Operator Training at ABC Confectioneries India Pvt. Ltd. (ABCI) : A Case Study

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Abstract

The following case study presents the training initiatives being undertaken at ABC Confectioneries India Pvt. Ltd. (ABCI). The project is to develop an operator training manual for the operators working on the production line at the Chennai plant. The Chennai plant was chosen because most of the production capacity expansion for ABCI was going to happen there. The idea was that when a new operator joins, he would be given the manual. He then under the supervision of a trainer, mostly a senior operator or a supervisor, would use the manual to start working at a workstation. Much improved than the current unstructured training, this new training method is expected to reduce the time a new worker takes to start working on his own, increase operational efficiency and safety by reducing errors committed due to lack of operational knowledge.

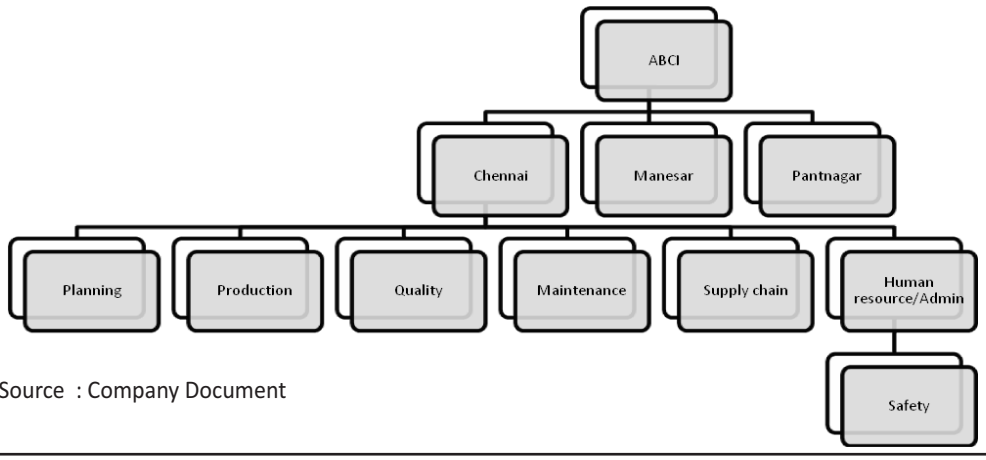
Keywords : **training manual, confectionery industry, production, operation knowledge, planning, supply chain, safety**
JEL Classification: M53, M54

ABCI, a fully owned subsidiary of the global conglomerate ABC Confectioneries (ABCM), headquartered in Apeldoorn, The Netherlands, started its Indian operations in 1996. The company today enjoys close to 32% market share, thus making it one of the leading players in the confectionery industry in India today. ABCI has more than 24 brands under its umbrella, all of which have been launched after considerable market research and insight so as to adapt to the likes and preferences of the consumers. The climatic conditions of the Indian geographical region have been kept under consideration for product composition and long shelf life. In the year 2005, ABCI clocked a revenue of close to ₹ 8.2 billion. ABCI has adopted an aggressive sales strategy to retain its numero uno position in the confectionery industry in India backed by a wide network of carry & forwarding agents (C&FA), distributors, and sales force. ABCI has a network of around 3300 distributors spread across 2200 urban towns.

Organization Structure

The ABCI manufacturing units in India are located in Gurgaon and Chennai, with another plant commissioned at Pantnagar, Uttaranchal in 2006 (refer to Figure 1). The plants have a functional structure. Different functional heads report to the plant manager, who is the overall incharge of the plant locally. The discussion in the following case is

Figure 1 : Organizational Structure of ABCI



Source : Company Document

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related to the Chennai plant. A need was recognized to have a structured training process for the new operators of the production lines in place on an existing ad hoc on-the-job training. The first step generally followed in a training intervention is the gaining of organizational support and understanding the organizational goals. Hence, a study was carried out to understand the functions and goals of various departments at the Chennai plant of ABCI. The findings from the study regarding functioning of different departments is presented in the following paragraphs.

