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PRACTICE, SUCESSES AND CHALLENGES IN THE APPLICATION OF KAIZEN IN ADDIS ABABA CITY GOVERNMENT

TVET COLLEGES

BY

ASEFASH BELAYINEH

JUNE, 2014
ADDIS ABABA

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A THESIS SUBMITTED TO PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS IN EDUCATIONAL LEADERSHIP AND MANAGEMENT

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ASEFASH BELAYINEH YIMER

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Abbreviations

AA TVET	Addis Ababa Technical and Vocational Education and Training
AOTS	Association for Overseas Technical Scholarship
EKI	Ethiopia Kaizen Institute
JICA	Japanese International and Cooperation Agency
KAB	Know about Business
MBE	Small Business & Enterprises
MoE	Ministry of Education
ODA	Official Development Assistance
PDCA	Plan-Do-Check-Act
SDCA	Standardization-Do-Check-Act
QCC	Quality Control Cycle
R&R	Reward and Recognitions
SPSS	Statistical Package for the Social Sciences
TICAD	Tokyo International Conference for African Development
TPM	Total Productive Maintenance
TQC	Total Quality Control
5S	Five (Sort, Set in Order, Shine, Standardize, and Sustain)

ABSTRACT

The main purpose of this study was to investigate the practice, successes and challenges of kaizen implementation in Addis Ababa TVET Government colleges. To conduct this study a descriptive survey design was employed. The participants of the study were 80 trainers, 40 department heads and 14 deans of five government TVET colleges. 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 data gathered through questionnaire were analyzed using frequency, percentage, mean and average mean value of the respondents. Data obtained through interview and document analysis were qualitatively narrated. Data obtained on the benefits of kaizen implementation respondents were suggested that above agreed. This data revealed that implementation of kaizen has 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.

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Declaration

I, the undersigned, declare that this thesis is my original work and all sources of materials used for the thesis have been accordingly acknowledged.

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This thesis has been submitted for examination with my approval as a university advisor.

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CHAPTER ONE

Introduction

This chapter deals with the background of the study, statement of the problem, research question, objectives of the study, significance of the study, delimitation of the study, limitation of the study, operational definition of the key terms and organization of the study.

1.1 Background of the Study

Ethiopia is one of the poor and developing countries of the world. 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 the Federal Democratic Republic of Ethiopia /FDRE/ realized that the education and training system has to be designed in a way that parallel to general education. Hence, the FDRE has launched Education and Training policy /ETP/ since 1994 to the country (MOE, 1994).

Education is highly essential in increasing the productivity of citizens in all aspects of the economy. According to the MOE in 1994, education enables individuals and society to make all rounded participation in the development process by acquiring knowledge, skill and attitude. In connection to this, 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.

The Education and Training Policy of Ethiopia adopted in 1994 emphasized on the development of education. According to this document (ETP, 1994); one of the main objectives of education in Ethiopia 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. Among those diversified training areas the one that are offered for those who

completed grade ten for the development of middle level manpower was launched in 2001 in all regions of the country (MOE, 2002:91).

According to National TVET strategy (Aug, 2008), TVET institutions are mainly expected to replicate new and selected technologies and transfer them to relevant industry in order to increase the competitiveness of the sector according to international standards. Hence implementing kaizen management philosophy in the colleges help to quality productivity "trained man power" and these leads to quality production in the industry sectors hence graduates of TVET trainees will be either an employee or the owner of the industry.

Japanese word of kaizen, (kai) change (zen) for good. Or it is "continuous improvement" for the change (Imai, 1986). The Kaizen philosophy assumes that our way of life, working life, our social life, or our home life should focus on constant-improvement efforts.

According to GRIPS development forum (Aug, 2009), the beauty of kaizen is that it can realize productivity improvements with little additional investments. Thus simplicity and cost effectiveness are the major reasons why kaizen is well appreciated globally. There are large numbers of related and often overlapping components that belong to the kaizen toolkit such as 5S, 7 wastage/muda/ reduction principle, safety rules, Total Quality Control (TQC), Just-In-Time (JIT). Among these, 5s (Sort, Set in order, Shine, Standardize, and Sustain) is generally considered to be the most basic step for improving quality and productivity.

Generally speaking, kaizen is a low-cost approach to productivity improvement for two reasons. First, it does not require huge capital investment & expensive technology since it seeks to use existing equipment and human resources in a more efficient—less wasteful—way. Second, the key goal of kaizen is to generate the internal capability of college trainers. In fact, if kaizen implementers leave the colleges after one or two years, improvement efforts should be considered a failure. Thus, kaizen is particularly suited for enterprises in low-income countries which face financial access problems like Ethiopia.

EKI yearly booklet (Aug, 2011) indicates that, the Kaizen project in Ethiopia consisted of three phases. Phase one, “Planning and preparation”, Phase two, “Implementation” and Phase three, “Presentation, celebration, dissemination and follow up”. Therefore, in order to understand the mechanisms needed for the transference of the Japanese kaizen management system from Japan to Ethiopia, it is worthwhile to identify the important variable needed for the transferability of the Japanese kaizen management techniques to other countries.

As Imai (1986:32) noted, kaizen-oriented suggestion systems are transferable to Non-Japanese cultural environments. But he asserts that:

> *To increase the chances of a successful transfer, four organization-culture conditions are necessary: (I)A clear employee orientation, supported by a (contractually or verbally assured) non-lay-off policy; (II) Employees committed to the company’s long-term viability; (III) A free flow of information, both along the vertical axis and between units of the same hierarchical level; (IV) Empowered employees, i.e., employees that have the information and skills needed to make decisions on a wide range of issues concerning their own working environment.*

Finally, 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. From those Addis Ababa TVET agency was the one which took the responsibility to implement kaizen in respective colleges and in some selected Micro Finance and small business enterprises (MBEs) to improve their quality production (trainees) in their workshops. Then, the implementation was started in twenty-three government institutions and five government TVET colleges by holding the trainers who were participated in the sugar cooperation implementation program. Now a day’s almost all

TVET institutions and colleges, Small and Micro finance Business Enterprises (SMEs) implement kaizen by assisted AATVET Agency and respective regional sub cities of TVET offices. Hence, the purpose of this study was to investigate current practices of kaizen implementation.

1.2 Statement of the Problem

As Berihu (2009:26) suggested, globalization and growing competitiveness of world markets, enterprises are continually looking for different management techniques such as Kaizen which includes 5S,7wastage/muda/ reduction principle, QCC, etc. Kaizen is based on continuous improvement principles to facilitate change on a constant and progressive basis. Thus TVET colleges and institutions provide for a wider array of beneficiaries among workers in the manufacturing sector than in other types of organization in Addis Ababa.

According to Imai (1986), 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”.

In relation to this study the implementation of kaizen in Addis Ababa TVET government colleges are important to the cost effectiveness; quality production “well trained man power” because most of factory employees and owners were taken from TVET graduates so that the comfortable training environment for successive training is vital. Thus kaizen implementation in learning department aligned by applied 5s (Sort, Set in order, Shine, Standardize, and Sustain), 7wastage/muda/ reduction principle and TQC (Total Quality Control) and other toolkits of Kaizen are prerequisite to get qualified manpower from the training center. High product quality couldn’t have been attained without 5s and 7wastage/muda/ reduction principle (EKI yearly booklet (Aug, 2011). In the TVET training centers above 75% of the training is done in the workshop/learning department/ to test theoretical concept which attended from the classes of teaching learning processes. Thus application of kaizen is vital for preparing qualified human power. As (EKI yearly booklet (Aug, 2011) citation three years earlier,

kaizen started being tested and implemented as a pilot project in some 30 organizations. Out of those, one-third was recognized for achieving better results. This implies that kaizen has vital roles to quality production in the factory. Thus implementing kaizen at college's level is important because trainees are the input of the factories for the future.

The kaizen implementation focuses on mainly two things at college level. One is building the human capacity of the colleges (trainers) through some technical support from AA TVET Agency and Ethiopia kaizen institute. Two is working with manufacturing companies, providing them with trainings on how to implement the kaizen philosophy and practices (AATVET, 2010). Thus applying kaizen in the learning department of the college indicates that the skill gap of the trainers will be reducing through time to time and prepare the learner to the future of world of work.

As GRIPS development forum (2009) citation, in addition to implements Kaizen, the trainers develop certain important qualities such as team working, problem analyzing, finding a solution independently, acquiring training skills, etc. Therefore, trainers become more conscious that a static position cannot be maintained if the colleges wish to successfully compete in the market need. This gradual but continuous change within colleges and trainers cumulative knowledge helps to realize large step innovations like technology transfer from college to the industry and vice versa.

According to National TVET Strategy (2008)**,** an overall objective of the National TVET Strategy is to create a competent, motivated, adaptable and innovative workforce in Ethiopia contributing to poverty reduction and social and economic development through facilitating demand-driven, high quality technical and vocational education and training, relevant to all sectors of the economy, at all levels and to all people. So based on this idea to achieve our objectives we could apply different philosophy of management like Kaizen in the training workshops for different field of study like construction, woodwork technology, leather, textile and garment departments to reduce wastages of materials.

Some of the most common problems facing traditionally managed organizations are: high defect rates, excessive inspection costs, lack of communication, unsatisfied trainers

and dissatisfied customers, all leading to high levels of operating costs. These problems are partly to be avoided up on the implementation of improved management philosophy like kaizen. However, it is also true that some basic conditions such as motivated trainers, some level of skill for them to be able to understand trainings and team discussions, top management commitment (dean and vise deans), good trainer – management relationship, etc are quite essential. Thus such issues should be assessed in advance. As trainers' commitment is a key point for the success of a Kaizen implementation, the level of trainer satisfaction and their commitment to the colleges need to be evaluated prior to the introduction of kaizen. Generally traditional colleges do not attach great importance to training and the level of trainer's skill and knowledge is likely to be low. The introduction and development of Kaizen begins with training, education and the motivation of personnel and other necessary changes in the workforce management system.

Kaizen in the TVET colleges implement only in the learning department and the store house of the organization but not in the administration offices (finance, human resource department and like).So kaizen implementation is yet recent in the TVET colleges then it will faced problems in the workshop alignments for the training activities. Based on these assumptions I intended to investigate the practice, successes and challenges of kaizen implementation in Addis Ababa TVET colleges.

1.3 Research Questions

Based on the objectives of the study, the following research questions are identified

a. To what extent do the kaizen system implemented successfully in the TVET colleges?
b. What are the major challenges that have been observed in the implementation of kaizen in the TVET colleges?
c. What are the measures taken to overcome the challenges faced in kaizen implementation?
d. How adequate are the measures taken to make kaizen system sustainable in all TVET colleges?

1.4 Objectives of the Study

1.4.1. General Objective

The research is intended to investigate the practices, successes and challenges of Kaizen implementation in Addis Ababa city administration in government TVET colleges.

1.4.2. Specific Objectives

To investigate the practice, successes and challenges of kaizen implementation, the specific objectives of the study were following:

1. To evaluate what was the procedure to implement Kaizen
2. To identify success of Kaizen implementation
3. To examine the existing legal frame works, monitoring and supervision for implementing kaizen in TVET Colleges.
4. To identify the major problem TVET, as a system encountered in the implementation of kaizen.
5. To suggest the possible remedial solution for responsible bodies.

1.5 Significances of the Study

Researches were not conducted on practice, successes and challenges of Kaizen implementation in Addis Ababa TVET colleges. Thus, the study will help to understand kaizen practice, successes and its obstacles to sustain the system in Addis Ababa TVET colleges as well as to Ethiopia Kaizen Institute.

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 colleges. 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 have the following significances:

- It helps all stakeholders within the TVET program mainly; researchers, educators and policy makers, to improve the practice of the kaizen implementation process.
- To create some awareness in kaizen philosophy so that implementation will receive due attention.

- Point out the major achievements of kaizen implementation and transfer the good willing of its practical application to the other organizations.
- To indicate major problems and put them in order of significance to on the problems.
- To show the nature of the problem and initiate others to undertake further studies because there seems no research conducted in the Addis Ababa TVET College's on these issues.

1.6 Delimitation of the Study

The study was delimited to investigate the practice of kaizen implementation in learning department of Addis Ababa TVET Government Colleges. Kaizen is not yet conducted for the administrative system of the college. Implementation of kaizen in the colleges focuses on application of 5s, 7wastage/Muda/ reduction principle, preparation of kaizen board and safety rules in the learning department. Thus the study also focuses on the college did (planning, implementation, waste reduction and reward & recognition). To make the study manageable in terms of time, effort and financial cost it focuses only in the government of TVET college of Addis Ababa city administration. The target population for the study comprised only dean, department heads and trainer of the college. Thus target populations are the direct role player of the activity.

1.7 Limitations of the Study

In order to conduct this research there were some limitations. The first problem was difficult to get recent and important literature in kaizen implementation not only in Addis Ababa city administration but also in Ethiopia in general. The second problem was with regard to the interview respondents from the officials of the TVET College. They were busy enough in meeting. This affects the desired to get the needed amount of information from them. Those two major problems were overwhelmed through endurance to gate important information.

1.8 Definition of Key Terms

More than one definition may be provided to a single concept this leads to lack of clarities to the meaning of specific words (Corbin & Strauss, 2008). Hence, the

researcher has tried to provide operational definitions of the following terms. This is done purposely to make the application of operational term clear.

Enterprises: Refers to institutions which hold all forms of training jointly with TVET providers (MOE, 2007). In this research, an enterprise refers to the sector wise institution in which kaizen is implemented jointly with TVET colleges.

Kaizen: Is a management philosophy and is a "continuous improvement" involving the entire workforce from the top management to middle managers and workers.

Trainees: In this research, 'trainee' refers to the learners who are enrolled at government TVET colleges.

Trainer: Refers to the instructor who is employed in different field of study to train the trainees in government TVET colleges.

TVET Colleges : are institutions that orient students with the acquisition of knowledge, skill and attitude for the world of work (UNESCO and ILO, 2002). In this research, the current Government TVET Colleges that offer Technical Vocational Education Training from level 1 up to level 5.

