of focused and sustained incremental innovation'. Many tools and techniques are developed to support these processes of incremental innovation. The difficulty is the consistent application of CI philosophy and CI tools and techniques. As an organization wide process, CI requires the efforts of all employees at every level.

Kaizen even to the Japanese is a difficult word to conceptualize and subsequently define (JRS 2006). Any attempt to develop a definition requires prior conceptualization, resulting in identifying kaizen as a philosophy or a deterministic model of tools and methods, or a combination of both particularly, a series of prescribed changes for ingenuity, improvement, and reform. Nevertheless, these are merely descriptions from different angles. Extant literature and this research note that users of the term somehow understand it, but not necessarily with universality. No matter what explanation is offered, there is still much

subjectivity. Given the holistic nature of the Japanese language (Moore. 1967: Cosier & Dalton. 1986: Ahire et al.. 1995: Poole. 2009) and differing perspectives, it is difficult to develop a truly explicit and universal definition of kaizen (IRS. 2006a).

Japanese academic and practitioner literature does not offer a precise definition; nor do Japanese authors define the term, even when writing specifically on the topic. The closest to an outright definition may be found in the work of Itoh (2004). Although he attempts to construct a definition, nothing explicit or viable is forthcoming, resulting in only generally accepted, rather than definitive discourse. The literature does, however, find offerings such as "constant and indefinite pursuit of [improvements in] safety, operation efficiency and morale" (lida. 2008. p. 36), and "an intellectual and creative activity ..... [Involving] thinking process, Induction, [and] deduction" (Irikura & Imaeda. 2007. p. 12). Itoh simply provides "knowledge creation" (2004a. p. 49), and "problem solving" (2004b, p. 70). The authoritative JRS Management Information Service organization defines kaizen as "the selection of means to better achieve objectives, and method change ‥to change the way of work' (JRS. 2006a. p. 2). Such contributions of the variety of conceptualizations and understandings only reinforce kaizen as a philosophy, and not a theory of quality management Weick. 2003). JRS (2006a) notes that the Japanese tend to speak of kaizen as company-limited where some employees and organizations interpret kaizen as problem awareness, part awareness reform, part organization activation, and part capacity building.

The lack of an explicit universal definition of kaizen does. Therefore, result in contention. Individuals, groups and organizations, while holding their own definition, can use the term kaizen in varying contexts. Nevertheless, even though various agents use the same terminology, that terminology is likely to hold different meanings for each. Despite the fact that Kaizen has different conceptualization the researcher took the following as appropriate from the point of view of the subject matter of this research:

Kaizen is a Japanese word that has become common in many western companies. The word indicates a process of continuous improvement of the standard way of work (Chen, Dugger and Hammer, 2000). KAIZEN is a system of continual undertaking by an organization to improve its business activities and processes with the goal to always improve quality of education so that the universities can meet their full potential. In simple terms Kaizen is Japanese term for 'a change for better', which results in 'continuous improvement'. Kaizen

ideology can be traced back to the 1980s; Kaizen was first adopted in the West with the influx of Japanese car manufacturers who brought a wave of new thinking. Although Kaizen events have been growing in popularity since the mid-1990s, to date, there has been much systematic empirical research on the determinants of Kaizen event effectiveness. Kaizen logic was first enshrined in written text with Masaaki Imai's book 'KAIZEN - The Key to Japan's Competitive Success' (1996) this book showed what the fundamental Kaizen logic is. Kaizen uses the Japanese logic of bringing improvements internally from within the workplace. In his Kaizen: 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."

According to Thessaloniki (2006), Kaizen is a Japanese philosophy meant for process improvement that can be traced to the meaning of the Japanese words 'Kai' and 'Zen', which translate roughly into 'to break apart and investigate' and 'to improve upon the existing situation'. The Ethiopia Kaizen Institute defines Kaizen (2012) as the Japanese term for continuous improvement. It is using common sense and is both a rigorous, scientific method using statistical quality control and an adaptive framework of organizational values and beliefs that keeps workers and management focused on zero defects. It is a philosophy of never being satisfied with what was accomplished last week or last year.

KAIZEN is a system of continual undertaking by an organization to improve its business activities and processes with the goal to always improve quality of products and services so that the organization can meet full customer satisfaction. In the use, Kaizen represents the element of continuous improvement that is a fundamental part of the Quality Model for leading a company to commercial success (Reddy and Karim, 2006). Maarof and Mahmud, (2016) also argue that Kaizen is a Japanese philosophy that promotes small improvements made as a result of continuing effort. These small improvements involve the participation of everyone in the organization from the top management until the lower level employees. The long-term improvement is achieved by having the employees working gradually towards higher work standards. The work of Kaizen which involves incremental changes rather than radical changes has enabled people involved in the Kaizen activities to be easily adaptable to

those changes, thus, formalized those changes into their daily routine activities (De Lange-Ros and Boer, 2001).The Kaizen concepts was introduced by Imai (1986) and it consists of various continuous improvement activities also known as Kaizen umbrella. Under this Kaizen umbrella concept, various activities take place such as customer orientation, Total Quality Management (TQM), robotics, Quality Control Circles (QCC), suggestion system, automation, discipline in the workplace, Total Preventive Maintenance (TPM), Kanban, Quality improvement, Just-In-Time (JIT), zero defects, productivity improvement and new product development(Imai, 1986).

Kaizen is a Japanese term invented by Imai (1986) to describe a continuous improvement (Cuscela, 1998). The aim is to achieve continuous improvement in costs, quality, flexibility (Bessant *et al.*, 1993) and productivity (Choi *et al.*, 1997). One of the characteristics of kaizen is that improvements result in lower costs (Choi *et al.*, 1997); these costs are certainly much lower than those obtained with other techniques such as process reengineering or similar methods (Rijnders and Boer, 2004). The essence of kaizen is that the people that perform a certain task are the most knowledgeable about that task; consequently, by involving them and showing confidence in their capabilities, ownership of the process is raised to its highest level. In addition, the team effort encourages innovation and change and, by involving all layers of employees, the imaginary organizational walls disappear to make room for productive improvements (Kobayashi, 1990). From such a perspective, kaizen is not only an approach to manufacturing competitiveness but also everybody's business, because its premise is based on the concept that every person has an interest in improvement. The premise of a kaizen workshop is to make people's jobs easier by taking them apart, studying them, and making improvements. The message is extended to everyone in the organization, and thus everyone is a contributor. So, when Kaizen for every individual could be an attitude for continuous improvement, for the company also is a corporate attitude for continuous improvement.

According to Cheser (April, 1994), Kaizen deals with the management of change and is a methodology in the right direction to improve manufacturing operations, on a continual and incremental basis following the right steps like establish a plan to change whatever needs to be improved, carry out changes on a small scale, observe the results, and evaluate the results and the process and determine what has been learned. Thus the idea indicates that kaizen is

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not once activity that can be finished through a short period of time. But after evaluation of the kaizen implementation results then return back to the plan again to improve additional things in the learning department of the colleges. The starting point for improvement is to recognize the need. So kaizen principles emphasis problem-awareness and provide clues to identifying problems. When identified, problems must be solved, so kaizen is also a problem-solving process. But, most of all, kaizen is a management philosophy that forces higher standards at all levels of the organization by encouraging continuous improvement in all processes. The essence of kaizen is that the people that perform a certain task are the most knowledgeable about that task; consequently, by involving them and showing confidence in their capabilities, ownership of the process is raised to its highest level. In addition, the team effort encourages innovation and change and, by involving all layers of employees, the imaginary organizational walls disappear to make room for productive improvements (Kobayashi, 1990). From such a perspective, kaizen is not only an approach to manufacturing competitiveness but also everybody's business, because its premise is based on the concept that every person has an interest in improvement. The premise of a kaizen workshop is to make people's jobs easier by taking them apart, studying them, and making improvements. The message is extended to everyone in the organization, and thus everyone is a contributor.

