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5 S TECHNIQUES FOR EFFECTIVE PRODUCTION IN TRIDENT PNEUMATICS PRIVATE LIMITED, COIMBATORE.

By

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Under the guidance of

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A PROJECT REPORT

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KCT
BUSINESS SCHOOL

BONAFIDE CERTIFICATE

Certified that this project report titled **"5 s Techniques for effective production in Trident Pneumatics Private Limited, Coimbatore"** is the bonafide work of **Mr. V.RAJESH 10MBA44** who carried out the project under my supervision. Certified further, that to the best of my knowledge the work reported herein does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

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Submitted for the Project Viva-Voce examination held on 18/11/11

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TRIDENT

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PROJECT COMPLETION CERTIFICATE

This is to certify that **Mr. Rajesh V , Roll No. 10MBA44**, a Student of KCT Business School, Kumaraguru College of Technology, Coimbatore – 641 006 had undergone a Project entitled

5 "S" TECHNIQUES FOR GOOD HOUSE KEEPING

between **27.06.11 and 05.08.11**.

During the tenure, his performance was **very Good**.

Organization Guide's
Name : R. Sivakumar
Designation : Operation Manager
Mobile No. : 9994978921

R. Sivakumar

Signature of the Organizational Guide

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CHAPTER 1

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION TO THE STUDY

5S is the name of a workplace organization methodology that uses a list of five Japanese words which are seiri, seiton, seiso, seiketsu and shitsuke. Translated into English, they all start with the letter "S". The list describes how to organize a work space for efficiency and effectiveness by identifying and storing the items used, maintaining the area and items, and sustaining the new order. The decision-making process usually comes from a dialogue about standardization which builds a clear understanding among employees of how work should be done. It also instills ownership of the process in each employee.

1.1.1 Sorting (Seiri)

Eliminate all unnecessary tools, parts, and instructions. Go through all tools, materials, and so forth in the plant and work area. Keep only essential items and eliminate what is not required, prioritizing things as per requirements and keeping them in easily-accessible places. Everything else is stored or discarded.

1.1.2 Straightening or setting in order / stabilize (Seiton)

There should be a place for everything and everything should be in its place. The place for each item should be clearly labeled or demarcated. Items should be arranged in a manner that promotes efficient work flow, with equipment used most often being the most easily accessible. Workers should not have to bend repetitively to access materials. Each tool, part, supply, or piece of equipment should be kept close to where it will be used – in other words, straightening the flow path. Seiton is one of the features that distinguish 5S from "standardized cleanup". This phase can also be referred to as Simplifying

1.1.3 Sweeping or shining or cleanliness / systematic cleaning (Seiso)

Clean the workspace and all equipment, and keep it clean, tidy and organized. At the end of each shift, clean the work area and be sure everything is restored to its place. This makes it easy to know what goes where and ensures that everything is where it belongs. Spills, leaks, and other messes also then become a visual signal for equipment or process steps that need attention. A key point is that maintaining cleanliness should be part of the daily work – not an occasional activity initiated when things get too messy.

1.1.4 Standardizing (Seiketsu)

Work practices should be consistent and standardized. All work stations for a particular job should be identical. All employees doing the same job should be able to work in any station with the same tools that are in the same location in every station.

1.1.5 Sustaining the discipline or self-discipline (Shitsuke)

Maintain and review standards. Once the previous 4 S's have been established, they become the new way to operate. Maintain focus on this new way and do not allow a gradual decline back to the old ways. While thinking about the new way, also be thinking about yet better ways. When an issue arises such as a suggested improvement, a new way of working, a new tool or a new output requirement, review the first 4 S's and make changes as appropriate.

1.2 INDUSTRY PROFILE:

1.2.1 Industry served: The Company serve a variety of industries, some of which include

1.2.1.1 General industry:

Trident ranges of products are exclusively designed for various industries like:

- Textile
- Auto mobile
- Foundry
- Engineering
- Metallurgy
- Power
- Medical
- Aviation

1.2.1.2 Petroleum, power, metallurgy, custom solution:

Trident manufactures air dryers meeting the exacting standards of the petroleum industry for both onshore and offshore use. We are approved by almost all Project Consultants. We manufacture products and plants to the specification of the customer and consultants. Our products include large, automated heated desiccant dryers to very small very high pressure refrigeration dryers.

1.2.1.3 Rail road products:

Trident manufactures a range of rail road products to improve the quality of compressed air in braking systems. Trident has bagged various contracts for manufacturing the Rail Road Air dryers from world leaders.

1.2.1.4 Off Road Vehicle Dryers

Trident is the OEM supplier of Off Road vehicle Brake dryers to BEML(Komatsu) and Caterpillar India.These dryers are used for the compressed air line of dumpers and other off road vehicles in order to protect the braking system which works completely on compressed air.