1.9 Organization of the Study

This study is divided into five chapters as follows:

Chapter One provide a brief background to the study, statement of the problem, objectives, and provided an overview of the research methodology adopted for the purposes of this study. Chapter Two provide a theoretical framework within which the research conducted, as well as the theories associated with current practical application of kaizen. It focuses on studies of current practice, successes and challenges of kaizen implementation in Addis Ababa TVET colleges. Chapter Three, the research methodology and design are discusses in detail. Chapter Four, the research findings and analysis are presents and the discussion of the findings that emerged from the study are highlighted. Similarly, chapters five provides an outline of the key findings and conclusions and make recommendations based on these findings. Finally, the references materials, sample questions, appendices are attached at the end of this paper.

CHAPTER TWO

Review of the 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 it 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 Trends in the Provision of TVET Program

In Ethiopia Technical and Vocational Education and Training has a long history, it was only recently that it gets recognition and proper attention. The sector was not given proper attention by the previous governments. Technical and Vocational Education and Training was offered as part of academic education this means it was not treated separately. To address these problems the Federal Democratic Republic of Ethiopia paid special attention to Technical and Vocational Education and Training, which was separate field of training, geared toward producing professionals in various technical educations and directly by preparing the trainees to the world of work with the coordination of various company in the training duration in the colleges.

It is clear that, Technical and Vocational Education and Training are instrument intended to equip a person for industrial/commercial occupation. It can obtain either formally through in schooling training or through on the job training programs or informally, by picking up the necessary skills on the jobs. The ETP which was adopted in 1994, promotes provision of both formal and non-formal Technical and Vocational Education and Training for students who complete different cycle of education beginning to the basic education including drop out from any level of education.

The new training system, in TVET (known as 10+1, 10+2, and 10+3) has lasted until 2007 after which it was replaced by the kind of training program that based itself on leveling as L1, L2, L3, and L4and L5. Accordingly, there were a total of twenty three Institutions and five Government colleges providing training on various training levels in Addis Ababa. Those Technical and Vocational Educational and Training colleges were providing training based on" project base" approach.

In line with TVET training, the duty of controlling and supervising activities of the TVET institutions and colleges were left to Regional Education Bureaus. To enhance the implementation of TVET program, a strategy was prepared in 2001/2002 by the Ministry of Education. A twenty-year education sector problem-solving plan was also prepared by MoE and was translated into series of national ESDPs (MoE, 2005).

TVET colleges have a responsibility to train the students based on the market needs that is the needs of the company and business organization otherwise it produce educated idle man powers that will be on the shoulders of families and governments as whole. Hence colleges provide trainees with different types of knowledge, skill and attitude in their duration in the colleges to reduce unemployment rate and contribute to poverty reduction in the country.

As Temesgen (2012) indicates in his thesis work, TVET program can be provided in different system of approach. Some of which are discussed below.

2.1.1 The School System

The supporters of this system believe that the school should be the main organizer of vocational preparation which is thus considered as the main part of the educational structure. Vocational preparation is implemented usually within the school system. Consequently, the trainee is considered as a trainee within the education system rather than a worker and wage earner outside the campus. The trainee is expected to undergo through the training system established within the school he/she is enrolled (Rusch & Chadsey, 1998). However, it may seem difficult to take this fact for granted as it would be a serious challenge for the school to equip its trainees with all the necessary

theoretical and practical knowledge. It may lack relevance, specificity, link with the world of work, etc.

2.1.2. The Enterprise System

As opposed to the school system, the enterprise system is taken as the main controller of vocational preparation. The activities in the enterprise system include planning, standard setting and content specification. The system is, thus, designed to meet these kinds of objectives. Consequently, vocational education has become part of the enterprise activities and employer responsibilities.

However, the success of this program depends on the availability of a reasonably developed industrial sector, which in turn requires a similarly developed socioeconomic infrastructure. It will, therefore, be very difficult to avail this kind of training institutions in all countries of the world. Hence, its full implementation in all countries may not be realized soon (Cedefo, 2009a).

2.1.3 The Integrated System

The integrated system provides equal opportunities for both the school and the enterprise without emphasizing on one aspect alone. The system is based on the assumption that a general framework for vocational education can be designed to encompass both the school and the enterprise. The model may be popular in every part of the world. For this reason, it can also be applied to developing countries (Masri, 1994).

It is true that a purely school based system produces graduates who are equipped totally with theoretical knowledge. On the other hand, a purely enterprise based vocational preparation system is also impossible. This is due to the fact that both the economy and the enterprises in all countries cannot shoulder this kind of program. Therefore, they are not in a position to produce trainees with the necessary skills of the job.

In line with the above trends of TVET provision, now a day's different type of managerial philosophy and techniques (like cooperative training and kaizen) applied in TVET colleges to fill the skill gap of the trainees which will faced in prospective world of work and trainers which introduced to the new technology arrived in the

manufacturing area. Thus the trainees develop their knowledge, skill and attitude in college's duration in cooperating with companies and "MSEs".

Generally the provisions of TVET programs are flexible from time to time. Those indicate that TVET sectors are ready to change their status in the needs of the environment i.e. based on the needs of the market that want the field of the study. For instance now a day's building construction, metal manufacturing, textile & garment and leather production etc (hard skill) are the focuses area of country development. Thus TVET colleges training in currently concentrated on hard skills, the soft skills like accounting, marketing and so on were suspended from the sector. But the soft skilled training as a general is given to the trainees as a supportive course by "KAB" trainers in the colleges. Moreover the idea is parallel to 70:30 allocation of the student's in higher education, i.e., natural science to social science respectively in the field of study.

2.2 The Concept of Kaizen

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.

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 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.

As indicated in the manual of “Technology Transfer and Industrial Extension” AA TVET Agency (2010), improvements through Kaizen have a process focus. Kaizen generates process-oriented thinking, is people-oriented, and is directed at people's efforts. Rather than identifying employees as the problem, it emphasizes that the process is the target and employees can provide improvements by understanding how their jobs fit into the process and changing it.

The companies that undertake a Kaizen philosophy place an emphasis on the processes – on the 'how' of achieving the required results. A process emphasis goes beyond designing effective processes; it requires the teams to understand why a process works, whether it can be modified or replicated somewhere else in the company and how it can be improved.

As Yukl (2010), indicates that the difference between Conventional/usual and Process-emphasis approach as follows in the table 1 below:

Table: 1.The Difference between Conventional and Process-Emphasis Approach

Conventional approach	Process-emphasis approach
Employees are the problem	The process is the problem
Doing my job	Helping to get things done
Understanding my job	Knowing how my job fits in the process
Measuring individuals	Measuring performance
Change the person	Change the process
Correct errors	Reduce variation
Who made the error?	What allowed cover error to occur?

Source: Adopted From Yukl (2010), Leadership in Organizations (7th Ed).

The starting point of a process-emphasis approach is to map the process in order to understand the flow of the product or service. It gives more pictorial the difference between process and targets concepts than the convectional approach. Thus kaizen follows a process-emphasis approach.

2.3 Benefit of kaizen

According to *www.vsrdjournals.com* citation by following the right steps properly applied, any company, no matter what its nationality, can benefit from kaizen. Kaizen Fundamentals are: Employee empowerment, Self discipline & Recognition. Thus not only the colleges but also any other organization implement kaizen management philosophy has a benefit from its staff member work satisfaction beyond profitability of the organization.

The main thing you need to know to begin a continuous improvement program is how important it is- how the smallest ideas can lead to the greatest results. Kaizen involves every employee in making change—in most cases small, incremental changes. It focuses on identifying problems at their source, solving them at their source, and changing standards to ensure the problem stays solved. These continual small improvements add up to major benefits. They result in improved productivity, improved quality, better safety, faster delivery, lower costs, and greater customer satisfaction and so on (Imia,1997).

Since the benefits of kaizen principles come gradually and its effects are felt usually on a long-term basis, it is obvious that kaizen can succeed only under top management that has a genuine concern for the long-term health of the company (Imai, 1986). If management makes positive use of the process-oriented way of thinking to support innovation and further reinforces it with a kaizen approach, it will find that the company's overall competitiveness will be improved in the long run.

2.4 The Relationships between Kaizen Implementation and Reward & Recognition

By making kaizen as standardize ways of life in the organization always considering the worker because they are an actor to implement it and continuing the sustainability of the system. Thus rewarding and recognizing the employees for their accomplishing task is essential.

Organizational culture has several essential components i.e. organizational values, leadership, and the reward and recognition structure of the organization (Knouse, 1996).The reward system reflects the organizational philosophy, democratic and innovative or autocratic and bureaucratic. Promotion and rewards reinforces employee

commitment to organizational values and to the organizational culture. Reward and recognition have various functions and can be valuable tool at organizations on their road for total quality management.

According to TVET Agency manual of Industry and Technology Transfer (2010), indication recognition is also a form of feedback about the result of individual or team efforts. It shows the individuals or the teams that they are on the right track toward continuous improvement. Recognition as feedback can come from supervisors, other teams, internal customers in the organization, or external customers in the marketplace, Kaizen philosophy processes demand empowered employees, team players and cross-functional activities.

Reward and recognition can motivate those individuals and groups to continue their active participation in the organization. It will also create a positive environment for various teams to compete against each other and these give a 'win-win' situation between the organization and employees (Yukl, 2010).

Generally R&R has a positive relation between quality production and employees satisfaction in the organization if it do so properly. To do this activity must be aware of each employee during the preparation of organizational R&R planning system hence they are an implementers. If it is done in an improper way, then R&R may create mistrust between the employees and the organizational leadership and management. This also has its own effect both to the employees and the organization vise-versa. Inconstant to that reward and recognition stimulates additional effort in employees if done consciously.

2.5 The Role of Employees in the Process of Kaizen Implementation

Everybody in the colleges has its own role and responsibility. From this vice dean of the colleges whose job title is “Technology Transfer and Industrial Extension” processes owner has the responsibility to mange and direct the tasks of the kaizen implementation and dissemination of copied or innovated technology to the micro finance and small business enterprise, companies and to the respective other colleges.

2.5.1 The Role of Deans

The kaizen process must begin with the process owner, the individual with real ownership and responsibility who has the authority to change the process and be answerable for the consequences. He/she may be the deans, general manager, president, or in some cases plant manager, but always the person in charge.

Kaizen cannot be successful without strong support and direction from the top (Vineet, 2011). Hence our colleges vice deans in recent structural organization has a responsibility to mange and work with others of colleges society. As the name of the job title indicated that "Technology Transfer and Industry Extension" this process owner has a responsibility to do works with others and follow the activities by preparing different check list to supervise ongoing process of kaizen implementation in the college and transfer the most recent technology to the different micro finance and small business enterprise, government and private companies and colleges trough out the country.

During the supervision the one which take the responsibility must observe the application of visual management in the learning department as well i.e. from where start to visit it and the end result where found. These processes are self indicator without interpreter i.e. most of the time sign of graphics, words, symbols in the floor, wall as well as in the roof of the learning department.

As Addis Ababa TVET manual (2010), the role of visual management as a concept, practice or tool is promoted in Kaizen through individuals or teams to help people identify problems or promote empowerment. The practice of visual management involves the clear display of tangible objects (gembutsu), charts, lists, records of performance, so that both management and workers are continuously reminded of all the elements that make the visual controls make it easy for everyone to identify the state of a normal or abnormal condition, thus providing operators and management visibility into performance . Visual controls tracking performance should capture the team effort rather than the individual.

Visual controls usually lead to visual management, which can be particularly efficient if it is used adequately to replace the bureaucratic monitoring systems that many companies employ in order to maintain control and attempt to prevent anything from going wrong (Imai,1997).

Visual controls must be relevant, easy to understand by the people performing the task being measured, and must emphasize proactive actions, rather than blaming, so the visual workplace as advised by (Schonberger, 1996)will: improve safety, make critical information available at a glance, gain immediate measurable results including: reduced floor space, decreased process time and machine down time, keep everyone informed of production schedules, daily attendance, reduce search time, raise morale and on-time delivery, build communication, improve quality. Those visual controls communication represent by a symbols like as shown in the below:

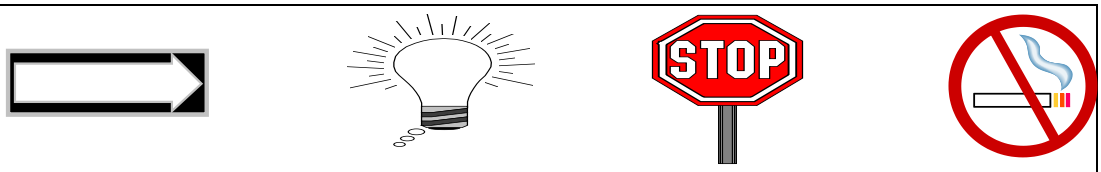


Figure: 1. Symbols of Visual Controls Communication

Source: Adopted from Addis Ababa TVET Agency Manual (2003)

Those pictorial representations indicate that everybody can understand. Hence the symbols are self explanatory.

The role and responsibility of management in kaizen implementation comprised of executive, process owners, managers of the process being improved. The main responsibilities of the management as indicated in AA TVET Agency manual of industry extension and technology transfer (2010:29) core process are:

> *The plant manager's primary role is to communicate wholehearted support for the kaizen teams, driven kaizen or continuous improvement culture, remove barriers to kaizen team success and empower the kaizen team, recognize the team for their efforts, keep on an eye on the continues availability of employees ideas and make sure that is implemented, be committed to give feedback on the implementation of kaizen continuously and to make the given solutions implemented according to their schedule, knowing that the whole company is backing you up makes it possible for you to put your whole attention and best thinking it in to a kaizen event.*

Thus knowing role and responsibility of the management as a higher educational institution the system helps to direct and manage the work activities of the institution with effective and efficient utilization of resource as much as possible.

2.5.2 The Role of Trainers

The role of the trainers in the college is already known that is train the trainees with different knowledge, skill and attitude based on the curriculum "competency level" of the different field of the study. Moreover, the trainers have the responsibility to train the trainees based on the market demands i.e. the world of work with the help of companies by sharing the experience through cooperative training. Hence the trainers implement kaizen in the learning department to adapt the concept of kaizen implementation in the colleges and the trainee's practices during the training. In addition, the trainees develop kaizen practical implementation in the learning department leads to preparing them to the world of work to apply it in the future.

Besides train the trainees, the role of trainers are responsible for participating in kaizen through teamwork activities, making Kaizen suggestions, engaging in continuous self-improvement activities, continually enhancing job skills through education and training, and continually broadening job skills through cross-functional training.