The Planning Department

At the start of the year, the planning department, based on input from sales and marketing, would develop a production plan for the year. The plan was not just for overall production, but there was also a target for every SKU (stock keeping unit). It was important for the company to be strong in all types of sugar confectionery (Appendices 2 and 3 show the status of ABCI across different segments and regions). The plan was eventually broken down into monthly and weekly plans after discussion with all the involved departments.

The Production Department

The production department has to produce as per the agreed plan. The plant mostly operates on full capacity throughout the year. Hence, any stoppage in the production means revenue loss for the company. The challenges in meeting the planned targets are - manpower shortage and unplanned maintenance. Manpower shortage arises not just because of unfilled positions, but also because workers would takes leaves. In such a scenario, production has to move workers from one workstation to another, not necessarily on the same line.

The Maintenance Department

The maintenance department is divided into two sub - departments (utilities and processes). One looked after the utilities like generators, steam plants, etc. The other was responsible for maintaining the machines on the shop floor. The department did two types of maintenance activities - **1)** preventive and **2)** breakdown. There was a preventive maintenance schedule which this department was expected to meet, but due to manpower shortage, only 60% of the preventive maintenance was being done. Another target for the maintenance was to meet 96% equipment availability, which currently was at 94% (94% availability means 6% of the target production loss). The maintenance also had a budget, under which all these activities needed to be carried out.

The Quality Department

Since the top management of ABCM firmly believed in the manufacturing and selling of high-quality confectionery products, it had heavily invested in setting and maintaining a full-fledged quality assurance set-up, which functioned independently of the manufacturing function. Market compliance was the goal of this department. Zero market compliance meant no quality complaints anywhere along the chain after the goods left for the warehouse. In the current year, the target was 15 complaints, last year it was 30.

The steps that the quality department undertook to maintain quality standards were based on statistical sampling. Samples were taken at random at all stages of the production. If some issue was found, then the concerned department was notified about the same. Depending upon the situation, the quality manger can also ask to stop the production line till the issue is rectified. Other steps include conducting an audit based on hygiene parameters. Since it is a plant manufacturing food items, maintaining hygienic conditions at the shop floor is of utmost importance. Hence, a certain minimum score was required to be achieved on this audit.

Supply Chain

The supply-chain department is divided into two parts, i.e. warehousing and procurement. Procurement, as obvious, is responsible to make sure all the required materials required for production to take place as per the agreed plans are available. For general production (not projects, maintenance, etc.) , there are two types of materials that are required - **1)** raw materials, **2)** packaging materials. For raw materials, the inventory maintained varied from a few weeks to as much as three months. The packaging materials were jet items, i.e. they would be procured as and when required, and there would not be any significant inventory for them. Hence, these have to be tracked on a day to day basis. That's

also the reason why most of the time of the department was spent in ensuring that the jet items are available at the right time.

The company subjects its vendors to an elaborate vendor approval process before the vendor is approved for the purchase of the ingredients. In this way, the company ensures that it purchases its ingredients from reputed vendors only. Quality is important even if it means incurring an extra cost for procuring the raw materials. For example, lollipop sticks are imported from Spain because no local vendor was able to supply the required quality. Similarly, for the Chennai plant, a vendor also supplying raw material to the other plants was asked to start operations there, especially for ABCI.

The Human Resource Department

Other than the core HR related areas, this department is also the administration department of the plant. There is an HR budget that they have to meet. This budget is for all the expenses other than the activities primarily related to production. This included expenses like salaries, traveling expenses, etc. Other efficiency related parameters they tracked was productivity - i.e., production (tonnes) per person. The HR department also has a liaison with the local authorities, maintains the general industrial relations scene at the factory, and carries out other such activities to isolate the production from such issues.