1.3 ABOUT THE ORGANIZATION

1.3.1 History:

Trident pneumatics pvt ltd was established in the year 1988, the company engaged in manufacturing compressed air treatment products which includes Drain Valve - Condensate Sensing and Timer Type, Submicron Filters, Adsorption Air Dryer, Refrigeration Dryers, Dryers for Locomotives and Trucks and Flow Meters. Strong R & D capabilities and engineering expertise helps to bring out revolutionary concepts such as timer type condensate drains, sensing type drains and modular dryers.

Trident pneumatics limited is situated in the outskirts of Coimbatore in the place of KNG Pudur. It is one of the well known companies in the manufacturing of dryers, filters and accessories. This company was ISO 9001:2000 certification registered firm.

Trident pneumatics limited has attained growth at a regular pace. The main customers are the industrial customers and they manufacture varieties of products and services such as auto drains, refrigeration dryers, desiccant dryers, compressed air filters, compressed air dryers, locomotive Air dryers, circuit breaker dryers, brake dryers and dental dryers.

Trident pneumatics partners with OEM's leading compressor manufacturers across industries and customers in niche market segments including Railways and Petrochemical industries.

1.3.2 Export market

Mostly trident pneumatics limited is concentrating on the export market to a greater extent and exports its products to all parts of the globe like North America, South America, Eastern Europe and Southeast Asia. The main markets for the organization include Africa, Oceania, Mid East, Eastern Asia and Western Europe.

1.3.3 Sales volume

Turn over: rupees 17-32 crores

1.3.4 Cost involved: as on 2010-2011 share capital of rupees 30 crores.

1.3.5 Promoters and Board of Directors :

Mrs. Saraswathy, Director

1.3.6 Sales in past 3 years:

2008-2009: 14.50 cr200

2009-2010:15.58 cr

2010-2011: 17.32 cr

1.3.7 Factory information

The factory size is measured as 10,000 to 30,000 square meters and the location is Coimbatore, India. The number of production lines is 4. About 5 to 10 people are working for the R&D department.

The number of Quality Circle staff is less than 5 people. OEM service offered design service with Buyer label on a contract manufacturing basis.

1.3.8 Number of employees

The organization has a total of 51 to 100 people who are employed in various departments. The firm hires both skilled and unskilled labourers. The employees are specialized in their area of work through practice and experience.

1.4 STATEMENT OF THE PROBLEM

- In trident pneumatics limited a few sections that handle many tools, the arrangements of the tools are not proper. The 5 S study findings will help them to implement proper arrangements of tools and workplace maintenance. It also will strongly influence the effectiveness of the manufacturing activities in the organization.

1.5 SCOPE OF THE STUDY

The study on 5 S practices provides an attempt to understand the effectiveness of lean Manufacturing and the reduced complexity in shop floor by trident pneumatics limited., Coimbatore. The study would provide an idea about how to implement 5 S to get full use of the resources in the organization.

CHAPTER 2

REVIEW OF LITERATURE

CHAPTER 2

REVIEW OF LITERATURE

J. Venkatesh, (2007) states that **SEIRI - Sort out:**

This means sorting and organizing the items as critical, important, frequently used items, useless, or items that are not need as of now. Unwanted items can be salvaged. Critical items should be kept for use nearby and items that are not be used in near future, should be stored in some place. *For this step, the worth of the item should be decided based on utility and not cost.* As a result of this step, the search time is reduced. **Priority**

SEITON - Organise:

The concept here is that "*Each items has a place, and only one place*". The items should be placed back after usage at the same place. To identify items easily, name plates and coloured tags has to be used. Vertical racks can be used for this purpose, and heavy items occupy the bottom position in the racks.

SEISO - Shine the workplace:

This involves cleaning the work place free of burrs, grease, oil, waste, scrap etc. No loosely hanging wires or oil leakage from machines.

SEIKETSU - Standardization:

Employees has to discuss together and decide on standards for keeping the work place / Machines / pathways neat and clean. This standards are implemented for whole organization and are tested / Inspected randomly.

SHITSUKE - Self discipline:

Considering 5S as a way of life and bring about self-discipline among the employees of the organization. This includes wearing badges, following work procedures, punctuality, dedication to the organization etc.

J. Venkatesh Monday, April 16, 2007, Total productive maintenance

- **Michael Fisher, (2007)** states that poka-yoke is a form of 5 S Japanese technique for mistake-proofing and the approach is based around the removal of the causes of defects, or, where this is impossible, the simple and inexpensive inspection of each item to determine that it passes the quality threshold with no defects. It is a mechanism that either prevents a mistake or defect occurring or makes any mistake and the concentration on removing the causes of defects.