So, when Kaizen for every individual could be an attitude for continuous improvement, for the company also is a corporate attitude for continuous improvement. As presented by Imai (1986), Kaizen is an umbrella concept that embraces different continuous improvement activities on an organization. For instance Customer orientation, TQC (total quality control), QC circles, Suggestion system, Discipline in the workplace and TPM (total productive maintenance). Based on Imran (May, 2011), kaizen is a system that involves every employee from upper management to the cleaning group. Everyone is encouraged to come up with small improvement suggestions on a regular basis. This is not a once a month or once a year activity. Kaizen is based on making little changes on a regular basis: always improving productivity, safety and effectiveness while reducing waste. Suggestions are not limited to a specific area such as production or marketing. Kaizen is based on making changes anywhere where improvements can be made.

In the context of the sustained growth and diversification of higher education systems, civil society is increasingly concerned about the quality of programs offered to students. Institutions may implement schemes or evaluation mechanisms to identify and promote good teaching practices. But, the success of any organization is directly linked to the satisfaction of

the employees who embody that specific organization, that retaining talented people is critical to the success of any organization (Freeman, 2005). Effective organizations should have a culture that encourages the employee satisfaction (Bhatti and Qureshi, 2007). In a higher educational institution the employees are seen to be categorized like administrative officers, faculty members, office clerks, blue collar employees and so on. They are the driving force of that particular institution. The institutional environment of higher educational institutions can also lead to enhancement of quality of the teaching in higher education through these means. And, employees are more loyal and productive when they are satisfied (Hunter and Tietyen, 1997), and these satisfied employees affect the customer satisfaction and organizational output (Potterfield, 1999).

The management literature has been accumulating evidence that human resource outcomes are related to business outcomes. However, most of the empirical studies have been conducted in the manufacturing sector and most of them have used cross-sectional designs. The link between Human Resource (HR) outcomes and business outcomes are discovered in different cross-sectional studies which may have occurred either because (a) good firm performance allowed companies to engage in progressive HR strategies or (b) progressive HR strategies encouraged good firm performance. Human resource management and organizational behavior theories suggest that the proper use of people enhances organizational effectiveness (Kelley, 2005), 2005). Obviously the most important job for the HR associates of a company are to have the best people in the organization in the most efficient way and to take care of them so that they are satisfied and bring the best by performing up to their highest level, for the company (Mohammed and Khayum, 2017).

2.1.2. Benefits and Important Principles of Kaizen

Kaizen in Japanese characters (Kanji) is improve and in hiragana is something. The first kanji character, Improvement in hiragana or KAI in Romaji), means change, search, examine, while the second kanji character, good (Hmm in hiragana or ZEN in Romaji), means good or better. Hence, Kaizen is the ability to make a change for the better after analysis and discussion of new ideas. Kaizen is a philosophy that involves all employees and defines management's role in continuously encouraging the implementation of small adjustments that make the process more efficient, effective, manageable, and adaptable. These are usually accomplished at little or no extra cost, without sophisticated techniques or expensive equipment (Abdulmouti, 2018).

Kaizen focuses on simplification by breaking down complex processes into their sub-processes and then improving them. Usually, Kaizen starts with how to produce efficiently with limited resources (man, material, and machine). This means that it is not necessary to utilize all the available resources and manpower. On the contrary, it should be a focus on savings in manpower, space, equipment, material, and time and an elimination of unnecessary processes, even signatures for paperwork. For example, if something is found to be unused, it is better not to try to use it, but to remove it at once. If some employees are underutilized, they can be asked to help with Kaizen. Savings as a result of Kaizen can usually be achieved by asking how much manpower and how many goods are needed to achieve a target productivity level.

Kaizen specialists should have some capabilities that make their characters and skills different from any normal technician or employee. Hence, Kaizen specialists should have the ability to perform advanced tasks, to complete them faster and to deal with earlier processes, such as reception, estimates, parts ordering, and dealing with customers (Cho, 2003). Kaizen culture refers to the ability to step back from all activities, observe current processes and to propose solutions to problems. Kaizen spirit refers to an innate sense of continuous improvement in daily life in any place (in the workplace and even at home) and a continuous drive to improve. Kaizen is the DNA of Toyota, which is improving business operations continuously and always driving for innovation and evolution. Kaizen is an important pillar which is based on two important pillars or key factors of Way as follows:

A. **Continuous improvement:** Continuous Improvement contains
    - *Challenge:* It means forming a long-term vision, and meeting challenges with courage and creativity to realize dreams.
    - *Kaizen:* It means continuously improving business operations, and always driving for innovation and evolution.
    - *Genchi Genbutsu:* It means going to the source to find the facts in order to make correct decisions, build consensus and achieve goals quickly and efficiently.
B. **Respect for people:** Respect for People contains
    - *Respect:* It means respecting others (including all shareholders and colleagues) by making every effort to understand each other, taking responsibility and doing the

best to build mutual trust, mutual responsibility, and sincere, effective, communication.

- *Teamwork:* It refers to stimulating personal and professional growth, sharing the opportunities of development and maximizing individual and team performance. It includes commitment to education and personal development, respect for the individual, and realizing consolidated power as a team.

The Toyota Way has been successfully applied in many dealerships and in many companies other than Toyota. The results and benefits of applying The Toyota Way are summarized as follows:

- *For the customer:* Cost reduction through reducing waste and whilst providing better vehicle quality and competitive pricing for customers.

- *For the dealer:* Improving production and efficiency through Kaizen implementation in daily operations. Empowering employees who can identify problems and applying Kaizen actions immediately (TMC, 2003).

2.1.3. Kaizen Tools and Implementation

Kaizen improvement and implementation is based on the use of the following important principles and tools:

- Observing all working process then differentiating and sorting the value added and non-value added work activities.

- Applying the principles of motion study. It will be achieved by using the pull production system not the push system (as will be explained in later section).

- Applying the principles of material handling and use of one piece flow. It will be achieved by using the pull production system not the push system (as will be explained in later section).

- Documentation of Standard Operating Procedures (SOP).

- The 5S principle for workplace organization which is a philosophy of good housekeeping. It is a practical concept that means to realize the smoothest flow and synchronization in processes. 5S is the key point in the workplace to help accomplish work quickly, correctly and safely (Chitre, 2010).

- Visual management by means of visual displays that everyone in the organization can use and check for better communications.

- Genchi Genbutsu and management from the source (Genba): Genchi Genbutsu (local goods) is a key factor of The Toyota Way. The first 2 Kanji, local (Inch in hiragana),

mean the source while the second two Kanji, Actual thing (Animal in Hiragana), mean actual products. Hence, Genchi Genbutsu means going to the source place to observe and find facts, determining what is really going on, and making correct decisions. Because at the genba (source) there is evidence (images, atmosphere, and hidden facts) that cannot be extracted from data alone, Mr. Toyoda maintained that it is better to ask the product, not the people. As a result, it is possible to gather the facts, quickly build consensus, implement a decision and achieve timely improvements. In summary, Genchi Genbutsu can be best described by "seeing is better than hearing".

- Toyota Production System (TPS) including the elimination of Muda: This will be explained in details in a later section with a case study (Amasaka, 2002)

- Poka-yoke to prevent or detect errors (Rework). The essence of poka-yoke is to design the process so that mistakes are either impossible, or are easily detected and corrected.

- Hoshin Kanri (Policy Management): the first Kanji, Person that is HO in Romaji means direction; the second Kanji, needle that is SHIN in Romaji means focus or needle, the third Kanji, tube, that is KAN in Romaji means control while the last kanji, Management that is RI in Romaji means logic. Hence, Hoshin Kanri is the managing and steering of any organization in a clear direction. Hoshin Kanri is an action to establish a framework in order to maximize output.

- Do it the right way principle: (Fix-it Right, Fix-it Fast and Fix-it Once). In other words, no incomplete or defective job should be passed and responsibility should be taken to ensure this. Katsutada Masumoto regarded 'Fix-it Right the first time' as the root of all Toyota service activities.