The Safety Department

The safety department consists of a safety manager and a safety consultant. A classroom safety induction is carried out by the safety consultant (see Exhibit 1). Daily plant rounds are conducted by the safety manager twice a day. Any safety issue is noted down. These issues are then sent to the respective departments (generally production and maintenance) on a weekly basis to be resolved. Other than that, the safety manager/consultant, the HR manager, and the production manager also give pep talks to the workers in the area where the safety issues are frequently identified. The accidents occurring in the factory have been given four classifications - **1)** near miss, **2)** first aid, **3)** medical treatment, and **4)** lost time. The reduction of the last two (medical treatment and lost time) is a KRA of the safety department. The safety department also maintains the records of all the accidents (medical treatment, lost time) that take place in the factory. The report consists of details of the accident such as who was involved, root cause, steps taken to avoid future occurrences, etc.

The organization puts a lot of emphasis on safety. The corporate office frequently enquired about any safety issues

Exhibit 1 : Topics Covered Under Classroom Safety Induction

First module - General Safety	**Second module – Hazard & Risks**
• Health and safety policy and Environmental policy	• Definition of Hazards and Risk
• Why is Safety important?	• Hazards and risks at the workplace
• Safety philosophy	• Safety measures provided against the Hazards
• Safety at different places	**Third module - Fire & emergency**
• Definition of Accident and Near miss	• Theory of fire
• Causes for accidents	• Classification of Fire
• Examples for unsafe acts and conditions	• Fire extinguishing principle and extinguishers for different types of fire
• Consequences to the employees due to accidents	• What is an emergency
• Consequences to the employers due to accidents	• Role of the Emergency control team
• In prevention of accidents	• Role of non members of the control team
• Role of the employer	
• Safety systems in the Factory	
• Role of the employees	
• Other agencies	
• Environmental issues	

Source : Internal Company Document

in the factory. Recently, a major accident occurred at the plant where a worker sustained severe burns on the arms and the face. During the course of the enquiry, it was found that the worker overloaded the cooking equipment. He cooked three batches at once, whereas only two batches should have been cooked. Hence, the cause of the accident was determined to be the violation of SOPs. Hence, it was expected that this project would help in improving the safety standards on the shop floor since a safety manual also has the information on the safety precautions a worker is expected to take.

The Work Force

The Chennai plant had around 90 regular workers and 150 casual workers per shift (this is the count of workers engaged directly in production). The plant had three shifts of eight hours each. The attrition of regular workers was a problem. Some time back, the operators hired were diploma holders or were the ones who had completed a course from ITI. A starting operator was being paid ₹ 3000 per month. To control the high rate of attrition, two steps were taken. First, the wages were increased, with the starting operator now earning ₹ 5000 per month. Furthermore, the company started recruiting class 12 passouts because ITI and diploma holders were over qualified for the job. Regular workers were hired through jobs fairs and employee references. There were multiple contractors who provided the casual workers. Each contractor was given some numbers and he was supposed to provide that many number of casual workers per shift. Casual workers were paid ₹173 per shift. There were no incentive plans for the workers. While the regular workers were mostly from the home state, the casual workers were from northern and eastern parts of the country.

The Production Process

There were seven production lines, each for a different product. Further on each line, different flavors of the same lines were produced. Switching from one flavor to another required some 30 – 60 minutes. One line was divided into multiple workstations. General flow of a production line was that in the starting workstations, raw materials would be mixed as per the recipe. After that, the following workstation would cook the mixture to prepare what is known as slurry (hot liquid candy). This slurry is then passed into a mould chain, which runs through a cooling tunnel to finally form an unpacked candy. These candies are then taken to the primary packing machine (sometimes using conveyers, and sometimes manually by using baskets). After primary packing, packed candies are taken in manual trolleys to secondary packing areas. After secondary packing, candies are dispatched to the warehouse. An interesting point to note is that the same production process in initial workstations is like a continuous process, and later on, it takes the form of a batch process. The schedule for production was that after every 22 hours of production, a two hour long cleaning process took place. In a week, one day (generally Sunday) is reserved for the scheduled maintenance activities.