Process improvement by Poka-Yoke Michael fisher (1999). Work study, Vol. 48 (7), pp. 264-266

CHAPTER 3

RESEARCH METHODOLOGY

CHAPTER 3

RESEARCH METHODOLOGY

3.1 TYPE OF RESEARCH

- The research design is descriptive in nature.

DESCRIPTIVE RESEARCH

It includes surveys and fact-finding enquiries of different kinds. The major purpose of descriptive research is description of the state of affairs as it exists at present. The main characteristic of this method is that the researcher has no control over the variables and he can only report what has happened or what is happening. The study on 5 S is descriptive as it follows census and survey methods of sampling technique for the collection of data.

3.2 OBJECTIVES OF THE STUDY

PRIMARY OBJECTIVES:

- To study and understand the effectiveness of 5 "S" practice in Trident Pneumatics Limited.

SECONDARY OBJECTIVES:

- To study how to organize existing sorting method followed in the organization.
- To determine the orderly arrangement of needed items in the shop floor.
- To study the need of keeping everything clean and swept for safer work area.
- To study a consistent approach for standardised tasks in the organization.
- To study the need to sustain the discipline for continuous improvement in the organization.

3.3 DATA AND SOURCES OF DATA

- **Primary data**

The primary data has been collected from the employees Structured questionnaire has been prepared and data has been collected through interview scheduling.

3.4 POPULATION

- The total population is 36.

3.5 SAMPLING TECHNIQUE

- Census method has been adopted to collect data.

3.6 STATISTICAL TOOLS USED

- Data has been analyzed using Percentage Analysis and cross tabulation.

3.7 LIMITATIONS

- The finding of the study is applicable only to trident pneumatics and similar type of companies and it cannot be generalized.

CHAPTER 4

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CHAPTER 4

ANALYSIS AND INTERPRETATION

4.1 PERCENTAGE ANALYSIS

Table. 1:

Table showing the respondents opinion about the position of the welding rods in the right place in the shop floor.

S.No	Respondents opinion about the position of welding rods	Number of respondents	Percentage (%)
1	Yes	16	44
2	No	20	56
	Total	**36**	**100**

Interpretation

From the table, it is understood that 56% of the respondents opined that the position of the welding rods are not kept in the right place and 44% of the respondents opined that welding rods are placed in the right position during production in the shop floor.

Inference

It is inferred that most (56%) of the respondents opined that the position of the welding rods are not kept in the right place in the shop floor.

Table. 2

Table showing the respondents opinion regarding necessary tools for daily operation.

S.No	Respondents opinion regarding necessary tools for daily operation	Number of respondents	Percentage (%)
1	Strongly disagree	8	22
2	Disagree	12	33
3	Moderately agree	5	14
4	Agree	10	28
5	Strongly agree	1	3
	Total	**36**	**100**

Interpretation

From the table, it is understood that 22% of respondents strongly disagree, 33% disagree, 14% moderately agree, 28% agree and 3% of respondents strongly agree with the necessary tools being provided for daily operation.

Inference

It is found that most 33% of the respondents disagree with the necessary tools provided in the organization.

Table. 3

Table showing the respondents opinion about level of communication in the workplace.

S.No	Respondents opinion about level of communication in the work place	Number of respondents	Percentage (%)
1	High	12	33
2	Average	12	34
3	Low	12	33
	Total	**36**	**100**

Interpretation

From the table, it is understood that 33% of the respondents have high communication, 34% have average communication and 33% have low communication in the workplace.

Inference

It is found that workers have a equal share of high, average and low communication level.

Table. 4

Table showing the respondents satisfaction level about the arrangement of equipments.

S.No	Respondents satisfaction level about arrangement of equipments	Number of respondents	Percentage (%)
1	Highly satisfied	6	17
2	Satisfied	18	50
3	Moderately satisfied	7	19
4	Dissatisfied	4	11
5	Highly dissatisfied	1	3
	Total	**36**	**100**

Interpretation

From the table, it is understood that 17% are highly satisfied with the arrangement of equipments, 50% are satisfied, 19% are Moderately satisfied , 11% are dissatisfied and 3% are highly dissatisfied with arrangements of equipments in the present layout.

Inference

Almost 50% of the respondents are satisfied with the arrangements of equipments.

Table. 5

Table showing the respondents opinion about the easy accessibility of items during work in the shop floor.

S.No	Respondents opinion about the easy accessibility of items	Number of respondents	Percentage (%)
1	Yes	16	44
2	No	20	56
	Total	**36**	**100**

Interpretation

From the table, it is understood that 44% of respondents opined that the items are easily accessible and 56% of respondents opined that the items are not easily accessible during work in the shop floor.

Inference

About 56% of respondents are not comfortable with the access of materials at work in the shop floor.

Table. 6

Table showing the respondents reply to the period of eliminating the wastes by the workers.