2.6 Implementation of Kaizen

As articulated by Anh, et.al (2011), the success of kaizen overseas transferability and implementation of the kaizen practices in Ethiopia depend on the degree of compatibility between the Japanese company's kaizen culture and the host country's national culture. Given this conceptual framework, the introduction of kaizen as a management tool and success in the transfer of technology to improve and enhance productivity and managerial capability in higher institution needs to be seen in the establishment of several building blocks in addition to conceptual issues related to:

- *The fit between kaizen culture and the organizational culture of the practices;*
- *Changes in the mindset of colleges workers so they will adhere to the kaizen work ethics;*
- *Workers' training and discipline so that workers follow standard operating procedures;*
- *The existence of a hungry mentality so colleges workers will do work which is above and beyond their responsibility; and*

- *The empowerment and involvement of workers in decision-making to cooperatively identify problems, generate solutions, implement them and then follow up to evaluate quality and productivity.*

Thus, implementation of kaizen in higher institution needs to be fully committed to boosting the morale of their workers to develop members' capabilities, to achieve self-actualization, and to work cooperatively. These commitments are vital to the process for improving the quality of the training output. Additionally, Asayehgn (2011) stated that in the journal of *"the Transferability of the Japanese Kaizen Management Techniques"* the transferability of the ideas of kaizen management techniques without contextual understanding of our organization is very difficult, especially in educational institutions because human being doesn't have a spare part which is processed again.

There are several types of kaizen activities, ranging from those that focus on developing solutions to problems on the factory floor, to implementing a predetermined plan for change, to reorganization the flow of paperwork. The most familiar and common type, the factory kaizen, provides a good example of the technique (Imran et.al., 2011).

As EKI (2012) stated, Kaizen is based on making little change on a regular basis: always improving productivity, safety and effectiveness while reducing waste. Thus everyday activities in the workshop relative to housekeeping tasks add something valuable to continues improvement.

In order to solve problems found in any organization , today's managers often try to apply sophisticated tools and technologies to deal with problems that can be solved with a commonsense, low-cost approach. They need to unlearn the habit of trying ever-more sophisticated technologies to solve everyday problems.

As Imai (1986), there are two approaches to problems solving:

> *The first involves innovation – applying the latest high-cost technology, such as state-of-the art computers and other tools, and investing a great deal of money. The second uses commonsense tools, checklists, and techniques that do not cost much money. This approach is called kaizen.*

This article will show how kaizen can achieve significant improvement as an essential building block that prepares the company for truly rewarding accomplishments. Hence applying kaizen is just like looking the work environment to

solve the problem of the organization with no or little large capital investment. As DeVaus (2002) citation states that “to understand is hard. Once one understands, action is easy” so to implement kaizen management philosophy in practical the understanding of the theoretical concept is the ground base to the application.

According to GRIPS forum (2009:24) citation, African manufacturers are not only disadvantaged by the technological gap but also by the lack of knowledge in key managerial methodologies like kaizen. Since kaizen tools are developed in a way to be appreciated by all the workers, and its fundamental methodology is not very complicated. Kaizen is more to do with a philosophy and daily practices rather than techniques. For example, 5S can be taught even to the colleges trainees since the philosophy is sort, set in order, shine, standardize and sustain. thus, the trainees develop their 5s/housekeeping application as a daily activities in the workshop next they will be an owner of the manufacturers and an employees of the manufacturing plants so that the lack of knowledge gap of kaizen concept understanding in the manufacturing plant may be eliminate through time to time by developing trainees knowledge of kaizen application in the colleges duration.

The beauty of kaizen is that it can realize productivity improvements with little additional investment in any sector of the factories. Some photographic examples of kaizen before and after implementation are as follows.

Before **After**

VS

Before After

Figure: 2. Photographic presentation of Kaizen before and after implementation
Source; Adopted from Tegbaherd College of Automotive Department

From the above photographic display, understand that before the implementation of kaizen in the workshop as shown in the above large surface area was covered by unordered, scattered tools and an important and unimportant tool are overlapping each other and covered by dust. After implementation of kaizen the tools are well ordered and settled in their variety and volume of the tools. Thus, learning department is clear and attractive for work environment beside that it saves time for training by searching material from disordered and so on.

As indicated in the manual of AA TVET Agency (2010), kaizen involves setting standards and then continually improving these standards. To support the higher standards kaizen also involves providing the training, materials and supervision that is needed for employees to achieve the higher standards and maintain their ability to meet those standards on an on-going basis. Thus ten principles for improvement shown below describe the spirit you need to have in order to be successful in your kaizen activities.

Ten basic principles for improvement

- Throw out all of your fixed ideas about how to do things.
- Think of how the new method will work-not how it won't
- Don't accept excuses. Totally deny the status quo.

- Don’t seek perfection. A 50-percent implementation rate is first as long as it’s done on the spot.
- Correct mistakes the moment they are found.
- Don’t spend a lot of money on improvements.
- Problems give you a chance to use your brain.
- Ask ‘why? ’ at least five times until you find the ultimate cause.
- Ten people’s ideas are better than one person’s.
- Improvement knows no limits.

Thus everybody needs improvement so applying the concept of kaizen in day to day activity you can change yourself from rigidity ways of approaches to flexibility. As indicated in the manual of kaizen implementation in AATVET Agency, despite flexibility in its application, kaizen has, among others, common characteristics. It is:

> *(a) not imposed by “top-down” orders or instructions, but is a “bottom-up process” implemented at the initiative of each worker, based on their observations, experiences, knowledge, and so on; (b) not a one-shot activity, but is continuous and incremental; (c) not strictly limited to production itself, but covers all aspects of production including improvements in safety and morale, as well as improvement in quality, in operation efficiency and in delivery.*

2.7. Pillars of kaizen

According to Imai (1986), kaizen management philosophies and practices, the three pillars of kaizen are summarized as follows: 1) housekeeping, 2) waste elimination & 3) standardization and as he stated as, the management and employees must work together to fulfill the requirements for each category. To be ensured success on activities on those three pillars three factors have also to be taken account. Those are: Visual management, the role of the supervisor, and the importance of training and creating a learning organization.

2.7.1 Housekeeping / 5s

As Schonberger (1996), housekeeping is a process of managing the work place, known as “Gemba” in Japanese, for improvement purposes. Other writer also indicates that Imai (1997) introduced the word “Gemba”, which means “real place”, where value is added to the products or services before passing them to next process where they are

formed. So the idea of "the right things to the right place" is the requirement of Gemba in the learning department of the colleges after finishing the training sessions.

For proper housekeeping a valuable tool or methodology is used. The term "Five S" is derived from the first letters of Japanese words referred to five practices leading to a clean and manageable work area: seiri, seiton ,seiso ,seiketsu and shitsuke . The English words equivalents of the 5S's are sorting, Set in order, Shine, Standardization and sustain (Imai, 1986).

As technology transfer and extension service manual of Addis Ababa TVET Agency in 2010 stated that, 5s is a system of steps and procedures that can be used by individuals and teams to arrange work areas in the best manner to optimize performance, comfort, safety and cleanliness.

Other writers like Foss (2004) citation, 5s is a philosophy and checklist for good housekeeping to achieve greater order, efficiency and discipline in the workplace. Thus applying 5s in the learning department are important for the trainees, trainers and the college's community to use time, energy and material effectively. Additionally the training system will be facilitated in smooth and attractive way.

As stated in the manual of AA TVET Agency, technology transfer and industry extension core process in 2010, the principles of 5s are: elimination of waste, everybody is involved, co-operative effort, attack root cause and human being is not perfect. Based on this idea when we implement 5s it has the following basic objectives:

- Productivity improvement by saving time, space etc
- Improved working conditions and Increased floor space
- Reduced lead times and cycle times
- Established operating procedures
- Improved housekeeping by simple means
- Improved working team performance, customer satisfaction & morale of the employees.
- Enhanced cross-shift communication i.e., Improved access to information

- Enhanced levels of communication. Thus 5s are the simplest activities in the learning environment as daily practice it in orderly fashion but the benefits is more than that of the activities which takes time, effort and financial cost.

Imai (1986) advised that 5S implementation means applying the following activities in the workshop: Sorting, Set in order, Shine, Standardization and sustain.

Sorting:- it is a process that involves selecting what you need to complete the job and removing everything else from your work area. It focuses on removing all unnecessary items from the workplace. Thus applying it workplaces will increase and increase financial income by sold the unwanted material.

Set in order:-Straightening specifically customizes your workstation and surrounding area to meet your work area needs. Arrange remaining items so they are easy to select, use, and return to their proper location. Hence it helps to use time and material effectively and efficiently in proper ways. It focuses on efficient storage and location methods. In simplest terms “a place for everything and everything in its place”.

Shine:- Its Emphasis is on the removal of dust, dirt, and grime. It focuses on cleaning up the place now that all the disorder and trash has been removed. Obviously one benefit of this step is to make the workplace cleaner and brighter where everyone will enjoy working.

Standardize: - Standardizing creates a work area free of checklists; if appropriate standards are put in place it will be easier to maintain and continue improving. By implementing this we make sure that the first three steps are maintained.

Sustain: - Sustaining is the end result of how well we have performed the previous four S's. In the Sustainment stage, think of ways to eliminate effort in maintaining an area. It is by far the most difficult where you need to make it habit to properly maintain the new processes.

Benefits of applying 5s in any organization, to the employees advised by Imai (1997) are:

Creates cleanliness, sanitary, pleasant, and safe working environments; it refresh work place “Gemba” and greatly improves employee morale and motivation; it eliminates various kinds of waste by minimizing the need to search for tools, making the operators' jobs easier, reducing physically exhausting work, and freeing up space; it creates a sense of belonging and love for the place of work for the employees.

It needs everyone to maintain 5S guidelines. To maintain DISCIPLINE, we need to practice and repeat until it becomes a way of life. Discipline means making a steady habit of properly maintaining correct procedure. Time and effort involved in establishing proper arrangement and orderliness will be in hopeless if we do not have discipline to maintain it.

To make simple which are listed above the implementation of kaizen in the following figure adopted from manual of AA TVET Agency indicated below.

Figure: 3.Diagrammatic Sketch of 5S Implementation.

Source: Adapted from AA TVET Agency Manual of Industry Extension and Technology Transfer.

If we do not do 5S, we can't do any other work efficiently. They are features which are common to all places and are the indicators of how well an organization is functioning. Thus kaizen involves setting standards and then continually improving those standards. To support the higher standards kaizen also involves providing the training, materials and supervision that is needed for employees to achieve the higher standards and maintain their ability to meet those standards on an on-going basis.

2.7.2 Waste (Muda) Elimination

As Berk. J & Berk,S (1993) citation, Muda in Japanese means "waste". The resources at each process, people and machines either add value or do not add value and therefore, any non-value adding activity is classified as Muda in Japan. Work is a series of value-adding activities, from raw materials, ending to a final product. Muda is any non-value-added task.

Wastes are one means of productivity loss mechanism. So, to increase the production quality and quantity must apply wastes reduction methods in the working area. As Cantor (1997) stated that, the main seven types of waste in the working area especially in manufacturing plants are: -overproduction, excess inventory, waiting, transporting, defect-making, unnecessary motion, and excess processing. But for the administrative office Muda are:-Passing on work that contains errors, Signature approvals, bureaucratic, walking or routing documents, copies files, a lot of papers and excess documentation. As a result try to eliminate those wastes to increase their profits like save time, money and capitals (land, labor and human power).

2.7.3 Standardization

According to Kilian (1992) citation standards are set by management, but they must be able to change when the environment changes. Companies can achieve dramatic improvement as reviewing the standards periodically, collecting and analyzing data on defects, and encouraging teams to conduct problem-solving activities. Once the standards are in place and are being followed then if there are deviations, the workers know that there is a problem. Then employees will review the standards and either corrects the deviation or advice management on changing and improving the standard. It is a never-ending process and is better explained and presented by the PDCA cycle

(plan-do-check-act), known as Demming cycle (Kilian, 1992). As shown in the diagram below:

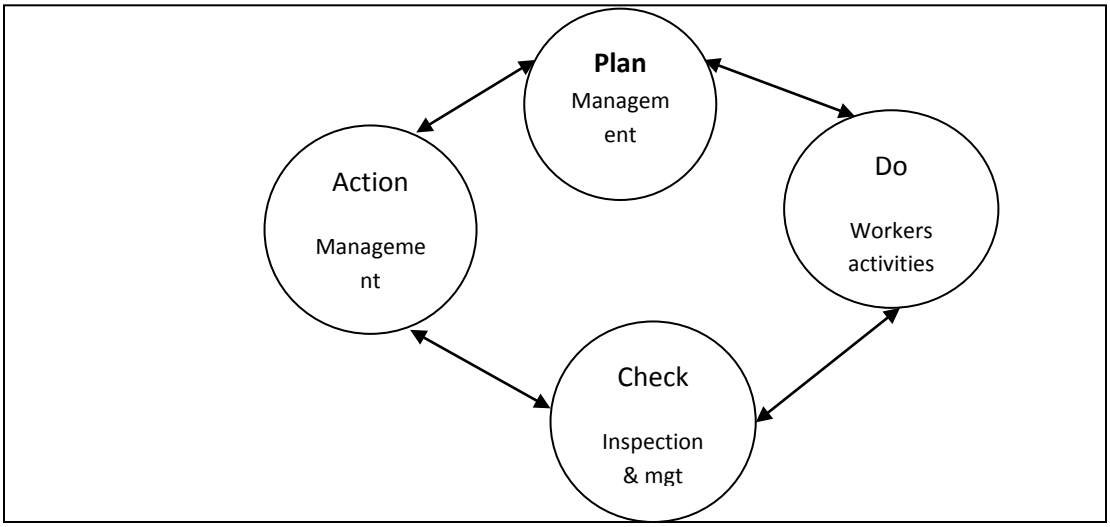


Figure: 4. Demming cycle

Source: Adopted from "the world of W .Edwards Deming", 2nd ed (Kilian, 1992).

Plan:- refers to establishing a target for improvement (since kaizen is a way of life, there always should be a target for improvement in any area) and devising action plans to achieve that target. **Do:-** refers to implementing the plan. **Check:-** refers to determining whether the implementation remains on track and has brought about the planned improvement. **Act:-** refers to performing and standardizing the new procedures to prevent recurrence of the original problem or to set goals for the new improvements. As Imai (1986) citation state that the PDCA cycle revolves continuously; no sooner is an improvement made than the resulting status quo becomes the target for further improvement. PDCA means never being satisfied with the status quo. Because employees prefer the status quo and frequently do not have initiative to improve conditions, management must initiate PDCA by establishing continuously challenging goals.