Need for a Manual

There were many factors which necessitated a need to develop a manual for training the workers. These are as follows:

1) The planned expansion at the Chennai plant meant considerable flow of new workers. It would help if these workers could be trained in lesser time.

2) With the recruitment strategy to hire class 12 passouts, training has gained more importance since unlike ITI graduates, these recruits did not have any prior shop floor experience.

3) A major accident has caught the management's eye. In an accident, a worker sustained severe burn injuries. The cause of the accident was that he overloaded the cooking equipment by cooking three batches at a time instead of the maximum allowed - which was two batches. In presence of a manual with proper instructions, such accidents can be averted.

The Manual Development Process

The project was carried out during the period from April-June 2012. The process followed for the development was interview based. First, the line overview was given by the shift executive. Then one by one, each workstation was

taken up. For each workstation, the operator was first interviewed. Only a few operators could either speak English or Hindi, so it was common for the supervisor to be present along with the manual developer during these interactions. After the interview, the workstation was observed for one or two shifts to check the consistency of the data. This was followed by an interview with the supervisor for further clarity. Such a procedure was repeated for all the five workstations on the line. After this stage, the interview of the managers from the maintenance, quality, and safety departments was conducted to incorporate the activities and precautions a worker should undertake while operating a workstation. Finally, the completed manual was reviewed by the managers from HR, production, maintenance, quality, and safety. The manual was also shown to the supervisors to get their buy in.

Manual Description

The training manual had chapters for every workstation on the line. Each chapter was structured as the activities that an operator would have to undertake at the start of the shift, during the shift, and at the end of the shift along with the general safety guidelines. Every chapter ended with an evaluation sheet to be used to evaluate the trainee (Appendices 1A and 1B). The idea was that when a new operator joins, he would be given the manual. He then under the supervision of a trainer, mostly a senior operator or a supervisor, would use the manual to start working on the workstation. This procedure would be followed for the first six days a new operator is on the shop floor, after which the trainer would conduct a test/interview and on basis of the results, give a 'GO' or a 'NO GO' to the new operator. 'GO' means that the trainee is capable of working independently. 'NO GO' would result in a repeat, i.e. the trainee would repeat the process for another six days. Since the manual was expected to give all the required information to operate a workstation, it had to be as detailed as possible.

How the Manual Addresses the Problem

Currently, the training method followed is unstructured and ad hoc. After three days of classroom induction by human resource, quality, and safety departments, the new operators are handed over to the production. There onwards, there is no tracking as to how the workers are being trained. It was up to the shift executive and production manager to decide how and where to employ these new operators. Hence, this novel method of training would be a paradigm shift for everyone at the plant. This meant that it was important to have a buy in of all the departments including HR, production, quality, maintenance, and safety.

Trial Run

A trial run was planned to check the effectiveness of the new manual. Four new workers were going to be trained using the new manual. The workers were class 12 passouts. After three days of induction, on the last day, there is a plant round, where the workers are assigned to their respective workstations. At this point, they start using the manual to get trained. But the trial run didn't go as planned. On the first day of their duty at the workstation, two of the workers didn't show up. Neither did they show up later. The two workers that did show up began training. For first three days on the floor, it was planned that the senior operator would explain the new workers about the workstation. During this time, the new workers would also help the senior operator in activities like material handling, housekeeping etc. After that, their evaluation would begin. They would follow the instructions in the manual under the observation of the senior operator. The senior operator would then check and fill the evaluation sheet. So on the fourth day, a status check was done. What came out was quite puzzling. The new workers couldn't even remember the name of the workstation they were assigned to, let alone be able to operate it. The new workers said that they did not want to work at their assigned workstation as it was very hot and humid at the workstation. They asked to be assigned to some other workstation where they felt comfortable.