S.No	Respondents reply to the period of eliminating the wastes by the workers	Number of respondents	Percentage (%)
1	Daily	5	14
2	Once in a week	18	50
3	Twice in a week	9	25
4	Monthly	4	11
	Total	**36**	**100**

Interpretation

From the table, it is understood that 14% of the respondents eliminate wastes daily, 50% eliminate once in a week, 25% twice a week and 11% eliminate monthly in the organization.

Inference

It is inferred that most (50%) of the respondents eliminate wastes once in a week.

Table.7

Table showing the respondents response to the cleaning the work place in the organization.

S.No	Respondents response to cleaning the work place in the organization	Number of respondents	Percentage (%)
1	Frequently	18	50
2	Occasionally	16	44
3	Rarely	2	6
	Total	**36**	**100**

Interpretation

From the table, it is understood that 50% of respondents clean their workplace frequently, 44% clean occasionally and only 6% of respondents clean rarely in the organization.

Inference

It is inferred that about 6% of the respondents clean their work place rarely in the organization.

Table. 8

Table showing the respondents opinion about the safety measures of the organization.

S.No	Respondents opinion about the safety measures of the organization	Number of respondents	Percentage (%)
1	Satisfied	17	47
2	Moderately satisfied	9	25
3	Dissatisfied	10	28
	Total	**36**	**100**

Interpretation

From the table, it is clear that 47% are satisfied with the safety measures of the organization, 25% are moderately satisfied, 28% are dissatisfied with the safety measures taken by the organization for the benefit of the workers.

Inference

Most (47%) of the respondents are satisfied with the safety measures in the organization.

Table. 9

Table showing the respondents opinion about the comfort of dustbins in the organization.

S.No	Respondents opinion about the comfort of dustbins in the organization	Number of respondents	Percentage (%)
1	Yes	17	47
2	No	19	53
	Total	**36**	**100**

Interpretation

From the table, it is understood that 47% of the respondents opined that the dustbins are comfortable in the shop floor and 53% of the respondents opined that the dustbins are not comfortable in the shop floor of the organization.

Inference

Though 53% of respondents are comfortable with the dustbins, yet 47% are not comfortable with the dustbins in the organization.

Table.10

Table showing the respondents opinion about the 5 S practices followed by the organization.

S.No	Respondents opinion about the 5 S practices followed by the organization	Number of respondents	Percentage (%)
1	Frequently	12	33
2	Occasionally	16	45
3	Rarely	8	22
	Total	**36**	**100**

Interpretation

From the table, it is understood that 33% opined that organization consistently follows 5 S practices frequently, 45% opined organization follows occasionally and 22% opined that it follows rarely.

Inference

About 45% opined that 5 S is followed occasionally by the organization.

Table.11

Table showing the respondents opinion about the visual control systems.

S.No	Respondents opinion about the visual control systems	Number of respondents	Percentage (%)
1	High	18	50
2	Average	11	31
3	Low	7	19
	Total	**36**	**100**

Interpretation

From the table, it is understood that 50% of respondents opined that visual control systems monitor the activities high, 31% opined it is average and 19% opined the system is low prevalent in the organization.

Inference

Most (50%) of the respondents opined that there is high level of monitoring done through visual control systems.

Table. 12

Table showing the respondents opinion about the impact of orderliness in the manufacturing process.

S.No	Respondents opinion about the impact of orderliness in the manufacturing process	Number of respondents	Percentage (%)
1	Yes	26	72
2	No	10	28
	Total	**36**	**100**

Interpretation

From the table, it is understood that 72% of the respondents opined that orderliness simplifies the manufacturing process and 28% of the respondents opined that orderliness does not simplifies the manufacturing process.

Inference

About 72% of respondents agree that orderliness in the manufacturing process simplifies production.

Table. 13

Table showing the respondents opinion about the employee discipline in the work place.

S.No	Respondents opinion about the employee discipline in the work place	Number of respondents	Percentage (%)
1	Always	14	39
2	Sometimes	19	53
3	Never	3	8
	Total	**36**	**100**

Interpretation

From the table, it is understood that 39% of employees are always disciplined to sustain 5 S, 53% are sometimes disciplined and only 8% are not disciplined to sustain the 5 S principles and practices in the firm.

Inference

It is inferred that about 8% of the respondents are not disciplined to sustain 5 S practices.

Table. 14

Table showing the respondents opinion about the improved work environment.

S.No	Respondents opinion about the improved work environment	Number of respondents	Percentage (%)
1	High	13	36
2	Average	13	36
3	Low	10	28
	Total	**36**	**100**

Interpretation

From the table, it is understood that 36% of the respondents opined there is high improved work environment, 36.1% opined there is average and 27.8% opined there is low work environment in the organization.

Inference

It is inferred that most of the respondents work environment had been above the average level.