Reviewing the above processes and working on a successful PDCA cycle then is followed by the SDCA cycle where 'S' stands for standardization and maintenance of the new situation Imai (1986). So, PDCA stands for improvement and SDCA stands for standardization/maintenance. The two cycles are combined and presented on the following:

- Represent the best, easiest, and safest way to do the job,
- Offer the best way to preserve know-how and expertise,
- Provide a way to measure performance,
- Show the relationship between cause and effect,
- Provide a basis for both maintenance and improvement,
- Provide objectives and indicate training goals,
- Provide a basis for training,
- Create a basis for auditing or diagnosis, and
- Provide a means for preventing recurrence of errors and minimizing variability.

Thus, Demming cycle indicate that never ending in the process of improvement but always in the process of searching defect to reach in the new and latest idea i.e., innovation. Then after innovation always kaizen is followed because additional improvement leads to the latest one.

2.8 Importance of kaizen

When kaizen implemented in TVET college the main aim were not only increasing productivity, quality, trainers capacity but also in their work culture has a relationship to MEBs and to help MEBs in their shads/workshop by implementing kaizen with the members of MEBs (AA TVET,2010). **የኢትዮጵያ ከይዘን ኢንስቲትዩት የቴክኒክና ሙያ ትምህርትና ስልጠና አቅም ግንባታ ዳይሬክቶሬትን ሲያቋቁም ዋና ዓላማው በቴክኒክና ሙያ ተቋማት በኩል የጥቃቅንና አነስተኛ ኢንተርፕራይዞችን መደገፍ እና ለኢንዳስትሪው ግብአት የሚሆን ብቁ አመራች ዜጋ ማፈራት ነው***(የኢንዱስትሪ ኤክስቴንሽንና ቴክኖሎጂ ሽግግር አገልግሎት የጥራትና ምርታማነት/ካይዘን አተገባበር ማኑዋል ፣2004 ዓ.ም)* ።

As Luecking. R (2009) citation, kaizen is a daily activity, the purpose of which goes beyond simple productivity improvement. It is also a process that, when done correctly, humanizes the workplace, eliminates overly hard work and teaches people how to perform experiments on their work using the scientific method and how to learn to spot and eliminate waste in organizational processes.

Accordingly implementation of kaizen in TVET colleges is not only for the quality production “trained manpower” but also for the sake of helping MBEs improvements to achieve the intended goals. Additionally TVET colleges are the producers of micro

finance and small business enterprises i.e., trainees after complete their training they will organize and submitted to the MBE office to get loans and shades “place of production” for starting work. So those trainees are better than that of organizing from the village without some training based on the work situation from the society. To be most effective kaizen must operate with three principles in work place Imai (1987):

- Consider the process and the results (not results-only) so that actions to achieve effects are surfaced;
- Systemic thinking of the whole process and not just that immediately in view (i.e. big picture ,not solely the narrow view) in order to avoid creating problems elsewhere in the process; and
- A learning, non-judgmental, non-blaming (because blaming is wasteful) approach and intent will allow the re-examination of the assumptions that resulted in the current process

Generally the importance of kaizen implementation cited by AATVET manual of kaizen indicates that as follows below:

- Kaizen eliminates the hidden costs that result from the seven types of waste that can exist in the production process.
- Kaizen improves the value-added operations in the production process so that the product delivered to the customer is of the high quality, lowest cost, and shortest delivery time possible.
- A kaizen event allows major changes to be made in practical area quickly and ‘with minimum loss of production time.
- Kaizen Improves space utilization, product quality, use of capital, communications, production capacity and employee retention.
- Kaizen provides immediate results. Instead of focusing on large, capital intensive improvements, Kaizen focuses on creative investments that continually solve large numbers of small problems. Large, capital projects and major changes will still be needed, and Kaizen will also improve the capital projects process, but the real power of kaizen is in

the on-going process of continually making small improvements that improve processes and reduce waste.

- Kaizen Reduces Waste in areas such as inventory, waiting times, transportation, worker motion, employee skills, over production, excess quality and in processes.
- Employees working in kaizen-based companies generally find work to be easier and more enjoyable-resulting in higher employee moral and job satisfaction, and lower turn-over
- Kaizen provides immediate results; creative investments that continually solve large numbers of small problems.
- The real power of Kaizen is in the on-going process of continually making small improvements that improve processes.

Thus, implementing kaizen in our organization, the organization may improve their status through quality production, customer satisfactions and enhancing the profitability of income generation. Besides that by implementing kaizen the knowledge, skill, and aptitude of the trainers will be developed and team sprite of the trainers will be created.

2.9 Establishment of EKI

Since late 2008, the GRIPS Development Forum has been engaged in industrial policy dialogue with the Ethiopian government, in collaboration with the Japan International Cooperation Agency (JICA). Compilation was prompted by strong interest shown by Prime Minister Meles Zenawi in Japanese development experiences and his request for the Japanese Government to introduce kaizen in Ethiopian firms, modeled on JICA's kaizen assistance in Tunisia.

As EKI yearly booklet (2012) indicates that, on May 2008, at the Fourth Tokyo International Conference for African Development (TICAD IV) also known as the Yokohama Action Plan, Japan promised to cooperate in the reinvigoration of Africa's economic growth. Given that Ethiopia's manufacturing sector was only about 5% of the country's GDP, it showed no hesitation and jumped to take advantage of the Japanese offer help Ethiopia across its industries. Japan's offer proposed techniques that could

accelerate and improve the quality and productivity of Ethiopia's manufacturing enterprises. After Japan showed its willingness to help with Ethiopia's industrial development, it gave a seminar in collaboration with the Ethiopian Ministry of Trade for about 300 attendees in Addis Ababa on November 26, 2009. As a result, through the Ethiopian Ministry of Industry, the Japanese International Cooperation Agency (JICA) was mandated to become involved in setting up kaizen Institute in Ethiopia and then selecting and training the pilot project companies.

The Kaizen project in Ethiopia consisted of three phases. The first phase (planning & preparation) which started in August, 2009, reviewed the quality and productivity of 63 companies. After preliminary diagnosis of these factories, 30 companies were selected based the following criteria:

- Proximity to Addis Ababa, within 100km distance,
- Contributions to exports and /or imports,
- Scale of capital, and
- Number of employees.

Then, the employees of the pilot companies were sent to Japan, Egypt and Tunisia to get practical training and learn from the kaizen workers in these countries. In October 2009-2010, by the end of the first phase of the project, from the thirty pilot companies, only 6, 4, and 8 companies were finally chosen by Ethiopia's Kaizen Institute for having high possibility, good possibility, and some possibility respectively to become kaizen model companies (Ethiopian Ministry of Trade, 2011).

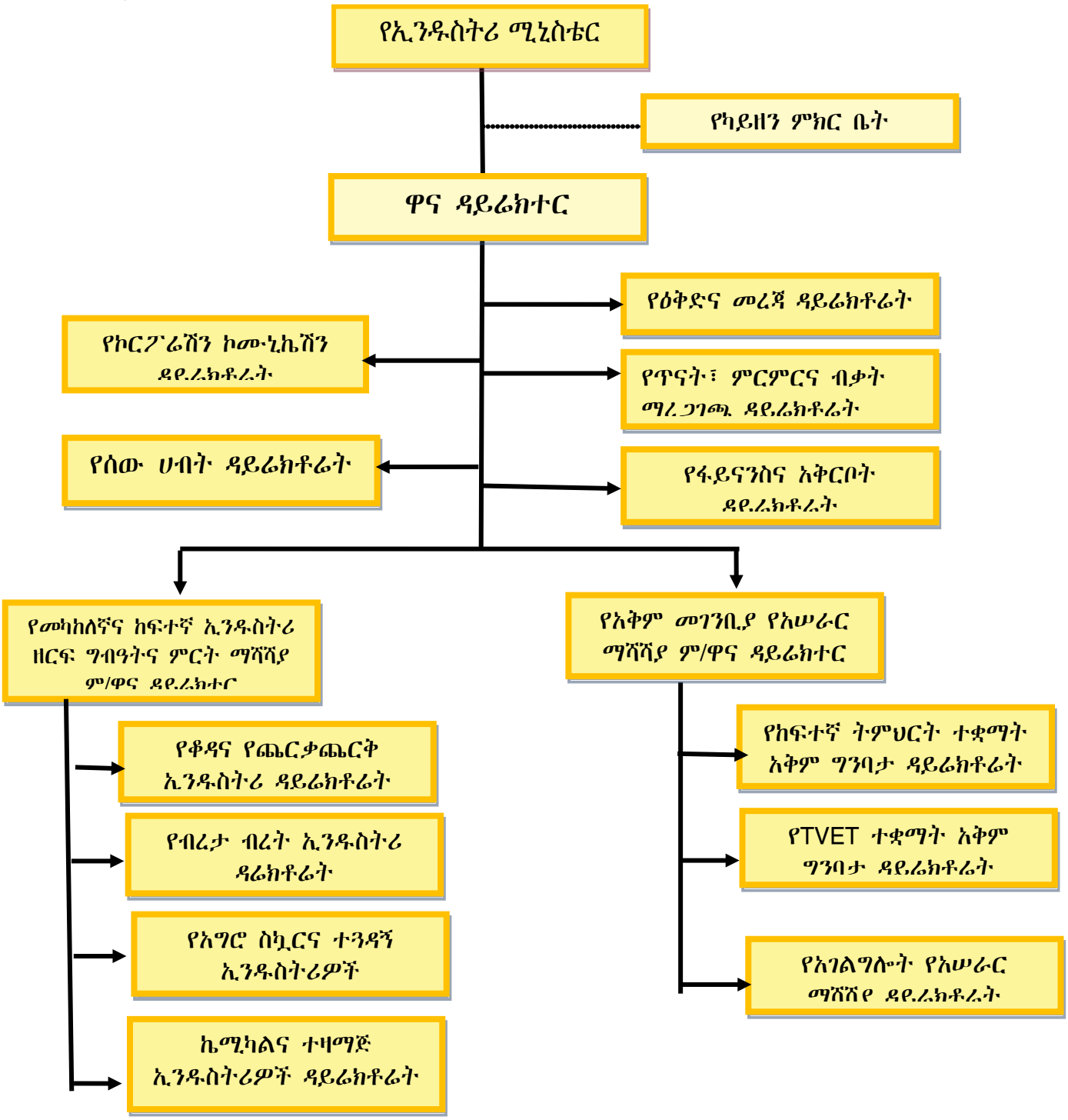
Therefore, in order to understand the mechanisms needed for the transference of the Japanese kaizen management system from Japan to Ethiopia, it is worthwhile to review the literature and identify the important variable needed for the transferability of the Japanese kaizen management techniques to other countries.

The second phase (Implementation phase) i.e., Implementing housekeeping or 5S in the sampled companies and Phase three (Presentation, celebration, dissemination and follow up).

Thus, now a day it was implemented in sugar cooperation then the result is successfully and the employee's tries to train other company worker based on their experience. Additionally federal TVET Agency expand it experience to the modeled MSEs in the country, that is why capacity building on TVET colleges of directorate was included in the organizational structure of EKI.

The mission of EKI "by creating awareness based on kaizen concept to productive and service giver organization, improve their quality products and leads the organization to competitiveness". Thus to achieve this mission the EKI establish its own organizational structure to achieve the competitiveness of country's companies like as shown below:

የኢንስቲትዩቱ መዋቀር



Source: Adopted from EKI Application manual (2012)

CHAPTER THREE

Research Design and Methodology

This part of the research dealt with research design, data sources, target population and sample size, sampling techniques, data gathering tools, data collection procedures, and data analysis techniques have been seen briefly explained below.

3.1 Research Design

The method of the research study emerges out of the nature of the problem and the purpose of the study (Kothari, 2001:48). The main purpose of the study was to investigate the practice, successes and challenges of kaizen implementation in Addis Ababa TVET Government College.

To this end, a descriptive survey design used so as to reveal practice, successes and challenges of kaizen implementation in Addis Ababa TVET colleges. This method is selected on the assumption that it helps to gather enough information from many people on the issues under study (Corbin and Strauss (2008)).

In addition, descriptive survey approach has also becomes particularly useful where one needs to understand some particular information. According to Ayalew & et al. (1999) descriptive research design makes objective description of the status of phenomenon at particular time without value judgment and with no effort to describe what underlies to happen that way. Investigation of kaizen practice (facts) using descriptive research method allows the description of the present application status of kaizen. Best and kahn (2002) on their part have noted that the relevance of this method for such a purpose.

Quantitative and qualitative approaches were employed to answer the basic research question raised earlier such mixed-method of research allows exploring relationships between variables in depth (Fraenkel & Norman, 1932). The researcher is guided by this particular method because of how the topic lends itself to being a phenomenon of study in addition to having a varied method of analysis for reliability. A mixed investigational design is used in an effort to describe the current practices of kaizen implementation in depth as well (Fraenkel & Norman, 1932). This particular method

not only provides statistical data through the use of survey but allows the researcher to obtain a more in-depth look into how to implement Kaizen currently.

A quantitative method is used to show the practical application of kaizen implementation, successes, challenge and future emphasis. The researcher also used structure interview as the qualitative method to obtain information from the participants.

Qualitative research is regarded as providing rich data about real life people and situations and being more able to make sense of behavior and to understand behavior within its wider context (De Vaus, 2002).

3.2 Data Sources

Primary and secondary data sources were used for this research work. This is data that has never been gathered before. Researchers tend to gather this type of data when, what they want cannot be find from outside sources (Ayalew & et al., 1999). The primary sources were been Deans, Vice Deans, Department Heads and Trainers of TVET colleges. In addition, some secondary sources such as journals, official documents, seminar papers, minutes, different report paper (monthly, quarter and yearly) and websites were also consulted.

3.3 Target Population and Sample Size

The total population of TVET colleges in Addis Ababa was five. The target population of the study also consisted of 5(100%) them. These were namely: Entoto, General wenget, Meserqe Ateqalay , Nifaselk &Tegebherd colleges. The total number of trainer's staff were 735 of them 53 were department heads of the trainers including soft skill field of study and 204 of them were soft skill trainers (like KAB, health, sport, culture, transport and civic & ethical education). Besides, 14 College's Deans *i.e.,* Dean and Vice Dean (outcome based core process leader's and technology transfer& industry extension leaders) were the target population of the study. Based on these information soft skill trainers were not included in the sample selection. Since, there was no workshop for those departments.

