

The Effect of Kaizen Implementation on Employees' Affective Attitude in Textile Company in Ethiopia

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Abstract—This study has the objective of assessing the effect of kaizen (5S, Muda elimination and Quality Control Circle (QCC) on employees' affective attitude (job satisfaction, commitment and job stress) in Kombolcha Textile Share Company. A conceptual model was developed to describe the relationship between Kaizen and Employees' Affective Attitude (EAA) factors. The three factors of Employee Affective Attitude were measured using questionnaire derived from other validated questionnaire. In the data collection to conduct this study; questionnaire, unstructured interview, written documents and direct observations are used. To analyze the data, SPSS and Microsoft Excel were used. In addition, the internal consistency of similar items in the questionnaire instrument was measured for their equivalence by using the cronbach's alpha test. In this study, the effect of 5S, Muda elimination and QCC on job satisfaction, commitment and job stress in Kombolcha Textile Share Company is assessed and factors that reduce employees' job satisfaction with respect to kaizen implementation are identified. The total averages of means from the questionnaire are 3.1 for job satisfaction, 4.31 for job commitment and 4.2 for job stress. And results from interview and secondary data show that kaizen implementation have effect on EAA. In general, based on the thesis results it was concluded that kaizen (5S, muda elimination and QCC) have positive effect for improving EAA factors at KTSC. Finally, recommendations for improvement are given based on the results.

Keywords—Kaizen, job satisfaction, job commitment, job stress.

I. INTRODUCTION

NOW days, an increase of competition in the global market is leading Ethiopian companies to enhance their manufacturing techniques. As mentioned in [1], a study on determinants of the performance of the garment industries in Ethiopia organized by Ethiopian Development Research Institute, in Ethiopia there is some 2.6 million hectares of land suitable for cotton production, which is equivalent to that of Pakistan, the fourth largest producer of cotton in the world. Also Ethiopia has the potential to develop cotton farms for domestic use and export [1]. Recently, apparel and textile exports have been continuously increasing. As per the study report by [2], shows that only Botswana and Ethiopia increased their exports of apparel from 2004 through 2005, and Ethiopia exports more textiles and apparel. Garment products are becoming the dominant ones in increasing the foreign currency obtained from export on the sector [3]. As indicated in [4] Hyland highlighted prospective benefits of kaizen, as organizational performance improvement in the form of reduction in waste, breakdowns, leadtime, setup time, and as human resource development, in the form of

enhancement in skill level attitude, knowledge, empowerment, and quality of life of the worker.

The manufacturing industry having shift work is challenged with EAA issues (e.g. low job satisfaction, low commitment and high levels of stress) at different organizational levels [5]. It is known that for successful Kaizen implementation and its sustainability attitudinal change and accepting the improvement has critical role. A number of manufacturing industries in Ethiopia are attempting to develop the habits of kaizen by the support of Ethiopian Kaizen Institute (EKI) to improve productivity and the quality of products and services. The company selected for this thesis is Kombolcha Textile Factory which is one of the companies EKI is involving in training and consultancy. This thesis is mainly aimed at identifying extent in which kaizen implementation affects EAA in Ethiopian Textile industries by taking Kombolcha Textile Share Company as a case. The company is implementing Kaizen and it is in its initial phase which is limited to only 5S, muda elimination and QCC.

II. PROBLEM STATEMENT

Kaizen requires that all employees in the organization be involved in the process. Every employee must be motivated to accept kaizen as a means by which the firm can achieve a competitive advantage in the marketplace. All involved must push continuously at the margins of their expertise, trying to be better than before in every area. Improvement begins with the attitude that every organization has opportunities for change and improvement. 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 a problem, kaizen emphasizes that the process is the target and employees can provide improvements by understanding how their jobs fit into the process and changing it [6].

Kombolcha Textile Share Company has been evaluating the effect of kaizen implementation with respect to quality, productivity, cost reduction, delivery time and safety since the beginning of the implementation. But the effect of kaizen on employees' attitude has never been assessed. It was therefore necessary to assess the effect of kaizen on EAA to assist the company in understanding the current level of EAA and understand how to sustain the strengths and improve weaknesses.