Table. 15

Table showing the respondents opinion about the work satisfaction and quality.

S.No	Respondents opinion about the work satisfaction and quality	Number of respondents	Percentage (%)
1	Yes	21	58
2	No	15	42
	Total	**36**	**100**

Interpretation

From the table, it is understood that 58% of the respondents opined that the work and quality of work life is satisfactory and remaining 42% opined that the work and quality of work life is not satisfactory in the work place.

Inference

Though 58% of the respondents opined that they are satisfied, remaining 42% of the respondents are not satisfied with the quality of work life.

4.2 CROSS TABULATION

Table. 16

Table showing age wise distribution towards the opinion of welding rods position in the organization.

Age group of the respondents	Respondents opinion of welding rods position in the organization.		Total
	Yes	No	
Below 25 years	0	2	2
25-50 years	14	18	32
50-75 years	2	0	2
Total	**16**	**20**	**36**

Interpretation

6% of the respondents are below 25 years opined dissatisfaction with welding rods in their position while among 25-50 years 38% of the respondents are satisfied and 50% of the respondents are not satisfied while 50-75 years only 6% of the respondents are satisfied with welding rod's position.

Inference

It is inferred that most (50%) of the respondents under the age group of 25-50 years are not satisfied with the position of welding rods.

Table.17

Table showing the respondents opinion about the tools in an organized manner.

group of pondents	Respondents opinion about the tools in an organized manner					Total
	Strongly disagree	Disagree	Moderately agree	Agree	Strongly agree	
25 years	0	0	1	1	0	2
0 years	8	10	4	9	1	32
5 years	0	2	0	0	0	2
Total	8	12	5	10	1	36

Interpretation

Below 25 years of age, 3% of respondents moderately agree with the organized tools and equipments and 3% of respondents agree that tools are organized while 25-50 years 22% of respondents strongly disagree, 27% of respondents disagree, 11% of respondents are moderately agree, 25% of respondents agree, 3% of respondents strongly agree with this while 50-75 years 6% of respondents disagree that tools are organized.

Inference

It is inferred that 27% of respondents under the age group of 25-50 years disagree with the organized work area.

Table. 18

Table showing the respondents opinion about level of communication in the workplace.

Age group of the respondents	Respondents opinion about level of communication in the workplace			Total
	High	Average	Low	
Below 25 years	0	1	1	2
25-50 years	11	10	11	32
50-75 years	1	1	0	2
Total	12	12	12	36

Interpretation

Below 25 years, 3% of the respondents have average communication, 3% of the respondents have low communication while 25-50 years 31% of respondents have high communication, 28% of the respondents have average communication, 31% of the respondents have low communication while 50-75 years 3% of the respondents have high and 3% have average communication in the organization.

Inference

Most of the respondents are below 25-50 years and they have both high and low communication in the workplace.

Table. 19

Table showing the respondents satisfaction level about the arrangement of equipments in the organization.

roup of pondents	Respondents satisfaction level about the arrangement of equipments in the organization					Total
	Highly satisfied	Satisfied	Moderately satisfied	Dissatisfied	Highly dissatisfied	
25 years	1	0	0	1	0	2
0 years	4	17	7	3	1	32
5 years	1	1	0	0	0	2
otal	6	18	7	4	1	36

Interpretation

3% of respondents below 25 years are highly satisfied with the arrangement of equipments, 3% of respondents are dissatisfied while 11% of respondents of age 25-50 years are highly satisfied, 47% of respondents are satisfied, 19% of respondents are moderately satisfied, 8% of respondents are dissatisfied, 3% of respondents are highly dissatisfied with the arrangements while 50-75 years 3% of respondents are highly satisfied and 3% of respondents are satisfied with the arrangement of equipments.

Inference

It is inferred that most (47%) of respondents under the age group of 25-50 years are satisfied with the arrangements of equipments in the organization.

Table. 20

Table showing the respondents opinion about the accessibility of items during work.

Age group of the respondents	Respondents opinion about the accessibility of items during work		Total
	Yes	No	
Below 25 years	0	2	2
25-50 years	14	18	32
50-75 years	2	0	2
Total	16	20	36

Interpretation

Below 25 years 6% of respondents opined there is no easy accessibility of items in the present layout while 25-50 years 39% of respondents opined there is easy accessibility of items and 50% of respondents opined there is no easy accessibility of items while 50-75 years 6% of respondents opined there is easy accessibility of items during work.

Inference

Most (50%) of respondents in the age group of 25-50 years opined there is no easy accessibility of items in the present layout.

Table. 21

Table showing the respondents reply to the period of eliminating the wastes by the workers in the organization.