- When facing a problem or even a mistake, there is a principle to grasp problems, analyze the root causes, and then follow the problem solving process. Therefore, in order to prevent problems, the following steps should be considered:

Table 2.1 The five S's

Alphabetical	English
Seiri	Sort, separate, sift, and remove: Decide or separate what is needed (items) and what is not, and dispose of all items that are not necessary.
Seiton	Set in order, straighten, and configure: Arrange the stored items/ provide orderly storage in the right place for all necessary items to be easily found and used when needed.
Seiso	Sweep, shine, wash, clean and check: Maintain a clean worksite at all times In order to make work easier, safer, healthier and more satisfying. Do not Ignore dirty clothes or a messy work shop, and always keep clean.
Seiketsu	Keep equipment and areas spick and span: Clean tools and ensure that work can be easily and safely conducted and there are no obstructions
Shitsuke	Sustain self-discipline, custom and practices: Maintain initiative to put 5S Into continuous common practice.

Source: (Abdulmouti, 2018)

2.1.4. Kaizen in the Education Service Sector

The education service sector has evolved substantially over the last four decades (Gibbs, 2013). There are so many changes that have been made to provide excellence in education service in the higher education service sector. The changes include distance learning, online programs, programs for executive, workshop-type training, twinning programs and others. This shows that continuous improvement and innovation in the higher education service has become more important due to vast variation in terms of focus and mission in higher education worldwide (Green, 2013). Following the domino theory, every higher education organization has started to build their uniqueness so that they can be more easily differentiated than others. This shows the fruitfulness of academic program developer roles and usually also indicates the educational programs provided by those organizations can be challenging, thrilling or frustrating. As a matter of fact, providing academic service in higher education can be a meticulous business (Green, 2013). This is because the higher education

service is a sector that needs to be continuously changed and improved to cope with the academia and the today's era of knowledge. As factors such as financial pressures and external criticism can make the university's instructors less reluctant to change, the implementation of TQM in the higher education service seems to be the right way to parallel the higher education institution to the changes and improvements needed (Spanbauer, 1995).

An article about total quality in the teaching by Dahlgaard, Kristensen and Kanji, (1995) is the first, to the best of our knowledge that contributed to the application of the Lean principle in education. The paper analyzed and discussed the primary philosophy of total quality management (TQM) in providing education service. 5 TQM key principles and how to implement them in the education service were outlined in the paper, namely: leadership; customer and employee focus; kaizen (continuous improvement); the participation of everybody; and focusing on facts. The paper also introduced plan do check act (or PDCA) model in applying quality in leadership in the education service sector. This paper is said to have contributed to the application of the Lean principle in education as kaizen, customer and employee focus, and focusing on facts have strong links with the Lean principle.

Kells (1995) concluded and recommended that if the TQM was to be applied in the education service organization, the most important thing being the role of the leader in the organization, whether they are formal or informal leaders. He also emphasized the crucial role of quality in education service, especially which relates to the internal processes, as this will ensure a high level of service is provided by the organization. However, the implementation of quality management that he emphasized, should not impact the management of the organization in a negative way, he added. Van Der Wiele (1995) conducted a case study involving a college located in the Netherlands. The study attempted to improve the college management by refining the communication between the college's internal departments. By using a quality roll out policy, all of the internal academic and administrative departments carried out the quality policy according to their turns after organizing the policy themselves. The results showed that the process thinking of the people involved has been stimulated; therefore there is more awareness of the prospects to solve problems and improve communications between them.

Spanbauer (1995) suggested that if one wanted to implement the elements of TQM in the education service, the most important element that needs to be emphasized is customer

service. This element, based on his opinion, cuts across other elements and service sectors and is the main objective of the TQM. In this paper, he tried to find ways to rejuvenate higher education service by implementing the seven concepts of TQM, namely leadership; education and training; customer service; organizational climate; meaningful data; scientific methods and tools; and team problem solving. He suggested that customer service is the main priority for higher education service organization and is crucial in ensuring waste reduction. Meeting the customer needs and expectation is a new concept for the higher education service sector because educators then were stereotyped as educators who only know what is best for their students. Logothetis (1995) also recommended TQM in providing education service. The elements of the TQM that he considers as important indicators are that which clearly clarifies the customer's need (students, parents and society). According to him, it is important to help the education service provider in determining and monitoring the educational design and course quality. He also recommended education service providers to use various tools for quality control and continuous improvement.

Emiliani (2015) mentioned as a conclusion of his study that to improve the education service, whether in the learning or teaching process or the administrative process, there is a need to implement kaizen. For that matter, the education service institution needs to design carefully the process of the course offered and improve the thinking regarding teaching and learning methods by the instructors. Dahlgaard and Ostergaard (2000) illustrated a relationship among the 5 principles of Lean production (specify the value, identify value, value flow, pull value and perfection pursue) and, among eight types of waste in the higher education context, for the first time in a model for the higher education organization. Among the wastes are uncoordinated teaching, graduate students inability, failed courses, valueless courses, bad planning in teaching, bad planning in general, mismatched downstream and upstream activities and bad courses design. They also suggested that there are many additional types of waste in the scope of higher education institution. This is because of the variation of the sophistication of the system and each higher education institutions have different types of customers. By referring to the interest of the higher education main clients, they analyzed each principle in detail. The main clients of the higher education according to them are students, employers and society, but the most important client is the students. Higher education institutions exist because of students and for students. They mentioned that the main problem in higher education institution is there is too much waste. Hence, the Lean principle needs to be applied. However, the application of Lean principle is more complicated

in the higher education institution than in organizations that produce goods. One of the reasons is there exists conflicting goals between the clients and the institution. They concluded that if the Lean principle was to be implemented in a higher education institution, the institution must first clearly state the value concept that they are trying to achieve.

Comm and Mathaisel (2005) investigated the development and application of Lean principle in 18 public and private universities in the US by using questionnaires. This is to determine the usage of Lean principle in the higher education service by conducting a quantitative study. They found that for any type of higher education institution, whether it is a university or college, is feasible to implement the practices of the Lean principle in providing for higher education service. Nevertheless, their study is more focused on the operations of the administration than academic process such as teaching, learning and research activities. They also found that the Lean principle implementation in the higher education service has led to a significant amount of waste reduction and has improved the quality of services in administrative operations.

Isaksson, Kuttainen, and Garvare (2013) investigated opportunities available in the education service and research publication at Gotland University, Sweden to adopt the Lean principle by using Best Available Technology (BAT) and Best Available Practice (BAP). By using value flow analysis, they found that the distance learning process can be improved by shortening the delivery time by as much as 10%. Delivery time is defined as the time when the knowledge is needed to the time when the knowledge can be used. The in campus learning process, however, is difficult to be improved although there is a possibility that it can be improved. This is because of the structure of the programs that represents obstacles to shorten the delivery time. Nevertheless, it still can be done if the whole structure of the programs is changed to the apprenticeship system. By using BAT, they also found that the ability to produce a journal article in the university can be improved by shortening the publishing time by 10%.

Thirkell and Ashman (2014) conducted 34 interviews in two of UK universities, which they called as Old University and New University, to examine the role of the human resource task in smoothing the implementation of Lean principles. Those two universities have already implemented Lean principles in few of their activities. Based on that, they found that there are hitches in communicating, understanding and transferring Lean principles and

applications in the higher education scope, in spite of the significance of the human resource role as the Lean thinking promoter. This is because the human resource staffs are not involved in the implementation of Lean principle for the overall university system. As a result, the implementation of the Lean principle in the university has become very limited.

2.1.5. TVET sector in Ethiopia

Ethiopia is committed to participating in the competitive global market economy. This requires technical and professional citizens trained in the "ability to learn" and in specific occupations. Hence, Technical Vocational Education and Training (TVET) are often at the center of education aimed at marketable and entrepreneurial skills. Ethiopia is putting in place, in part via TVET, a comprehensive human resource development program. TVET provides training on market oriented programs based on the demand of industry for various target groups including: graduates of grade 10, school leavers, people who are in employment, school drop outs, and groups marginalized in the labor market (HU, 2014).

TVET is seen as an overarching term to describe all modes of formal, non-formal and informal training and learning below higher education provided by all government and non-government providers. The TVET aims to provide more TVET opportunities to a wide range of different groups including, school leavers, dropouts, people without formal education including illiterates, entrepreneurs and employees, farmers and their families, people from marginalized ethnic groups and other groups (Edukans Foundation (2009).