III. OBJECTIVES

A. General Objective

The general objective of the research is to assess the effect of Kaizen implementation on EAA.

B. Specific Objectives

- Assess the effect of 5s implementation on EAA.
- Assess the effect of muda elimination on EAA.
- Assess the effect of quality circle on EAA.

IV. METHODOLOGY

To determine the sample size margin of error (confidence level) $\pm 5\%$, confidence intervals 95% is used. The total number of QCCs is 174 and total number of facilitators is 84.

The formula used for determining sample size is: $s = \chi^2 NP(1-P) \div d^2 (N-1) + \chi^2 P(1-P)$ [8]. 104 samples for QCCs and 51 samples for facilitators totally 155 samples.

TABLE I
NUMBER OF SAMPLES TAKEN FOR THE RESEARCH

		Proportion of QCCs	Proportion of Facilitators	No. of sample for QCC	No. of sample for Facilitator
No. of Facilitators	84	-	0.33	-	51
No. of QCCs	174	0.67	-	104	-
Total	258		1		155

A. Structured Questionnaire

In order to determine the level of EAA factors, an Employees' Affective Attitude Questionnaire (EAAQ) was framed and utilized to collect data. This questionnaire is a modified version of the questionnaire developed by [7].

Workers were asked to rank each question on a five point Likert-scale, with the most positive (strongly agree) scoring 5 and the most negative (strongly disagree) scoring 1.

B. Semi-Structured Interview

Interview was carried out to gather the qualitative data based on the research objectives. The main aim of the interview was to administer the questions in the questionnaire for their reliability and clarification of the response.

Besides the interview, secondary data are collected from the company's kaizen office documentation, Kaizen Promotion Team (KPT) structure and EKI leather and textile directorate reports have been used to perform the qualitative analysis. Statistical Package for Social Science (SPSS) version 20 and Microsoft Excel were used in analyzing the data.

V. LITERATURE REVIEW

A. Relationship between Kaizen with EAA Factors

Individuals working in an organized climate of work have better job satisfaction [9]. Typically, Kaizen events lead to a well-organized and coordinated work environment, which may in turn influence job satisfaction of workers. According to [3] better working environment of planned activities also raises commitment of workers to perform their duties. Reduction in the work load due to efficient and improved processes may lead to decrease in stress among the workers to perform the activities planned [9]. Some researchers have found that the effects of quality circles on employee attitudes were positive. Reference [10], in a study of quality circles at General Dynamics Corporation, found significant improvements in some of the criteria used to measure employee morale. Reference [9] concluded that improved morale in a realistic outcome of quality circle programs. Reference [11] found that there were no significant effects on employee attitudes as a result of participation in quality circles in his study at a

medical facility.

Other researchers have also concluded that quality circles had no significant effects on members' attitudes. Reference [12] studied a quality circle program at a food distribution warehouse. They found that anticipated increases in employee morale did not materialize. 15

Reference [13] studied quality circles in a large electronics company. The results indicated that job satisfaction was not affected by the quality circle program [13]. He concludes that, "these results should serve as a warning against blind acceptance of undocumented claims that quality circles always improve employee morale" [13].

B. Role of EAA Factors in Manufacturing Industry and Current Research

Job Satisfaction: Previously, [14] revealed working environment (freedom in performing task), well defined job, quality of task, and type of supervision in an industry influencing satisfaction among workers. Reference [14] correlated the organizational goal clarity and commitment with job satisfaction. Based on this literature, the textile industry with the similar characteristics of the industry can experience issues related to work environment, absenteeism (due to an attitude of unimportant contribution towards organizational goals), supervision, goal clarity, well defined work, and commitment towards work. Therefore, job satisfaction among textile workers is expected to experience impact or influence. For the current study, job satisfaction in the conceptual model is considered in the context of the well-defined work, freedom in performing task, quality of the work, goal clarity, absenteeism, type of supervision and commitment towards the job.