Age group of the respondents	Respondents reply to the period of eliminating the wastes by the workers in the organization				Total
	Daily	Once in a week	Twice in a week	Monthly	
Below 25 years	0	1	1	0	**2**
25-50 years	3	17	8	4	**32**
50-75 years	2	0	0	0	**2**
Total	**5**	**18**	**9**	**4**	**36**

Interpretation

About 3% of respondents below 25 years eliminate wastes once a week, 3% of respondents twice a week while 25-50 years 8% of respondents eliminate daily, 47% of respondents once in a week, 22% of respondents twice a week, 11% of respondents monthly while 50-75 years 6% of respondents eliminate daily in the organization.

Inference

It is inferred that most (47%) of respondents in age 25-50 years eliminate wastes once in a week in the organization.

Table. 22

Table showing the respondents response to the cleaning the work place.

Age group of the respondents	Respondents response to the cleaning the work place			Total
	Frequently	Occasionally	Rarely	
Below 25 years	1	1	0	2
25-50 years	17	13	2	32
50-75 years	0	2	0	2
Total	18	16	2	36

Interpretation

Among the respondents below 25 years 3% clean their workplace frequently, 3% of the respondents clean occasionally while 25-50 years 47% of the respondents clean frequently, 36% of the respondents occasionally, 6% of the respondents rarely while 50-75 years 6% of the respondents clean occasionally.

Inference

It is inferred that mostly about 47% between 25-50 years clean their workplace frequently.

Table. 23

Table showing the respondents opinion about the safety measures of the organization.

Age group of the respondents	Respondents opinion about the safety measures of the organization			Total
	Satisfied	Moderately satisfied	Dissatisfied	
Below 25 years	2	0	0	**2**
25-50 years	14	8	10	**32**
50-75 years	1	1	0	**2**
Total	**17**	**9**	**10**	**36**

Interpretation

6% of respondents below 25 years are satisfied with the safety of the workers in workplace while 25-50 years 39% of respondents are satisfied, 22% of respondents are moderately satisfied, 28% of respondents are dissatisfied with safety while 50-75 years 3% of respondents are satisfied and 3% of respondents are moderately satisfied in their opinion.

Inference

It is inferred that 39% of respondents of age of 25-50 years are satisfied with the safety of workers in the organization.

Table. 24

Table showing the respondents opinion about the comfort of dustbins in the organization.

Age group of the respondents	Respondents opinion about the comfort of dustbins in the organization		Total
	Yes	No	
Below 25 years	0	2	2
25-50 years	16	16	32
50-75 years	1	1	2
Total	17	19	36

Interpretation

About 6% of the respondents below 25 years opined that the dust bins are not placed according to the comfort while 25-50 years 44% of the respondents opined that the dust bins are placed according to the comfort and 45% of the respondents opined that the dust bins are not placed according to the comfort while 50-75 years 3% opined that the dust bins are placed according to the comfort and 3% opined that the dust bins are not placed according to the comfort.

Inference

Though 44% of the respondents are comfortable with the comfort of dust bins, remaining 45% of the respondents are not comfortable with the comfort of dust bins in the organization.

Table. 25

Table showing the respondents opinion about the 5 S practices followed by the organization.

Age group of the respondents	Respondents opinion about the 5 S practices followed by the organization			Total
	Frequently	Occasionally	Rarely	
Below 25 years	2	0	0	2
25-50 years	9	15	8	32
50-75 years	1	1	0	2
Total	12	16	8	36

Interpretation

Below 25 years 6% of respondents agree that organisation follows 5 S practice frequently while 25-50 years 25% of respondents follows frequently, 42% of respondents follows occasionally, 22% of respondents follows rarely while 50-75 years 3% of respondents opined frequently and 3% of respondents opined that occasionally the 5 S practice is followed in the organization.

Inference

About 42% of respondents of age 25-50 years opined that 5 S is followed occasionally in terms of consistency in the organisation.

Table. 26

Table showing the respondents opinion about the visual control systems.

Age group of the respondents	Respondents opinion about the visual control systems			Total
	High	Average	Low	
Below 25 years	1	1	0	2
25-50 years	17	8	7	32
50-75 years	0	2	0	2
Total	18	11	7	36

Interpretation

Through visual control, 3% of respondents below 25 years opined that monitoring of activities are high, 3% of respondents opined average while 25-50 years about 47% of respondents opined high control, 22% of respondents opined average, 19% of respondents opined low control while 50-75 years 6% of respondents opined average control is maintained.

Inference

It is inferred that 47% of respondents between 25-50 years opined high control can be maintained by visual control.

Table. 27

Table showing the respondents opinion about the impact of orderliness in the manufacturing process.

Age group of the respondents	Respondents opinion about the impact of orderliness in the manufacturing process		Total
	Yes	No	
Below 25 years	1	1	**2**
25-50 years	24	8	**32**
50-75 years	1	1	**2**
Total	**26**	**10**	**36**

Interpretation

Below 25 years, 3% of the respondents agree that orderliness simplify the manufacturing process, 3% of the respondents disagree while 25-50 years about 67% of the respondents agree, 22% of the respondents disagree while 50-75 years 3% agree and 3% of the respondents disagree with orderliness in the manufacturing process.