It was with this vision that measures were taken to expand the formal and non-formal TVET program across regions and Woredas. Formal TVET has been provided mainly to secondary school leavers. Working people have also been benefiting from the program through evening classes and distance learning. Non-formal TVET has been offering training to a wide range of groups. Informal TVET sector is also recognized and described as those operations which are unregistered and operating on a very small scale and with a low level of organization. The informal sector operates without fixed locations or in small shops, outlets or through home-based activities. The government has little or no direct involvement in informal TVET in other words it is not supported, or regulated by the government.

According to the Education and Training Policy (ETP), the formal TVET system of the country requires completion of a tenth-grade education to obtain certificate, at various levels of competencies (Level I-V). In order to provide options for the increasing number of school leavers, the Government embarked upon a massive expansion of formal TVET since 1993. The total enrolment in TVET in the year 2001 E.C. (2008/09) was 308,501. In the year 2005 E.C. (2012/13), enrolment has decreased to 238,884. The decline in enrollment might be due to underreporting of data. It is likely that enrolment and institution figures are higher than indicated in this document because there are government and non-government TVET institutions in Harari, Somali, and Benishangul Gumuz which were not reported. In addition, some TVET centers have been opened in various universities and their enrolment and staff have been reported as part of the higher education, rather than as part of the TVET system.

Despite the enormous expansion of formal TVET program, it only caters for less than 3% of the relevant age group. Enrolment figures in formal TVET programs show a considerable gender disparity with about 51.25% female students. Besides girls are over proportionately represented in commerce and typical female occupations such as textiles and hospitality, and underrepresented in traditional technical occupations. Institutions were asked as to what kind of challenge they do face in their day-to-day operation. The problems raised by the institutions can be summarized as follows. Shortage of training facilities especially in newly established public institutions and all private colleges , Lack of staff development and high staff turnover, Rigid financial and procurement rules, Poor Coordination and communication among stakeholders, Less support of the government to the private colleges, Delayed arrangement of exit exam given by the government agency (especially for drivers' training), High dropout rate of students, Limited financial capacity of students to pursue their study and create their own job, and Trainees wrong desire and tendency to expect employment from other than creating it Logistics problem like transportation service and water supply, especially for those established far from the urban centers (Moyale Poly technique college is an example) (HU, 2014).

Launching new long term and short term training programs, expanding partnership and improving the physical and human resource needs are the major future plans of the surveyed training institutions.

2.2. Empirical Review

TADESSE, (2014) assess Practices and Challenges of Kaizen Implementation at Entoto Polytechnic Cluster College in the case of Woreda three enterprises Gulele Sub-City in Addis Ababa City Administration. Case study research design was employed and data were collected from 80 respondents through questionnaires and semi-structured interviews. The quantitative data were analyzed through descriptive and inferential statistics with SPSS Version 20. The findings of the research showed that there was moderately implemented kaizen strategy. The kaizen implementation indicated that there were success stories, but there had been challenges which emanated from various sources, like gaps in knowledge of executives, trainers and employees; their negative attitude towards the kaizen implementation; their lack of knowledge and skills; gaps in available infrastructures and material resources; and gaps in the capacity and capabilities of the management body. The majority of the respondents elicited that they did not take any training regarding the use, and implementation of kaizen, there were no adequate administrative supports, feedbacks and encouragement for smooth operation of Kaizen. The strategies suggested should be implemented to address those challenges in various socio-economic contexts at different levels. Therefore, the stakeholders should consider those stories as good lessons and to effectively address the challenges identified. Thus, it is recommended that in order to be successful government institutions and private enterprises should implement kaizen/TQM as a strategy.

BELAYINEH, (2014) investigates the practice, successes and challenges of kaizen implementation in Addis Ababa TVET Government colleges. To conduct this study a descriptive survey design was employed. A total of 134 respondents were included in the study. The colleges were selected using purposive sampling method. Trainers' respondents were selected by stratified sampling methods while department heads and deans were selected by purposive sampling method. The data were gathered through questionnaire, interview and document analysis. The findings of the study revealed that implementation of kaizen have a benefit towards employee, customer satisfaction and cost reduction. Additionally, the study revealed that respondents has positive attitude towards on the benefits of kaizen implementation in Addis Ababa TVET College. Moreover, the study revealed that the success on planning, implementation and reduction of wastes phases of kaizen implementation were done properly. The study disclosed that lack of training on the concept and application of kaizen. This has an effect on the overall activities of kaizen sustainability

and standardization. Then those problems were alleviated through short term training in the colleges by EKI experts, Addis Ababa TVET Agency and the responsible person of the colleges vice deans whose job title is "industries extension and technology transfer in group effort". On the other hand lack of motivation (reward and recognition) was another problem to sustain the implementation. Finally, I concluded that, respondents were focused only in 5s implementation of kaizen in Colleges. These were an additional obstacle to relate theory with practical application of kaizen at work place. Thus, to reduce the knowledge and skill gap of the implementers on pillars of kaizen, training based on project is an amenable force.

Bwemelo, (2014) examines the acceptability and feasibility of KAIZEN among SSMEs in Tanzania. A survey of 500 stakeholders and 23 pilot enterprises was carried out using questionnaires, interviews and observations during sensitization seminars and on-site trainings on 5S-KAIZEN methodology held in Dares Salaam region. The study revealed that participants demonstrated willingness to implement KAIZEN. However, the study revealed some challenges confronting the feasibility of KAIZEN practices. The conclusion can be drawn that KAIZEN is acceptable among SSMEs though its feasibility is very challenging. The study recommends training of managers and employees, motivation of employees, transformation of management style and making KAIZEN a national campaign as suitable strategies to facilitate successful adoption and implementation of KAIZEN in Tanzania.

Awi, (2016) analyze the effect of lean kaizen application on student's satisfaction in Malaysian higher education sector. An experimental study was conducted to examine the effect of Lean kaizen application in the course planning and delivery process on students' satisfaction level. The experimental study involved two groups of undergraduate students, one group with lean application and another group without lean application, from two universities in Malaysia. A questionnaire was used to collect the data totaling 205 respondents from University X and 201 respondents from University Y. The empirical results demonstrated that the use of Lean kaizen techniques did help to identify and reduce the waste by focusing on value adding activities. Furthermore, the finding of this study has showed that there is a significant difference in students' satisfaction between a group with lean application and a group without lean application. The mean of satisfaction for the group with lean application is higher than the group without lean application. Thus, this study has confirmed that Lean kaizen can be successfully applied in the Higher Education Sector to improve the academic work processes. This study has also provided the opportunity and guideline to other

universities to change for the better. Maarof and Mahmud, (2016) also reviews some selected factors contributing to the successful implementation of Kaizen and its challenges among small and medium enterprises. The factors such as good communication between the top management and their employees, clear corporate strategy, the presence of a Kaizen champion personnel in the organization, good knowledge management and employees empowerment were found to contribute to the successful implementation of Kaizen. The review also found that resistance to change, failure to motivate employees, lack of understanding on companies' strategic path and difficulties in managing continuous improvement itself formed some of the challenges in implementing Kaizen. It appears some similarities exist between small and medium enterprises and large companies in term of the contributing factors in implementing Kaizen.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1.Research Design and Approach

The main purpose of the study is to investigate kaizen implementation in Nifas silk TVET Government College. A descriptive survey design was used so as to reveal the practice, successes and challenges of kaizen implementation in the college. Furthermore, for the purpose of this research mixed method research approach were used.

3.2.Data Sources

Primary and secondary data sources were used for this research work. The primary sources were Trainers, Dean, Department and Heads of the TVET College. In addition, some secondary sources such as journals, official documents, seminar papers, different report paper (monthly, quarter and yearly) and websites will also be consulted.