Job Stress: References [15] and [5] reported that the industry workers suffers from job stress due to job dissatisfaction, excessive workload, time constraints for completion of a job, poor fit between work characteristics and workers capability, and personal problems. Further, [5] revealed job stress to be more frequent in shift related working culture. The textile industry workers with similar industry environment may experience job dissatisfaction, mental stress

due to time deadlines, and physical stress due to excessive workload. The scope of the job stress in the conceptual model involves time deadlines for task (mental stress), stress at individual level (both physical and mental stress), excessive overload of work or physically demanding work, poor fit between assigned work and workers capability (mental and physical stress).

Commitment [16] reported the job involvement and supportive nature of an industry to be driving factors for commitment among the industry workers. Reference [17] investigated factors like task identification, motivation, and job satisfaction and found a link to a commitment among the industry workers. Therefore, the textile workers exposed to such industry environment or working culture may experience influence or impact on their attitude (commitment). The present study reflects commitment in terms of the motivation among workers, job satisfaction, better task identification, supportive nature of industry (resulting in dependability of industry), and job involvement of the workers.

VI. RESULT

The reliability measure was 0.73, 0.937, and 0.938 for satisfaction, commitment and stress respectively. The reliability of those items exceeds the guidelines set by [22], which is 0.70 and these measures confirmed that the data were highly reliable to use and then continued the analysis.

When we see the general information about the respondents 27% of them were female and 73% of them were male. With respect to education level 38.7% of them were upto grade 10 and 61.3% of them were above grade 10 and 31% of the respondents were facilitators and 69% of them were QCC leaders (in this case kaizen promotion teams or KPTs).

Finally, based on the survey results, Fig. 1 was prepared to show the mean. The total average of means is 3.1 for job satisfaction, 4.31 for job commitment and 4.2 for job stress.

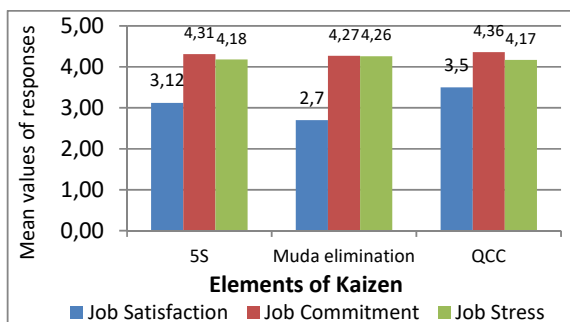


Fig. 1 Summary for Effect of Kaizen on EAA

Generally, it is tried to observe during an observation, interview session and secondary data collection process on the company regarding the effect of kaizen (5S, muda elimination and QCC). Employees praise their peers, employees dissent and disagree, employees participate In After-Hours QCC Meetings, employees keep their Work Area clean and organized, reward and recognition system manual is only prepared but is not practiced yet except planning and

engineering departments which have begun recognition to best performers within their departments, supervisors and shift leaders doesn't assist QCCs as expected from them. In all production departments QCC meeting is not frequent and after the kaizen training was given by EKI before one year and four months there is no training given for employees either by company's kaizen office or departments, there is shortage of materials and equipments that they need in order to implement kaizen activities such as cleaning materials and stationary materials for QCC meeting and also the frequency that management body come and ask about their progress in their kaizen implementation at workplace is rare.

VII. DISCUSSION

A. Effect of Kaizen on Job Satisfaction in the Company

According to the results, the workers' response for the effect of 5S on job satisfaction is determined close to a Likert scale of 3 which represents undecided response. The result is similar for effect of muda elimination on job satisfaction as well as for effect of QCC on job satisfaction. To be more precise, the current state of job satisfaction on an average for company workers is slightly towards disagreement of being satisfied unlike that of [18] which shows in his research result that Kaizen promotes employee empowerment and group activity, which have a positive influence on job satisfaction and employees' commitment.

The result from secondary data (company's kaizen office) shows that improvement in 5S which implies improvement working conditions and organized work place. This is also supported by the study by [19], [14] as we can see from literature.

From the observation and direct interview we can see that the major causes for employees to be unsatisfied are:

B. There Is No Reward and Recognition System

In the case Kombolcha Textile Share Company, the employees (especially members of QCCs) are highly dissatisfied on this issue. From the interview, it can be seen that the contact between the supervisors and the employees' is not as needed. So, the employees' think management couldn't know their effort on kaizen implementation. Reference [20] argued that the rewards offered by an organization may have a powerful effect on employees' attitudes towards their job and the company for which they work.