3.4 Sampling Techniques

As it was found by the researcher, including all target population in the study would be unmanageable. Therefore, from the five colleges found in the city, 5(100%) of them were selected purposefully as a sample for the study because they include all fields of study specially focus on country development programs (like building construction , industrial technology, leather, textile &garment , automotive, woodwork technology and agriculture)as training centers.

The respondents were selected for this study using purposive and stratified sampling techniques. Accordingly, Deans, Vice Deans and Department Head of the Trainers were selected by purposive sampling techniques. Since they are the ones available and they are the direct participants in the implementation by themselves and due to their direct involvement on implementer role. Additionally, its low costless and convenience to this research title. Furthermore, trainers were selected from the sample colleges by using stratified sampling techniques in to eight field of the study namely. These were building construction, wood & wooden technology, industrial technology, electrical/electronic technology, textile & garment, automotive, hotel & tourism, food science & technology. Given that, from each stratum 20% of them were taken for sample. Exceed more than this number of trainers in the sample may leads to an unmanageable data collection will be occurred. Thus 20% of trainers and 100% of department heads were selected as a sample. The size of the sample determined by the population (Kumar, 1999). Therefore, 5 deans and 9 vice deans were employed by interview to get valid information for cross-checking which were found in the questionnaire data. The following table summarized the sample of the population data as shown below.

Table: 2. Sample of Respondents

No.	Field of Study	Respondents					
		Dean Sample		Department head sample		Trainer Sample	
		Total	100%	Total	100%	Total	20%
	Building Construction	-	-	11	11	112	22
	Industrial Technology	-	-	5	5	72	14
	Wood &wooden Technology	-	-	5	5	78	16
	Electrical/Electronic Technology	-	-	5	5	59	12
	Textile & Garment	1	7	3	3	20	4
	Automotive	-	-	3	3	41	8
	Hotel & Tourism	-	-	3	3	76	0
	Food science & Technology	-	-	3	3	16	3
	Leather	-	-	2	2	4	1
	Others	13	93	13	-	204	-
1	**Total**	**14**	**100**	**53**	**40**	**682**	**80**

Source: Field survey, 2014

3.5 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 the kaizen in the AA TVET government colleges it need to applying appropriate data collection instruments. The instruments used to gather data were questionnaire, interview and document analysis. With respect to this, (Kumar,1999) stated that employing multiple data collection instruments help the researcher to combine, strengthen and amend some of inadequacies of the data.

Accordingly, questionnaires were used as the main data gathering instruments whereas structure interview and document analysis were used to enrich the data obtained through questionnaire. Then, the instruments were pre-tested being given to 10% of deans and trainers of the colleges. Accordingly, with some modifications of missing words and typing errors then final instruments were developed and used for the purpose.

3.5.1 Questionnaire

Questionnaires were developed on the basis of basic questions of the study, review of literature, and theories of kaizen as management toolkits. The questionnaires were closed-ended and open-ended. It was designed to collect data from two groups:

(department heads of the trainers and trainers of the colleges). Thus, respondents have direct involvement of kaizen practical application in the college. The questionnaires helps to collect data from large number of respondents in different location .Further, the questionnaires can be detailed and help to cover many subjects or issues can be easily and quickly analyzed once the field data gathering work is completed. In the case of closed-ended questionnaires item rating scales like range from 1(very high) to 5(very low) based on the questions were used. These instrument were preferred for the reason that, they provide more flexibility to the respondents and offered greater accuracy in recording their view on a given subjects. A rating is a measured judgment of some sort. While opened-ended questionnaires used for respondents to explain their feeling and understanding freely as much as possible based on the question rises.

3.5.2 Interview

In order to criticize the data obtained through questionnaire, a structured interview was conducted with TVET college deans. For this, interview guides (a written list of open and /or close ended items) were prepared by the researcher and present to college dean's in face to face interaction. This method was selected because it provides uniform information, which ensures the comparability of the data (Kumar, 1999).

3.5.3 Document Analysis

The data collection has already been done. This type of data typically comes from colleges. There is equivalent with secondary data, but should be well informed about how it was collected. In this research has used secondary data such as official policy and strategy documents, guidelines, and magazines were referred which indicate the implementation of the kaizen in the city as well as in the countries which support the finding of the study.

3.5.4 Observation

Observation was conducted by the researcher to gather data/information concerning current implementation of kaizen in Addis Ababa City administration of Government TVET Colleges.

3.5.5 Pilot Study

The purpose of the pilot study was to assess the relevance of the instrument designed to collect data for the study. The aim was also to find out ambiguities, omissions and misunderstanding of each item. Given to the study/ thesis advisor and he was asked to give their reaction on each item of the instruments. Using the relevant comments and suggestions from the instruments the pilot study was conducted. The pilot study was conducted in Addis Ababa Tegbaherd TVET College 1 deans, 8 trainers form each field of the study, 2 department heads. A total of 11 respondents had participated in the pilot study. Then some omissions of words and terms edited in the in the final questionnaire.

3.6. Data Collection Procedures

To explore the practice of Kaizen implementation in Addis Ababa TVET colleges first, questionnaire and structured interview were developed based on the basic questions. Finally, instrument were developed and used for the purpose. The questionnaires were designed for colleges' department heads of the trainers and trainers of the colleges. In addition, interview was constructed with the Deans and Vise Deans. After finalizing the instruments the researcher distributed the questionnaires to the respective department heads of the trainers and trainers of the sample areas giving adequate orientation about the purpose and how to fill them. In each college there were a representative to facilitate the data distribution, clarification and collection to and from the respondents. Then, constant follow up were made by the researcher through telephone and people to minimize communication breakdowns. Finally, the instruments were collected by the researcher from each college for analysis.

3.7 Data Analysis Techniques

An analysis was 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 were made analysis. The questionnaires were also coded statistically. The coded data from the questionnaires were entered into the computer and the analysis carried out according to the basic questions of the study. The analysis was done using the measurement of central tendency and percentile computed by using SPSS (descriptive) to find the mean value score by including all the member observation in categorized item (group). This

statistical tool was selected because it was the most important measure to describe the current practice of kaizen implementation from two groups with the same questionnaires. Preparing the same questionnaires with different respondent were help to diagnosis the understanding of the concept as well. Moreover, the rest of the interview data responses were used to back up the findings of the analysis through narration. Depending on the result of analysis, interpretation and necessary discussion were made to clarify the issues.

CHAPTER FOUR

Data Presentation and Analysis

This chapter deals with the presentation, analysis and interpretation of the data collected through questionnaire, interview and document analysis from the AA TVET College deans, trainers and department heads in order to get the relevant information about the practice, successes and challenges of kaizen implementation. It consists of two parts. The first part presents personal information of sample population and part two deals with the presentation and analysis of the study.

4.1 Characteristics of Respondents

As described in chapter three, 80 trainers, 40 department heads, and 14 deans from 5 Addis Ababa TVET colleges were included in the study. Deans were interviewed while trainer respondents were made to fill in the questionnaire.

Out of the total questionnaire distributed, 80 of the respondents from trainers and 40 from department head respondents filled in and returned. These reduce the number of trainer respondents from 682 to 80. Based on the responses obtained from respondents, the characteristics of the study group were examined in terms of sex, age, qualification, field of the study, and service years are presented in Table 3-5.

Table: 3. Distribution of the Respondents by Sex and Age

No	Item		Respondents (N=134)					
			Dean (N=14)		Dep't. Heads (N=40)		Trainers (N=80)	
			f	%	F	%	f	%
1	Sex	Male	12	85.72	32	80	61	76.3
		Female	2	14.28	8	20	19	23.7
		Total	14	100	40	100	80	100
2	Age	20-30	-	-	-	-	42	52.5
		31-40	2	14.29	23	57.5	26	32.5
		41-50	10	71.42	15	37.5	8	10
		51 & above	2	14.29	2	5	4	5
		Total	14	100	40	100	80	100

Source: Field survey, 2014

As can be seen in Table 3, out of the 80 trainer respondents 76.3% were male and 23.7% were female. In addition, out of the 14 dean respondents 14.28% were female and 85.72% were male. While out of 40 department heads 80% were male and 20% were female. This shows that female participation in dean, department head and trainer were relatively less than that of male in the TVET colleges of AA city administration.

With regard to age of the respondents, 52.5% of the trainers were aged from 20-30.This indicates that more than half of the trainers were in the young age category. Besides, 71.42% of the deans were aged ranging from 41-50 years. This implies that experienced trainers have likely to leave the colleges after well experienced and trainers may use profession as a bridge occupation.

Table: 4. Distribution of the Respondents by Qualification and Field of Study

No.	Items		Respondents (N=134)					
			Deans (No=14)		Dep't Heads (N=40)		Trainers (N=80)	
			F	%	f	%	f	%
	Qualification	MA/MBS	13	92.86	8	20	-	-
		BA/BSC	1	7.14	22	55	34	42.5
		Diploma	-	-	10	25	46	57.5
		Other	-	-	-	-	-	-
1		**Total**	**14**	**100**	**40**	**100**	**80**	**100**
	Field of study	Building Construction	-	-	11	27.5	22	27.5
		Industrial Technology	-	-	5	12.5	14	17
		Wood &wooden Technology	-	-	5	12.5	16	20
		Electrical/Electronic Technology	-	-	5	12.5	12	15
		Textile & Garment	1	7.1	3	7.5	4	5
		Automotive	-	-	3	7.5	8	10
		Hotel & Tourism	-	-	3	7.5	-	-
		Food science & Technology	-	-	3	7.5	3	3.75
		Leather	-	-	2	5	1	1.25
2		**Total**	**1**	**7.1**	**40**	**100**	**80**	**100**

Source: Field survey, 2014

With regard to respondents' qualification, as shown in Table 4, deans 92.86% did attain their academic qualification in MA with the field of curriculum and educational planning & management. While 55% of department head respondents were degree holders. This indicates that colleges were lead by persons who have knowledge about education field of study.

Regarding the trainers qualification 57.5% were diploma holders. From this we may concluded that the trainers were not certified in higher order of education i.e., above BA/BSC. Based on federal TVET regulation, the minimum requirement for TVET College trainers are a diploma holder with her/his field of study and have a certificates of CoC proficiency. Additionally, the department heads 55% of respondents were BSC/BED degree holders.

Item No. 2 in table 4, 7.1% of the dean was in the field of TVET education. This may indicate that colleges were lead by general education academicians rather than TVET stream. In addition, the highest number of the department heads 27.5% and trainers 27.5% were in the field of construction. This may also indicate that now a day's AA city administration placed much emphasis to have more number of experts in the field of construction in order to achieve city's development programs like railway, road and condominium house construction. Next to construction field of the study industrial technology, wood and wooden technology, and electrical/electronic technology were 12.5% of the trainers.

Table: 5. Distributions of Respondents by Years of Experience

No.	Item		Respondents (N=134)					
			Deans (No=14)		Dep't Heads (N=40)		Trainers (No=80)	
			f	%	F	%	F	%
1	Service	0-5	12	85.71	9	22.5	42	52.5
		6-10	2	14.29	11	27.5	16	20
		11-15	-	-	20	50	15	18.75
		16-20	-	-	-	-	4	5
		21 and above	-	-	-	-	3	3.75
		Total	14	100	40	100	80	100

Source: Field survey, 2014

Concerning service years of the respondents, majority of the deans 85.71 % and more than half of trainers 52.5 % have 0-5 years of service while 50% department heads had served for more than 11 years. This indicates that they may acquire the level of practical skill that would be obtained through an extended years of service. Therefore, from this it may possible to conclude that majority of department heads were in a position to provide their rich experience to trainers during training process in the colleges.

4.2. Benefits of Kaizen Implementation to TVET Colleges

As cited in review of the related literature, according to *www.vsrdjournals.com* by following the right steps properly applied, any company, no matter what its nationality, can benefit from kaizen. Thus, not only the colleges but also any other organization implement kaizen management philosophy has a benefit from its staff member work satisfaction beyond profitability of the organization.

The questions raised on the benefits of kaizen implementation to trainers and department heads were tallied based on Likert measuring rate of scale can be summarized as in the following tables.

Table: 6. Benefits of Kaizen Implementation toward AA TVET colleges

No	Items	Respondents **(N=120)**													
		Department Head (N=40)							Trainers (No=80)						
		Frequency of Rating scale					T	μ	Frequency of Rating scale					T	μ
		5	4	3	2	1			5	4	3	2	1		
1	**Employees satisfaction** Better safety	9	9	8	7	7	40	3.15	18	21	15	15	11	80	3.25
	Self discipline	9	9	7	8	7	40	3.12	24	20	17	11	8	80	3.51
	Development of team sprit	8	10	9	7	6	40	3.18	20	26	16	9	9	80	3.11
	Need of improvements on your work	9	10	5	9	7	40	3.38	20	27	14	12	7	80	3.51
	Total	**35**	**38**	**29**	**31**	**27**	**160**	**3.2***	**82**	**94**	**62**	**57**	**35**	**320**	**3.35***
	%	**22**	**24**	**18**	**20**	**18**	**100**	**-----**	**26**	**29**	**19**	**16**	**10**	**100**	**----**
2	**customer satisfaction** Effective utilization of time	9	9	84	5	9	40	3.1	19	25	16	11	9	80	3.43
	Availability of visual managements/indicators	9	10	83	6	7	40	3.2	15	27	17	12	9	80	33.3
	Acquire training based on their interest	8	8	10	6	8	40	3.05	23	29	19	7	2	80	3.83
	Total	**26**	**27**	**26**	**17**	**24**	**120**	**3.15**	**57**	**81**	**52**	**30**	**20**	**240**	**3.52***
	%	**22**	**23**	**22**	**14**	**19**	**100**	**---**	**24**	**34**	**21**	**13**	**9**	**100**	**---**
3	**cost reduction:** Financial cost	7	9	8	4	12	40	2.88	16	32	22	2	8	80	3.58
	Human resource	8	8	10	7	7	40	3.08	18	29	19	10	4	80	3.55
	Workshop utilization(space)	9	8	9	5	9	40	3.08	24	21	18	9	8	80	3.5
	Searching hand tools times	9	7	10	9	5	40	2.48	22	25	16	9	8	80	3.55
	Total	**30**	**32**	**37**	**25**	**33**	**160**	**2.88**	**80**	**107**	**72**	**30**	**28**	**320**	**3.55***
	%	**19**	**20**	**23**	**17**	**21**	**100**	**---**	**26**	**34**	**23**	**9**	**8**	**100**	**---**

5= Strongly Agree, 4= Agree, 3=Undecided .2=Disagree, 1=Strongly Disagree and (Number)* = Average mean, T=Total Number & μ=mean value

Concerning the benefits of kaizen implementation, as shown in Table 6 item No.1, 3.21* & 3.35* are an average mean values of department head and trainer respondents' level of agreement, respectively. This implies that the understandings of kaizen benefit on employee satisfaction respondents were agreed. Respondent's reaction may imply that trainers', the level of satisfaction and commitment are the key point for the success of kaizen implementation. In addition, 48% of department and 55% of trainer respondents were suggested that above agreed. This may reveal that implementation of kaizen has a benefit towards employee's satisfaction. Whereas the significant number 38% of department and 26% of trainer respondents' express their level of agreement on employee's satisfaction were disagreed.