3.3.Sample Size and Sampling Procedure

The respondents were selected using purposive sampling techniques. Accordingly, Trainers were selected randomly and Dean and Department Heads selected using purposive sampling techniques; they are chosen among others because the response they provide is very vital and if we use simple random method they might not be among chosen so they selected by stratified sampling. Totally, there were 119 trainers within the College, and hence the sample size for trainers was calculated based on Yamane's formula (Yamane, 1967)

$$n = \frac{N}{1 + N(e)^2}$$

Where, n = the sample size

N= the size of population

e = the error of 5 percentage points

By using Yamane's formula of sample size with an error 5% and with a confidence coefficient of 95% (Yamane, 1967), the calculation from a population of 119 trainers came up to a sample of 92 trainers. Therefore, 92 trainer's representatives were selected randomly. Furthermore, 5 department heads were selected and interviewed purposively.

Training Areas	Population Size	Sample Size
Construction	13	10
Auto	11	8
Metal Manufacturing and machine	14	11
Electricity Technology	13	10
Survey and drafting	15	12
Furniture making	9	7
Textile and garment	10	8
Animal science and urban agriculture	11	8
ICT	10	8
Hotel and tourism	13	10
	119	**92**

3.4.Data Gathering Tools

Basically, both quantitative and qualitative data were employed in the study for the understanding of the complete picture of the implementation of kaizen in Nifaselk TVET College and appropriate data collection instruments were needed. The instruments used to gather data was questionnaire, interview and document analysis. Questionnaires were developed and adopted from Toyota and its underlying principles which were used for kaizen implementation on the basis of basic questions of the study, review of literature, and theories of kaizen as management toolkits. The questionnaires conducted were close-ended and open-ended. In the case of close-ended questionnaires item rating scales like range from 1(very high) to 5(very low) based on the questions were used. While open-ended questionnaires will be used for respondents to explain their feeling and understanding freely as much as possible based on the question raised. In order to criticize the data obtained through questionnaire, a structured interview was conducted with the college dean. For this interview guides (a written list of open and /or close ended items) prepared and presented to college officials in face to face interaction. This method is selected because it provides uniform information, which ensures the comparability of the data (Kumar, 1999).

Observation was conducted to gather data/information concerning current implementation of kaizen in Nifaselk TVET College. Information on the implementation process could be best obtained through observations of the particular aspects of the training process of kaizen

implementation in the specifically in the parts of 5s implication and visual management kaizen (first steps): The data collected in this way will consist detailed descriptions about the college. More specifically, observation will be undertaken about the proper implementation of kaizen to concentrate on how, when and where on the TVET College.

3.5. Data Collection Procedures

To explore the practice of Kaizen implementation in Nifaselk TVET College first, questionnaire and structured interview were developed based on the basic questions. The questionnaires were designed for department heads and trainers of the college. In addition, interview was constructed with the selected department heads. After finalizing the instruments the questionnaires will be distributed to the respective department heads and trainers of the sample areas giving adequate orientation about the purpose and how to fill them.

3.6.Data Analysis Methods

Analyses were made separately on the raw data obtained numerically and in words. Thus, raw data obtained through questionnaire were checked, classified, arranged and organized in table based on their characteristics or variables and are going to be analyzed. Depending on the result of analysis, interpretation and necessary discussion were made to clarify the issues.

3.7.Reliability Test

Reliability is the degree to which an assessment tool produces stable and consistent results, Cronbach's Coefficient Alpha method was used to test the reliability of the data, and therefore, the data was 74.3% reliable

Case Processing Summary

		N	%
Cases	Valid	91	98.91
	Excluded[a]	1	1.08
	Total	92	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.743	59

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION

4.1. Profile of Respondents

Table 4.1 profile of respondents of respondents

		Freq	%
Sex	Male	65	70.65
	Female	27	29.35
	Total	**92**	**100**
Level of education	College diploma	3	3.26
	BSC/BA	63	68.48
	MA	26	28.26
	Total	**92**	**100**
Service years	1-5 years	44	47.83
	6-10 years	33	35.87
	>10 years	15	16.30
	Total	**92**	**100**
Department/ Training Areas	Construction	10	10.87
	Auto	8	8.70
	Metal Manufacturing and machine	11	11.96
	Electricity Technology	10	10.87
	Survey and drafting	12	13.04
	Furniture making	7	7.61
	Textile and garment	8	8.70
	Animal science and urban agriculture	8	8.70
	ICT	8	8.70
	Hotel and tourism	10	10.87
	Total	**92**	**100**

Out of the total respondents 70.65 percent of the respondents were male and the rest 29.35 percent of them were females. Apparently, majority (68.48%) of the respondents degree holders; the rest 28.26 and 3.26 percent of the respondents were masters and diploma holders respectively. In terms of year of service, out of the total respondents 47.83 percent of the respondents serve the colleges 1 to 5 years, 35.87 percent of the respondents serve the college 6 to 10 years and the rest 16.30 percent of the respondents work for more than 10 years. Totally, from ten departments the samples were taken where, 10 from construction, 8 from auto, 11 from metal manufacturing, 10 from electric technology, 12 from survey and drafting, 7 from furniture making, 8 from textile and garment, 8 from urban agriculture and 8 from ICT and 10 from hotel and tourism. The analysis suggested that the TVET College is dominated by male teachers with as well as large amounts of degree holders.

4.2. Practice and Attitude of Trainers towards Kaizen

Table 4.2 attitudes of trainers towards kaizen

Attitude	SA	A	U	D	SD	Mean
Overall, the kaizen implementation was well organized	2.2%	3.3%	3.3%	31.5%	59.8%	4.43
The implementation included an effective level of participation and involvement	1.1%	0%	5.4%	44.6%	48.9%	4.41
Facilities and accommodations were conducive to the implementation	2.2%	3.3%	6.5%	39.1%	48.9%	4.29
The implementation provided the necessary ingredients for us to have an effective learning experience	6.5%	47.8%	12%	17.4%	16.3%	2.89
You are able to use the information and/or skills acquired through the implementation to Improve my effectiveness as a leadership	0%	2.2%	5.4%	53.3%	39.1%	4.29
The TVET College should continue to support future Kaizen implementation	14.1%	71.7%	3.3%	6.5%	4.3%	2.15
I was an active and effectively involved team member and participant during the Kaizen implementation	2.2%	5.4%	9.8%	57.6%	25%	3.98
Other owners/workers were effective team members and participants in the process of the Kaizen implementation	13%	41.3%	13%	25%	7.6%	2.73
The clarity of information which was provided by the Kaizen team in terms ICT was very relevant	63%	22.8%	8.7%	1.1%	4.3%	2.02
	11.58%	21.97%	7.48%	30.67%	28.24%	3.46

In this sub topic the attitude and perception of trainers toward kaizen approach would be discusses; accordingly, only 9 percent of the respondents agreed that the overall kaizen implementation was well organized; whereas majority (59.8%) of the trainers replied that the overall kaizen implementation was not well organized, the rest 31.5 were neither agreed nor disagreed. Apparently, more than 85 percent of the respondents replied that the implementation didn't include an effective level of participation and involvement. Close to 87 percent of the respondents perceived that the facilities and accommodations were not conducive to the implementation. Around 54 percent of the sample respondents agreed that the implementation provided the necessary ingredients for us to have an effective learning experience; conversely, 33 percent of the respondents didn't agree concerning whether the implementation provided the necessary ingredients for us to have an effective learning experience. More than 85 percent of the respondents agreed that the TVET College should continue to support future Kaizen implementation; however, very majority of the respondents answered that they were not actively and effectively involved in team member and participant during the Kaizen implementation. In addition to this, more than 85 percent of the respondents perceived that the clarity of information which was provided by the Kaizen team in terms ICT was very relevant. To generalize the perception of trainers towards kaizen approach 33 percent of the respondents had positive perception towards the implementation of kaizen, around 59 percent of the respondents don't have good perception and the rest 7.48 percent of the respondents dint have any idea about kaizen.