C. Assistance from Supervisors and Shift Leaders

The relationship between operators and supervisors and production managers is not to the required extent. In this issue employees are dissatisfied on the assistance they get from them in kaizen implementation including facilitating meeting place and time (especially in the production area) and participating on QCC meetings to address issues that are above the capacity of members. According to [21] the relationship employees have with their supervisors is directly connected to their success and growth at work. The trust of the supervisor and his/her behavior towards the employees leaves an impact on performance and attitude of employee towards

the job [21].

Shortage of Materials: For the interview question related to having the materials and equipment needed in order to do work right the responses of the employees indicate that there is shortage of materials needed for the implementation.

While the way employees are treated by the organization is likely to have a significant impact on employee attitudes and behaviors, the employees' attitudes toward the occupation or profession they work in may also influence these outcomes [21].

D. Effect of Kaizen on Commitment

Further, the workers' response for effect of 5S on job commitment is found close to 4 (agreement). The result for effect of muda elimination on commitment and effect of QCC on commitment is similarly close to a Likert scale of 4 (agreement). All improvements linked to job satisfaction observed and data from secondary source also affect commitment since satisfaction and commitment are positively correlated as shown in literature by [18]. Indicators of job commitment include:

Employees praise their peers: In KTSC QCCs recognize their members for participating well in the team, for generating ideas for improvement and for performing their duties in 5S and muda elimination. Employees that praise and recognize others, especially when it's not their job to do so, don't just display great interpersonal skills. (When you do something well, praise from your boss feels great... but it's also, at least generally speaking, expected. At least it should be. Praise from a peer feels awesome, especially when you respect that person [21].

Employees dissent and disagree: When employees of KTSC discuss with management of the company and EKI consultants on the implementation of kaizen in the company they share their opinions, even when they know the management may not initially appreciate those opinions, because they want the company to be better tomorrow than it is today and that is what committed employees really do [21]. And they will occasionally take stands against a point of view or decision.

E. Effect of Kaizen on Job Stress

In addition, workers' response for effect of 5S on job stress is found close to 4 (agreement). Similarly, the result for effect of muda elimination on job stress and effect of QCC on job stress is close to a Likert of 4 (agreement). The study by [10] shows that process improvement initiatives like kaizen promotes resource optimization, reduction in variability of process, and defect free product leading to the improvement in performance, quality of work, and reduction in job stress similar to the current finding from observation and secondary data which show raw material utilization, productivity improvement and utilization of machine.

VIII. CONCLUSION

In the current study it can be concluded that 5S, muda elimination and QCC have effect on job satisfaction. Further

the result of the questionnaire the current effect of 5S, muda elimination and QCC on commitment reflects agreement for job motivation, better task identification, supporting nature and job involvement. Results from direct observation, interview and secondary data show the implementation of kaizen has positive effect on job commitment which supports the result of the questionnaire survey. So, it can be concluded that 5S, muda elimination and QCC have effect on commitment. In addition the result from questionnaire the current effect of kaizen implementation on job stress shows agreement for mental stress due to time deadlines, stress at the individual level and excessive work. From the result it can be concluded that 5S, muda elimination and QCC have effect in reducing job stress. Kaizen tools and techniques can change working methods and working environment which may affect the attitude, values, and working practices of the employees. The results of the study from questionnaire, unstructured interview, observation and secondary data also justify the conceptual model which presented the link between the Kaizen event and EAA factors. Thus, the implementation of process improvement techniques such as kaizen in an organization can have effect on three factors of EAA.

IX. RECOMMENDATION

Based on the results from the study, further recommendations to be improved include:

- The company should begin reward and recognition system as soon as possible which is the major cause for low response value of the effect of 5S, muda elimination and QCC on company's survival.
- There should be enough assistance from supervisors and shift leaders (in this case facilitators) specially in facilitating QCC meeting time and place which is the major cause for low response value of the effect of 5S, muda elimination and QCC on allowing participation.
- Generally, the company should improve causes for dissatisfaction indicated in the discussion part since there is no guarantee for employees' satisfaction, commitment and reduced stress to continue unless causes for dissatisfaction are solved immediately.

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