With regard to customer satisfaction, trainer and department respondents the average mean value were 3.52* and 3.15* respectively. These indicate that both respondents opinion on the benefits of kaizen implementation for the costumer's satisfaction were agreed. Parallel to this frequency of rated scale, 43% of department and 58% of trainer were agreed on the benefits of customer satisfaction like effective utilization of time, availability of visual managements/indicators and acquire training based on their interest.

Furthermore, trainer and department respondents' opinion on the cost reduction items 39% and 60% were agreed, respectively. This may tell us financial, human, space and time utilization can be used in effective and efficient way through the application kaizen. Whereas, 2.88* is an average mean value of the department heads' level of agreement on item of cost reduction. This may indicate that cost reduction was disagreed/ intangible in the case of financial cost and time needed for searching hand tools.

Finally, the overall degree of benefits of kaizen is determined by the average mean value of the items. The average mean values were calculated for all items 3.8* and 3.47*of department and trainers respondents', respectively. This may reveal that the benefits of kaizen in cost reduction and employees and customer's satisfaction were found to be satisfactory.

4.3. Degree of Success of Kaizen Implementation

As stated in the review of related literature, the success of kaizen can be made when well understanding of its benefits. And also the success can not arrive within the short period of times but it is a continuously throughout ways of life. The Ethiopia Kaizen Institute (2012) defines kaizen 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.

As articulated by Anh, et al. (2011), the success of kaizen overseas transferability and implementation of the kaizen practices in Ethiopia depend on the degree of compatibility between the Japanese company's kaizen culture and the Ethiopia national culture. Given this conceptual framework into account, the introduction of kaizen as a management tool and success in the transfer of technology to improve and enhance productivity and managerial capability in colleges is critical.

In general, respondents were asked to rate the success of kaizen implementation that is intended to measure the degree of the opinion towards implementation. The rating was constructed in the form of Likert scale alternatives ranging from strongly agree (5) to strongly disagree (1) to indicate their reaction by choosing one among the given five points of as follows in Table 7 below.

Table: 7.The Degree of Success of Kaizen Implementation

No	Items	Respondents (N=120)													
		Department Heads (N=40)							Trainers (No=80)						
		Frequency of Rating scale					T	μ	Frequency of Rating scale					T	μ
		5	4	3	2	1			5	4	3	2	1		
1	**Planning** Select an area	10	9	9	5	7	40	3.3	26	31	13	5	5	80	3.8
	Select team members	8	9	10	6	7	40	3.1	19	28	14	13	6	80	3.5
	Select team leaders	9	8	9	8	6	40	3.2	16	28	15	13	8	80	3.4
	Train team as whole	6	9	11	6	8	40	3	19	25	18	9	9	80	3.5
	Select problems for improvement	10	8	9	5	8	40	3.2	21	25	15	8	11	80	3.5
	Involvement of all employees	10	8	8	8	6	40	3.2	20	23	16	10	11	80	3.7
	Total	**53**	**51**	**56**	**38**	**42**	**240**	**3.17***	**121**	**160**	**91**	**58**	**50**	**480**	**3.57***
	%	**22**	**21**	**23**	**16**	**18**	**100**	----	**25**	**33**	**19**	**12**	**11**	**100**	---
2	**Implementation** Sorting	17	12	6	3	2	40	4	25	19	15	11	10	80	3.5
	Set in order	12	16	6	1	5	40	3.7	22	20	12	13	13	80	3.3
	Shining	15	12	10	2	1	40	4	20	24	18	13	5	80	3.5
	Standardizing	7	6	3	18	6	40	3	17	22	19	13	9	80	3.3
	Sustaining	6	3	3	19	9	40	2.5	12	10	20	29	9	80	2.8
	Total	**57**	**49**	**28**	**43**	**23**	**200**	**3.44***	**98**	**95**	**84**	**79**	**46**	**400**	**3.28***
	%	**29**	**25**	**14**	**21**	**11**	**100**	---	**24**	**23**	**21**	**19**	**13**	**100**	---
3	**Elimination of Waste** Unnecessary Motion	10	9	12	3	1	40	4.3	14	21	19	11	15	80	3.7
	Excess Processing	7	8	3	12	10	40	2.8	15	24	20	12	9	80	3.3
	Excess Inventory	8	11	7	5	9	40	3.1	12	19	26	11	12	80	3.1
	Defect-making	9	15	7	6	3	40	3.5	12	26	19	14	9	80	3.2
	Waiting in the workshop	8	9	9	8	6	40	3.1	15	19	23	12	11	80	3.2
	Total	**42**	**52**	**38**	**34**	**29**	**200**	**3.36***	**68**	**109**	**107**	**60**	**56**	**400**	**3.3***
	%	**22**	**27**	**19**	**18**	**15**	**100**	----	**17**	**28**	**26**	**15**	**14**	**100**	---
4	**Reward & Motivation** Provide Certificate	4	6	4	20	6	40	2.6	9	6	16	22	27	80	2.4
	Monetary reward	2	1	3	24	10	40	2	6	8	6	35	25	80	2.7
	Promotion through carrier structure	1	2	6	21	10	40	2.1	7	5	30	20	18	80	2.2
	Total	**7**	**9**	**13**	**65**	**26**	**120**	**2.23***	**22**	**19**	**52**	**77**	**72**	**240**	**2.43***
	%	**6**	**8**	**11**	**54**	**21**	**100**	----	**9**	**8**	**21**	**32**	**30**	**100**	--

5= Strongly Agree, 4= Agree, 3=Undecided .2=Disagree, 1=Strongly Disagree and (Number)* = average mean, T=Total Number & μ=mean value

Table 7 attempts to answer the questions raised on success of kaizen implementation. As it is shown in item No.1, in the phase of planning like select an area, team member and team leaders for implement kaizen, and the opinion indicates that 43% of department and 70% of trainer were rated above agreed. In relation to this, the average mean value of 3.15* of department heads and 3.57* of trainers were agreed respectively. The calculated mean values of the respondents' may imply that between the two respondents have no differences in their expression. In addition, the detail item of planning like selecting area, team and team leader for continuous improvement, the respondents reacted as were agreed and strongly agreed. This rated mean value may show that, before implementation of kaizen in to practice the paper work already done in advance. The total calculated 3.17 of department and 3.57 of trainer mean values show that planning phase was properly done ahead of application.

Concerning the implementation phase of kaizen, the majority of the total respondents 54% of department and 47% of trainer responded us agreed. Whereas, the rest 33 % of department and 31.25% of trainer were reacted us below disagreed. This may reveal that the implementation phase was agreed on the practice of 5s. Even if the first "4s" were agreed, but the rest one "s" which is sustainability indicates as from the two respondents were undecided and below that. This may show that the continuity of the kaizen system in the college was under uncertainty.

As it is indicated in the review of related literature, to make kaizen system sustainable in the college's workshop and expand to the other organization, the managerial appointed person search different ways of mechanism. Reviewing the above processes and working on a successful PLAN, DO, CHECKED AND ACT. In short he/she can uses Demming cycle, PDCA, then is followed by the SDCA cycle where 'S' stands for standardization and maintenance of the new situation Imai (1986).

According to Imai (1986), the PDCA cycle revolves continuously; no sooner is an improvement made than the resulting status quo becomes the target for further improvement. PDCA means never being satisfied with the status quo. Because employees prefer the status quo and frequently do not have initiative to improve

conditions, management must initiate PDCA by establishing continuously challenging goals.

According to respondent's reaction, the total grand mean value of 5s was calculated to estimate the level of departments' and trainers' agreement. The total average mean value of department 3.44 and trainer 3.28 also reveals that implementation phase of kaizen was above average point. The results of the interview also support this idea. Respondents opinion basically focus on sorting, shining and set in order of scatter tools and other materials in the workshop of the departments. The remaining the two i.e., standardization and sustainability needs additional training on the concept to adopt the continuous improvement of kaizen as a system in the colleges.

Regarding elimination of waste, $3.36^{*}$and 3.3^{*} were an average mean values of department head and trainer respondent's respectively. This may imply that the respondent's level of agreement on the waste elimination was agreed. Conceptually, as indicated in the review of related literature, the main importance of kaizen implementation reveals that waste can be reduce through seven techniques. This may show that, to increase the production quality and quantity must apply wastes reduction methods in the working area.

Lastly, table 7 of item 4 reveals that reward and recognition towards kaizen implementer, 75 % of the department and 62 % of the trainers were rated us below disagreed respectively. These may indicate that, even if the implementation of kaizen is done by the college's communities like department heads and trainers but appreciation was neglected by the administrator of the college's society. This habit may lead to the already existed custom of the college and generally the college's society resist applying new ideas as a whole. Similar to this, the average means value 2.23 of department head and 2.43 of trainer respondents' level of agreement were disagreed. According to respondent's reaction, reward and recognition in the college may not exist to motivate the workers. Because of this and other reason implementation of kaizen sustainability may be affected.

As indicated in the reviews of related literature, the third phase of kaizen implementation is “Presentation, celebration, dissemination and follow up” of already implemented philosophy of kaizen in the organization by provide certificate, reward and recognition for the implementer’s. This ceremony has a power to continue the success of kaizen in the colleges by motivating the workers to do with additional technology in his/her colleges.

As interview indicated that, based on kaizen theory related with practical at work place, trainers assigned in kaizen implementation in the colleges are expected to integrate the theory trained with the actual practice at the work place. However, according to majority trainers at the workshop take as the kaizen theoretical background for the beginning time and had very little mismatch relation with the practical activities at the actual situations. Because of these sustainability and standardization is failed under uncertainty.

4.4. Major Problems Faced During Kaizen Implementation

As indicated in the review of related literature, kaizen is a low-cost approach to productivity improvement for two reasons. First, it does not require huge capital investment & expensive technology since it seeks to use existing equipment and human resources in a more efficient—less wasteful—way. Second, the key goal of kaizen is to generate the internal capability of the college’s trainers. In fact, if kaizen implementers do not leave the colleges after one or two years, improvement efforts should be considered a failure. Thus, kaizen is particularly suited for enterprises in low-income countries which face financial access problems like Ethiopia. But in the implementation phase of kaizen, some problems were faced on the perception. These are listed and rated by the implementers that are the department heads and trainers as the following table 8 below.

Table: 8. Challenges of Kaizen Implementation in Learning Department

No.	Items	Respondents (N=120)													
		Department heads (N=40)							Trainers (No=80)						
		Frequency of Rating scale					T	μ	Frequency of Rating scale					T	μ
		5	4	3	2	1			5	4	3	2	1		
1	**Trainers perception:** Resistant to accept kaizen concept	6	12	5	8	9	40	2.95	17	19	15	14	15	80	3.11
	Involvement in providing planning	6	12	5	9	8	40	2.96	16	25	15	12	12	80	3.26
	Knowing role & responsibility	8	9	12	6	5	40	3.23	19	25	15	13	8	80	3.43
	Think as Kaizen focus only in 5s	12	14	3	6	5	40	3.7	19	21	22	8	10	80	3.39
	Needs of training on kaizen concept	24	7	5	1	3	40	4.2	18	25	16	10	11	80	3.24
	Total	**56**	**54**	**30**	**30**	**30**	**200**	**3.35***	**89**	**115**	**83**	**57**	**56**	**400**	**3.29***
	%	**28**	**27**	**15**	**15**	**15**	**100**	---	**22**	**30**	**21**	**14**	**13**	**100**	-----
2	**Deans perception** Clarity of supervision content	4	3	6	20	7	40	2.43	19	24	15	15	7	80	3.41
	Be committed to give feedback	3	6	6	22	3	40	2.6	17	24	18	12	9	80	3.35
	Knowing role & responsibility	8	15	9	3	5	40	3.45	15	26	18	11	10	80	3.31
	Superior imposition	18	14	3	4	1	40	4.16	15	26	16	11	12	80	3.51
	Prepare ways of reward &recognition	6	18	8	5	3	40	3.48	15	16	19	12	18	80	3.22
	Total	**39**	**56**	**32**	**54**	**19**	**200**	**3.22***	**81**	**116**	**86**	**61**	**56**	**400**	**3.36***
	%	**20**	**28**	**16**	**27**	**9**	**100**	---	**20**	**30**	**22**	**15**	**13**	**100**	----
3	**Government perception** Fit b/n kaizen & organizational culture	7	10	9	6	8	40	3.05	20	18	20	12	10	80	3.33
	Change the mindset of colleges workers	7	6	5	12	10	40	2.7	15	25	18	12	10	80	3.29
	Involvement of workers in decision-making	7	6	11	9	7	40	2.93	9	23	18	14	16	80	2.94
	Empowerment of workers	6	5	12	9	8	40	2.8	14	21	20	12	13	80	3.14
	Total	**27**	**27**	**37**	**36**	**33**	**160**	**2.87***	**58**	**87**	**72**	**50**	**49**	**320**	**3.16***
	%	**17**	**17**	**23**	**22**	**21**	**100**	---	**18**	**27**	**23**	**16**	**16**	**100**	--

5= Strongly Agree, 4= Agree, 3=Undecided .2=Disagree, 1=Strongly Disagree and (Number)* = average mean, T=Total Number & μ=mean value

Concerning trainer's perception, 2.95 and 2.96 were the average mean value of the department respondent's level of agreement on the detailed items of "to resist the concept of kaizen and involving in the preparation of planning". This may show that the

trainer resists to accept the concept of kaizen and participate in preparing plan to implement kaizen were disagreed. According to respondent reaction, trainers accept the concept of kaizen but there were problems to implement in to practice.