4.3. Practice and Procedure of Kaizen Implementation

Table 4.3 practice and implementation kaizen

Implementation	SA	A	U	D	SD	Mean
Visual aids are adopted to make wastes, problems, and abnormal conditions readily apparent to employees	2.2%	8.7%	18.5%	62%	8.7%	3.68
The posted information in terms of job status, schedule, quality, safety, etc is in place that most workers can see it on a daily basis, and it is up-to date	3.3%	23.9%	20.7%	47.8%	4.3%	3.26
Appropriate signage are used to identify layouts, traffic, safety concerns, etc.	4.3%	9.8%	8.7%	69.6%	7.6%	3.66
Employees take pride in keeping the class and teaching site organized and clean	0%	4.3%	5.4%	62%	28.3%	4.14
The workplace follows the principles of 5-S2 including "sort", "straighten", "shine", "standardize" and "sustain"	3.3%	6.5%	8.7%	60.9%	20.7%	3.89
New technology used to support the company's values	3.3%	5.4%	15.2%	60.9%	15.2%	3.79
Leaders are motivated to inspire people to achieve goals	1.1%	2.2%	8.7%	40.2%	47.8%	4.32
Leaders have in-depth job knowledge	5.4%	45.7%	13%	27.2%	8.7%	2.88
Leaders possess teaching ability and are able to pass their knowledge on to others	4.3%	15.2%	8.7%	60.9%	10.9%	3.70
Leaders take time to understand problems and root causes before acting	4.3%	15.2%	8.7%	60.9%	10.9%	3.59
Training is provided to equip the employees with the required skills before they are assigned to work/teaching	7.6%	22.8%	21.7%	43.5%	4.3%	3.14
On-the-job-training is provided to further develop employee's exceptional skills	7.6%	31.5%	40.2%	17.4%	3.3%	2.77
Employees are cross-trained to perform additional functions	2.2%	20.7%	42.4%	30.4%	4.3%	3.14
Training materials are standardized	3.3%	46.7%	27.2%	18.5%	4.3%	2.74
Employees are encouraged to cooperate with others to complete the whole task	5.4%	46.7%	16.3%	22.8%	8.7%	2.83
Daily work activities are organized into team function	0%	2.2%	12%	54.3%	31.5%	4.15
Internal motivation methods (e.g. safe working conditions, good pay, job rotation, etc) are used to motivate employees	0%	7.6%	3.3%	45.7%	43.5%	4.25
External motivation methods (e.g. rewards, commendation, and measurement towards goals) are used to motivate employees	0%	3.3%	6.5%	40.2%	50%	4.37
	3.1%	17%	17%	45.7%	17.3%	3.57

Majority (70%) of the respondents replied that visual aids are adopted to make wastes, problems, and abnormal conditions readily apparent to employees, 27% percent of the respondents also agreed that the posted information in terms of job status, schedule, quality, safety, etc. is in place that most workers can see it on a daily basis, and it is up-to date, whereas, 52% of the respondents were not agreed regarding the clarity of information posted. Around 76 percent of the respondents also mentioned those appropriate signage's were not used to identify layouts, traffic, safety concerns, etc; more than 80 percent of the respondents also mentioned that the workplace didn't follows the principles of 5-S2 including "sort", "straighten", "shine", "standardize" and "sustain". Apparently, around 75 percent of the respondents feel that new technology didn't used to support the company's values. On average more than half of the respondents replied that leaders are not motivated to inspire people to achieve goals, didn't have in-depth job knowledge, doesn't possess teaching ability and are able to pass their knowledge on to others and didn't take time to understand problems and root causes before acting. On the other hand around 30 percent of the respondents had a positive intention towards the motivation and knowledge of leaders.

29 percent of the respondents replied that training is provided to equip the employees with the required skills before they are assigned to work/teaching; conversely, 20 percent of the respondents didn't agree on these issues. 39 percent of the respondent also replied that on-the-job-training is provided to further develop employee's exceptional skills, whereas 20 percent of the respondents confirmed that on the job trainings didn't provided. On average 42 percent of the respondents agreed that employees are cross-trained to perform additional functions, training materials are standardized and employees are encouraged to cooperate with others to complete the whole task; on the other hand around 30 percent of the respondents said that employees didn't cross trained and training materials were also didn't standardized. More than 80 percent of the respondents confirmed that daily work activities are not organized into team function and also internal motivation methods (e.g. safe working conditions, good pay, job rotation, etc.) are not used to motivate employees. Apparently, very majority of the respondents replied that External motivation methods (e.g. rewards, commendation, and measurement towards goals) are not used to motivate employees. In summary, 30.1 percent of the respondents had positive attitude towards the practice and implementation of kaizen, 63 percent of the respondents didn't feel good and had a reservation on the practice and implementation of kaizen the rest 17 percent didn't decide or they neither agree nor disagree which indicate they are uncertain about the situation.

4.4.Kaizen as a Problem Solving Method

Table 4.4 kaizen as a problem solving

Problem-Solving	SA	A	U	D	SD	Mean
Solve problem by going to the places where problems are discovered	45.7%	20.7%	28.3%	5.4%	0%	2.33
Analyzing and thoroughly understand the situation before making decisions	42.4%	14.1%	26.1%	7.6%	9.8%	2.26
Making decisions based on the verified data	32.6%	22.8%	33.7%	3.3%	7.6%	2.24
Making decisions based on management team's past experiences	30.4%	25%	.28.3%	8.7%	7.6%	2.35
Using appropriate problem-solving methodologies to determine the root causes of problems	34.8%	22.8%	31.5%	3.3%	7.6%	2.34
Possible experiments are conducted to test the potential cause of a problem	37%	16.3%	39.1%	3.3%	4.3%	2.49
Broadly consider alternative solutions	42.4%	19.6%	27.2%	6.5%	4.3%	2.44
Valuing the process through which the decision was reached	43.5%	18.5%	26.1%	2.2%	9.8%	2.36
Building consensus within the team, including employees and outside partners	48.9%	21.7%	17.4%	5.4%	6.5%	2.25
Addressing the root causes of problems via effective communication vehicle	3.3%	7.6%	20.7%	50%	18.5%	2.13
Management treats problems as development opportunities for employees	12%	13%	33.7%	32.6%	8.7%	3.13
Kaizen activities are conducted in your workplace	4.3%	8.7%	17.4%	47.8%	21.7%	3.74
Management supports the *kaizen* activities	7.6%	16.3%	18.5%	39.1%	18.5%	3.45
The improvement will be codified into documents and/or policies used by organization	7.6%	8.7%	23.9%	46.7%	13%	3.49
Each hierarchy of the organization develops measurable objectives as well as actions to support the executive-level goals	43.5%	10.9%	29.3%	7.6%	8.7%	2.21
Managers are keen on measuring the objectives and give feedback	4.3%	6.5%	27.2%	52.2%	9.8%	3.57
	27.51%	15.82%	25.00%	20.10%	9.77%	2.67

More than 80 percent of the respondents replied that kaizen solve problem by going to the places where problems are discovered; the principle of kaizen analyze and thoroughly understand the situation before making decisions, this was supported by 81 percent of the respondents. 62 percent of the respondents replied that in decisions were made based on the

verified data. Moreover, more than 58 percent of the respondents said that decisions were made based on management teams past experiences.

66 percent of the respondents also mentioned that appropriate problem-solving methodologies were used to determine the root causes of problems; more than 80 percent of the respondents also mentioned that consensus are built within the team, including employees and outside partners; however, 68 percent of the respondents suggest that problems are not addresses the root causes of problems via effective communication. Additionally, more that 60 percent of the respondents also said that management didn't treat problems as development opportunities for employees; very majority of the respondents also said that *Kaizen* activities are not conducted in the workplace, management didn't support the *kaizen* activities and managers are not keen on measuring the objectives and give feedback. In concluding remarks, 43.33 percent of the respondents agreed that kaizen is problem solving, 29.87 percent of the respondents dint believe kaizen is a problem solving the rest 25 percent are uncertain concerning whether kaizen solve a problem or not.