Managerial Implications

It is important to understand that the manual forms one part of the training process. A successful training requires other supporting factors. These are as follows :

1) Organizational Support : The success of this new project would depend to a large extent on the organizational support it gets. The manual development process already had incorporated concerns of the various departments. One

major area where the support is required is from the production department for the availability of the trainers and the trainees. Given the day to day pressure of meeting the production targets, the production department may feel the need to quickly push the trainees into the normal working operations, or reduce the time trainers alloted for the training. Hence, a committed allocation of resources for the training process would be required. This can be achieved by conveying the benefits that an effective training program can bring for the relevant departments and the organization in the long run.

2) Trainee Readiness : The trial run showed that learning cannot take place unless the trainees are ready to learn. The shop floor could be a tough environment for a person coming here for the first time. This factor has started to play an even more important role since the decision to hire class 12 passouts instead of ITI graduates. The ITI syllabus covered practical shop floor experience (ITI Pardi, 2012). Hence, when these graduates came to the shop floor, they were better prepared as compared to school passouts for the shop floor environment. Hence, the effectiveness of the manual depends to a large extent on the induction process. As a part of the induction process, due emphasis should be laid on the plant rounds for the new trainees. As a part of the plant round, trainers should demonstrate normal working behavior on the shop floor to instill confidence in the trainees. Specific goal setting would also help the trainees to learn faster.

3) Trainers' Readiness : Before rolling out the manual, the trainers must also be trained on how to use the manual. Hence, it calls for a development and delivery of a training program for the trainers as well.

Conclusion

After the interaction with the senior managers at the factory during the course of the project, it was realized that safety was a concern for all of them. Apart from the reduction in time in which a new worker would be ready for independent operation, it is also expected that this would also help to avoid accidents on the shop floor. One challenge that the managers would face in doing so is to decide as to what extent they can rely on training to avoid factory accidents. Training can only impart knowledge to the workers on how to behave and operate in the shop floor environment. But there can always be instances where the SOPs taught in the training are not followed. Such cases are recommended to be handled by administrative/disciplinary actions.

Important : The case has been released after ensuring anonymity to the organization and to the individuals concerned. The true name of the organization has been removed and replaced by a fictitious name (ABC Confectioneries). Further, the case does not contain information pertaining to the strategy or any other aspect that may give any advantage to the competitors. The case is intended to be a basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative situation.

Appendices

Appendix 1A : Evaluation Sheet for the Operator on the Milk Preparation Workstation of Candy Line (Start of the shift activities)

Workstation : Candy line milk preparation						**Trainee Name:**	
Date:						**Trainer Name:**	
Activities (Start of shift)	**Parameters (Process/Safety/Hygiene)**	**Day 1**	**Day 2**	**Day 3**	**Day 4**	**Day 5**	**Day 6**
Report for the shift on time.	Report 10 minutes before the start of the shift.						
Check for any problems with the previous operator.	Get inputs from the previous operator before he leaves the shop floor.						
Get the production plan for the shift.	Ask your supervisor for the same.						
Visually check the level in the holding tanks.	If the level is low, we need to prepare another batch.						
If you are coming in the first shift, check and log the stock of all other ingredients.	If the stock is less than required for the three shifts, then inform the shift executive. Planning and material handler are responsible for getting the material to the shop floor.						
The workstation area should be clean.	Check that no waste materials lie in the area and the floors must be clean. Call the housekeeping staff if the floor is not clean. The Quality team may come in to check the cleanliness of the workstation.						
Clean the preparation, holding, and soren tanks with hot water.							
Adhere to safety precautions.	Wear safety shoes and cap inside the plant. Wear ear plugs in this area. Use safety gloves while handling hot equipments in this area.						
Remarks:							
Day 1:							
Day 2:							
Day 3:							
Day 4:							
Day 5:							
Day 6:							
Trainer Signature:					Supervisor Signature:		
Date:					Date:		
Guidance:							
GO: - Any and every activity will be considered "Go" if both the activity and the related parameters are adhered to as per the schedule.							
NO-GO: - Any and every activity will be considered "No-Go" if both the activity and the related parameters are not adhered to as per the schedule.							
Note: - Please make G & NG in the corresponding activity day cell, if the activity is go and no-go respectively.							