In line with this, an effort was made to examine the challenges of kaizen implementation in the workshop of the colleges, an interview questions were forwarded to deans. In the interview of deans, reveal that implementing has its own challenges like:

- Materials and different hand tools which are covered by dusts this leads to disorder the health of the implementers.
- Pick up the heavy materials were another problems because there were machines which were not loaded by human beings this also needs another extra cost or it may indicate the exertion of efforts by all trainers and responsible party to successfully achieve the objectives of the kaizen implementation.
- Difficult to differentiate materials which are from necessary to unnecessary.

In the items 1 of Table 8, the perception of trainers level of agreement reacted by the trainers him/her towards challenges of kaizen implementation indicates that, 51% were agreed. These may show that, there were the problems of accepting kaizen concept, involvement in providing planning, knowing role & responsibility, think as kaizen focus only in 5s implementation and needs of training on kaizen concept.

Concerning knowing role & responsibility, think as Kaizen focus only in 5s and Needs of training on kaizen concept, reaction of respondents mean value were above average respectively. This may indicate that both respondent were understand that kaizen focuses only in “5s” implementation. This also contradict that pillars of kaizen described in the review of related literature. From the concept of kaizen implementation “5s” is the one that is done in the implementation phase. But the other elimination of waste and standardization were neglected. This may reveal that now a days the college’s communities implements “5s” only, not another pillars of kaizen.

As it is observed from Table 8, the mean value 3.22 of department and 3.36 of trainer respondent's on the items of perception of deans as challenges of kaizen implementation. This may point out that, clarity of supervision contents, be committed to give feedback, knowing role & responsibility, superior imposition and prepare ways of reward & recognition respondent were agreed. Whereas, 65% of department heads of college were responded their level of agreement on the items of "clarity of supervision contents and be committed to give feedback" were disagreed. This may reveal that skilled supervisors could not supervise the implementation of kaizen by preparing cleared measuring criteria of supervision. This may lead to; they could not prepared feedback on the requested of the trainer's availability. In contrast to the department heads, the frequency rating scale of the trainers on the ideas of "clarity of supervision contents and be committed to give feedback" 52% were agreed. These may indicates that department heads and trainers were understand the concept in different ways. This may also another challenge to implement kaizen.

Furthermore, item No. 2 of the Table 8 was constructed to gather opinion on the challenges of kaizen implementation based on knowing role & responsibility, superior imposition and prepare ways of reward &recognition. The averages mean value of department heads 3.69 and 3.35 trainers were agreed respectively. This may indicate that, the deans know their roles and responsibility but influenced by the superior person to implement kaizen in their colleges.

Concerning challenges of kaizen implementation on government sides, the frequency rated scale of department heads 42.5%and trainers 47.5% based on fit b/n kaizen & organizational culture were suggested agreed and Change the mindset of colleges workers, department heads 32.5% and trainers 50% were agreed and strongly agreed. Lastly, on the items of "involvement of workers in decision-making", 32.5%of department heads and 38.75% of trainers were agreed and strongly agreed. Whereas, significant numbers of respondents expresses their level of agreement based on the average mean 2.94 of the involvement of workers in decision-making were disagreed.

The findings indicate that, majority of department heads and trainers on the items of "fit b/n kaizen and organizational culture, Change the mindset of college workers and

involvement of workers in decision-making" were as agreed. However, significant number 42% of department heads and 31% of trainers were expressing their opinion us disagreed on the ideas of empowerment of workers. This may indicate that the main problem was made by superior's person to make handicapped the authorized experts/trainers rather than appreciates what have been done.

As indicated in the reviews of related literature, some of the most common problems facing traditionally managed organizations are: High defect rates, Excessive inspection costs, Lack of communication, Unsatisfied trainers and Dissatisfied customers, all leading to high levels of operating costs. These problems are partly to be avoided up on the implementation of improved management philosophy like Kaizen. However, it is also true that some basic conditions such as motivated trainers, some level of skill for them to be able to understand trainings and team discussions, top management commitment(dean and vise deputies), good trainer – management relationship, etc are quite essential. Thus such issues should be assessed in advance. As trainers' commitment is a key point for the success of a Kaizen implementation, the level of trainer satisfaction and their commitment to the colleges need to be evaluated prior to the introduction of Kaizen. Generally traditional colleges do not attach great importance to training and the level of trainer's skill and knowledge is likely to be low. The introduction and development of Kaizen begins with training, education and the motivation of personnel and other necessary changes in the workforce management system.

4.5 Suggested Solutions to Mitigate the Problem Listed Above

As we can seen from the above problems faced during implementation of kaizen this part can suggest solution which are given from the alternatives responded by the respondent's level of agreement. Table 8 reveals that, respondents were asked to rate the major measures taken to overcome challenges faced during implementation that are intended to measure the extent of opinion towards kaizen implementation as follows in table 9 below.

Table: 9. Major Measures Taken to Overcome Challenge of Kaize Implementation

No.	Item	Respondents (N=120)													
		Department Heads (N=40)							Trainers (No=80)						
		Frequency of Rating scale					T	μ	Frequency of Rating scale					T	μ
		5	4	3	2	1			5	4	3	2	1		
1	**Provide training:** On pillars of kaizen	12	8	6	9	5	40	3.3	19	31	16	8	6	80	3.61
	Benefit of kaizen	18	7	5	4	6	40	3.9	21	26	14	13	6	80	3.74
	Characteristics of kaizen	9	12	6	7	6	40	3.3	17	28	16	11	8	80	3.34
	Countries experience	7	8	9	10	6	40	3	16	23	20	9	12	80	3.28
	Total	**46**	**35**	**26**	**30**	**23**	**160**	**3.4***	**73**	**108**	**66**	**41**	**32**	**320**	**3.5***
	%	**29**	**22**	**16**	**19**	**12**	**100**	**---**	**23**	**34**	**21**	**13**	**9**	**100**	**---**
2	**Provide Scientific work procedure:** Sorting	19	12	6	2	1	40	4.2	25	34	9	12	0	80	3.86
	Set in order	16	10	3	6	5	40	3.9	25	21	13	8	13	80	3.46
	Shining	12	13	4	8	3	40	3.3	22	30	16	8	4	80	3.73
	Standardizing	9	3	2	12	14	40	2.5	46	7	5	3	19	80	3.7
	Sustainability	14	10	6	3	7	40	3.5	21	23	16	14	6	80	3.55
	Total	**70**	**48**	**21**	**31**	**30**	**200**	**3.5***	**139**	**115**	**49**	**88**	**42**	**400**	**3.34***
	%	**35**	**24**	**11**	**15**	**15**	**100**	**---**	**34**	**29**	**12**	**12**	**13**	**100**	**----**
3	**Use problem solving approach** Identify problem	12	5	8	7	8	40	3	22	29	17	10	2	80	3.74
	Formulation of hypotheses	14	5	6	3	12	40	3.3	17	25	16	14	8	80	3.36
	Collection of data	16	4	6	4	10	40	3.3	16	31	14	12	7	80	3.46
	Analysis the data	5	4	6	16	9	40	2.5	16	24	19	9	12	80	3.29
	Provide solution	15	6	3	5	11	40	3.2	19	23	16	14	8	80	3.39
	Total	**82**	**24**	**29**	**35**	**50**	**200**	**3.1***	**90**	**132**	**82**	**59**	**37**	**400**	**3.5***
	%	**41**	**12**	**15**	**17**	**15**	**100**	**---**	**22**	**33**	**20**	**15**	**10**	**100**	**---**
4	**Create positive work environment:** Develop team sprite	12	6	5	15	2	40	3.3	14	26	22	9	9	80	3.34
	Motivation through reward	14	6	8	3	9	40	3.3	19	26	19	8	8	80	3.5
	Self discipline	14	8	5	7	6	40	3.4	17	25	24	9	5	80	3.5
	Initiate workers to become rational thinker	14	4	10	6	6	40	3.5	19	22	22	8	9	80	3.93
	Helping worker to get things done	13	5	7	10	5	40	3.03	17	29	16	10	8	80	2.96
	Total	**67**	**29**	**35**	**41**	**28**	**200**	**3.31***	**86**	**128**	**103**	**44**	**39**	**400**	**3.45***
	%	**34**	**14**	**18**	**20**	**14**	**100**	**----**	**22**	**32**	**26**	**11**	**9**	**100**	**---**
5	**Prepare measuring performance:** Plan achievement	7	10	9	7	7	40	3.2	18	31	15	10	6	80	3.31
	Guideline	7	8	11	5	9	40	3	19	29	14	10	8	80	3.02
	Checklist	15	6	5	4	10	40	3.3	16	28	15	12	9	80	3.34
	Provided Supervisor	16	9	5	7	3	40	3.7	21	25	12	8	14	80	3.39
	Total	**25**	**33**	**30**	**43**	**29**	**160**	**3.3***	**74**	**113**	**56**	**40**	**37**	**320**	**3.22***
	%	**15**	**20**	**19**	**27**	**19**	**100**	**--**	**23**	**35**	**18**	**13**	**11**	**100**	**--**

5= Strongly Agree, 4= Agree, 3=Undecided .2=Disagree, 1=Strongly Disagree and (Number)* = average mean, T=Total Number & μ=mean value

According respondent's responses, out of seventeen items presented under five management areas, three bear various items "standardizing, analysis the data and helping worker to get things done" mean value score fall below the average satisfactory point (i.e.,<3.00).

The average mean value of five management areas under Table 9 was calculated to estimate the level of measurements taken to overcome the challenge during kaizen implementation. Average mean value calculated scores of department and trainer respondents' reveals that above average point (i.e., >3.00).

According to respondent's opinion, calculated average mean value show that, to implement kaizen in standardize and sustainable ways the responsible body provide training, scientific work procedures, can use a problem solving approach, create positive work environment and Preparing measuring performance of kaizen implementation in the colleges.

In line with this, an attempt was made to examine the implementation of kaizen in the workshop , interview questions were forwarded to deans . In this interview, deans were used words, phrases and even sentences to pay attention about the major measure taken to improve the problems during kaizen implementation in the colleges. The presentation of interview accordingly, respondents expressed his/her views on the current status of the kaizen implementation as follow:

- Awareness problems of kaizen implementation on the part of trainers, department and administrative employees of the colleges, i.e., lack of awareness.
- Lack of commitment,
- Needs of allowance by thinking that part-time work of the colleges and
- Lack of follow up by the skilled supervisors in the field of kaizen.

Commitment, literally, may mean determination to accomplish a given task. When implement kaizen, it may indicate that exertion of efforts by all colleges' society to successfully achieve the objectives of kaizen in the colleges. Consequently, regular follow-up may not take place properly. Instead, they may begin to act as serious challenges. As a result, the other challenges like failure to apply better innovations and

improved new findings, discoveries, and creativities would be left unaddressed. So having clear understanding or knowledge about the kaizen implementation is thus the basic issue to be addressed is unbreakable for them to act accordingly. All the problems were mentioned from trainers experience point of view by the deans of the colleges.

In open-ended questions, according to responses majority respondents the challenges of the kaizen during implementation were similarly pointed out in the following way;

- Colleges don't provide sufficient training program,
- Lack good ethical qualities /respecting working time/
- Lack of commitment
- Lack of knowledge on safety.
- Lack of skilled supervisors on the practical application of kaizen
- The responsible body did not provide materials for implementation purpose

From the above interviewed, deans could see some of the possible solution to the challenges of the kaizen implementation program. The solutions to the challenges were suggested for the open-ended questions by respondents were listed on table 8 above. Accordingly, the deans proposed the need to prepare an awareness program as the main solution to the challenge. Obviously, awareness problem could be solved by arranging training programs to all who are in need. However, it should not be a onetime program as it was suggested by deans of the TVET colleges. It should take place, with regular assessment programs, on the gaps that may exist among the actors and the awareness programs should fill those gaps.

Other specific solutions which were mentioned by dean respondents'; trainers should be assessed objectively by the skilled supervisors, sustainable monitoring and evaluation and feedback system should be placed, the communication system should be improved and transfer of technologies should be enhanced, were suggested as solutions to the challenges. Obviously, the progress of the kaizen implementation should be monitored and its bottlenecks should be identified and feedbacks should be provided. If it is monitored in a systematic way, it may achieve its desired objectives. Hence,

regular feedback and communication system should be established between the skilled supervisors and kaizen implementers.

4.6 Possible Ways of Kaizen System Make Sustainable to the Colleges

As shows in the review of related literature, sustainability of kaizen is a part of implementation phase. Sustaining is the end result of how well we have performed the previous four S's. In the Sustainment stage, think of ways to eliminate effort in maintaining an area. It is by far the most difficult where you need to make it habit to properly maintain the new processes.

For this purpose, seven variables (maintaining sustainability) that continued as a discipline were extracted from literature review (AA TVET Agency manual of industrial extension and technology transfer).both groups of respondents were requested to give their views to those maintenance its continuity as a system on the 5 point Likert scale by choosing one among alternatives ranging from strongly agree (5) to strongly disagree(1) as follows in table 9 below.