4.5. Challenge of kaizen implementation

Table 4.5 challenges of kaizen implementation

Challenge	SA	A	U	D	SD	Mean
Resistant to accept kaizen concept	46.7%	16.3%	23.9%	5.4%	7.6%	2.41
Involvement in providing planning	8.7%	12%	29.3%	39.1%	10.9%	3.32
Knowing role & responsibility	39.1%	20.7%	14.1%	14.1%	12%	2.40
Think as Kaizen focus only in 5s	31.5%	19.6%	23.9%	8.7%	16.3%	2.67
Needs of training on kaizen concept	39.1%	40.2%	10.9%	8.7%	1.1%	2.01
Be committed to give feedback	6.5%	1.1%	18.5%	34.8%	39.1%	3.99
Superior imposition	1.1%	7.6%	29.3%	40.2%	21.7%	3.74
Prepare ways of reward &recognition	41.3%	19.6%	30.4%	3.3%	5.4%	2.48
Involvement of workers in decision-making	9.8%	16.3%	45.7%	18.5%	9.8%	3.02
Empowerment of workers	6.5%	9.8%	41.3%	30.4%	12%	3.32
	23.03%	**16.32**%	**26.73**%	**20.32**%	**13.59**%	**2.93**

More than 60 percent of the respondents replied that there is resistant to accept kaizen concepts sand principles and it doesn't involve employees in providing planning. The other

challenges which was mentioned by respondents were knowing role & responsibility, more than 70 percent of the respondents mentioned that employees and trainers didn't know their role & responsibility; furthermore, more than 70 percent of the responds said that employees and trainers are not committed to give feedback; in addition to this considerable amounts of respondents replied that the practice of kaizen in the college didn't involvement workers in decision-making and also doesn't work on workers empowerment.

4.6. Implementation 5s in the management

Table 4.6 managements implementation of 5-S

Implementation 5s in the management	SA	A	U	D	SD	Mean
Role & Commitment of Top Management, regularity of 5-Sactivity, implementation of Training	7.6%	4.3%	33.7%	44.6%	9.8%	3.45
5-S Awareness of Executive & Supervisors	6.5%	1.1%	27.2%	46.7%	18.5%	3.70
5-S Involvement & Commitment of Executives & Supervisors	7.6%	8.7%	26.1%	42.4%	15.2%	3.49
5-S Monthly progress review meeting Minutes & Audits by Patrol teams, etc.	4.3%	7.6%	35.9%	33.7%	18.5%	3.54
5-S Manual developed with many relevant details	7.6%	7.6%	29.3%	32.6%	22.8%	3.55
Evidence of Training conducted for Management Staff	2.2%	7.6%	31.5%	34.8%	23.9%	3.71
	6%	6.2%	30.6%	39.1%	18.1%	3.57

The five S concerns five words which start with S, Seiri: SORT what is not needed. Use the red tag system of tagging items considered not needed, and then give everyone a chance to indicate if the items really are needed. Any red tagged item for which no one identifies a need is eliminated (sell to employee, sell to scrap dealer, give away, and put into trash; Seiton: STRAIGHTEN what must be kept. Make things visible. Put tools on peg board and outline the tool so its location can be readily identified. Apply the saying "a place for everything, and everything a place''; Seiso: SCRUB everything that remains. Clean and paint to provide a pleasing appearance; Seiketsu: SPREAD the clean/check routine. When others see the improvements in the Kaizen area, give them the training and the time to improve their work area and Shitsuke: STANDARDIZATION and self-discipline, Established a cleaning schedule, use downtime to clean and straighten area (Thessaloniki, 2006).

Accordingly, more than half of the respondents replied that top management didn't have role & commitment regularity of 5-Sactivity implementation of Training, and more than 64 percent of the respondents also mentioned that supervisors and executive's didn't have awareness concerning 5-S. more than 50 percent of the respondents also said that managements and executives didn't have much involvement on 5-S and didn't review 5-S Monthly progress, meeting Minutes & Audits by Patrol teams, etc. furthermore, majority of the respondents also mentioned that 5-S Manuals didn't developed with many relevant details.

4.7. Kaizen Effect on the Overall Organizational Performance

Table 4.7 effect of kaizen on organizational performance

Organization's Performance	SA	A	U	D	SD	Mean
Financial performance	3.3%	16.3%	42.4%	34.8%	3.3%	3.28
Productivity	6.5%	15.2%	26.1%	47.8%	4.3%	3.21
Quality	19.6%	9.8%	25%	43.5%	2.2%	3.18
Eliminate waste on site	5.4%	22.8%	17.4%	47.8%	6.5%	3.01
Deliver the project on time	7.6%	19.6%	19.6%	50%	3.3%	3.15
Health and safety records	30.4%	13%	32.6%	10.9%	13%	2.92
Client satisfaction	23.9%	7.6%	16.3%	48.9%	3.3%	3.13
	13.81%	**14.9**%	**25.62**%	**40.52**%	**5.12**%	**3.12**

Under this sub topic respondents were asked about the overall effect of the kaizen implementation on the overall performance of the organization or college, which is from seven different perspectives. Accordingly the first question was from financial perspective, do the kaizen implementation reduce costs or increase profit, accordingly, close to 20 percent of the respondents replied that kaizen implementation had an effect on the financial performance of the college; whereas, around 37 percent of the respondents didn't feel that kaizen reduce the cost of the college, the rest 42.4 percent of the organization neither agree nor disagree. Furthermore, 21.2 percent of the organization replied that the implementation of kaizen increases the productivity of the college; however, more than half of the respondents replied kaizen didn't create any change on the productivity of the organization or college.

Around 28 percent of the respondents believed that the implementation of kaizen increases the quality of the services, whereas, majority (45.7%) of the respondents didn't believe kaizen increases quality. Apparently, 28.2 percent of the respondents agreed that kaizen application helps to eliminate wastes on site. 43.4 percent of the respondents said that the implementation of kaizen helps to increase the work safety and healthy environment. Apparently, close to 30 percent of the respondents said that the implementation of kaizen increases client satisfaction which is student satisfaction.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1.Summary of key Findings

The purpose of this study was to investigate kaizen implementation on Nifas Silk TVET College. An attempt was also made to identify major impediments to kaizen implementation; accordingly the findings of the study are summarized below:

- The findings shows that to some extent trainings and on-the-job-trainings is provided to equip the employees with the required skills and to further develop employee's exceptional skills. Although kaizen principles didn't implement at full package employees are cross-trained to perform additional functions;

- Training materials are also not standardized and daily work activities are not organized into team function and also internal motivation and external motivation methods are not used to motivate employees.

- In summary, 30.1 percent of the respondents had positive attitude towards the practice and implementation of kaizen, 63 percent of the respondents didn't feel good and had a reservation on the practice and implementation of kaizen the rest 17 percent didn't decide or they neither agree nor disagree which indicate they are uncertain about the situation.

- The implantation of kaizen is not far from challenges such as resistant to accept kaizen concepts and principles and it doesn't involve employees in providing planning. Employees and trainers didn't know their role & responsibility, lack of trainers committed to give feedback and inability to involve workers in decision-making of kaizen practice as well as doesn't work on workers empowerment.

- The principles of kaizen help to solve problem by going to the places where problems are discovered; the principle of kaizen analyze and thoroughly understand the situation before making decisions. Decisions were made based on management teams past experiences. The methodologies of kaizen are problem-solving which is used to determine the root causes of problems; however, the management didn't treat problems as development opportunities for employees and *Kaizen* activities are not conducted in the workplace, management didn't support the *kaizen* activities and managers are not keen on measuring the objectives and give feedback.

- In concluding remarks, 43.33 percent of the respondents agreed that kaizen is problem solving, 29.87 percent of the respondents dint believe kaizen is a problem solving the rest 25 percent are uncertain concerning whether kaizen solve a problem or not.

- Very small percentage of respondents believed that kaizen implementation had an effect on the financial performance of the college and also to some extent the implementation of kaizen increases the productivity of the college. Others also believe kaizen increases the quality of the services although the majority didn't believe kaizen increases quality. Likewise, considerable amounts of trainers believe kaizen application helps to eliminate wastes on site as well as increases the work safety and healthy environment.