Appendix 1B: Evaluation Sheet for the Operator on the Cooker Workstation of Candy Line (during the shift activities)

Workstation : Candy line Cooker	**Trainee Name:**						
Date:	**Trainer Name:**						
Activities (During the shift)	**Parameters (Process/Safety/Hygiene)**	**Day 1**	**Day 2**	**Day 3**	**Day 4**	**Day 5**	**Day 6**
If the process was not running when the shift started and has to be started							
Open the condenser steam valve.							
Open the main steam line.							
Close the condenser line after the steam starts coming out of the main steam line.							
Open the jacket steam valve.	Pressure required to be set is 'abc' Bar.						
Fill the canden tank.	Use control panel to fill the canden tank. Keep the setting to auto mode.						
Switch on the feed pump 1							
Open the pre cooker drain valve to make sure the slurry is flowing into the pre cooker.	Close the valve after checking.						
After slurry reaches the flash tank, turn on the feed pump 2.							
Turn on the extraction pump.	Slurry should be diverted to the rework tank initially.						
The below-mentioned steps need to be followed irrespective of the fact the process was running or stopped when the shift started.							
Maintain the temperature of the pre-cooker.	Open/close pre-cooker steam valve to maintain the temperature at 'xyz' degree Celsius						
Maintain the temperature of the flash tank.	Open/close flash-tank steam valve to maintain the temperature at 'xxx' degree celsius.						
Maintain the temperature of the micro-film cooker.	Open/close micro-film cooker steam valve to maintain the temperature at 'xxx' degree celsius.						
Maintain the vacuum in the micro film cooker.	Maintain the vacuum in micro film cooker as 'xxx' in Hg.						
After the temperatures (mentioned above) stabilize, divert the slurry from rework to the depositor.							
Do not overload the rework tank.	The level of rework in the rework tank should not be more than 3/4th of the tank.						
Check the seal cooling of feed pump 1 and feed pump 2.	Inform maintenance if it is not working.						
If rework is also being used, maintain the rate of rework being added to the canden mix plant.	Rate should be 'xxx' g/m.						
Remarks:							
Day 1:							
Day 2:							
Day 3:							

Day 4 :

Day 5:

Day 6:

Trainer Signature: Supervisor Signature:

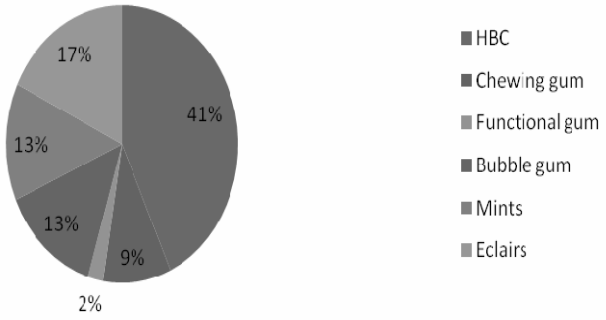
Date: Date:

Guidance:

GO: - Any and every activity will be considered "Go" if both the activity and the related parameters are adhered to as per the schedule.

NO-GO: - Any and every activity will be considered "No-Go" if both the activity and the related parameters are not adhered to as per the schedule.

Appendix 2 : Category wise share of sales for the industry (India, 2011-12)



Source: Internal Company Data

Appendix 3 : Market status of ABCI in the Different Categories of Sugar and Gum Based Confectionary

Categories	HBC	Chewing gum	Functional gum	Bubble gum	Mints	Éclairs
ABCI status	market leader	market leader	------	------	leader in the east	-----

Source: Internal Company Data