Inference

Though 67% of respondents of age group 25-50 years agree to orderliness, remaining 22% of the respondents disagree to it.

Table. 28

Table showing the respondents opinion about the employee discipline in the work place.

Age group of the respondents	Respondents opinion about the employee discipline in the work place			Total
	Always	Sometimes	Never	
Below 25 years	1	1	0	2
25-50 years	12	17	3	32
50-75 years	1	1	0	2
Total	**14**	**19**	**3**	**36**

Interpretation

About 3% of the respondents below 25 years say that employees are always disciplined to sustain 5 S, 3% of the respondents follow sometimes while 25-50 years 33% of the respondents always, 47% of the respondents sometimes, 8% never while 50-75 years 3% of the respondents follow always and 3% of the respondents follow sometimes.

Inference

Mostly 47% are sometimes disciplined to sustain 5 S principles.

Table. 29

Table showing the respondents opinion about the improved work environment.

Age group of the respondents	Respondents opinion about the improved work environment			Total
	High	Average	Low	
Below 25 years	0	2	0	2
25-50 years	11	11	10	32
50-75 years	2	0	0	2
Total	13	13	10	36

Interpretation

Below 25 years 6% of the respondents opined that improved work environment is average while 25-50 years 31% of the respondents opined high, 31% of the respondents opined average and 28% of the respondents opined low while 6% of the respondents opined high work environment is maintained.

Inference

Though 31% of the respondents opined there is high improved work environment but 31% of the respondents opined for average improved work environment in the organization.

Table. 30

Table showing the respondents opinion about the work satisfaction and quality.

Age group of the respondents	Respondents opinion about the work satisfaction and quality		Total
	Yes	No	
Below 25 years	2	0	**2**
25-50 years	18	14	**32**
50-75 years	1	1	**2**
Total	**21**	**15**	**36**

Interpretation

Based on the employees perspective on the satisfaction of work life quality, about 6% of respondents opined that the quality of work life is not satisfied while 50% of respondents between 25-50 years opined that the quality of work life is satisfied, 39% opined that the quality of work life is not satisfied while 50-75 years 3% opined that the quality of work life is satisfied and 3% opined that the quality of work life is not satisfied according to their expectation.

Inference

About 50% of respondents under age group of 25-50 years agree that they are satisfied with their work but 39% of respondents are not satisfied with their quality of work in the work place.

CHAPTER 5

CHAPTER 5

Findings, Suggestions and Conclusion

5.1 FINDINGS

- Most (88%) of the respondents are in the age group of 25-50 years.
- Most (94%) of the respondents are male.
- From the table, it is inferred that most (56%) of the respondents opined that the position of the welding rods are not kept in the right place in the shop floor.
- It is found that most 33% of the respondents disagree with the necessary tools provided in the organization.
- It is found that workers have a equal share of high, average and low communication level.
- Almost 50% of the respondents are satisfied with the arrangements of equipments.
- About 56% of respondents are not comfortable with the access of materials at work in the shop floor.
- It is inferred that most (50%) of the respondents eliminate wastes once in a week.
- It is inferred that about 6% of the respondents clean their work place rarely in the organization.
- Most (47%) of the respondents are satisfied with the safety measures in the organization.
- Though 53% of respondents are comfortable with the dustbins, yet 47% are not comfortable with the dustbins in the organization.
- About 45% opined that 5 S is followed occasionally by the organization.
- Most (50%) of the respondents opined that there is high level of monitoring done through visual control systems.
- About 72% of respondents agree that orderliness in the manufacturing process simplifies production.
- It is inferred that about 8% of the respondents are not disciplined to sustain 5 S practices.
- It is inferred that most of the respondents work environment had been above the average level.

- It is inferred that most (50%) of the respondents under the age group of 25-50 years are not satisfied with the position of welding rods.
- It is inferred that 27% of respondents under the age group of 25-50 years disagree with the organized work area.
- Most of the respondents are below 25-50 years and they have both high and low communication in the workplace.
- It is inferred that most (47%) of respondents under the age group of 25-50 years are satisfied with the arrangements of equipments in the organization.
- Most (50%) of respondents in the age group of 25-50 years opined there is no easy accessibility of items in the present layout.
- It is inferred that most (47%) of respondents in age 25-50 years eliminate wastes once in a week in the organization.
- It is inferred that mostly about 47% between 25-50 years clean their workplace frequently.
- It is inferred that 39% of respondents of age of 25-50 years are satisfied with the safety of workers in the organization.
- Though 44% of the respondents are comfortable with the comfort of dust bins, remaining 45% of the respondents are not comfortable with the comfort of dust bins in the organization.
- About 42% of respondents of age 25-50 years opined that 5 S is followed occasionally in terms of consistency in the organisation.
- It is inferred that 47% of respondents between 25-50 years opined high control can be maintained by visual control.
- Though 67% of respondents of age group 25-50 years agree to orderliness, remaining 22% of the respondents disagree to it.
- Mostly 47% are sometimes disciplined to sustain 5 S principles.
- Though 31% of the respondents opined there is high improved work environment but 31% of the respondents opined for average improved work environment in the organization.
- About 50% of respondents under age group of 25-50 years agree that they are satisfied with their work but 39% of respondents are not satisfied with their quality of