5.2.Conclusion

Improvement in quality is the day to day tasks and dreams of every organization although the achievement depends on its implementation and commitment. The purpose of this research was analyze kaizen implementation on Nifas Silk TVET College using a descriptive research design; particularly, this research was designed to answer the level of successfulness of kaizen implementation, evaluate the procedures followed to implement Kaizen, examine the challenges of Kaizen implementation and examine whether the implementation of kaizen brings better performance. Data were collected from 92 trainers which were selected from different departments. The findings of the study revealed that the practice and implementation of kaizen was not at expected level; meaning that the overall kaizen implementation was not well organized and didn't include an effective level of participation and involvement; although the majority believed that the TVET College should continue to support future Kaizen implementation. The finding further, revealed that, although, the principle of kaizen analyze and thoroughly understand the situation before making decisions, however, it is constrained by resistant to accept kaizen concepts, doesn't involve employees in providing planning, employees and trainers didn't know their role & responsibility; trainers are not committed to give feedback, and etc. In principle majority of the trainers believed that kaizen have an effect on organizational performance such as productivity and quality improvement, Elimination of waste, and improvement of health and safety records; however, in practice this was not at place.

5.3. Recommendation

Based on the findings of the study the researcher forwards the following recommendations

- Since kaizen is a continuous improvement continuous follow up and supervision is required till the implementation reached at standardized level and adopted by the college community. And the management body should concerned and assign entities who follow and supervise the implementation of kaizen.

- Even though there is a resistance to accept the principles of kaizen the trainers and staff of the college believed that kaizen can increase the overall performance of the college, therefore, the college should have to work towards that in order to increase the overall performance of the college.

- The other problems of the kaizen implementation in Nifas silk TVET was it was not participatory, it didn't include the trainers and workers in planning and decision making which is a contradictory with kaizen principle and hence, employees should be participate on the things they are going to practice it, work and implement it.

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Thank you for the willingness to respond to my questions. The following questions are not meant for testing your knowledge. The problem needing to be solved presented to understanding, from the results of a kaizen training policy and strategy implementation work to strive on the title practice and challenges of Kaizen policy implementation in the cluster center of Nifas Silk TVET College. Issues that the study areas should be noted and addressed at this level to ensure successful compilation of the adaptation of the Kaizen culture in the TVET College. The aim of the study is to analyze the gap between the Kaizen policy and strategy implementation and actual implementation at TVET College Level.

The attached questionnaire is designed to assess the practices and challenges of implementing Kaizen policy/strategy in Nifas Silk TVET College. I would appreciate if you could help me by responding to the attached questionnaire. The questionnaire might take 30 to 40 minutes to complete.

The survey data will be analyzed on a collective basis hence confidentiality is maintained. The information you share with me will be secured with the at most confidentiality and your personal identity will be kept anonymous. There are no unknown risks and discomfort associated with this study.

Part 1 Personal Information

1. Sex   A. Male   B. Female

2. Level of education: A . College level diploma B. TVET diploma C. BSC/BA

                                  D MA/MSc

3. Service years: A. 1-5 years   B. 6-10 years C. 11-15 years   D.16 and above

4. Department/ Training Areas

    A. Construction

    B. Auto

    C. Metal Manufacturing and machine

    D. Electricity Technology

    E. Survey and drafting

    F. Furniture making

    G. Textile and garment

    H. Animal science and urban agriculture

    I. ICT

    J. Hotel and tourism

Part 2 Views Of Respondents on the Practice of Kaizen Before and After the Implementation Stage Trainers Responses

Attitude	SA	A	U	D	SD	Mean
Overall, the kaizen implementation was well organized						
The implementation included an effective level of participation and involvement						
Facilities and accommodations were conducive to the implementation						
The implementation provided the necessary ingredients for us to have an effective learning experience						
You are able to use the information and/or skills acquired through the implementation to Improve our effectiveness as a leadership						
The TVET College should continue to support future Kaizen implementation						

	SA	A	U	D	SD	Mean
I was an active and effectively involved team member and participant during the Kaizen implementation						
Other owners/workers were effective team members and participants in the process of the Kaizen implementation						
The clarity of information which was provided by the Kaizen team in terms ICT was very relevant						
Implementation	**SA**	**A**	**U**	**D**	**SD**	**Mean**
Visual aids are adopted to make wastes, problems, and abnormal conditions readily apparent to employees						
The posted information in terms of job status, schedule, quality, safety, etc is in place that most workers can see it on a daily basis, and it is up-to date						
Appropriate signage are used to identify layouts, traffic, safety concerns, etc.						
Employees take pride in keeping the construction site organized and clean						
The workplace follows the principles of 5-S2 including "sort", "straighten", "shine", "standardize" and "sustain"						
New technology must support the company's values						
Leaders are motivated to inspire people to achieve goals						
Leaders must have in-depth job knowledge						
Leaders possess teaching ability and are able to pass their knowledge on to others						
Leaders will take time to understand problems and root causes before acting						
Training is provided to equip the employees with the required skills before they are assigned to work						
On-the-job-training is provided to further develop employee's exceptional skills						
Employees are cross-trained to perform additional functions						
Training materials are standardized						
Employees are encouraged to cooperate with others to complete the whole task						
Daily work activities are organized into team function						

	SA	A	U	D	SD	Mean
Internal motivation methods (e.g. safe working conditions, good pay, job rotation, etc) are used to motivate employees						
External motivation methods (e.g. rewards, commendation, and measurement towards goals) are used to motivate employees						

Problem-Solving	SA	A	U	D	SD	Mean
Solve problem by going to the places (e.g. construction site) where problems are discovered						
Analyzing and thoroughly understand the situation before making decisions						
Making decisions based on the verified data						
Making decisions based on management team's past experiences						
Using appropriate problem-solving methodologies to determine the root causes of problems						
Possible experiments are conducted to test the potential cause of a problem						
Broadly consider alternative solutions						
Valuing the process through which the decision was reached						
Building consensus within the team, including employees and outside partners						
Addressing the root causes of problems via effective communication vehicle						
Management treats problems as development opportunities for employees						
Kaizen activities are conducted in your workplace						
Management supports the *kaizen* activities						
The improvement will be codified into documents and/or policies used by organization						
Each hierarchy of the organization develops measurable objectives as well as actions to support the executive-level goals						
Managers are keen on measuring the objectives and give feedback						

Benchmarking	SA	A	U	D	SD	Mean
Processes have been documented with measures to understand performance.						
Employees understand the processes that are related to their own work.						
Direct customer interactions, feedback or studies about customers influence decisions about product/services.						
Problems are solved by teams (through team approach).						
Employees demonstrate, by words and actions, that they understand the mission, vision and values of their organization.						
Senior executives sponsor and actively support quality improvement projects						
The organization demonstrates, by words and actions, that continuous improvement is part of the organization's culture.						
The commitment to change is articulated in the strategic plans.						
Proper usage of equipment included "re-use," "re-cycle," "use old equipment" and "reduce maintenance cost"						
Proper lay-out of the machineries and other material in the workshop, floor and space is designed and set up in such a way that would reduce wastage of time & place.						
Due attention is given not only to profit maximization but also to satisfaction and motivation of workers as well as of customers	11					

Part 5 Implementation 5s in the management	SA	A	U	D	SD	Mean
Role & Commitment of Top Management, regularity of 5-Sactivity, implementation of Training						
5-S knowledge/Understanding/Awareness of Executive & Supervisors						
5-S Involvement & Commitment of Executives & Supervisors						
5-S Monthly progress review meeting Minutes & Audits by Patrol teams, etc.						
5-S Manual developed with many relevant details						
Evidence of Training conducted for Management Staff	6					

Part 2 Organization's Performance

1. Please indicate the level of your company's operational performance (using a scale of 1–5), as compared with your competitors, described by the following items (1 ¼ very poor; 2 ¼ poor; 3 ¼ average; 4 ¼ good; 5 ¼ excellent).

2. Please rate the extent to which you expect your organization's performance to improve when the Toyota Way principles are fully implemented (1 ¼ no improvement; 2 ¼ little improvement; 3 ¼ some improvement; 4 ¼ good improvement; 5 ¼ very good improvement).

Organization's Performance	SA	A	U	D	SD	Mean
Financial performance (profitability)						
Productivity						
Quality						
Eliminate waste on site						
Deliver the project on time						
Health and safety records						
Client satisfaction						