Table: 10. Sustainability of Kaizen System Implementation

No.	Items	Respondents (**N=120)**													
		Department heads (N=40)							Trainers (No=80)						
		Frequency of Rating scale					T	μ	Frequency of Rating scale					T	μ
		5	4	3	2	1			5	4	3	2	1		
1	**Establish operating procedure by:** Prepare plan exclusively	11	6	9	7	7	40	3.1	23	21	17	11	8	80	3.5
	Provide guideline	14	13	3	6	4	40	3.7	22	21	16	11	10	80	3.43
	Provide check list	18	12	5	2	3	40	4	20	26	14	10	10	80	3.56
	Assign specialized supervisor	16	10	5	6	3	40	3.8	19	19	18	12	12	80	3.25
	Total	**59**	**41**	**22**	**21**	**17**	**160**	**3.7***	**84**	**87**	**65**	**44**	**40**	**320**	**3.4***
	%	**37**	**26**	**14**	**12**	**11**	**100**	**---**	**26**	**27**	**20**	**14**	**23**	**100**	**---**
2	**Provide training on :** Fit b/n kaizen and organizational culture	12	10	5	8	5	40	3.4	14	30	18	11	7	80	3.41
	Performing activities	17	10	3	6	4	40	3.8	19	27	15	11	8	80	3.46
	Measuring successes	7	11	5	8	9	40	3	22	26	8	12	12	80	3.43
	Total	**36**	**31**	**13**	**22**	**18**	**120**	**3.4***	**51**	**83**	**42**	**34**	**27**	**240**	**3.4***
	%	**30**	**27**	**11**	**18**	**15**	**100**	**---**	**22**	**35**	**18**	**14**	**11**	**100**	**--**

5= Strongly Agree, 4= Agree, 3=Undecided, 2=Disagree, 1=Strongly Disagree and (Number)* = average mean T=Total Number & μ=mean value

As table 10, respondents were asked to respond their opinion on the items of “how to make kaizen system sustainable to the workshop of colleges?” The average mean value of department and trainer respondents were 3.4* and 3.4* respectively. According to respondents reaction, in the items of “establishing operating procedure and provide training” were above agreed. This may show that to make kaizen system sustainable to the college the responsible body especially vice deans, whose job title is “Technology Transfer and Industrial Extension” processes owner, has the responsibility to mange, direct and measure the ongoing process of the tasks during kaizen implementation.

Furthermore, Respondents were asked to give other additional ways to sustain kaizen as a system, if any, which have been strengthen mentioned in the questionnaire. Finally, the interviews also support these ideas in the colleges.

CHAPTER FIVE

5. Summary, Conclusions and Recommendations

This part of the thesis presents summaries of the major findings, conclusions and recommendations.

5.1 Summary

The purpose of this study was to investigate the practice, success and challenges of kaizen implementation in AA TVET government colleges. An attempt was also made to identify major impediments to kaizen implementation and measures to be taken by government, deans, department heads, trainers and others in order to promote kaizen system of application.

In order to achieve the above objectives, the following basic questions were raised:

1. To what extent of successes has the kaizen system been implemented in the TVET colleges?
2. What are the major challenges that have been observed in the implementation of kaizen in the TVET colleges?
3. What are the measures take to overcome the challenges faced in kaizen implementation?
4. How adequate are the measures taken to make kaizen system sustainable in all TVET colleges?

The study was carried out in five TVET colleges in AA city administration. The study employed descriptive survey, the respondents of the study were Deans, Department Heads and Trainers of those colleges. Accordingly, the respondents sampling was carried out through stratified random sampling and purposive sampling techniques. Trainers were selected through stratified random sampling technique and deans & department heads were selected through purposive sampling techniques.

Questionnaire, interviews and document analysis were used to obtain information from respondents. The data obtained were analyzed using statistical tools such as percentages, frequency distribution, mean and average mean. Depending on the result

the analysis made. The following major findings were obtained from the result of data analysis.

1. Personal information of the respondents and the result of interviews & document analysis have revealed that females participation 14.25% of dean, 20% of department head and 23.7% of trainer were very low relatively with that of male in the TVET colleges of AA city administration.
2. More than half of the trainer were aged in range of 20-30.This indicate that almost more than half of the trainer was young. This may reveals that experienced trainers leave the college after well experienced and they may think as the profession as a bridge occupation. Additionally, regarding the trainer's qualification 57.5% were diploma holders. According to respondents reaction we can arrived that, trainers were not certified in higher order of education i.e., above BA/BSC. Whereas, based on federal TVET regulation, the minimum requirement for TVET colleges trainers are diploma holder with her/his field of study and must have a certificate of CoC proficient.
3. Kaizen involves every employee in making change—in most cases small, incremental changes. These continual small improvements add up to major benefits. They result in improved productivity, improved quality, better safety, faster delivery, lower costs, and greater customer satisfaction and so on (Imia,1987). Concerning the benefits of kaizen implementation 48% of department and 55%of trainer respondent's were suggested that above agreed. This data may reveals that implementation of kaizen has a benefit towards employee's satisfaction. Whereas, the significant number 38% of department & 26%of trainer respondents' express his/her level of agreement on employee's satisfaction were disagreed.
4. With regard to the extent of kaizen implementation success during implementation in four major areas of managements department and trainers have reported with an average mean value were above average (i.e.,>3.00). These may reveal that planning, implementation and reduction of wastes phases of kaizen implementation were done properly. Whereas, remained item of management areas the one which is "reward and recognition", the average mean

values 2.23 of department heads and 2.43 of trainers were disagreed respectively. This may indicate that reward and recognition in the colleges were not existed to motivate the workers in the colleges.

5. According to the majority of respondent's reaction, the challenges of kaizen implementation in learning department based on government, dean and trainer perception more than the half of department heads and trainers were agreed. This may indicate that the awareness was not done satisfactory to implement kaizen.
6. As interview indicated that based on kaizen theory related with practical at work place, trainers during trains the trainees, kaizen implementation in the colleges are expected to integrate the theory trained with the actual practice at the workshop. However, according to majority trainers at the workshop take as the kaizen theoretical background for the beginning time and had very little mismatch relation with the practical activities at the actual situations.
7. Regarding the finding on the items of knowing role & responsibility and superior imposition, the frequency rating scale 65%of the department and 44 % of trainers were agreed respectively. This may indicate that the deans know his/her roles and a responsibility in the college's whereas the superior person enforce the deans to do different routine activities additional.
8. Respondents 65 % of the department head were disagreed on the items of "clarity of supervision contents and be committed to give feedback". These may reveal that the skilled supervisors could not supervise the implementation of kaizen by preparing cleared measuring criteria of supervision. Because of these and other reason supervisors might not prepared feedback on the requested of the trainer's availability.
9. According to open-ended responses, the majority of the respondents express their opinion on challenges of kaizen implementation were similarly pointed out in the following way:
    - Colleges don't provide sufficient training program;
    - Lack good ethical qualities /respecting working time/;

- Lack of commitment, knowledge on safety; and skilled supervisors on the practical application of kaizen
- The responsible body did not provide materials for implementation purpose;

Additionally, the interview revealed that implementation has its own challenges like:

- Materials and different hand tools which are covered by dusts this leads to disorder the health of the implementers;
- Pick up heavy materials were another problems because there were machines which are not loaded by human beings this also needs another extra cost or it may indicate the exertion of efforts by all trainers and responsible party to successfully achieve the objectives of the kaizen implementation;
- Difficult to differentiate materials which are from necessary to unnecessary.

10. The average mean value rated on the level of agreement of department heads on the items of providing training, providing scientific work procedures, uses of problem solving approach, create positive work environment and preparing measuring performance to asses ongoing process of kaizen implementation were agreed respectively. These reveals that to make kaizen implementation standardized and sustainable, provide training, scientific work procedures, can use a problem solving approach, create positive work environment and Preparing measuring performance of kaizen implementation in the colleges were advisable.
11. With regard to "how to make kaizen system sustainable to the workshop of colleges?" the average mean value of 3.4^{*} department and 3.4^{*} trainer respondents were respectively. According to respondents reaction, in the items of "establishing operating procedure and provide training" were above agreed. These may show that to make kaizen system sustainable to the college society especially vice deans, has the responsibility to mange, direct and measure the ongoing process of the tasks during kaizen implementation.

5.2 Conclusions

A skillful person at any level is significant to a country's development. To this end, there may be various means of training programs were applied to make the trainees acceptable to the companies with some skill's and knowledge's of his/her field of the study . Among some, kaizen as a continuous improvement, were implemented in the workshop of the colleges. In line with this, this research is intended to investigate practice, success and challenges of kaizen implementation in AA city administration of Government TVET colleges. To investigate the implementation, quantitative research approach was employed.

Lastly, based on the findings, the following conclusions were made:

1. To successfully plan and organize college's kaizen implementation activities, work with and lead others, to analyze the problems make decisions, to communicate orally and writing, to perceive the needs of others with stand and perform under variety of pressures, colleges deans should posse's sufficient management knowledge and skills. So as the finding of the study revealed that deans of the colleges have training related to educational institutions like educational planning and management and vocational management in MA. As a result they succeed to mange educational organizations.
2. Trainers have many roles to play in the college. One major role is training; additionally they participating in college's management activities participate in the supervision during the companies training, preparing modules for short term training for MBEs, implement kaizen in the workshop and externally implement kaizen in the MBE of AA city administration. Those roles of the trainers are equally important in bringing better training of trainees. However from the finding obtained it can be concluded that trainers role in kaizen implementation would not be given due emphases.
3. In try to examine the understanding of the college society based on the benefits of kaizen implementation in the college workshop the study has reflected that most of the benefits like employee's satisfaction, customer satisfaction and cost reduction in the college are well identified as goodwill.

4. Regarding success of kaizen implementation the finding show that planning phase, implementation phase including elimination of waste and applied of 5s were succeeded effectively. But in third phase of kaizen implementation i.e., reward and recognition were very low or not implemented practically to motivate the implementers in the innovation and transfer of technology in their colleges.
5. The finding indicated that by applied 5s in the college's workshop, employees of college would use his/her workshop space utilization, time to search hand tools and human resources successfully.
6. In trying to assess the factors that hinder the implementation of kaizen in the colleges the study that reflected that most of the factors were:
    - Trainers accept the concept of kaizen but there were a problem to implement in to practices
    - Materials and different hand tools which are covered by dusts this leads to disorder the health of the implementers.
    - Pick up the heavy materials were another problems because there were machines which were not loaded by human beings this also needs another extra cost or it may indicate the exertion of efforts by all trainers and responsible party to successfully achieve the objectives of the kaizen implementation.
    - Difficult to differentiate materials which were from necessary to unnecessary
    - Clarity of supervision contents and be committed to give feedback were other problem. Thus the skilled supervisors could not supervise the implementation of kaizen by preparing cleared measuring criteria of supervision. Based on these ideas, the assigned supervisor could not prepared feedback on the requested of the trainer's availability.

5.3 Recommendation

Based on the major findings and conclusions reached, the following suggestions were forwarded to improve the implementation of kaizen in AA TVET colleges.

1. Trainer's supervision during implementation of kaizen shall be continuous and sustainable. In this regard, college academic staff shall be assigned as supervisors with necessary skills and training for its proper implementation.
2. With all the challenges identified by the respondents, it seems difficult to obtain the right person who has the required knowledge and skill on the kaizen's concept and practical application respectively. As an option for addressing the gaps in implementation, basic training on concept of kaizen, ways of application and method of supervision should be given for supervisor's working currently.
3. According to Imai (1986), kaizen management philosophies and practices consist of three pillars of kaizen that are: housekeeping/5s, waste elimination & standardization. As he stated, the management and employees must work together to fulfill the requirements for each category. To ensure success on activities on those three pillars, three factors should be taken into account. Those are: visual management, the role of the supervisor, and the importance of training and creating a learning organization. As the background information of respondents indicate, kaizen implementation focuses only 5s implementation. To alleviate this misunderstanding, training programs on pillars and implementation of kaizen should be arranged by the AA TVET Agency, Ethiopian kaizen institute and AA TVET College in collaboration with AA TVET Agency, college, and SMEs to their employees.
4. As shown in the findings, the absence of reward and recognition to kaizen implementers was mention as one of the constraints to make kaizen sustainable. To alleviate this problems, the colleges deans have to practices different types of reward and recognition strategies to motivate the employees through providing certificates, monitory reward and promotion though carrier structure.
5. What a deans raise, to implement kaizen in standardize and sustainable ways, the trainers always wait the top management to give direction. This implies that

there are problems of training provision, absence of scientific work procedures, lack of problem solving approach and lack of good working environment in the colleges. Thus, AA TVET Agency seems a need to modify the guidelines of the kaizen implementation procedure with workable measuring performance. In addition, trainers should understand kaizen and its role for better change in the working environment and identify problems based on bottom –up approach and decision should be made by the implementers themselves rather than superior person.

6. Conceptually, the main importance of kaizen implementation reveals that waste can be reduce through different techniques i.e., excess inventory, waiting, defect-making, and unnecessary motion in the workshop. Wastes are one means of productivity loss mechanism. Thus, an application of waste reduction method in the learning department can be benefited from the system.
7. Kaizen implementers should be assessed objectively by the skilled supervisors, sustainable monitoring and evaluation and feedback system, the communication system should be improved and thereby technology transfer enhanced.
8. The study shows that to make kaizen system sustainable in the higher learning institutions, some sort of responsibility shall be given to vices deans to mange, direct and measure the on-going process of the tasks during kaizen implementation and dissemination of innovative technology to the SMEs and to the respective colleges as well other than forwarded routine activities to his/her.

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Appendix

Appendix A

Addis Ababa University

School of Graduate Studies

Colleges of Education

Stream: Educational Leadership and Management

Questionnaire to Be Filled By Trainers and Department Heads of the Trainers

Dear Respondent

The purpose of this questionnaire is to gather data on practice, success and challenge of kaizen implementation in government TVET Colleges in Addis Ababa .To this effect your genuine response is very essential. Please be sure that the information you provide will be kept confidential and used only for academic purpose.

Thank you in advance for your cooperation

Please Note that:

- Please do not write your name.
- Please answer all items with alternative responses by putting a tick mark "√ " in space provided and by giving written record for the open-ended items.

General Information and Personal Data

1. Name of College……
2. Sex: Male ☐ Female ☐
3. Age: 20-30 ☐ 31-40 ☐ 41-50 ☐ 51 above ☐
4. Qualification : MA/MSC ☐ BA/BSC/BED ☐ Diploma ☐ Other ☐
5. Field of Specialization…….
6. Total Service in Years ……..

Appendix B

Addis Ababa University

School of Graduate Studies

Colleges of Education

Stream: Educational Leadership and Management

An Interview Guide presented to colleges Deans of Addis Ababa TVET Government Colleges.

Dear Respondent

The objective of this interview is to collect data concerning the practices, successes and challenges of kaizen implementation in AATVET government colleges.

Since your responses determine the quality of research result, you are kindly required to give genuine complete responses to the question raised.

1. How do you describe the implementation of kaizen in your colleges?
2. To what extent does kaizen theory related with practical at work place?
3. How to make kaizen philosophy sustainable to the system of your colleges?
4. How do you express the success of kaizen implementation in your college?
5. What challenges are there in the implementation of kaizen in your college?
6. What measures to be taken to alleviate the implementation of kaizen in your college?