5.2 SUGGESTION

DRAWBACKS

- Although the company is implementing 5 S practices in the organization, the employees are not comfortable with the access of materials at the work place.
- Most of the employees believe that orderliness simplifies the manufacturing but the tools are not in orderly manner.
- Some of the employees are not satisfied with their quality of work life in the organization without any improvement in their work.

PROBLEMS

- The welding rods, dust bins and spare parts for production are not in proper position for the employees to use it with ease and comfort
- As the tools are not in order, the employees find the work more complicated and confusing to identify proper tools.
- Due to the lack of work life quality, the employees are not able to work efficiently in the organization.

SOLUTIONS

- The organization should place the welding rods and dust bins at more accessible area for the employees to increase the productivity and also to reduce time consumption.
- By implementing 5 S and by having a proper layout, the organization can maintain orderliness and reduce the complication of identifying the tools for the employees.
- The organization need to look for continuous improvement in the 5 S practice which could improve the work life quality and work efficiency of the employees.

5.3 CONCLUSIONS

The project study on 5 S techniques for effective production at TRIDENT PNEUMATICS LIMITED, COIMBATORE helps to understand the importance of lean manufacturing at the work place. From the organizational view the project mainly focused on the need to implement the 5 S techniques, to reduce the complexity in the shop floor and for easy accessibility of equipments for the workers in the organization

BENEFITS

. By conducting the study, it is found that the organization do not implement the practice with more vigour and discipline. The study also highlighted the importance of continuous improvement in the 5 S techniques in the organization. This project may help the organization to implement the 5 S practices with more discipline and also look for continuous improvement in the manufacturing process.

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Appendix

5 "S" PRINCIPLES PRACTICED IN TRIDENT PNEUMATICS

QUESTIONNAIRE

1st "S"(SORT)

1. Are the welding rods being kept in appropriate tray?

   a. Yes ☐ b. No ☐

2. Do you agree that work area being organized with only necessary tools & equipments for daily operation?

   a. Strongly disagree ☐ b. Disagree ☐ c. Neutral ☐

   d. Agree ☐ e. Strongly agree ☐

3. How is the flow of communication among workers in workplace?

   a. High ☐ b. Average ☐

   C. Low ☐

2nd "S" (SET IN ORDER)

4. What is the level of satisfaction about the arrangement of equipments in an orderly manner?

   a. Highly satisfied ☐ b. satisfied ☐

   C. Neither satisfied nor dissatisfied ☐

   d. Dissatisfied ☐ e. Highly dissatisfied ☐

5. With the present layout, are the items easy to use & accessible for you?

   a. Yes ☐ b. No ☐

6. How frequently do you eliminate the wastes in the organization?

   a. Daily ☐ b. once in a week ☐

   C. Twice in a week ☐ d. monthly ☐

3rd "S" (SHINE)

7. At what time period would you clean your work place?

   a. Frequently ☐ b. Occasionally ☐

   C. Rarely ☐

8. What is your opinion about the safety measures of the organization for the workers during production?

   a. Satisfied ☐ b. Neutral ☐

   C. Dissatisfied ☐

9. Do you think that dust bins are placed as per your requirements & comfort?

a. Yes ☐ b. No ☐

4th "S" (STANDARDIZE)

10. Do you agree that the organization follows the 5 "S" practices consistently?

a. Frequently ☐ b. Occasionally ☐

C. Rarely ☐

11. Through visual control systems, how is the recording of activities easily monitored?

a. High ☐ b. Average ☐

C. Low ☐

12. Does the orderliness simplify the manufacturing process?

a. Yes ☐ b. No ☐

5th "S" (SUSTAIN)

13. Are the employees disciplined & committed to sustain the 5 "S" principles?

a. Always ☐ b. Sometimes ☐

C. Never ☐

14. Have the firm empowered itself to improve the work environment?

a. High ☐ b. Average ☐

C. Low ☐

15. As an employee, are you satisfied with the quality of work & your workplace?

a. Yes ☐ b. No ☐

16. Demographics

NAME : _____

GENDER : Male ☐ Female ☐